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September 16, 2019

Ms. Brinda Westbrook-Sedgwick
Commission Secretary
Public Service Commission of the District of Columbia
1325 G Street, N.W.
Suite 800
Washington, D.C. 20005

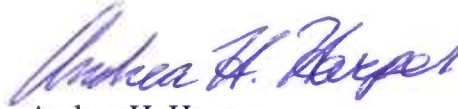
Re: Formal Case No. 1130

Dear Ms. Westbrook-Sedgwick:

Enclosed please find Potomac Electric Power Company's Initial Comments on the Staff proposed Opinion and Order in the PowerPath DC proceeding.

Please contact me if you have any further questions.

Sincerely,

A handwritten signature in blue ink, appearing to read "Andrea H. Harper".

Andrea H. Harper

Enclosure

cc: All Parties of Record

**BEFORE THE
PUBLIC SERVICE COMMISSION
OF THE DISTRICT OF COLUMBIA**

IN THE MATTER OF THE	)	
INVESTIGATION IN MODERNIZING	)	Formal Case No. 1130
THE ENERGY DELIVERY SYSTEM	)	
FOR INCREASED SUSTAINABILITY	)	

**INITIAL COMMENTS OF POTOMAC ELECTRIC POWER COMPANY ON THE
STAFF PROPOSED OPINION AND ORDER IN THE POWERPATH DC
PROCEEDING**

Pursuant to the timeline for comments adopted by the Public Service Commission of the District of Columbia (“Commission”) and published in the Staff Proposed Opinion and Order No. 19984 (“Proposed Order”),¹ Potomac Electric Power Company (“Pepco” or the “Company”) files its initial comments (“Comments”) on the Proposed Order issued in the PowerPath DC, formerly Modernizing the Energy Delivery System for Increased Sustainability, proceeding.

I. INTRODUCTION

Pepco understands the deep responsibility and remarkable opportunity that it has in serving the District of Columbia and facilitating the incredible transformation that is taking place regarding how energy is generated, delivered and consumed within its borders. This transformation is consistent with Pepco’s vision, one shared by all the Exelon Utilities, to pursue reliability, resiliency, accelerated DER integration, and the facilitation of more customer choices and deep decarbonization along a path to enabling the grid to serve as the backbone to delivering a truly Connected Community for all the District’s residents, businesses, institutions and visitors. With Pepco’s system as the platform, a Connected Community in the District would bring enhanced

¹ *In the Matter of the Investigation in Modernizing the Energy Delivery System for Increased Sustainability*, Formal Case No. 1130, Staff Proposed Opinion and Order No. 19984 (Aug. 2, 2019).

resilience through optimally deployed solar and storage, emission-free transportation options, smart streetlights and other advanced public resource apparatuses to all the District's communities and use these resources to create opportunities for local businesses and residents via energy education, workforce training, and civic engagement. In pursuit of this vision, Pepco has already made significant progress modernizing the electric grid in the District of Columbia by increasing automation, deploying new technologies and evolving its practices to allow for more transparency and collaboration. These system investments and process changes have resulted in top-quartile reliability for customers, greater engagement for a wide variety of stakeholders, and opportunities for local businesses, particularly certified business enterprises ("CBE") and minority-owned businesses ("MBE").

Pepco applauds the Commission for its transparent and intensive facilitator-managed PowerPath DC Working Group process that culminated in the Final Working Group Report issued on May 31, 2019 and the issuance of this PowerPath DC Proposed Order. The more than 200 PowerPath DC working group process participants used the over 150 hours of facilitated sessions to learn about and discuss highly complex issues. Though the Final Working Group Report was very detailed and documented the evolution that lead to the 32 recommendations offered, Pepco welcomes this opportunity to articulate its support for the preponderance of the draft decisions set forth in the Proposed Order and to further clarify matters that may not have been fully detailed in the recommendations submitted by the PowerPath DC working groups to the Commission for consideration.

Pepco embraces the vision for the future grid set forth in the Overview of the Proposed Order and believes that moving forward quickly and decisively will be key to achieving this vision.

With quick and decisive Commission action, Pepco anticipates making significant advancements in 2020 and 2021 and building on those advancements in the years to come.

Pepco shares the Proposed Order's determination that a more transparent distribution system planning ("DSP") process incorporating non-wires alternatives ("NWA") ("DSP/NWA process") is among the most substantial outcomes from the PowerPath DC Working Group process. Like the Commission, Pepco continuously strives to find solutions that best balance the needs of a reliable, safe and secure system with the need to maintain affordability for all customers. A DSP/NWA process that is transparent and collaborative while recognizing that the utility ultimately holds responsibility for selecting solutions will afford the best opportunity to advance clean energy goals while maintaining system reliability and controlling consumer costs. Foundational to creating an actionable DSP/NWA process are the following principles:

- The process should be well-defined and allow for structured stakeholder-utility interaction to inform utility decisions regarding when and where on the system NWA should be deployed;
- The process should not be too lengthy or allow for deadlocks that could potentially compromise reliability;
- When NWA solutions are considered to be technologically feasible and cost-effective, the compensation mechanism structure of the NWA should incentivize deployment;
- Appropriate considerations and mechanisms should be in place, commensurate with the performance risk relative to the type of technology deployed in an NWA, so that continued reliability of the grid is ensured.

The proposed DSP/NWA process set forth in the Final Working Group Report was the result of multiple rounds of facilitated working group sessions and direct discussions of these

principles and practical considerations between Pepco and the NWA working group members, including national DER developers who have executed NWAs in other jurisdictions. Informed by these discussions, Pepco has already begun the work needed to allow for the new DSP/NWA process set forth in the Final Working Group Report to be in place in 2020 with resultant NWA contracting opportunities available in 2021. Pepco appreciates the Proposed Order's draft approval of the creation of a secured utility web portal and notes that this web portal would not only enhance third-party access to utility information but also utility access to currently unavailable third-party data that is applicable to load forecasting.

The District is leading the nation in its commitment to addressing both the causes of and challenges presented by climate change. Climate change impacts every District community. All should be afforded access to tools and technologies that allow for active participation in providing solutions to this massive challenge. Intuitive but secure access to information is key to innovation, empowerment and beneficial increased interactivity. Recognizing this, Pepco already extends Green Button Connect My Data ("GBCMD") to all its commercial customers. Across our sister utilities in the Exelon family, there is a plan in place to extend GBCMD to residential customers as well. Pepco supports the Commission's interest in making information more quickly and conveniently available to customers and their trusted partners while balancing the need for affordability.

The facilitated interactions with stakeholders that comprised Phase 2 of the PowerPath DC proceeding offered excellent opportunities for Pepco to gain insights that will materially impact the path taken to meet its commitment to serve all customers with a sustainable, well-planned, secure, safe and reliable, affordable, non-discriminatory and more interactive electric system. These same goals are consistent with Pepco's Connected Community vision and its plan for

evolving Pepco systems and services to provide the platform for achieving this holistic, integrated, interactive and clean future for the District. Pepco is committed to implementation of approved recommendations and has already begun to take actions to allow it to do so immediately upon the Commissions issuance of a final order on PowerPath DC. Pepco is also committed to promptly testing new technologies and processes both as a supportive partner in pilot projects approved in Phase 4 of the PowerPath DC Initiative and via utility demonstrations that can be executed in a shorter timeframe and without PowerPath DC Pilot Fund support.

As the District moves forward with the ambitious clean energy goals set forth by the Mayor, the Council, and this Commission, new technologies and approaches will become integral to the expansion, maintenance, and operation of the grid. A shared understanding of these technologies and processes is essential. To this end, Pepco supports the stakeholder-developed definitions for NWA and Advanced Inverter set forth in the Final Working Group Report and the NOPR processes the proposed directive articulates for their adoption.

Like the Commission, Pepco expects great strides to be made in the District's grid modernization efforts; and, as the grid operator and platform for these advances, Pepco is confident that the vision the Commission has set forth for the next five to ten years can be accomplished well within that time frame. In pursuit of this goal, Pepco makes the following commitments:

- Pepco will adopt a more transparent and collaborative approach to planning and seek opportunities to advance the District's clean energy goals while addressing utility system needs. To this end, Pepco is prepared to launch in 2020 the DSP/NWA process as set forth in the Final Working Group Report and modified herein which would allow for NWA contracting to commence in 2021. Pepco is

also actively seeking to identify opportunities and partners for testing non-wires alternatives in demonstrations.

- Pepco will seek means to accelerate robust DER integration. In pursuit of this commitment, Pepco will update its hosting capacity maps monthly and is studying how the systemic deployment of advanced inverters could increase hosting capacity and reduce interconnection costs.
- Pepco will support District efforts to decarbonize our communities via electrification. To this end, Pepco is moving forward, as directed by the Commission in Order No. 19983, to expand electric vehicle enabling infrastructure and ready to take on more substantial role in owning and operating this infrastructure if the Commission determines this supplemental effort is merited.
- Pepco will work to make more customer choices available by advancing access to actionable usage data and developing new strategies to improve clean energy options and resiliency resources for underserved communities.
- Pepco will work with the Commission and other stakeholders to consider current regulatory constructs and procedures to identify areas for modernization that reflect the changes needed to deliver on the PowerPath DC vision.

Like the Commission, Pepco commits to utilizing the PowerPath DC Vision and Guiding Principles and considering the District's clean energy and resiliency goals and environmental policies to inform its development of solutions and programs while continuing to deliver top-quartile reliability and customer satisfaction. All of the regulatory change and technological advancement associated with achieving this vision benefits the customers of the District of Columbia and advances the District's clean energy, resiliency and environmental goals. In

implementing these proposed directives and as discussed in the working group process, Pepco will incur costs, many of which it cannot determine at this early stage. Pepco is supportive of moving forward in the direction the Commission ultimately directs in its final order and anticipates requesting approval to track these costs in a regulatory asset that would be considered for recovery in a future rate case. In that way, Pepco can move forward implementing the directives on behalf of the District of Columbia customers, some of which will require entirely new processes, systems and resources, and be assured that it has the ability to recover the cost with a reasonable return.

II. SPECIFIC COMMENTS REGARDING THE POWERPATH DC PROPOSED ORDER

Proposed Directives Re: DIAA Working Group

A. Proposed Directive R-5.1.1: Commission to Explore Metric for Evaluating Carbon Footprint Impact of DER Projects

The Proposed Order defers to the Department of Energy and Environment (“DOEE”) as the appropriate agency to lead development of a carbon footprint metric.² Pepco supports the proposed directive and further supports DOEE’s leadership role in developing metrics to evaluate the carbon footprint impact of DER projects. Moreover, Pepco submits the following references that may merit review and consideration in calculating avoided carbon emissions associated with the development of distributed resources: EPA Avert, which can be found at <https://www.epa.gov/statelocalenergy/avoided-emissions-and-generation-tool-avert>; WRI Grid Connected Projects Protocol, which can be found at <http://pdf.wri.org/GHGProtocol-Electricity.pdf>; and, the internationally developed Voluntary Offset Methodologies, which for

² Proposed Order at ¶¶ 8-10.

small projects can be found at <https://cdm.unfccc.int/SSCmethodologies/approved> and for large projects at <https://cdm.unfccc.int/methodologies/PAmethodologies/approved>.

Pepco also includes Exelon's Corporate Sustainability Report (Attachment 1), which may provide the Commission and DOEE insights into how the utility industry is addressing the impact of carbon emissions on its operations.

B. Proposed Directive R-5.1.2: Commission to Develop Benefit Cost Analysis ("BCA") Methodology

The Proposed Order proposes that the Commission continue using established BCA methodologies, such as the one Pepco submitted in FC No. 1086 for its Demand Response Program.³ Pepco supports the proposed directive to continue using established BCA methodologies. Further, Pepco is reviewing the BCA handbooks submitted by utilities in connection to NWAs under the New York Reforming the Energy Vision ("NY REV") program to glean insights that could extend this established approach with tested and approved methodologies.

C. Proposed Directive R-5.1.3: Commission to Align PowerPath DC with Clean Energy DC Act

Under the Proposed Order, proponents of proposals submitted for Commission approval must explain how the proposal comports with and advances the PowerPath DC vision and aligns with Clean Energy DC Act goals.⁴ Pepco supports this proposed directive. However, Pepco notes that as illustrated by the "scoring sheet" provided in Appendix A.8 to the Final Working Group Report, there are often tradeoffs between the PowerPath DC Guiding Principles. For instance, a PowerPath DC recommendation that increases access to utility data scored strongly on the

³ Proposed Order at ¶¶ 11-13.

⁴ *Id.* at ¶¶ 14-16.

“interactive” Guiding Principle but poorly on the “secure” Guiding Principle. These tradeoffs are inherent to many PowerPath DC recommendations and will be evident in many proposals that come before the Commission and should be considered on a case-by-case basis. Pepco commends the Commission for recognizing that “it may not be appropriate to weigh each of the seven principles equally in every case.”⁵

D. Proposed Directive R-5.1.4: Commission to Continue to Improve Small Generator Interconnection Process

Under the Proposed Order, Commission Staff will lead educational workshops in Formal Case No. 1050 to inform stakeholders and solicit input on IEEE and other applicable industry advancements.⁶ Pepco supports this proposal. Furthermore, Pepco will provide information and updates regarding the deployment of advanced inverters on its system and its impact on hosting capacity and the cost of interconnection.

E. Proposed Directive R-5.1.5: Commission to Revise Language in PowerPath DC Vision Statement

The Proposed Order would adopt the recommendation, with minor modifications, to revise the language in the PowerPath DC Vision Statement.⁷ Pepco supports this proposed directive.

F. Proposed Directive R-5.1.6: Commission to Develop Publicly Available System-Level Data Webpage

The Proposed Order states that Pepco already maintains a web portal with publicly available system-level data.⁸ The Commission will provide a link from its own website to

⁵ Proposed Order at ¶ 34.

⁶ *Id.* at ¶¶ 17-19.

⁷ *Id.* at ¶¶ 20-22.

⁸ *Id.* at ¶ 25.

Pepco's.⁹ Under the Proposed Order, Pepco must update its website, including data requested from the Annual Consolidated Report and file a report regarding the data that has been added and will be added and the timeframe in which the data will be added.¹⁰ Pepco also must justify any deviations from the Working Group's recommendations.¹¹ Washington Gas must create a similar web portal.¹² Pepco supports the proposed directive and commits to working with Commission Staff to implement the final directive.

G. Proposed Directive R-5.1.7: Commission to Direct Pepco to Update Hosting Capacity Maps on a Monthly Basis

The Proposed Order proposes to approve the recommendation that Pepco should update its hosting capacity maps on a monthly basis.¹³ Pepco supports this proposed directive to update its solar hosting capacity maps monthly and notes that it already implemented this procedure.

H. Proposed Directives R-5.1.8 and L-5.1.10: Commission to Direct Pepco to Create a Secure Web Portal for RFP Responses and Programmatic Data Requests

The Proposed Order would direct Pepco to develop and report on the status of implementing a secure web portal, that the development and implementation corresponds with the DSP/NWA process (5.2.3).¹⁴ Moreover, Pepco (in the ACR) and WGL would annually report on: the number of requests for secure data; how many were granted, denied, or withdrawn; the average response time; a list of identifying organizations; and the costs incurred and paid.¹⁵

⁹ Proposed Order at ¶ 25.

¹⁰ *Id.*

¹¹ *Id.*

¹² *Id.* at ¶ 26.

¹³ *Id.* at ¶¶ 27-28.

¹⁴ *Id.* at ¶¶ 29-31.

¹⁵ *Id.* at ¶ 31.

Pepco supports the proposed directive that it implement a secure web portal for RFP responses and programmatic data requests. Pepco notes that access to the secure web portal by third parties will require execution of an NDA as well as completion of a background check in order to ensure system security. Additionally, Pepco notes that the web portal could be used to receive information from third parties that is applicable to load forecasting and is not currently made available to Pepco on a routine basis.

I. Proposed Directive R-5.1.9: Apply PowerPath DC Guiding Principle Metrics for General Commission Decision-Making

The Proposed Order proposes to apply the PowerPath DC Guiding Principle Metrics for Commission decision-making with the clarification it will use its discretion to weigh the principles.¹⁶ The Proposed Order expects proponents of proposals submitted for Commission approval to explain how the proposal comports with and advances the PowerPath DC vision.¹⁷ It also proposes use of the Pilot Project screening and scoring templates.¹⁸

Pepco supports the proposed directive to apply the PowerPath DC Guiding Principles to Commission decision-making. Similar to its response to Proposed Directive R-5.1.3, Pepco notes that as illustrated by the “scoring sheet” provided in Appendix A.8 to the Final Working Group Report, there are often tradeoffs between the PowerPath DC Guiding Principles. For instance, a PowerPath DC recommendation that increases access to utility data scored strongly on the “interactive” Guiding Principle but poorly on the “secure” Guiding Principle. Again, Pepco appreciates that the Commission will use its discretion in weighing the principles. Pepco further notes that the Commission routinely applies specific decision-making criteria to particular matters

¹⁶ Proposed Order at ¶¶ 32-35.

¹⁷ *Id.* at ¶ 34.

¹⁸ *Id.* at ¶ 35.

before it and that the application of PowerPath DC Guiding Principles should not interfere with continuing these tested and proven practices or the exercise of Commission discretion.

Proposed Directives Re: NWA Working Group

J. Proposed Directive R-5.2.1: Commission to Establish an NWA Definition

The Proposed Order proposes to include the draft definition of NWA in a Notice of Proposed Rulemaking (“NOPR”).¹⁹ Pepco supports the proposed directive to establish a definition of NWAs through a NOPR process. Pepco notes that, as the District moves forward to meet ambitious clean energy goals, new technologies and approaches will become integral to the affordable expansion, maintenance and operation of a reliable and resilient electric grid. A shared understanding of these technologies and how to best implement them consistent with the District’s public policy goals is essential.

K. Proposed Directive R-5.2.2: Commission to Establish NWA Classifications

The Proposed Order states that there was not sufficient information to make a determination on the usefulness of the classifications proposed in the recommendations and notes Pepco may find the classifications useful as guidance.²⁰ Pepco supports the proposed directive to take no action on classifying NWAs at this time, noting that the rapid development of new technologies and programs that could be applied to address grid challenges may make the establishment of a classification scheme premature. Pepco will use the discussion of NWA classifications from the PowerPath DC Working Groups as a guide to its consideration of NWA solutions.

¹⁹ Proposed Order at ¶¶ 38-40.

²⁰ *Id.* at ¶¶ 41-42.

L. Proposed Directive R-5.2.3: Commission Should Order Stakeholder-Informed DSP/NWA Process

The Proposed Order proposes to modify the recommended DSP/NWA process by requiring that Pepco hold an informational conference between receiving responses to the Load Impact Factors (“LIF”) Request for Information (“RFI”) and the issuance of the Locational Constraint Report (“LCR”) to allow for comments and questions.²¹ The Proposed Order also proposes directing that the LCR and the parameters for NWA solutions included in the LCR would be submitted for review by the Commission “at least for the first project under the new DSP program.”²²

Pepco supports the proposed directive to modify the original proposal to include Pepco holding an informational conference between the LIF RFI and LCR issuance. Pepco believes this informational conference will further advance the utility’s commitment to be collaborative and transparent without disrupting the very ambitious timeline envisioned for a DSP/NWA process that could launch in early 2020 and result in opportunities for NWA execution by the end of 2022 at the latest, assuming a final order is issued by the end of 2019. In addition, Pepco will provide to the Commission a draft LCR for a one-month consultative review. Pepco has added these two steps while maintaining the tightly constructed timeframe necessary for the DSP/NWA process to ensure that the solutions chosen remain relevant through execution.

The proposed DSP/NWA process set forth in the Final Working Group Report was the result of multiple rounds of facilitated working group sessions as well as direct discussions between Pepco and many of the NWA Working Group members, including national DER

²¹ Proposed Order at ¶¶ 43-49.

²² *Id.* at ¶ 47.

developers who have executed NWAs in other jurisdictions. The record of discussions from the NWA Working Group is voluminous and could not be reflected in full in the Final Working Group Report. To complete the record, Pepco offers the following clarifications regarding the DSP/NWA process as proposed in the Final Working Group Report.

60-Month In-Service Dates for Traditional Solution

In the NWA Working Group, Pepco made clear that it would need to look at capacity projects that have an in-service date for the traditional solution of 60-months or more when initially implementing the DSP/NWA process.²³ This initial 60-month traditional solution in-service criteria for capacity constraint selection is necessary to allow for the learnings that will have to occur in implementing this process, which is brand new to Pepco, to DER providers and to the District of Columbia. Setting the initial execution round of the proposed DSP/NWA process to capacity projects with traditional solution in-service dates at least 60 months out allows adequate time for completing the complex contracting for solutions and testing the NWA solutions after implementation while still allowing for execution of a traditional solution if no NWA contract is possible or if the NWA solution does not perform as needed, so to ensure a sustained level of reliability. As Pepco and RFP respondents gain more experience with the new process, Pepco is confident this in-service date criteria can be eased to allow nearer-term capacity constraints to be subject to DSP/NWA process.

Pepco's use of a 60-month traditional solution in-service date criteria is supported by a whitepaper published by Smart Energy Power Alliance regarding leading U.S. NWA projects, which highlights 10 projects of various scales.²⁴ The SEPA whitepaper shows the timeline for

²³ Final Working Group Report at 360; *see generally*, Final Working Group Report at 358-361.

²⁴ *Non-Wires Alternatives—Case Studies from Leading U.S. Projects*, Smart Electric Power Alliance, published November 2018 (“SEPA Whitepaper”).

each of the 10 projects from ideation through implementation.²⁵ For the Brooklyn-Queens Demand Management (“BQDM”) Project, the large-scale deferral timeline from ideation through implementation was six years.²⁶ This timeline was further supported in a recent presentation by Navigant to the participants in the NWA working group in the PowerPath DC proceeding.²⁷ The presenter stated that if a utility needed to implement an unproven non-wires solution in lieu of a traditional major grid investment, the timeline would likely be five to six years.²⁸

The BQDM Project consists of a suite of traditional wires investment, utility non-wires investment, and customer-side demand resources originally designed to address the need for distribution investment by Consolidated Edison Company (“ConEd”) to address a projected substation overload of 69 MW.²⁹ The program was initiated through a petition filed by ConEd on July 15, 2014 and was subsequently approved by the New York Public Service Commission (“NY PSC”) on December 12, 2014.³⁰ In accordance with the NY PSC’s approval, the BQDM Project uses non-wires resources that include a distributed energy storage system and voltage optimization, while the customer-side demand resources encompass energy efficiency, DER (including CHP), and battery storage.

ConEd’s experience provides a cautionary tale with respect to both the need for sufficient time to plan, procure and integrate non-wires resources and the reality that these resources may not be available when anticipated due to a variety of unforeseen factors. For example, after more

²⁵ SEPA Whitepaper at 17.

²⁶ *Id.*

²⁷ *Modernizing the Energy Delivery System for Increased Sustainability*, Formal Case No. 1130 (“PowerPath DC”).

²⁸ NWA Working Group Tr. 42:25 (The presenter from Navigant stated “If you need to get that [NWA solution] proved before you are willing to say the solution works then you kind of have to back up the timing, to say boy we need to know not just 2-4 years ahead of time we need to know 5-6 years ahead of time.”).

²⁹ See DC SUN Comments, Attachment A at 7-8.

³⁰ *Id.*; see generally Case 14-E-0302, *Petition of Consol. Edison Co. of N.Y., Inc. for Approval of Brooklyn Queens Demand Mgmt. Program*, Order Establishing Brooklyn/Queens Demand Management Program (issued Dec. 12, 2014).

than four and one-half years after implementation, ConEd still has not achieved its goal for customer-side resources despite its expectation that it would have done so in 2018.³¹ ConEd's challenges have included an auction in which ConEd believed it had procured 22.69 MW of customer-side load reduction only to find that 19.08 MW (84 percent) was deficient due to the fact that "most auction bidders did not have agreements with customers at the time of the auction, and many were intending to fill their portfolios with new advanced technologies, such as batteries."³² Because the auction "ultimately resulted in fewer resources with lower performance, even when compensated at a higher price," ConEd believes that DR auctions may require "mature resources in a liquid market"³³—which does not describe the environment for NWAs in either New York or the District of Columbia at this time.

Similarly, ConEd's BQDM experience with utility-owned storage shows that battery technologies can also require significant lead times for actual procurement. ConEd signed a contract in 2015 for a distributed energy storage system with 12 MW of stored energy and a capability of delivering up to 2 MW for six hours.³⁴ Construction did not begin until January 2018, and ConEd's status report for the second quarter of 2019 states that ConEd and its contractors have achieved substantial completion but completed only 80% of the necessary work.³⁵ Due to the

³¹ Compare BQDM Order at 4 (discussing goal of 41 MW of customer-side solutions) and ConEd BQDM 2018 Implementation Report, Case 14-E-0302, at 6 (filed January 29, 2018) ("The Company plans to achieve, at minimum, 41 MW of load reductions through [customer-side solutions] as part of the BQDM Program. . . . and projects that it will achieve above 42 MW cumulative over the next year") with ConEd BQDM 2019 Q2 Quarterly Expenditures & Program Report (filed August 28, 2019) ("BQDM 2019 Q3 Report"), at 5 (explaining that ConEd has obtained 37.3 MW of customer-side solutions for the 9-10pm peak hour).

³² ConEd Report on the Efficacy of the BQDM DR Program and Auction Mechanism (filed December 17, 2018), at 17.

³³ *Id.* at 20 (noting that there may be "different circumstances, such as procuring mature resources in a liquid market," where auctions may be appropriate).

³⁴ BQDM 2019 Q3 Report at 29.

³⁵ *Id.*

degradation of the system during the construction period, ConEd expects that the system will now only be able to deliver the 2 MW of energy for a period five hours.³⁶

The BQDM Project underscores the significant time required for ideation, planning, procurement and deployment of non-wires solutions. As noted above, Pepco expects that a 60-month in-service date criteria can be reduced as the District's experience with NWA solutions increases and the available technologies continue to mature.

Under the Proposed DSP/NWA Process, the First NWA Solution Will Be on the System by the End of 2022 or Earlier

If Pepco receives a final PowerPath DC order by the close of 2019, Pepco is prepared to implement the DSP/NWA process on April 1, 2020, resulting in NWA RFPs released in 2021 for contracting and execution by the end of 2022. The proposed DSP/NWA process is an annual process and could identify multiple constraints available for NWA solutions each annual cycle. A single constraint could be subject to multiple NWA solution solicitations in a single cycle or over a number of cycles.

³⁶ BQDM 2019 Q3 Report at 29.

Prolonged Process Can Make RFP Responses Obsolete

The proposed DSP/NWA process has been carefully constructed to reflect a timeline that fits within the requirements of the planning process. Load constraints identified on the system change over time. Thus, if the DSP/NWA process takes too long from inception through execution, the load constraint for which the NWA is being offered as a solution or deferral may have changed, and the NWA may no longer solve the problem. This has been the experience of utilities in California where a significant share of distribution system NWA opportunities have had to be redrafted and or completely withdrawn.³⁷ In a potential NWA market the size of the District, without certainty regarding timelines and prompt selection amongst NWA RFP responses, the pool of competitive solution providers is likely to be very limited.

The DSP/NWA Process Must Allow for Traditional Solution as Contingencies

Pepco is committed to using the proposed DSP/NWA process to explore all possible solutions to identified capacity constraints to ensure that the optimal solution is selected to maintain reliability and affordability while working to deliver on the District's clean energy goals. To this end, while the DSP/NWA process is underway, Pepco will continue the engineering design and other preparations that may be needed to execute the traditional solution by the in-service date if NWA solutions are not found to be adequate to maintain reliability or to be cost effective.

³⁷ For example, Southern California Edison ("SCE") requested and received approval to issue a competitive solicitation to procure DER solutions to defer four candidate deferral projects identified as part of the 2018 Distribution Investment Deferral Framework process. SCE subsequently requested and received approval to withdraw two of the candidate deferral projects (Nogales and Newhall) as no longer needed, decrease the scope of another (Mira Loma) and increase the scope of a fourth (Sun City).

The DSP/NWA Process Will Further Pepco's Commitment to CBE and MBE Businesses

Pepco is committed to hiring CBEs and MBEs in the District of Columbia. Pepco has demonstrated this commitment on District projects and through investments in local training programs, such as the DC Infrastructure Academy. The DSP/NWA process provides more opportunities for District CBE and MBE businesses to participate in solutions for District capacity constraints. Moreover, Pepco looks forward to introducing potential District CBE and MBE NWA providers and National providers so that they can learn from each other and help Pepco successfully deploy NWAs in the District of Columbia. To this end, the proposed process would be preceded by a workshop that would be specifically designed to allow District businesses to better understand and prepare for participation in the NWA RFP process and to engage with experienced National providers for possible joint participation.

Pepco Will Rely on Existing BCA Methodologies

As the proposed directive regarding a BCA methodology study wisely suggests, the decisions Pepco makes regarding which solution(s) to apply to a locational constraint will be based on the District's established BCA methodologies, such as the methodology Pepco submitted in Formal Case No. 1086 in support of its Demand Response program. Further, Pepco is reviewing the BCA handbooks submitted by utilities in connection to NWAs under the NY REV program to glean insights that could allow for extending this established District approach with tested and approved methodologies.

The Public Load Impacting Factors Meeting Should Be Limited to Discussing the Impact of the Information Received in Response to the LIF RFI on the Load Forecast for the Purposes of Identifying Locational Constraints

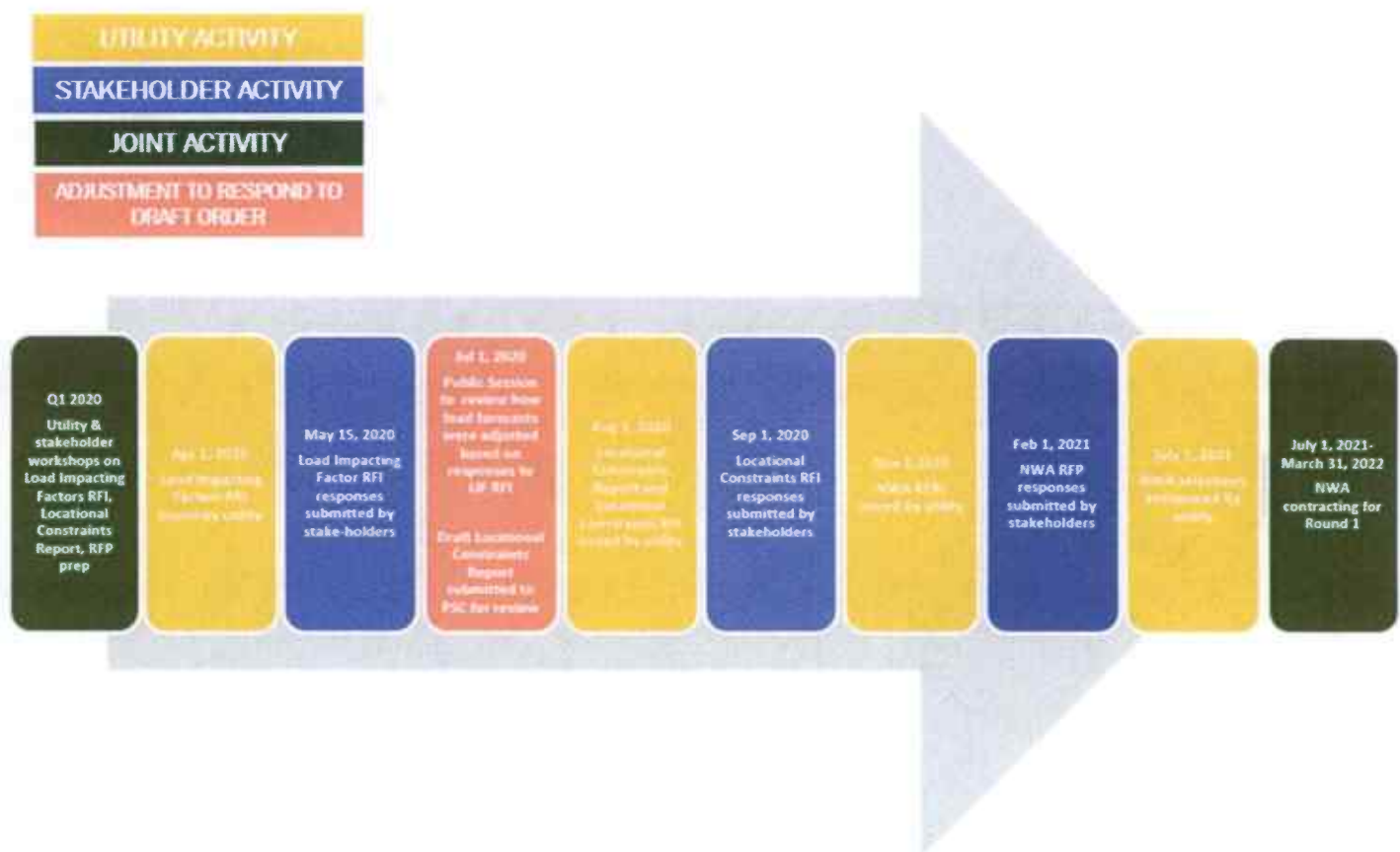
The topic of the load forecasting methodology is currently being considered in Formal Case No. 1144 and has been considered in previous Pepco rate cases.³⁸ The load forecasting methodology should not be the subject of the DSP/NWA process. Rather, the discussion in the public meeting that is part of the updated DSP/NWA process should focus on the information received via the LIF RFI and how Pepco uses the information to adjust load forecasts and identify constraints that present opportunities for NWA solutions. It should be further considered that adopting the methodologies suggested by critics of Pepco's current load forecasts would decrease, not increase, the number of constraints identified for NWA solution.

The DSP/NWA Process Schedule Must be Maintained to Ensure that Actionable NWA Opportunities are Advanced

Pepco will seek to resolve all issues raised during this public informational session and in direct consultations with the Commission. However, recognizing that some issues may require a lengthier discussion to resolve, and yet being committed to ensuring that the DSP/NWA process is able to create actionable opportunities for NWA solutions, Pepco will issue a Locational Constraint Report with all uncontested constraints as scheduled.

With these clarifications in mind, Pepco respectfully offers the revised DSP/NWA process proposal set forth below for Commission consideration.

³⁸ For example, Formal Case No. 1139.



M. Proposed Directive R-5.2.4: Commission to Establish Advanced Inverter Definition

The Proposed Order proposes to include the draft definition of advanced inverter in a NOPR.³⁹ Pepco supports the proposed recommendation to consider a definition for advanced inverters through a NOPR process. Pepco notes that, as the District moves forward to meet ambitious clean energy goals, new technologies and approaches will become integral to the expansion, maintenance and operation of the grid. A shared understanding of these technologies is essential. Further, Pepco will provide information and updates regarding deploying advanced inverters on its system and their impact on hosting capacity and the cost of interconnection.

³⁹ Proposed Order at ¶¶ 50-51.

N. Proposed Directive L-5.2.6: Need for Demonstrating NWA projects in the District

The Proposed Order proposes to include an NWA pilot project in the non-exhaustive list of Pilot Project concepts.⁴⁰ Pepco supports the proposed decision to include NWA pilot projects in the non-exhaustive list of PowerPath DC Pilot Project concepts for funding. Pepco is excited to work with PowerPath DC Pilot Project funding recipients to implement NWA concepts. Further, Pepco intends to work with District of Columbia stakeholders to develop NWA demonstration projects outside the PowerPath DC Pilot Project funding system. Pepco believes these demonstration projects could result in NWAs being tested on its system as early as 2021-2022 and is actively seeking opportunities to test a variety of DER ownership and revenue and recovery models.

O. Proposed Directive R-5.2.7: Commission to Establish Stakeholder Working Group on IEEE 1547-2018 Standards and Advanced Inverter Deployment

The Proposed Order finds the working group to be unnecessary, citing the need for technical expertise and the Commission's mandate for compliance with IEEE 1547-2018.⁴¹ The Proposed Order instead proposes to direct a series of educational workshops to be conducted in Formal Case No. 1050 to inform stakeholders.⁴²

Pepco supports the proposed decision to hold educational workshops for the Formal Case No. 1050 stakeholders regarding the implementation of IEEE 1547-2018. Further, Pepco will

⁴⁰ Proposed Order at ¶ 55.

⁴¹ *Id.* at ¶¶ 56-59.

⁴² *Id.* at ¶ 59.

provide information and updates regarding deploying advanced inverters on its system and their impact on hosting capacity and the cost of interconnection.

Proposed Directives Re: Future Rate Design Working Group

P. Proposed Directive 5.3.1: Commission to Reconvene a Working Group to Develop a Specific Residential Dynamic Pricing Program

The Proposed Order agrees that a Dynamic Pricing Working Group should be reconvened in the fourth quarter of 2019 and work for a period not to exceed 12 months.⁴³ The Proposed Order recommends that the Commission direct Pepco to provide a strawman residential Dynamic Pricing proposal with an explanation of benefits, costs, and PJM market revenue concerns and also to identify how the proposal compares to other Exelon Dynamic Pricing programs.⁴⁴ The Commission will issue a Public Notice reconvening a Dynamic Pricing Working Group.⁴⁵

Pepco strongly supports the proposed directive to reconvene the Dynamic Pricing Working Group. Pepco believes that a residential Dynamic Pricing program will be an important tool in meeting the District's long-term clean energy goals by reducing peak energy usage. Pepco commits to submitting a strawman proposal for consideration by the Dynamic Pricing Working Group when it is convened. Further, Pepco believes it can have a Dynamic Pricing program in place for the 2021 cooling season if the working group can complete its work in time for the Commission to approve a Dynamic Pricing program by the fourth quarter of 2020.

⁴³ Proposed Order at ¶¶ 62-63.

⁴⁴ *Id.* at ¶ 63.

⁴⁵ *Id.*

Proposed Directives Re: Customer Impact Working Group

Q. Proposed Directive R-5.4.1: Commission to Enhance and Consolidate Customer Education Materials

The Proposed Order proposes to direct the Commission's Office of Consumer Services ("OCS") to review currently available information and submit an action plan after consulting with the Utility Discount Program Education Working Group.⁴⁶ The Proposed Order proposes that the approved updates to the Commission's website should be completed within 120 days of the final order.⁴⁷ The Proposed Order further proposes to direct stakeholders to be responsible for keeping their own websites up to date.⁴⁸ Pepco supports the proposal to direct OCS to enhance and consolidate the Commission's consumer education materials.

R. Proposed Directive R-5.4.2: Commission to Consolidate and Enhance Competitive Energy Supplier Information for District Customers

The Proposed Order proposes to direct OCS and Office of Technical and Regulatory Analysis to develop an interactive micro-website to house up-to-date competitive energy supplier offers as well as energy education materials and to design a marketing campaign to increase customer awareness, all for review and approval of the Commission.⁴⁹ Pepco supports this proposal.

S. Proposed Directive R-5.4.3: Commission to Work with Pepco to Enhance Customer Data Access and Protection

The Proposed Order recommends that the Commission direct Pepco to report on implementation of Green Button Connect My Data and related customer matters, including

⁴⁶ Proposed Order at ¶ 68-69.

⁴⁷ *Id.* at ¶ 69.

⁴⁸ *Id.*

⁴⁹ *Id.* at ¶¶ 70-73.

Pepco’s data aggregation sharing practices, data anonymization feasibility, and the feasibility of including greenhouse gas (“GHG”) emission data through the GBCMD platform.⁵⁰ Noting it is Pepco’s responsibility, the Proposed Order declines to adopt the recommendation that the Commission audit third-parties’ systems and processes to ensure compliance with Pepco’s cybersecurity standards.⁵¹ The Proposed Order proposes to direct Pepco to implement the entire GBCMD program for residential customers and to report on its progress.⁵²

Pepco supports the proposal to direct Pepco to report on implementation of GBCMD and related customer matters, including Pepco’s data aggregation sharing practices, data anonymization feasibility, and the feasibility of including GHG emission data through the GBCMD platform. Pepco notes that the timeline proposed by the Commission aligns with Exelon’s enterprise-wide plan to implement a fully certified GBCMD, which will minimize costs to District customers and provide third-party data aggregators with a standardized product. Should Pepco be required to implement GBCMD in advance of the enterprise-wide implementation, all of the costs of implementing GBCMD would be borne by District customers instead of being allocated among all the Exelon Utilities.

T. Proposed Directive R-5.4.4: Commission to Direct Pepco to Develop Energy Efficiency Programs for Master-Metered Buildings

The Proposed Order proposes to approve Pepco submitting for Commission consideration energy efficiency programs that do not duplicate DCSEU energy efficiency programs.⁵³ The Proposed Order further proposes to direct Commission Staff to issue an NOI on residential

⁵⁰ Proposed Order at ¶¶ 74-76.

⁵¹ *Id.* at ¶¶ 76.

⁵² *Id.*

⁵³ *Id.* at ¶¶ 77-79.

submetering.⁵⁴ Anticipating the improved coordination and customer access gains to be made as a result of the soon-to-be launched energy efficiency working group called for in the Clean Energy Act, Pepco supports these proposed directives and looks forward to working with the DCSEU on energy efficiency issues, especially as they relate to master metered apartments.

U. Proposed Directive R-5.4.5: Commission to Enhance Customer Participation in Low-Income Assistance Programs

The Proposed Order proposes to approve the recommendation to enhance the visibility of low-income assistance programs and the creation of a consolidated offerings list on the Commission website, directing OCS to implement that recommendation in conjunction with Proposed Directive 5.4.1.⁵⁵ The Proposed Order also proposes to direct OCS to consider the goals outlined by the working group and to submit an action plan.⁵⁶

Pepco supports the proposal to enhance the visibility of low-income assistance programs and to create a consolidated offerings list on the Commission website. Pepco notes that OCS may want to review the PowerPath DC Customer Impact Working Group record, where innovative utility programs were presented by the Edison Electric Institute, such as:

- Massachusetts: Eversource Electric Vehicle Program: EV program will be targeted toward disadvantaged communities
- Rhode Island: National Grid Modernization Plan: National Grid settlement in August 2018 authorized \$13.6 million over three years in grid modernization, including investment in EV infrastructure and storage. Both technologies will be targeted, in part, at low-income customers, including 25% off for income-eligible customers.

⁵⁴ Proposed Order at ¶¶ 79.

⁵⁵ *Id.* at ¶¶ 80-83.

⁵⁶ *Id.* at ¶ 83.

- New York: the NYPSC allowed New York utilities to own generation (including storage) as a way to ensure low- and middle-income customers had equal access to the benefits of grid modernization. This determination allowed the approval of ConEd’s low-income solar program.
- Massachusetts: the state legislature approved an energy bill in 2016 allowing utility ownership of storage as a way to serve low-income customers and achieve state environmental goals.

V. Proposed Directive R-5.4.6: Commission to Revise the Customer Bill of Rights (“CBOR”) to Support the PowerPath DC Pilot Projects Phase

The Proposed Order proposes to direct Commission Staff to reconvene the CBOR working group to discuss: 1) revisions to the CBOR to align them with the PowerPath DC Vision; 2) interim CBOR rules that will be applicable to the PowerPath DC Pilot Programs; and 3) appropriate outreach methods to inform customers of changes to CBOR.⁵⁷ The working group also would be directed to submit its recommendations to the Pilot Projects Governance Board for review and input within 120 days of its first meeting and submit final recommendations to the Commission, including a proposed NOPR, within 180 days of its first meeting.⁵⁸ Pepco supports this recommendation.

W. Proposed Directive L-5.4.7: Opportunity for Resilience Hubs in the District

The Proposed Order proposes to defer the development of resiliency hubs to DOEE and offers any assistance the Commission can provide to DOEE.⁵⁹ Pepco supports the proposed

⁵⁷ Proposed Order at ¶¶ 84-85.

⁵⁸ *Id.* at ¶¶ 85.

⁵⁹ *Id.* ¶¶ 86-88.

recommendation. Pepco believes that resiliency hubs could be part of an eventual connected community that would bring solar, storage, emission-free transportation options, smart streetlights and other advanced public resource apparatuses to underserved communities and use these resources to create a platform for energy education, workforce training, and civic engagement.

Earlier this year, Pepco partnered with Jubilee Housing, New Partners Community Solar Corporation, and DOEE to launch the District's first affordable housing resiliency center. The Jubilee Resiliency Center consists of a 70.2 kilowatt (kw) rooftop solar array combined with battery storage to power an on-site Resiliency Center capable of powering a community space for three days during power outages – providing refrigeration for medication and perishables, lighting, outlets for charging cell phones and other communication devices, and a television. The Jubilee Resiliency Center is an innovative program that, for the first time in the District of Columbia, channels the benefits of solar power and storage batteries to provide refuge to affordable housing residents during power outages. Pepco looks forward to continuing to partner with community-based organizations, solar and storage developers, DOEE, and others to advance this vision.

X. Proposed Directive R-5.4.8: Commission to Ensure Connection Between Customers' Energy Usage and their Environmental Impact

Under the Proposed Order, Pepco and WGL would submit proposals regarding the feasibility of including a carbon footprint metric on customers' usage reports, including an explanation of the methodology they would use, within 30 days of the final order and committed to issuing a decision within 30 days of the filings.

Pepco supports the proposed directive that Pepco and WGL should submit proposals regarding the feasibility of including a carbon footprint metric on customers' usage reports. National experience with usage reports, in general, indicates that they can have the potential to

drive system-wide savings of up to 1 percent. Pepco offers such usage reports in other jurisdictions and welcomes the opportunity to do so in the District. However, Pepco notes that the addition of a carbon footprint metric to a usage report will only be possible for the utility's SOS customers. Pepco looks forward to developing other tools to enable customers to achieve a more holistic view of their total lifestyle carbon footprint, which accounts for the impacts of the many choices they may make far beyond their home electric and gas usage.

Proposed Directives Re: Microgrids Working Group

Y. Microgrids

The Proposed Order finds that it has jurisdiction to regulate microgrids if it determines they are acting within the definition of a “public utility.”⁶⁰ The Proposed Order further proposes to convene a proceeding to address the microgrid recommendations and its overall authority.⁶¹ Pepco supports the proposed finding that it has jurisdiction to regulate microgrids that are acting within the definition of “public utility.”

Proposed Directives Re: Pilot Projects Working Group

Z. Pilot Projects

The Proposed Order proposes a number of directives originating from the Pilot Projects Working Group. The Proposed Order proposes to implement pilot exclusion criteria to pilot project selection process (Proposed Directive R-5.6.1).⁶² It further proposes a two-step screening process for the Pilot Project selection process (Proposed Directive R-5.6.2).⁶³ The Proposed Order

⁶⁰ Proposed Order at ¶ 96.

⁶¹ *Id.* at ¶ 96.

⁶² *Id.* at ¶¶ 98-102.

⁶³ *Id.* at ¶¶ 103-106.

proposes to adopt grant funding qualification parameters for Pilot Projects (Proposed Directive R-5.6.3).⁶⁴ The Proposed Order proposes to implement a Pilot Projects governance model (Proposed Directive R-5.6.4).⁶⁵ Pepco supports all of the proposed recommendations establishing and implementing a process for funding Pilot Projects using PowerPath DC funds.

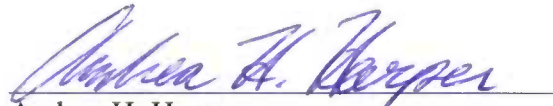
III. CONCLUSION

Pepco appreciates this opportunity to submit these Comments on the PowerPath DC Proposed Decision and looks forward to continuing to work with the Commission and other stakeholders to achieve the goals of the PowerPath DC proceeding.

Respectfully submitted,

POTOMAC ELECTRIC POWER COMPANY

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September 16, 2019

⁶⁴ Proposed Order at ¶ 107.

⁶⁵ *Id.* at ¶¶ 108-110.

ATTACHMENT 1



Exelon Corporation
Sustainability Report
2018



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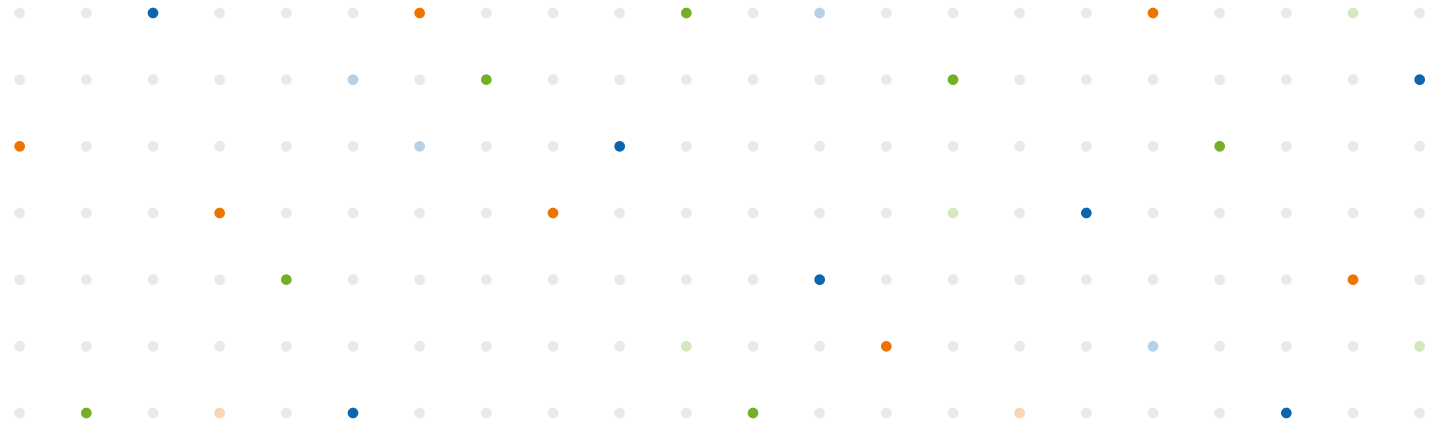
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A Message from Our CEO

At Exelon, sustainability is about creating long-term value for our customers and communities. We relentlessly focus on ways to provide clean, affordable and reliable energy and energy solutions. The 2018 corporate sustainability report is one way we share our recent progress on sustainability issues with our stakeholders. We stay in close contact with our customers, communities, non-governmental organizations, policy makers and investors. This ensures our business model, plans and customer strategies remain effective and continue to play an integral role in creating and delivering the energy system of the future.

Exelon continued to deliver industry-leading operational and smart investment performance throughout 2018. We invested heavily in our utilities to create more reliable and efficient energy systems for our 10 million electric and natural gas customers. Our investments work to empower customers and communities to use the grid in new ways to meet their energy needs. Exelon's generation business remains the largest zero-carbon generation fleet in the United States, producing almost two times more zero-carbon generation last year than our next largest competitor. From generation to transmission to distribution, our sustainability strategy focuses on creating systems and policies that enable integrated clean energy solutions and connections for our customers.

“Exelon has spent a great deal of time engaging with our customers and communities in recent years on the role of the utility in enabling the energy system of the future. Informed by this engagement, Exelon’s utilities have developed a Connected Communities strategy and maturity model focused on how our business will evolve over the next decade.”

Through our utility capital investment plans, we are improving the customer experience by creating a more reliable and resilient smart grid. In 2018, we invested \$5.3 billion in our utilities to improve our electric distribution and transmission systems, as well as in the gas distribution business. We plan to invest an additional \$23 billion in these areas from 2019 to 2022. Through the end of 2018, we installed over 10 million smart electric and gas meters at the Exelon utilities. Smart meters provide hourly energy usage information to customers so they can monitor and understand their energy usage through data analytics and bill management tools made available through Exelon’s utilities. Our investments also enable two-way power flows necessary to integrate distributed energy resources into the grid, such as private solar photovoltaics at homes and businesses. In 2018, almost 104,000 customers with 1,232 MW of distributed energy resources were participating in Exelon utility net metering programs.

Our utilities had a very strong year in 2018. All four of our utilities ended 2018 in the top quartile in outage frequency performance. Each achieved top quartile performance for outage duration, with the exception of PECO, which missed top quartile by one minute. This level of reliability demonstrates that the investments we are making in our system are yielding positive results for our customers. Customer satisfaction was also in the top quartile, with the exception of PHI. We also achieved best on record results for call center satisfaction at all but one utility and first quartile results on more than half of our customer operating metrics.

At the Generation Company, we remain focused on operational excellence and continuing to improve our cost competitiveness. Exelon’s zero-carbon nuclear fleet has achieved a capacity factor of greater than 94 percent every year since 2016. In 2018, the fleet set a new record for generation output with a capacity factor of 95 percent and strong refueling outage execution averaging 21 days per refueling — a new company record and nearly 13 days better than the industry average. In addition to helping plant economics, Exelon’s high nuclear capacity factor helped the nation avoid 87.5 million metric tons of greenhouse gas (GHG) emissions in 2018. Exelon Power’s gas and hydro dispatch match as well as wind and solar energy capture were better than goal.

At Constellation, we created opportunities that enable customers to meet their sustainability goals through products such as energy efficiency services and flexible contracts to support customer renewable energy goals. One example is our investment in 378 MW of commercial solar in 12 states and the District of Columbia at 525 commercial, industrial and governmental customer locations.

Exelon has spent a great deal of time engaging with our customers and communities in recent years on the role of the utility in enabling the energy system of the future. Informed by this engagement, Exelon’s utilities have developed a **Connected Communities** strategy and maturity model focused on how our business will evolve over the next decade. Under our model,

Exelon's utilities are modernizing for reliability with a focus on enhanced grid security and resilience. They focus on enabling customer choice and greater adoption of distributed energy resources. Our utilities will work to decarbonize the energy supply and promote electrification of the economy to drive greater efficiencies and lower carbon emissions. In achieving this, our utilities will create connected communities where relationships and transactions are facilitated not only with the utility, but also within communities themselves. Our Connected Communities vision requires that we evolve our current business models while working with stakeholders to update utility regulatory frameworks. Our utilities are actively engaged in state public service commission considerations around grid modernization and the role of the utility.

We continue to take steps to reduce our GHG emissions through a new corporate GHG emission reduction goal aimed at reducing internal GHG emissions by 15 percent by 2022. We are on track to meet this goal. We are also driven by the international imperative to limit average global temperature increase to 2-degrees Celsius, which will require a significant economy-wide reduction in GHG emissions. While we have always focused on reducing emissions from our own operations, we are working to support our customers in reducing additional GHG emissions through measures such as energy efficiency and electrification of equipment, processes and

vehicles. We work with policymakers at the state, regional and federal levels to promote wholesale energy market and environmental regulatory policies that will drive additional GHG emission reductions in our industry. For example, Exelon supports congressional action on climate change through the bi-partisan Climate Leadership Council plan that aims to create a revenue-neutral national economy-wide carbon emission reduction program.

Exelon is pleased to have been named to the Dow Jones Sustainability North America index for the 13th consecutive year in 2018; we view third-party surveys as an opportunity to benchmark best practices against other sustainability leaders and promote sustainability performance. We are also pleased to receive the highest-scoring level of any North America electric utility on the CDP Water Survey and the CDP Climate Change Survey with a score of A- on each. These surveys recognize Exelon's leadership on both sustainability disclosure and performance in the areas of climate change and water resource management.

Exelon continued its tradition of strong community engagement in 2018, including Exelon Corporate and Exelon Foundation contributions of almost \$52 million. Our employee giving campaign generated an additional \$13.3 million through employee pledges and company matching. Our employees volunteered a record 240,950 hours of service at nonprofits.



\$51.3 million in Exelon Corporate and Exelon Foundation contributions

\$13.3 million generated through an employee giving campaign

240,950 hours of service to our communities by employee volunteers

\$2.2 billion in expenditures with diverse suppliers in 2018, up 10% over 2017

“I am tremendously proud of the results that Exelon achieved for its stakeholders in 2018. Our success has been made possible by a dedicated workforce that focuses on operational excellence and that works with our communities on shared priorities.”

Exelon’s expenditures with diverse suppliers grew to \$2.2 billion in 2018, a 10 percent increase over 2017. In recognition of our efforts, Minority Business News magazine honored Exelon as one of the “Best of the Decade” companies for our long-term commitment to minority business development and inclusion through our supply chain.

STEM education is our biggest philanthropic priority with almost \$14 million in contributions to educational programs across our service areas including the District of Columbia and Chicago STEM Academies. Internally, we took a series of important actions to continue progress on diversity and inclusion, including active participation in the UN HeForShe campaign and the Equal Pay Pledge. We also actively support employment opportunities for the nation’s veterans and working with universities on internship programs at Exelon to expose the next generation of American workers to opportunities in Exelon and the energy industry.

While Exelon’s OSHA recordable safety performance in 2018 was top decile for the industry, we continue to strive for improvement. Exelon experienced a contractor fatality in 2018. The tragic loss caused us to look at safety from a different perspective beyond our focus on traditional safety fundamentals. In order to take our safety performance to the next level, we must focus on a more innovative and forward-looking approach. We began working to better understand the role that culture and brain science play in

employee safety behaviors and took action to further educate employees on safety awareness. We also deployed new technologies, such as wearable equipment, to alert employees of hazards. With the use of data analytics, we can predict and more effectively manage job situations where there may be a higher potential for injury.

I am tremendously proud of the results that Exelon achieved for its stakeholders in 2018. Our success has been made possible by a dedicated workforce that focuses on operational excellence and that works with our communities on shared priorities. As our industry continues to transform, we need — and look forward to — continued dialogue with you. Together we can create the energy system of the future as we deliver clean, reliable and affordable energy and services.

Sincerely,



Christopher M. Crane
President and Chief Executive Officer



About Exelon

33,383
employees

8.9 million
electric utility customers

1.3 million
natural gas customers

~2 million
competitive retail customers

13 consecutive years
on the Dow Jones Sustainability
North America Index

A-
CDP Climate Change Survey
Score in 2018; best among
U.S. utilities

A-
CDP Water Survey Score
in 2018; best among
U.S. utilities

\$125 million
in program funds for electric
vehicles through Exelon Utilities
and Constellation

21.9 million MWh
saved through Exelon utility
customer energy efficiency
programs

Almost 50 percent
of energy efficiency in PJM
occurring in Exelon utility areas

11,178 miles
of electric transmission lines

150,003 miles
of electric distribution lines

30,563 miles
of natural gas transmission,
distribution and service lines

25,590 square miles
of combined utility service area

378 MW
commercial-scale solar in
12 states and the District of
Columbia at 525 installations
and 251 MW of utility-scale solar

945 MW
of wind in 10 states with
824 turbines at 30 locations

32,463 MW
owned U.S. generating capacity

Almost two times
more zero-carbon generation
(in MWh) than the next largest
producer

90.7 million metric tons
of GHG emissions avoided
through Exelon zero-carbon
generation

Exelon Corporation (Exelon) is a Fortune 100 company headquartered in Chicago that supplies power generation, competitive energy products and services and electric and gas transmission and delivery. We are the nation's largest utility by customer count and the largest producer of emissions-free energy.

- Exelon is one of the largest power generators with 32,463 megawatts (MW) of owned capacity as of December 31, 2018, comprising one of the nation's cleanest, lowest-cost power generation fleets.
- As the nation's leading energy provider in competitive energy markets, Exelon does business in 48 states, the District of Columbia and Canada.

The company's competitive energy business unit, Constellation, provides energy products and services to approximately two million residential, public sector and business customers, including more than two-thirds of the Fortune 100.

- Our six utilities deliver electricity and/or natural gas to approximately 10 million customers in New Jersey (Atlantic City Electric, or ACE), northern Illinois (ComEd), Delaware (Delmarva Power, or DPL), southeastern Pennsylvania (PECO), Maryland (BGE, DPL and Pepco) and the District of Columbia (Pepco). ACE, DPL and Pepco are held under Pepco Holdings, LLC (PHI). In some instances this report refers to four, rather than six, utilities. This occurs in instances where we track the performance or results of PHI, rather than its component utilities.

EXELON FAMILY OF COMPANIES



Energy Generation



Energy Sales and Services



Transmission and Delivery



Of the \$2.0 billion in Exelon's GAAP net income in 2018, approximately 83 percent was from our regulated utilities and 17 percent was from our Generation business unit (including Constellation). Exelon is a publicly traded company listed on the New York Stock Exchange under the symbol EXC.

In 2018, Exelon announced a number of significant investments and changes to our generation portfolio, described in further detail in the [Building the Next-Generation Energy Company](#) section of the report. Highlights include:

- We continued construction of the 200 MW Medway peaking plant project, with the facility entering commercial operation in May 2019.
- In October 2018, Exelon Generation completed the acquisition of the Everett LNG Facility. The facility lies just north of Boston along the Mystic River and is adjacent to the Exelon Mystic Generating Station's Units 8 and 9. The acquisition ensures the power plant will continue to have access to dependable natural gas supplies for the life of the Mystic units, further helping to meet New England's energy reliability and security needs. A secure source of cleaner-burning natural gas for this facility, one of the largest electric generators in New England, means that the region will be less reliant on fuel oil and coal as energy sources for electricity generation.
- Constellation acquired PFMG Solar LLC on October 10, 2018. PFMG Solar develops solar power systems for school districts, government agencies and other public-sector customers. This purchase enables Constellation to grow its solar footprint in California, the most active U.S. solar market, and extend its Constellation Offsite Renewables (CORe), energy efficiency and other retail energy offerings to new markets.

BUSINESS COMPOSITION BY GAAP NET INCOME

As of Dec. 31, 2018



FINANCIAL PERFORMANCE

dollars in millions, except for earnings and dividends per share

	2016	2017	2018
Revenues	\$ 31,366	\$ 33,565	\$ 35,985
Operating expenses	28,106	29,619	32,143
Net income attributable to common shareholders	1,121	3,786	2,010
Total assets	114,952	116,770	119,666
Total liabilities	87,312	84,583	86,596
Total equity (includes noncontrolling interests and preference stock)	27,640	32,187	33,070
Earnings per common share (diluted) ¹	1.21	3.99	2.07
Dividends per common share (diluted)	1.26	1.31	1.38
Cash flow from operations	8,461	7,480	8,644
Payments to capital providers/government	2,065	4,206	2,848
Dividends paid on common stock	1,166	1,236	1,332
Interest (net of amount capitalized)	1,340	2,430	1,421
Income taxes paid (net of refunds) ²	-441	540	95

¹ Earnings represented are in accordance with GAAP.

² Taxes other than income are not included.

- In April 2018, four of the five Exelon Generation Texas Power (EGTP) gas-fired plants — Mountain Creek, Wolf Hollow I, Colorado Bend I and LaPorte — were transferred to EGTP's lenders pursuant to a voluntary bankruptcy filing.
- In 2018, Exelon announced plans to sell or retire nine small fossil or landfill gas (LFG) assets. These include four natural gas-fired peaking generation facilities (Southeast Chicago Energy Project in Illinois and

Gould Street, Notch Cliff and Westport generating stations in Maryland), one oil-fired peaking generation facility in Maryland (Riverside) and four landfill gas generation facilities (Fairless Hills, Pennsbury and Bethlehem in Pennsylvania and Eastern Maryland).

- In September 2018, Oyster Creek Generating Station, the oldest operating commercial nuclear power facility in the nation, was retired from service.

2018 EXELON-OWNED CAPACITY AND GENERATION¹

	Capacity ²		Generation output ³	
	MW	%	GWh	%
Nuclear	19,713	60.7%	166,569	85.8%
Gas	6,586	20.3%	19,834	10.2%
Oil/Gas	1,737	5.4%	1,180	0.6%
Hydroelectric	1,642	5.1%	2,367	1.2%
Oil	1,142	3.5%	112	0.1%
Wind	945	2.9%	2,769	1.4%
Solar	564	1.7%	1,086	0.6%
Landfill Gas/Biomass	124	0.4%	307	0.2%
Energy Storage	10	—	—	—
Total	32,463	100%	194,224	100%

1 Exelon Generation sells its electric output in competitive markets. Exelon utilities procure default electric supply through competitive processes, and some default utility supply may come from Exelon Generation and the resources listed here.

2 Equity share of capacity as of Dec. 31, 2018. For nuclear stations, capacity reflects the annual mean rating. Fossil stations reflect a summer rating. Wind and solar facilities reflect nameplate capacity. Source: Item 2. Properties of the 2018 Exelon 10-K, pp. 53–57.

3 Equity share of GWh production in 2018 for period of ownership during the year.

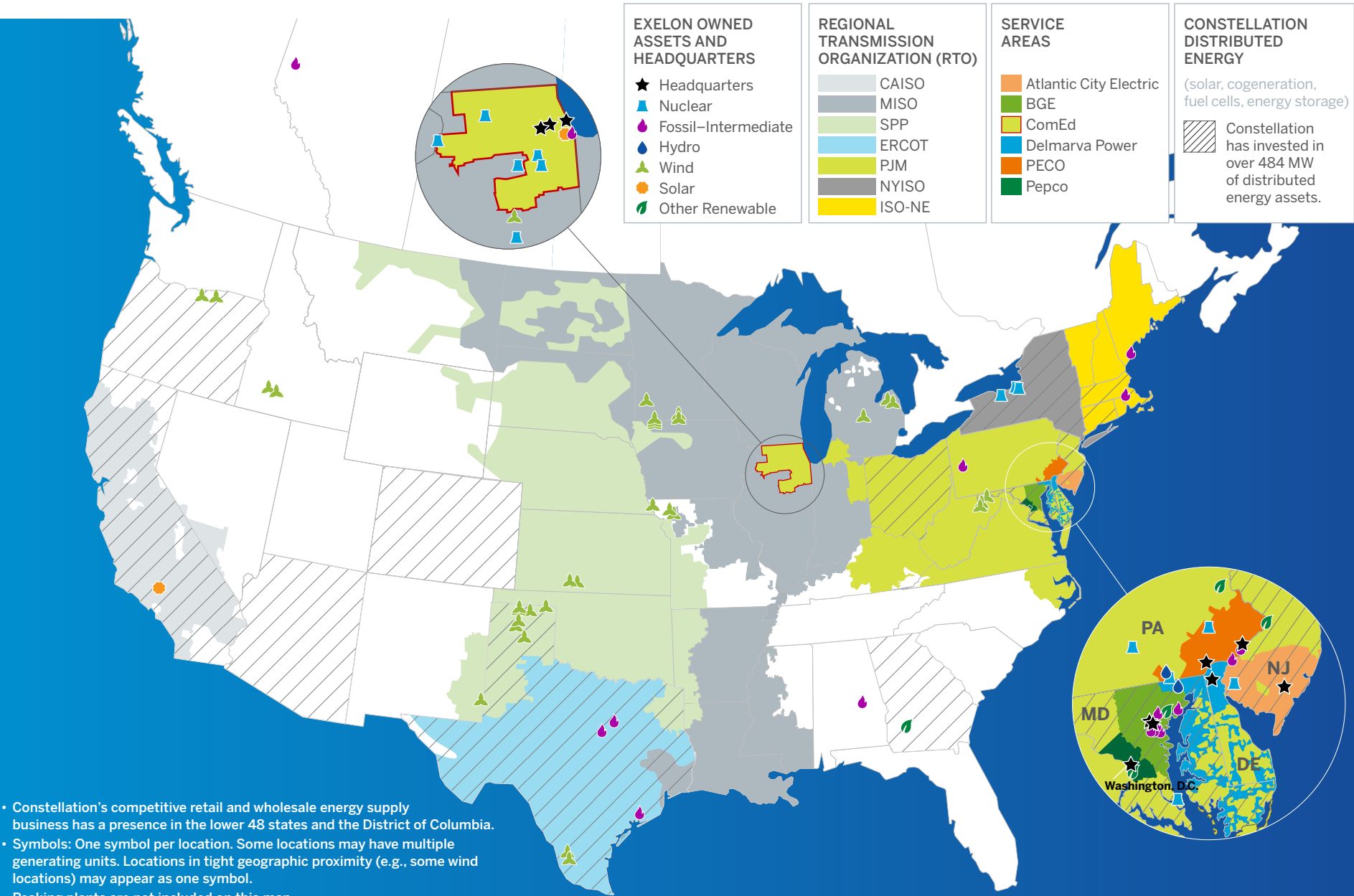
INVESTMENT GRADE RATINGS

	Credit Ratings ¹		
	Moody's	S&P	Fitch
Exelon	Baa2	BBB	BBB+
ComEd	A1	A	A
PECO	Aa3	A	A+
BGE	A3	A	A
PHI	Baa2	BBB+	BBB
ACE	A3 ²	A	A-
DPL	A2	A	A
Pepco	A2	A	A-
Generation	Baa2	BBB+	BBB

1 Current senior unsecured ratings as of May 31, 2019, for Exelon, Exelon Generation, BGE and PHI; and senior secured ratings for ComEd, PECO, ACE, DPL, and Pepco.

2 ACE is on "Positive" outlook at Moody's; all other ratings have a "Stable" outlook.

EXELON SERVICE AREA AND GENERATION ASSETS AS OF DECEMBER 31, 2018



- Constellation's competitive retail and wholesale energy supply business has a presence in the lower 48 states and the District of Columbia.
- Symbols: One symbol per location. Some locations may have multiple generating units. Locations in tight geographic proximity (e.g., some wind locations) may appear as one symbol.
- Peaking plants are not included on this map.

Exelon Performance Data 2016–2018 ¹			
	2016	2017	2018
FINANCIAL AND BUSINESS RESULTS			
Revenue (million USD)	\$31,366	\$33,565	\$35,985
Exelon-owned capacity (MW)	32,720	35,168	32,463
Exelon-owned generation (GWh)	186,212	195,307	194,224
Nuclear capacity factor	94.6%	94.1%	94.6%
Dispatch match	97.2%	98.8%	98.1%
Wind/solar energy capture	95.6%	95.8%	96.1%
CUSTOMERS			
Incremental Exelon utility energy efficiency (EE) program savings			
Cumulative customer EE savings (million MWh)	15.51	19.21	21.93
Cumulative GHG avoidance from customer EE (million metric tons CO ₂ e)	7.63	8.66	9.88
Customer satisfaction index			
BGE	7.78	7.94	8.06
ComEd	7.97	8.00	8.04
PECO	7.98	8.07	8.00
PHI	N/A	7.59	7.72
Reliability — SAIFI (average interruptions per customer)			
BGE	0.90	0.63	0.84
ComEd	0.62	0.56	0.61
PECO	0.77	0.72	0.82
PHI	1.02	0.81	0.81
Customers with electric smart meters (percent)	85.7%	89.7%	98.9%

	2016	2017	2018
COMMUNITIES			
Corporate and foundation giving (million USD)	\$46.2	\$52.1	\$51.3
Volunteer hours (in thousands)	171.3	210.2	241.0
Spend with minority suppliers (billion USD)	\$1.9	\$2.0	\$2.2
EMPLOYEES			
OSHA recordable rate	0.65	0.52	0.57
Number of employees	33,975	34,529	33,298
Female employees in workforce	23.3%	23.4%	23.7%
Minority employees in workforce	24.9%	25.7%	26.3%
ENVIRONMENT			
Total GHG emissions (Scope 1 and 2, location-based, with biomass, thousand metric tons CO ₂ e)	17,130	17,409	16,082
Total water use (million gallons per year)	13,499,672	15,853,039	18,986,062
Total consumptive water use (million gallons per year)	234,443	221,431	228,422
Thermal generation consumptive water intensity (gallons/MWh)	417	355	342
Percent of total water use that is consumptive	1.7%	1.4%	1.2%
Municipal solid waste recycling rate	65.3%	72.9%	74.5%
CO ₂ emission intensity (lbs/MWh — owned generation)	105.8	108.0	100.4
NO _x emission intensity (lbs/MWh — owned generation)	0.03	0.02	0.02
SO ₂ emission intensity (lbs/MWh — owned generation)	0.01	0.01	0.01

¹ Additional context for the metrics in this table is available by clicking the hyperlinks in the left column.

MANAGING SUSTAINABILITY

Exelon's commitment to sustainability is central to our mission of providing reliable, clean, affordable and innovative energy products. Our operational excellence and environmental stewardship values drive us to conduct business in a way that is sustainable for our customers, our employees and the communities in which we operate.

Exelon Corporation Purpose Statement

Our Purpose:

**Powering a cleaner and brighter future
for our customers and communities.**

In 2017, we set out to articulate our purpose as a company — how and why we exist. Thousands of employees from across the company provided input, and the result is a bold affirmation of our reason for being. It also gives us a renewed focus on the impact we have in the communities where we work and live. This report provides many examples of Exelon executing against its purpose statement in 2018.

Key Sustainability Issues

In 2018, we refreshed our key sustainability issues assessment to ensure our report addresses issues most important to our business and stakeholders. The [Global Reporting Initiative \(GRI\)](#) defines key issues that reflect the organization's significant social, economic and environmental impacts or substantively influence the assessments and decisions of stakeholders. We reviewed the 24 issues included in our 2018 report, spanning economic, environmental, social and governance topics and an explanation of why they are key issues for Exelon. The continued relevance of the issues was determined based upon our strategy and objectives, peer reviews, stakeholder engagement and criteria in external indices and frameworks.

In particular, we reviewed:

- Customer, community, policy leader, investor and employee engagements and surveys and requests for sustainability information;
- Edison Electric Institute (EEI) surveys of large utility investors;
- Electric Power Research Institute (EPRI) Priority Sustainability Issues for the North American Electric Power Industry;
- Exelon's Enterprise Risk Heatmap;
- A media review of the company and our sector;
- Exelon's 2018 Dow Jones Sustainability Index (DJSI) scorecard; and
- Our Ceres stakeholder engagement summary.

All findings and results underwent review by the executive Corporate Sustainability Report Editorial Board. We updated several descriptions of why certain issues are important and relevant to Exelon. Additionally, in 2018 we revised our key sustainability issues related to climate change to better reflect our approach and emerging areas of interest for our sector. Exelon's key sustainability issues and why they are important, organized alphabetically by report section, are detailed in the following table.

Key Sustainability Issues	Why It Is Important
BUILDING THE NEXT-GENERATION ENERGY COMPANY	
Energy system resilience	The provision of reliable, clean and affordable energy supplies can be affected by many factors, including climate change. Resilience is achieved through fuel diversity, sufficient generation with firm fuel availability, adequately funded transmission and distribution systems and regulatory and market structures that evolve to maintain a robust system.
Generation efficiency	Converting renewable, fossil and nuclear energy as efficiently as possible into useful electric power results in lower costs per kilowatt-hour produced and maximizes the production of useful energy from natural resources.
Investments in energy infrastructure	Continued investment in the grid ensures reliable, more resilient and more efficient transmission and distribution of electricity and gas, including the ability to integrate local energy into the nation's energy system.
Value of clean energy	Customer interest in clean energy requires appropriate valuation of all forms of reliable clean energy resources in the marketplace to ensure continued net gains in low-carbon resources and continued progress toward a lower-carbon economy.
RISING TO THE CHALLENGE OF CLIMATE CHANGE	
Climate change risks and opportunities	Climate change is exacerbating many of the system challenges that Exelon has managed for decades, such as storm restoration. However, climate change represents business opportunities (such as electrification of the economy) and risks (such as energy system resilience). Through climate scenario planning, Exelon will be able to anticipate issues, helping to both protect and create value for stakeholders.
Greenhouse gas (GHG) emissions	GHG emissions drive climate change, which, in addition to creating adverse environmental impacts, can affect our ability to adapt to physical changes and ensure consistent prices for customers. Exelon continues to focus on ways to maintain carbon intensity levels that are well below the industry average and fall well below the pathway for decreasing industry emission intensity levels that are needed over time to achieve national and international greenhouse gas emission reduction objectives.
CREATING VALUE FOR CUSTOMERS	
Energy affordability	Reasonably priced electric and gas service, with updated regulatory frameworks to support the grid of the future, enables performance across all sectors of the economy and allows customers to benefit from smart grid investments.
Innovative products and services	By delivering innovative products and services that give customers more choices and control over their energy usage, and by evolving our business to support increased electrification of the economy through measures such as electric vehicles, Exelon enhances both customer and shareholder value.
Service to customers	Meeting our commitment to provide reliable service, achieving high customer satisfaction, and enabling and empowering customers to buy, manage and use energy efficiently and cost-effectively are all critical aspects to ensure we provide value to our customers on an ongoing basis.
PARTNERING WITH OUR COMMUNITIES	
Community development	Exelon's business value and success is inextricably linked with the success of the communities that we serve. Exelon supports local communities through jobs, taxes paid, corporate philanthropy, community engagement and stakeholder partnerships that grow opportunities for people and city and regional economies.
Public health and safety	With operations throughout multiple states and hundreds of communities, Exelon must protect the public health and safety of those in the regions we serve in the course of our daily operations and in the case of an emergency event.

Key Sustainability Issues	Why It Is Important
A SAFE, INNOVATIVE AND REWARDING WORKPLACE	
Diversity and inclusion	Fostering a diverse and inclusive workplace ensures that our employees and supply chain reflect and recognize the varied perspectives of our customer base and society, allowing Exelon to succeed by drawing upon a much larger pool of ideas and resources.
Employee engagement	Our employees are our greatest asset. Engaged employees help us succeed in understanding and meeting customer expectations and continuing to innovate into the next-generation energy company.
Health, safety and wellness	We take every precaution to minimize health and safety hazard exposure to employees as they work to ensure public safety. Prioritizing health and safety builds a desirable work environment, reduces health care costs and improves business performance.
Talent attraction, development and retention	Exelon must continue to seek skilled employees, particularly in the STEM areas, to enable our continued evolution into the next-generation energy company and address challenges posed by an aging workforce. Investing in our employees and potential future employees through focused training and development helps Exelon maintain the cutting-edge workforce we need to best serve our customers as the next-generation energy company.
MANAGING OUR ENVIRONMENTAL IMPACTS	
Air quality	By focusing on low-emission generation technologies and protective air quality standards, Exelon is supporting a healthier environment for our customers.
Habitat and biodiversity	With Exelon utility service areas encompassing 24,915 square miles and generation asset properties in 18 U.S. states and Alberta, Canada, Exelon manages unique habitats that can be enhanced to benefit biodiversity.
Nuclear fuel cycle	As the largest nuclear generator in the United States, Exelon Nuclear is focused on the effective and efficient management of spent nuclear fuel and radiological wastes to ensure employee and public safety.
Water management	The effects of climate change and increasing demand for shared water resources require Exelon to continue to minimize consumptive water use and water quality impacts, and may offer new business opportunities related to responsible water use.
EFFECTIVE GOVERNANCE	
Corporate governance	An ethical culture with strong corporate governance and risk management processes is critical to maximizing Exelon's operational results, minimizing risks and ensuring compliance with applicable laws and regulations, in concert with the Corporate Governance Committee's oversight of Exelon's sustainability performance.
Cybersecurity/physical security	Protection of customer information and Exelon's electronic and physical assets is of paramount importance, as our transmission, distribution and generation assets represent critical national infrastructure.
Policy engagement	Exelon's businesses are subject to a wide range of government laws and regulations. Exelon seeks to engage with policy makers to find solutions that support our business interests, provide more value to customers and create desirable outcomes for stakeholders.
Sustainable supply chain	Working with our suppliers and industry peers to build a sustainable supply chain that delivers quality products and services for Exelon, supports local and diverse businesses in the communities in which we operate, drives eco-efficiency up through the supply chain, and ensures supply chain continuity.

We strive to ensure our sustainability strategy and priority areas align with global sustainability initiatives. The United Nations Sustainable Development Goals (SDGs) are an important framework for advancing sustainability globally, and we recognize the need for companies like Exelon to contribute to achieving these goals. Many of the 17 SDGs are relevant to Exelon's business and provide a path to contribute toward a more sustainable future. Please see the [Appendix](#) for a map aligning our initiatives with the SDGs.

Stakeholder Engagement

Through regular engagement with our stakeholders, we improve our understanding of emerging trends affecting our business and address stakeholder needs and concerns. We use stakeholder feedback to inform our sustainability strategy and business plans.

Every year, we facilitate specialized forums with individual stakeholder groups to discuss their sustainability interests and concerns to incorporate findings in our business and sustainability planning. For example, we engaged with Ceres, a nonprofit organization advocating for sustainability leadership, since 2008. Ceres provides an external perspective on key issues to help Exelon advance our sustainability performance. As part of the engagement, Ceres convened a group of external stakeholders and Exelon participants in April 2018 to participate in a structured feedback session. The session covered the sustainability-related aspects of our corporate strategic plan, as well as our sustainability performance and reporting activities and key areas of concern such as climate change. A summary of the resulting discussion is available on our [website](#). Additionally, we engaged with RobecoSAM, an international investment company with a specific focus on sustainability investments, on our DJSI scorecard and with CDP, an organization running the global disclosure system for investors, companies, cities, states and regions to manage their environmental impacts, on our disclosure results to better understand scoring and areas for improvement.



Our operating companies also participated in dozens of stakeholder engagement activities related to specific local issues.

In recent years, investors have sought more information about how companies manage climate and sustainability risks. In response, Exelon engaged with more than 20 institutional investors in 2018 on the issues of climate change and other sustainability topics. We will continue engaging with investors and communities in the coming years to ensure our climate strategies align with our business and societal needs.

Listening to our Stakeholders

Exelon continually seeks to build deeper and more meaningful relationships with our stakeholders. In order to build relationships, we need to know what our stakeholders expect of us and how we can meet those expectations. Exelon conducted research among various stakeholder audiences across our businesses and markets. In 2017, we launched a comprehensive research initiative to understand how we can better meet stakeholder needs. We have conducted extensive qualitative (focus groups and in-depth interviews) and quantitative research (online and telephone surveys). Through the end of 2018, we conducted 725 qualitative interviews and 11,649 quantitative survey interviews across all stakeholders and markets. The research included the following key stakeholder audiences:

- **Customers.** Separate from our regular surveys on customer satisfaction, we conducted a broader investigation into the deeper expectations of customers on how we operate and address critical issues. We interviewed residential utility customers in each of our service territories. In addition to our residential utility customers in each of our service territories, we interviewed current and potential Constellation customers.
- **Communities.** We interviewed more than 1,700 people who live in our 34 plant communities (people who live within 10 miles of an Exelon Generation facility).
- **Policy Leaders.** We interviewed a wide range of elected officials or senior staff for federal, state, county and municipal governments. We also interviewed non-governmental organizations and activists who focus on key issues affecting our business.
- **Investors & Analysts.** Professionals who invest in or cover the energy sector were also included in our research.
- **Employees.** Finally, we interviewed a representative sample of all our employees across all of our operating companies.

One of the most important insights gleaned from the research is how the expectations of our stakeholders differ from their expectations of most other businesses. Because of the unique relationship we have with our customers and communities — the “universality” of our utilities business — expectations on our social and environmental impacts are heightened compared to other consumer product companies. We are viewed as both a business that serves individual customers as well as a

Exelon Corporation Brand Pillars

Research identified four critical pillars to building deeper stakeholder relationships. Each pillar contains more specific, prioritized themes in order to meet expectations.



public service that serves a community. Therefore, we must balance the changing needs of customers with a commitment to addressing social and environmental challenges.

The research identified four critical pillars to building deeper stakeholder relationships. Each pillar contains more specific, prioritized themes in order to meet expectations.

- **Health, Safety, Environment.** Carbon reduction and clean energy is a top priority for all of our stakeholders. The most important expectation is to demonstrate our leadership in helping customers and communities lower their carbon footprint.
- **Customer Centricity.** Customer expectations rapidly change for our business, with higher expectations for control and convenience. Exelon and our operating companies continue to exceed expectations for reliability and operational performance.
- **Innovation.** Stakeholders have growing expectations for Innovation. They want to understand Exelon's long-term vision of the future of energy and how we are working towards our vision.
- **Corporate Stewardship.** Our business has a unique responsibility to partner with the communities where we operate. Communities are in the DNA of our company. Our utilities have a long history of serving every single resident in our communities. The universal nature of our business — serving everyone no matter who they are — represents a value that is deeply rooted: the value of equity and inclusion.

Sustainability Recognitions

We participate in a number of voluntary reporting initiatives including the Dow Jones Sustainability Index (DJSI) and CDP's Climate Change, Water and Supply Chain surveys. For the past 13 years, Exelon was named to the DJSI North America Index, which includes the top-scoring 20 percent of the 600 largest North American companies. We also scored an A- (highest among U.S. electric utilities) on our CDP Climate Change disclosure and an A- on our CDP Water disclosure. We also received supplier disclosure leadership results from CDP. Visit our website to view our responses to the **Climate Change** survey and **Water** survey. JUST Capital ranked Exelon as 31st among 890 companies and first among utility companies in 2018. JUST Capital measures and ranks companies in the U.S. on issues including fair pay and equal treatment, sustainability and community engagement. Exelon was also recognized in early 2019 as one of the "World's Most Innovative Companies" by Fast Company, entering the annual list for the first time at number two in the energy sector based on our commitment to clean energy and helping our customers meet their sustainability goals.



MEMBER OF
**Dow Jones
Sustainability Indices**
In Collaboration with RobecoSAM



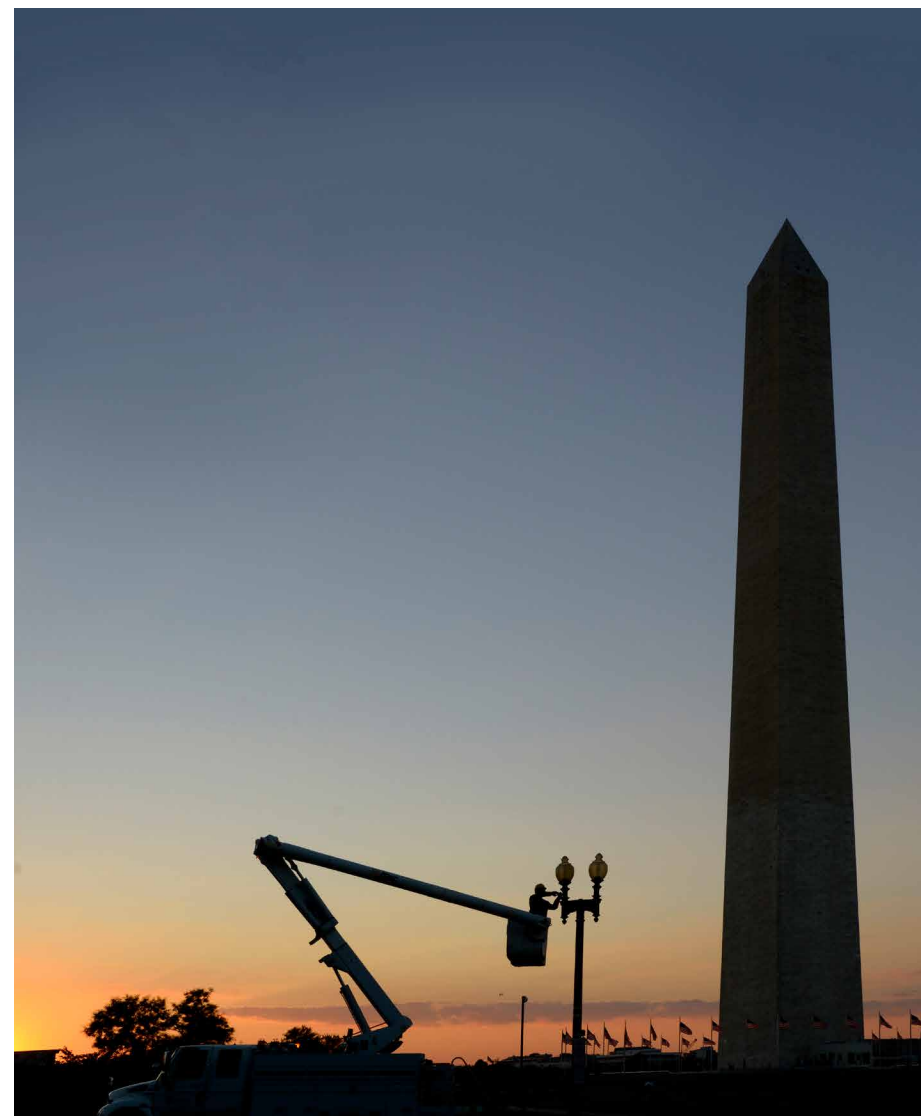
Building the Next-Generation Energy Company

- Worked to create connections with our customers and within communities through technology, innovation and partnerships
- Invested more than \$5.3 billion across our utilities in 2018 to modernize the grid for reliability and to enable the energy system of the future
- Achieved a 94.6% nuclear capacity factor, 98.1% fossil and hydro dispatch match and 96.1% wind and solar energy capture rate

Exelon is powering a cleaner and brighter future for our customers and communities. In doing so, we are committed to understanding and addressing our customers' needs and interests as we build the next-generation energy company. We leverage innovative technology to empower customers to manage their energy use and meet customer expectations for clean, reliable and affordable power. As we execute our business strategy, we must also nurture connected communities, pursue a leadership role in civic involvement and local partnerships and enable growth of human potential in our communities and workforce to support a sustainable future.

EXELON'S BUSINESS STRATEGY

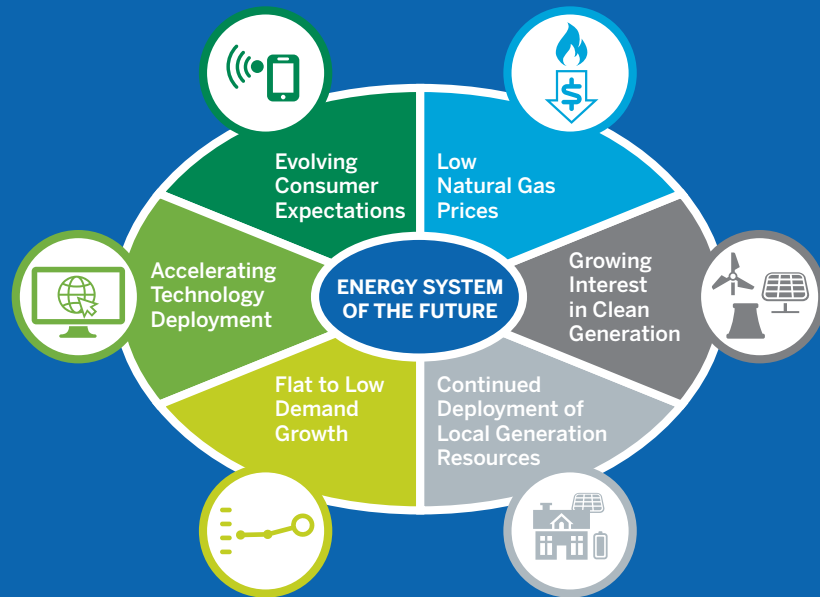
Our business strategy is oriented around the trends shaping the future energy landscape, which we refer to as durable trends. Durable trends are circumstances that will have a lasting impact on companies in the electric power industry over the mid- to long- term. There are six key durable trends that inform Exelon's business strategy. Our executive team regularly assesses these trends and works with our Board of Directors to evolve Exelon's business strategy to continue delivering value for our customers and communities.



Exelon's business strategy is focused on meeting customer needs for clean, reliable and affordable energy.



Six Durable Industry Trends Identified by Exelon



Accelerating Technology Deployment. Technology and the internet of things enable an evolution of how the transmission and distribution (T&D) system works. For example, technology has enabled two-way power flows so that local generation, such as rooftop solar, can supplement central generation capabilities.



Evolving Consumer Expectations. Customers are seeking greater control over the impacts their energy use has on the environment. This includes interests in energy efficiency, active management of home energy usage and deploying local generation in homes and businesses.



Low Natural Gas Prices. The expansion of shale gas drilling technologies in the United States has dramatically increased the availability of domestic supply, resulting in low natural gas prices and thus, greater use of natural gas for power generation. Low natural gas prices have also resulted in lower wholesale electricity prices.



Growing Interest in Clean Generation. Customers are increasingly concerned about the impacts of energy use on the environment. They are interested in the use of cleaner generation technologies and options to buy or deploy clean energy. Environmental impact concerns include climate change, ground-level ozone, air toxics and water usage.



Continued Deployment of Local Generation Resources. Small-scale generating capacity such as solar, wind or fuel cells in private residential and commercial applications continues to increase. Local generation supports fuel diversification and can improve local reliability and grid resilience. Increased customer demand, lower costs and access to diverse technologies are driving this trend.



Flat to Low Demand Growth. After steady growth in load through the 20th century, power suppliers are seeing flat to very low growth in demand in recent years, due in part to deployment of energy efficiency programs. This is a fundamental shift in market dynamics compared with prior decades when demand growth was higher.

Exelon Strategic Plan

Informed by the durable trends, Exelon developed a strategic plan with four key focus areas. These include:

- **Evolving our business models and regulatory and market structures;**
- **Creating a culture of technology and innovation;**
- **Maintaining operational excellence, productivity and efficiency; and**
- **Investing in our markets at attractive returns.**

How Exelon's Strategy Creates Customer Value	
FOCUS AREA Evolving our business models and regulatory and market structures	HOW? • Adapting our businesses to meet customer needs and interests in energy use and management • Supporting updated regulations that enable utilities to meet customer interests in clean energy
FOCUS AREA Creating a culture of technology and innovation	HOW? • Integrating innovation across all aspects of our business to drive new technologies that make our business more efficient and resilient
FOCUS AREA Maintaining operational excellence, productivity and efficiency	HOW? • Operating safely for our customers, employees and communities • Maintaining affordability and reliability, proven by high customer satisfaction • Maximizing efficiencies in our use of resources
FOCUS AREA Investing in our markets at attractive returns	HOW? • Making investments in reliable electric and gas systems • Enabling a smart grid that embraces technology • Prioritizing low-carbon energy and solutions

The four interrelated focus areas form the basis of our business strategy and deliver value for our customers and other stakeholders. As we execute our strategy, we seek to understand and meet our customers' needs and interests. We see shared value in creating connected communities by providing electric and gas service that is safe, affordable and reliable, investing in clean and low-carbon energy options, empowering people and staying on the cutting-edge of technology and innovation.

As a foundational matter, we pursue operational excellence and the delivery of clean, reliable and affordable power across our business. As we look to the future, we are embracing innovation, technology and new business models to create cleaner connected communities for our customers.

FOCUS AREA Evolving our business models and regulatory and market structures **EVOLVING OUR BUSINESS MODELS AND REGULATORY AND MARKET STRUCTURES**

Exelon operates the largest group of transmission and distribution (T&D) companies (based on the number of customers served) and the second largest electricity generation fleet in the United States. Each business area has unique opportunities and challenges for optimizing our business models as customer expectations evolve over time. Because our wholesale generation business operates in competitive markets, its success still depends heavily on market regulations that govern how resources are compensated for the electricity and services they provide to the system. New technologies, as well as demands on and for the performance of the bulk power system, present challenges and opportunities for our business, as well as the industry and our communities. Exelon actively supports changes to regulations and power markets to promote generation that is emissions-free, reliable and resilient. On the utility side of our business, we are transforming our business model to meet evolving customer demand

and changing regulatory frameworks. Our Connected Communities framework ensures that the utility of the future meets customer demand for clean, equitable and accessible energy.

Exelon Utilities — Connected Communities

Over the coming decade, the electric T&D industry in the United States will continue to experience an historic transformation, enabled by new technologies and innovation. As our industry transforms, Exelon is focused on evolving its business models and regulatory frameworks to keep pace with this transformation to ensure that our utilities can continue to deliver value to our customers.

The electric power grid is the most complex machine ever designed and built, with hundreds of billions of dollars invested in its networks over the last century. For decades, our utility T&D system networks have been 99.9 percent reliable, providing customers with the dependable and affordable energy they need to power their lives and businesses. Access to reliable and affordable energy has been foundational to the success of our communities and local economies. For this reason, we center our business strategy on reliability, clean energy and affordability.

We envision a future energy system that is more distributed and decentralized. The system will offer more choice for customers and will be increasingly transactional, as more people exchange information, products and services through the grid. It will also be more connected; connections to broader networks become more critical as technology enables a more distributed world. Clean, local generation can be connected in new ways, such as through microgrids, to strengthen community energy resilience and control.

In the future, the role of the utility's physical distribution network will be to connect community-based systems to one another and to the larger grid. This will include clean central station generation, providing greater

reliability, resilience and lower overall costs. Digital networks will manage increasingly complex flows of power and information over the distributed grid. The utility distribution model operates as a platform that generates value by facilitating connections and transactions between and among customers, generators and communities.

Technology advances can enable scaling of communications and service infrastructure across conventional utility industries (electricity, gas, water and wastewater) and community services. Sensor networks supporting community safety, traffic management and other services can make use of



Exelon's utilities are empowering customers to better manage their energy usage.





Our concept of “connected communities” is about using technology to strengthen connections and energy systems within communities.



a common communications infrastructure, rather than requiring separate systems. Metering infrastructure for gas, electricity and water could be bundled along with advanced billing and customer management systems.

While technology and innovation are rapidly transforming the energy industry, the basis of the utility business is enduring. Similar to other industries based on fixed, long-lived infrastructure, Exelon shares a sense of “place” with its customers and communities. The electric utility is physically synonymous with a specific place and its people. While the utility is a private enterprise, its design and regulation are focused on providing services that

are in the public interest and that are most efficiently provided in operating areas by a single provider that is closely regulated to ensure equity and public safety.

We aspire to a vision of “connected communities” as a response to the changing role our utilities can play in creating value for customers and communities. Under this model, our utilities play a central role in enabling the power of digital communication, remote sensing, artificial intelligence, distributed energy resources and the platform of smart infrastructure to reinforce human connection and serve the hierarchy of community needs. We aspire to transform our business model, the policy framework that supports it and our physical and digital infrastructure to create our vision of connected communities.

Our concept of connected communities is distinct from the idea of a smart city. Smart cities employ advanced technology to address a city’s core functions. Our concept of a connected community goes beyond this, focusing on building and strengthening the connections between people, businesses, distributed energy systems, neighborhoods and currently disparate sets of infrastructure to enable more livable places. Through this model, electric utilities build connections with other industries, companies, nonprofit organizations and policy makers committed to a cleaner, brighter future.

Over the next decade, we envision an evolution for our platform business model through five areas of maturity, with some elements implemented concurrently and some sequentially. Each utility will move toward shared Exelon utility objectives; however, each may implement actions in these areas differently based on consideration of local and state circumstances. The table on the next page depicts the maturity model areas we see, along with a description of their value to customers and examples of actions that our utilities have already taken in each area. Going forward, we will continue to achieve results in all areas of our maturity model.

Exelon Utilities Maturity Model Areas

AREA	CUSTOMER VALUE	EXAMPLES OF ACTIONS ALREADY TAKEN
Modernize for Reliability	• Stronger, more reliable grid with affordable bills • Enhanced customer experience through technology • Customer confidence in the utility and the grid	• \$21B in capital spend planned across our utilities through 2021 • Smart Meters deployed to enhance system reliability with real-time data that is also available to empower customer energy use management • Enhanced digital self-service tools available, including outage maps, billing, payment and maintenance services
Resilience and Security	• Increased resilience reduces adverse customer impacts and responds to climate change effects — a self-healing grid is achieved • Technology enables customers to select needed levels of resilience based on criticality of service and power quality	• Feeder and substation hardening to minimize storm impacts • Distributed automation devices to isolate grid faults and recover quickly • Physical hardening and detection measures at substations to address both storm and intrusion risks
Customer Choice — Distributed Energy Resources (DER) Acceleration	• Customers connected to utility and third party solutions • Customers have options to both consume and produce power • Accelerated zero-carbon resources	• Advanced distribution management system to enable DER • 4kV to 12kV voltage conversions to support DER • Feeder line modeling to evaluate impacts of customer DER interconnects and plan for feeder line upgrades • Enable customers to choose generation alternatives — whether from the grid or behind the meter • Net metering to enable customer DER deployment (with regulatory dialogue on how to evolve regulations to support higher levels of DER penetration in a manner that is equitable to all customers)
Decarbonization/Electrification	• Customers and communities enabled to reduce carbon profiles with help of utilities — marketplace, technology and financial options — utilities key enablers of meeting community carbon reduction targets through a menu of options	• Building, transportation and industrial process electrification • Energy storage pilots to learn about options and implications • Electric vehicle charging infrastructure and EV education • Solar rebates and community solar pilots • Pilots and programs to use Smart Meter data to maintain tighter voltage control, reducing line losses across systems; saving MWh and avoiding excess GHG emissions
Connected Communities	• Access to “community” products and services enabled by utilities (e.g., buying and selling DER and storage within communities) • Lower-cost energy options for customers • Greater integration of communities in seeking solutions, including solutions to challenges beyond electricity	• Community of the Future pilots incorporating distributed energy systems like microgrids, designed to explore with community partners how the distributed systems might evolve • Smart streetlights

Public Policy: Creating an Affordable Clean Energy Future for Our Customers and Communities

Exelon's public policy efforts focus on working with key stakeholders to implement market designs, policies and regulations that achieve a reliable, affordable and clean energy future for our customers and communities.

Innovation, customer expectations and government policies inform the transition of our industry to the utility of the future.

With our base of 10 million electric and gas customers in major metropolitan areas in Illinois and the Mid-Atlantic states, Exelon is uniquely positioned to drive innovation. We have long-standing connections with our communities

Our Public Policy Priorities and Efforts		
PRIORITIES	WHY IS IT IMPORTANT?	SELECT EXAMPLES OF WHAT WE ARE DOING
Affordable and Clean Energy	Addressing climate change is the key environmental issue of our time. Energy suppliers must offer customers clean energy. Policy and market designs must recognize the value of zero-carbon generation. Solutions must be affordable for all customers.	- Exelon supports Congressional action to meaningfully reduce carbon emissions, including through the Climate Leadership Council. - We support state efforts to ensure zero-carbon resources, including nuclear energy, are prioritized and valued appropriately. - We participate in state efforts to cap or price carbon (RGGI, NYISO) to drive lower emission generation across states and regions. - Exelon participates in EPA rulemakings in support of tighter carbon performance regulations for power plants. - We participate in state utility rate design proceedings to seek the right incentives and structures to deploy GHG-reduction technologies, such as energy efficiency and electrification of buildings and vehicles.
Creating Connected Communities	Market and regulatory structures need to evolve to stay in alignment with changing customer preferences and new technologies. Customers need to have the ability to participate in a two-way power system with distributed energy resources, while continuing to reliably and affordably obtain power from the grid on demand. This requires a connected community where customers and their preferred energy providers work together to meet their needs.	- Three of the six Exelon utility jurisdictions (MD, IL and District of Columbia) have launched proceedings to define a path for grid modernization. Exelon participates in these proceedings to advance options regarding electric vehicles, distributed energy, microgrids, energy storage and distribution system planning. - Exelon is also working with our jurisdictions on rate designs to ensure fairness for all customers as usage of the grid evolves over time. For example, protections for low- and moderate-income customers must be taken into consideration. - As we talk with our communities and regulators, we continue to share our views on new technologies that are now economically enabling the use of electricity as a primary energy source. This includes opportunities in the transportation, buildings and industrial sectors, among others.
Reliability and Resilience	Families and businesses require a power system that reliably delivers 24/7 electricity. Wholesale power markets need to evolve to select resources based on their true cost, including their ability to withstand fuel supply disruptions or the ability to produce power without pollution.	- Our utilities are working with states to support policies focused on enhanced reliability and resilience. - Exelon has been working with our independent system operators (ISOs), such as PJM and ERCOT, to support energy market price reforms that more accurately reflect the value of all units serving load. - Exelon has also been working with PJM and ISO-NE to evaluate resilience risk and whether the market is encouraging a resource mix that will withstand risks from extreme weather events or pipeline disruptions that could curtail gas flow.

and we work to stay aware of evolving customer needs and interests regarding energy-related products and services. We also have decades of experience in managing complex energy systems and incorporating new technologies into our businesses to drive enhanced efficiency and performance.

Our industry is more dynamic than ever, requiring us to work with our stakeholders to meet shared objectives in a balanced manner. Our focus remains on maintaining affordable, reliable and clean energy for our customers and communities. We work on policy at the federal and regional level and at the state and local level in our key operating states with utility and power generation assets. As our Constellation business is present across the lower 48 states, we engage with stakeholders across the country.

Policies to Advance Clean, Affordable and Reliable Energy

Over the last three years, Exelon was involved in a number of regulatory or legislative proceedings to promote clean energy policies with climate change benefits. We supported the 2016 Illinois Future Energy Jobs Act (FEJA), as well as the more recent legislation in Pennsylvania, New Jersey and the District of Columbia. The sidebar on the next page describes several examples of clean energy and GHG emission reduction enabling legislation that supports investments by Exelon utilities.

Exelon worked in New York, Illinois and New Jersey in recent years to encourage states to adopt policies that recognize and value zero-carbon generation as part of state efforts and plans to address climate change. These states are addressing GHG emissions reductions by updating previous policies that undervalued zero-carbon generation relative to higher-carbon generation resources. Exelon worked with policy makers to create zero emission credit (ZEC) programs that, under certain circumstances, provide additional revenue streams to zero-carbon resources, ensuring they continue to support state climate change objectives. Through the end of 2018, various legal challenges to the ZEC aspects of these programs were unsuccessful.



Exelon's public policy efforts are focused on ensuring clean, affordable and reliable power for our customers.



Clean Energy and Enabling Legislation

Several forward-thinking legislative measures were approved in the operating jurisdictions of Exelon utilities in 2018. The approved legislation directly addresses and/or enables initiatives and actions that address clean energy and GHG emission reduction, including clean energy requirements, grid modernization and innovation, building standards and electrification of the transportation sector and alternative rate designs.

Pepco. The Council of the District of Columbia approved the “Clean Energy D.C. Omnibus Amendment Act of 2018” which requires the procurement of 100 percent renewables by 2032. The bill specified that the electric utility could develop, propose and implement energy efficiency programs which will be significantly important as the District works to meet the established goals of the legislation. Pepco will consult with the District of Columbia Sustainable Energy Utility, the District Department of Energy and Environment and other stakeholders, through a working group process prior to proposing program(s) to the Public Service Commission of the District of Columbia for review and consideration. Two other key features of the legislation address key contributors to carbon emissions — the built environment and the transportation sector. The legislation requires that all public transportation and fleet vehicles be zero-carbon by 2045 and promotes expanded transportation electrification through utility infrastructure ownership. Another key aspect of the legislation establishes a building standard for buildings in the District of Columbia.

Atlantic City Electric. In 2018, New Jersey Governor Murphy signed a comprehensive bill addressing climate change. The legislation increases the renewable energy standard, requiring 21 percent of New Jersey’s electricity be generated from renewable sources by 2020, 35 percent by 2025 and 50 percent by 2030. The legislation also reforms the solar energy program by modifying the SREC program, increasing Class I renewable requirements, increasing the net metering threshold and requiring the implementation of a community solar pilot program. Other key aspects of the legislation include the establishment of offshore wind goals, requirements for utilities to implement energy efficiency programs that will reduce electricity use by two percent and natural gas by 0.75 percent annually and progressive energy storage targets, with a goal of achieving 600 MW of energy storage by 2021 and 2,000 MW by 2030.

PECO. Key alternative rate legislation was approved in the Pennsylvania General Assembly which will enable PECO and other Pennsylvania electric utilities to continue to improve and modernize the electric distribution system and advance more options to customers in the area(s) of energy efficiency, solar and other forms of distributed generation. House Bill 1782, which was signed into law by Governor Tom Wolf as Act 58, authorizes the Pennsylvania Public Utility Commission to consider a range of ratemaking options, including decoupling mechanisms, performance-based rates, formula rates, multiyear rate plans, or rates based on a combination of these mechanisms. In brief, Act 58 aligns the interests of the company and its customers in maintaining a strong and resilient grid for all energy users.

Honoring State Clean Energy Choices in PJM Markets

Exelon supports states' efforts to incentivize clean energy choices in the market. In response to state programs such as Renewable Portfolio Standards and the Illinois ZEC program, PJM initiated stakeholder deliberations in 2017 to consider rule changes that would apply to any new or existing resource that received state clean energy incentives and participates in the PJM capacity market. In a June 2018 order, the Federal Energy Regulatory Commission (FERC) ordered PJM to develop a minimum offer price rule (MOPR) to be applied to any new or existing resource that received state support and is participating in the PJM capacity market. The MOPR would require state-supported generation to offer at prices at or above specified levels, increasing the risk that the generation would be priced out of PJM's capacity market. If no other options were provided, this rule change would undermine state policies to support clean resources with renewable energy credits (RECs) or ZECs. To mitigate the impact of this change, FERC also proposed that PJM implement a mechanism by which customer load served by state-supported generation can opt out of the PJM capacity market. This opt-out mechanism would ensure that PJM is not procuring capacity in its market for the same load served by state-supported generation that, due to the new MOPR, is priced out of the PJM market.

States should be able to protect their citizens from pollution by taking action to correct flaws in the market that undervalue clean energy. In the absence of a sensible national approach to promote zero-carbon electricity generation, Exelon supports developing a workable opt-out from the PJM capacity market to accommodate state-supported clean energy programs without fear of duplicative or excessive charges on consumers. We have signed on to shared principles for any such alternative supported by several environmental, renewable and consumer protection organizations. The principles are designed to protect customers from paying for duplicate capacity and preserving states' full range of tools to achieve clean energy policy goals.

Climate Leadership Council Carbon Dividend Plan

As one example of our work to promote a sensible national approach to mitigating climate change, in 2018, Exelon joined the Climate Leadership Council (CLC) as a founding member. The objective of the CLC is to implement a national carbon dividend system to meaningfully reduce nationwide emissions while protecting the most vulnerable citizens. Since its founding, the CLC has grown to include over 35 members including Fortune 100 companies and several environmental nonprofits. The CLC plan is centered around four policy pillars:

- Establishing a robust and gradually increasing carbon price implemented upstream at the first point of fossil fuel entry into the economy (at the mine, well or port);
- Carbon dividends (proceeds from this fee) would be returned to the American people;
- Border carbon adjustments with imports and exports subject to border adjustments to maintain competitiveness with other nations without carbon pricing systems; and,
- Regulatory simplification, with elimination of regulations rendered unnecessary by a carbon fee.

For more information and updates on the CLC, please visit:

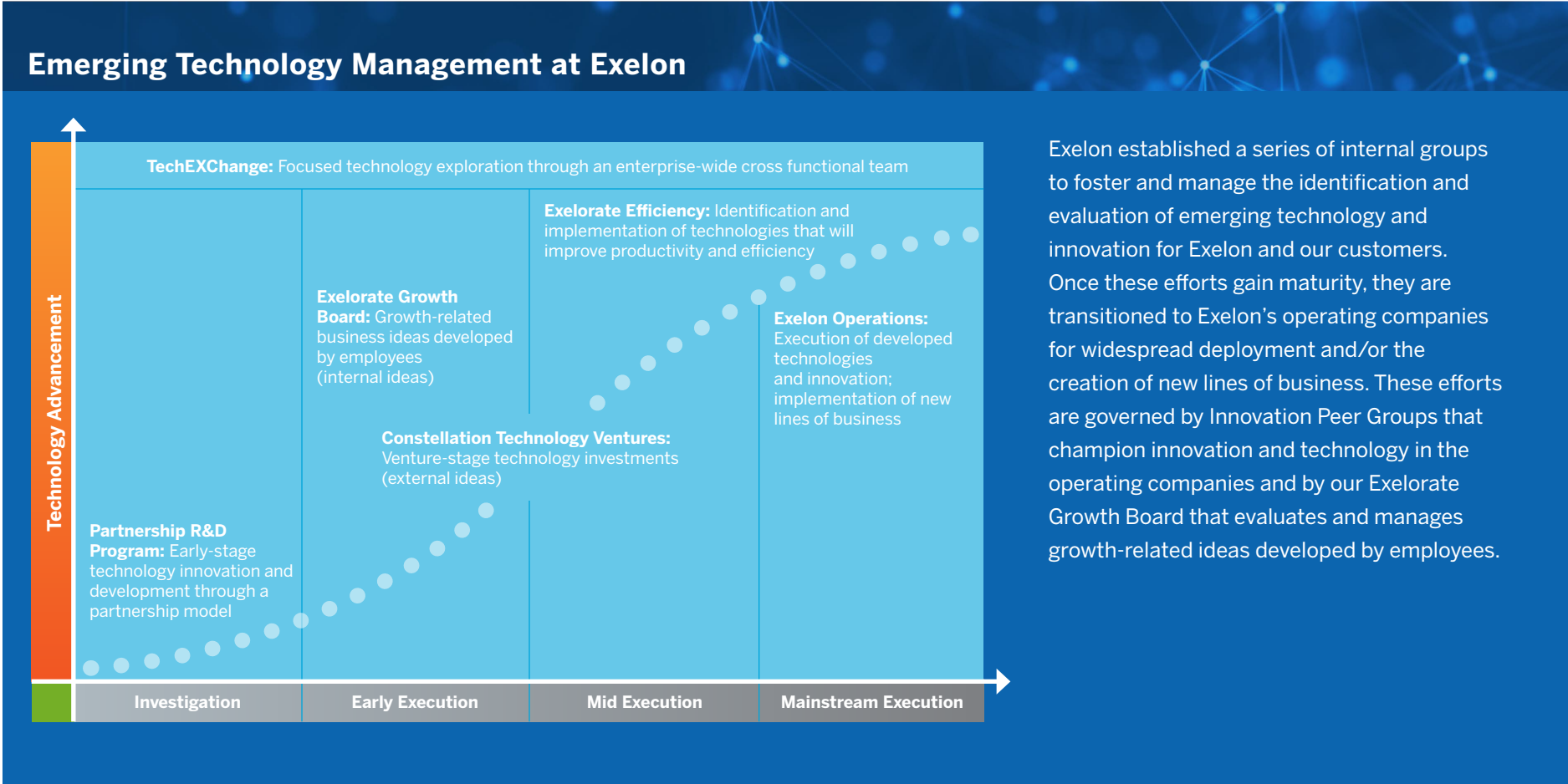
www.clcouncil.org.



CREATING A CULTURE OF TECHNOLOGY AND INNOVATION

One of Exelon's key strategic focus areas is investing in a culture of technology and innovation, in response to our durable trends. The best ideas emerge when individuals from diverse backgrounds collaborate to share insights while tackling our biggest business challenges. We developed

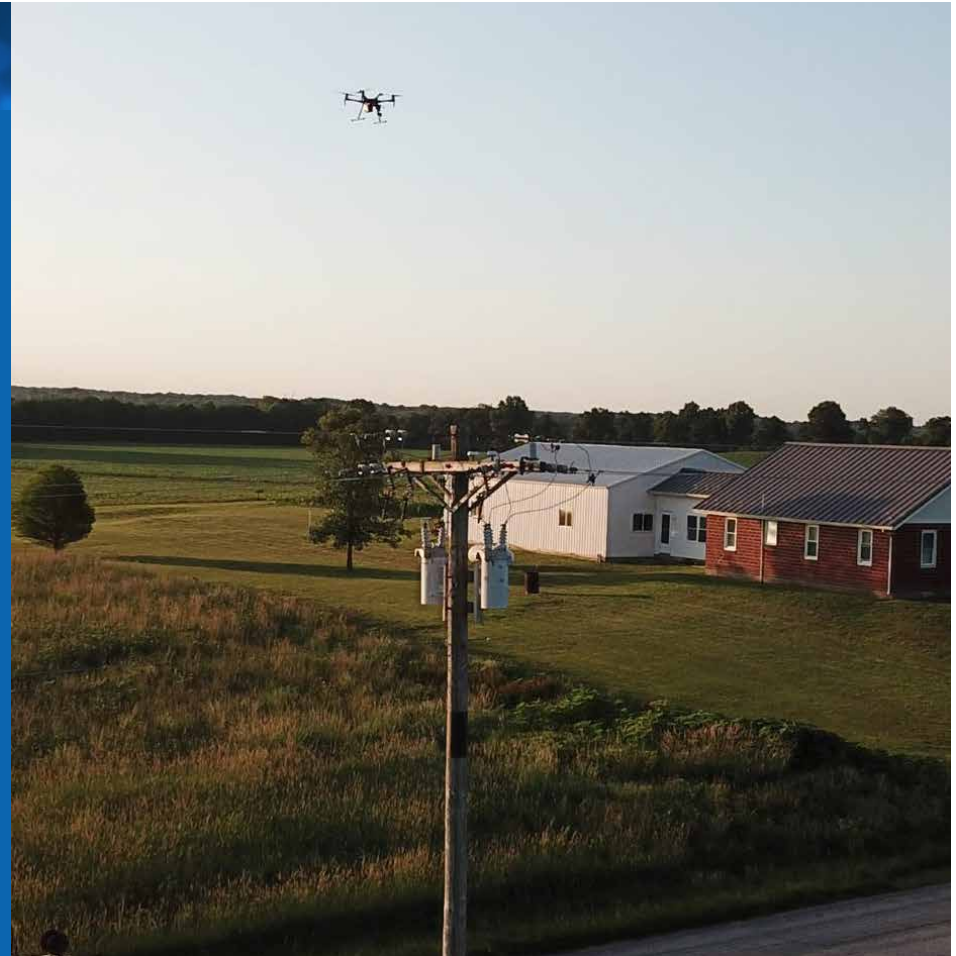
an ecosystem that brings together passionate Exelon employees and external experts to develop innovative solutions to tackle our business challenges. We leverage new technologies and business models to drive operational excellence and accelerate the development of new products and services for our customers. The graphic below depicts our key programs for managing technology and innovation opportunities across all maturity levels, ranging from early investigation to full deployment in Exelon's operations.



Exelon established a series of internal groups to foster and manage the identification and evaluation of emerging technology and innovation for Exelon and our customers. Once these efforts gain maturity, they are transitioned to Exelon's operating companies for widespread deployment and/or the creation of new lines of business. These efforts are governed by Innovation Peer Groups that champion innovation and technology in the operating companies and by our Exelorate Growth Board that evaluates and manages growth-related ideas developed by employees.

Exelon Aerolabs

Robotics and drones represent game-changing technologies in our industry in the areas of asset inspections and emergency response. In 2018, Exelon launched a business through the Exelorate Growth program called **Exelon Aerolabs**, an asset inspection and performance improvement business that uses drones and robotics, coupled with artificial intelligence (AI) and machine learning, to offer services and provide actionable reports to drive reliability, safety and efficiency improvements. The Aerolabs team leverages Exelon's expertise across the distribution, transmission and generation industries to provide unmanned inspections for power plants and utility assets, creating significant value in avoided costs and improved safety. Exelon's scale and market reputation strengthen Aerolabs' product and customer experience, and Aerolabs continues to broaden its product offerings to provide new ways to serve our customers and partners. Exelon has only begun to scratch the surface when it comes to drones, robotics and AI technology. Aerolabs and other teams at Exelon continue to develop new products, businesses and services using these technologies to make our business safer, more reliable and more efficient.



The **Corporate Innovation Team** is tasked with identifying new and disruptive technologies that could lead to growth opportunities and improvements in productivity and efficiencies within our existing businesses. The Team applies Exelon's innovation framework to identify opportunities, pilot emerging technologies and implement them quickly. The Team works alongside a diverse ecosystem of startup companies, academia, research labs, government agencies and other organizations to establish the broadest understanding of emerging technologies and potential applications throughout Exelon.

Our internal **Exelorate Growth Board** evaluates and manages growth-related business ideas developed by employees. This board is composed of a dozen senior leaders from across Exelon's businesses. New opportunities are vetted in a five-stage process to find ideas that maximize benefits to customers. Allocation of appropriate human capital and financial resources and executive mentoring of employees are key components of the process as we seek to engage and encourage employees to embrace innovation and new technologies.

2018 Innovation Expo

In August 2018, Exelon hosted its seventh Innovation Expo in the District of Columbia. The Innovation Expo is an annual event that showcases exciting technologies, featuring employee displays and pilot projects underway across Exelon's operating companies. The event promotes internal collaboration and empowers employees to develop new ideas and efficiencies. The Expo also provides opportunities for employees to learn about new technologies from outside experts and other companies that attend this event. The 2018 event far exceeded past Expos in terms of attendance, employee ideas shared and the number and range of guests who participated. In alignment with Exelon's purpose of powering a cleaner and brighter future for customers and communities, the theme for the 2018 Innovation Expo was "Reinventing Energy in our Cities."

Over 525 employees submitted ideas for using technology and innovation to create value for our customers. Of these, about 270 employees were

selected to showcase their ideas at the Expo, with attendees and expert judges voting to identify the ideas that created the most value. The highest scoring groups of employees were then asked to participate in a fast pitch competition where they presented their ideas in front of the entire Innovation Expo audience.

Attendees also listened to panel discussions hosted by industry experts and leaders from cities within Exelon Utilities' territories. Topics included climate change, the future of energy in cities and the importance of innovation in cities as they look to meet their climate change goals. District of Columbia Mayor Muriel Bowser, who spoke about the District's net zero goals and other sustainability initiatives, was a key speaker at the event. Daymond John from ABC's Shark Tank served as another keynote speaker, sharing his entrepreneurial expertise with Expo attendees.



Exhibit floor at 2018 Innovation Expo.



STEM Academy students present their project to Shark Tank's Daymond John.

The **TechEXChange** is charged with exploring technologies and emerging trends that have the potential to impact the enterprise and transform the industry. Around 40 individuals from across the company form a team that collaborates with government and industry associations, national labs, top universities, venture capital and private equity firms and other industry leaders with subject matter expertise in the trend or technology.

To date, the team identified opportunities within transportation and industrial processes powered by alternative fuels, indoor agriculture and data center market growth, battery storage, fuel cells, water and hydrogen, among others. These innovations have the potential to have significant positive impact on energy markets and the communities where we live and work.

Beneficial Electrification

In 2018, the TechEXChange focused on transformative technologies that advance a low-carbon energy future through electrification. Electrification lowers costs and improves air quality in the near- and long-term, driving value for our customers. The electric industry has been the leader in decarbonization since emissions peaked in 2005. The electric power sector has reduced CO₂ emissions by 25 percent since that time, which accounts for 72 percent of total CO₂ reductions since 2005.¹ This success and continued reductions in CO₂ emissions from the electric power sector can be leveraged across the economy by transitioning end use fossil fuel consumption to clean electric power. TechEXChange teams were engaged to evaluate the technical and economic potential of electrification across transportation, buildings, industrial processes and emerging areas like indoor agriculture. Across sectors, technologies enabling electrification are both technologically feasible and will reach cost parity in the near term if they haven't already. Transitioning to electrified technologies reduces local emissions, particulates and noise that impact our communities and customers. Many customers, often low-income customers, are exposed to higher levels of pollution due to proximity to roadways, transportation

depots and industrial facilities. As the generation stack becomes cleaner, electrifying across sectors is imperative to decarbonize the economy.

Across the enterprise, the TechEXChange identified opportunities for Exelon to advance the benefits of electrification and decarbonization through the utilities, the generation company, the competitive business and through programs like Partnership R&D and Innovation. In parallel with our clean generation fleet, beneficial electrification presents a strategic opportunity for Exelon to improve the lives of customers in our communities, reduce emissions across the economy and support a cleaner and brighter future.



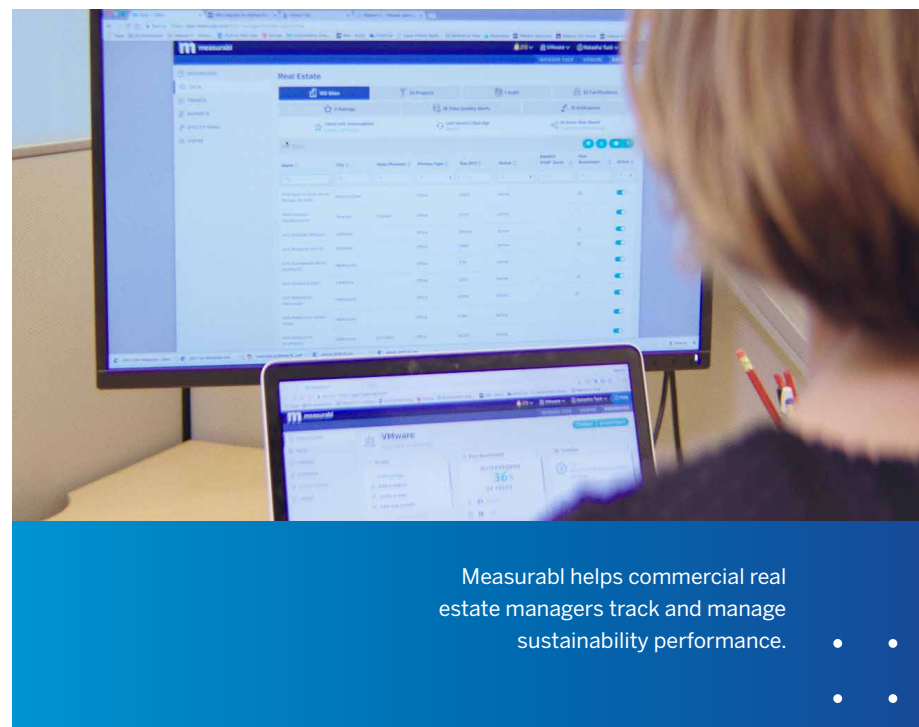
¹ "Inventory of U.S. Greenhouse Gas Emissions and Sinks," EPA, 2017, <https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks>.

"Electrification Futures Study: Scenarios of Electric Technology Adoption and Power Consumption for the United States," NREL, 2018, <https://www.nrel.gov/docs/ty18osti/71500.pdf>.

The **Partnership R&D Program** invests in early-stage technology innovation by funding and collaborating on projects at leading research institutions, including Argonne National Laboratory, MIT, Northwestern University and the University of Illinois. This complements the TechExChange. Exelon screened over 100 technology ideas through its R&D program and invested in 14 transformative projects. These projects support Exelon's access to new markets and products; enhance customer value; contribute insights in key science, technology and industry trends; enable Exelon to obtain ownership of and access to valuable technical intellectual property; enhance Exelon's workforce by challenging existing patterns of thinking within the company; and create solutions for technical and market challenges. Through the Partnership R&D program, Exelon engages the intellectual ecosystem developing technologies that will revolutionize the industry. This two-way collaboration benefits researchers who want to ensure their work is relevant, as they draw on data, expertise and leadership from Exelon subject matter experts and ensures that Exelon is actively engaged in producing transformative technology that will benefit its customers.

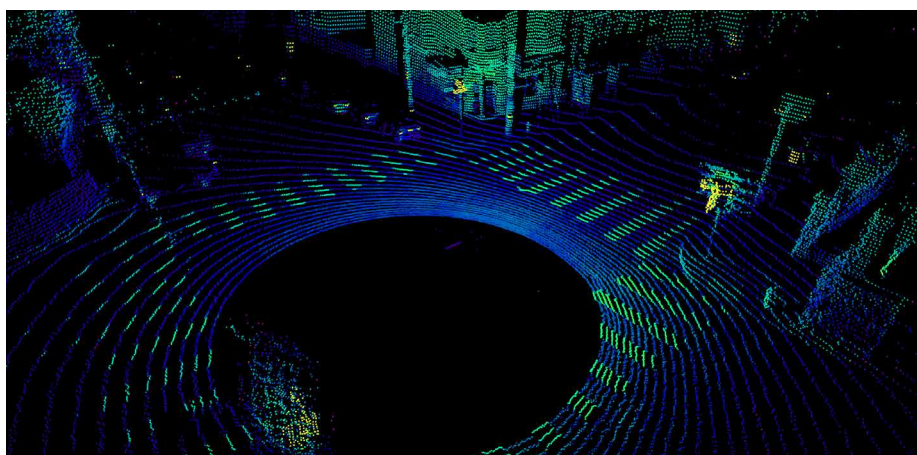
Externally, Exelon invests in emerging energy technology companies through **Constellation Technology Ventures (CTV)**. CTV invests in growth-stage companies representing technological or business model innovations that could complement or disrupt Exelon's core businesses, with the goal of providing new solutions to Exelon's operating companies and our customers. Investments made by CTV encompass a range of themes, including transportation electrification, distributed generation, energy storage, renewable generation and intelligent building controls. Following investment, portfolio companies engage with the Innovation and CTV Commercialization team, a specialized group that facilitates commercialization of CTV investments and other new concepts within Exelon's business units. The following companies illustrate the range of technologies included in CTV's portfolio:

Measurabl is a data management platform for measuring, managing and benchmarking the environmental, social and governance (ESG) performance of commercial real estate. Commercial real estate represents nearly 20 percent of the world's energy and water usage, 30 percent of its raw materials usage and 20 percent of carbon emissions. Measurabl was founded in 2013 as a means to consistently and accurately measure these impacts so better investment decisions could be made. In 2018, companies across 70 countries, representing more than seven billion square feet of commercial property, used Measurabl, helping them emerge as a global clearinghouse for non-financial data. Measurabl promotes sustainable business decisions by making ESG data accurate and relatable to capital markets, customers and other stakeholders. Learn more about Measurabl at www.measurabl.com.



Ouster is a leader in the high-resolution lidar market, producing several lidar sensors for applications in industrial robotics, autonomous vehicles, aerial surveying, building security and more. Light detection and ranging (Lidar) uses pulsed laser technology measure and map spaces in three dimensions. The company was founded in 2015 to make 3D sensing technology widely available and power the autonomous vehicle market. Ouster launched to the broad market in late 2017 and now counts hundreds of customers across more than a dozen industries. Ouster's FleetGuide™ product also places the company at the forefront of driver assistance technologies to enhance the safe operation of fleet vehicles. Leveraging Ouster's high-resolution lidar sensors, FleetGuide gives fleet drivers a perfect view of their car in 3D space, eliminating blind spots in even the largest vehicles like municipal buses and garbage trucks. The FleetGuide product also gives fleet operators a real-time view of their fleet as it navigates its territory, alerting users to any potential problems in the field. More information is available at www.ouster.io and www.fleetguide.io.

V-Grid Energy Systems is a leader in renewable energy technology providing sustainable low cost, on-demand electricity and advanced soil carbon technology to the agricultural sector. V-Grid's mobile BioServer System is fueled by agricultural waste and is capable of delivering 100 kW to meet the electrical needs of farms. In addition to electricity, the BioServers produce biochar, a type of carbon that rebuilds soil health and has other valuable applications. This process takes atmospheric CO₂ and transfers it back into the ground as carbon for long-term sustainability. The biochar can also be converted to activated carbon, useful in many industrial applications such as water treatment and air purification. These systems can be arrayed to comprise a power facility delivering several MW of renewable energy. To date, V-Grid has deployed several BioServers among the largest agricultural producers in the State of California. More information is available at www.vgridenergy.com.



3D image using Ouster's industry-leading, high-resolution lidar sensor technology.



The V-Grid mobile BioServer System produces electricity and carbon for beneficial use from agricultural waste.



2018 Electric Power Research Institute (EPRI) Technology Transfer Awards

In recognition of Exelon utility efforts to explore and implement innovative technologies on behalf of Exelon and the industry, EPRI has recognized Exelon's utilities for the following projects that are examples of how our utilities are driving innovation that delivers benefits for our customers as we work to create the energy system of the future:

- A team of engineers from ComEd, PECO and PHI helped lead a research demonstration project that installed energy management circuit breakers (EMCB), a device that can allow utilities and customers to monitor and control electricity use. This project evaluated how EMCBs can make home equipment smarter and give customers more options to monitor and manage their energy use.
- BGE planning engineers were part of a first-of-its-kind collaborative project that initiated, developed and tested the impact of energy storage for T&D systems. The project included behind-the-meter as well as in-front-of-the-meter storage technology assessments. It helped identify the technical gaps and ways energy storage could be replicated across different utility service territories. This framework has also shaped BGE's plans to work with local regulators to evaluate and consider how to leverage this installation in the PJM markets.
- Engineers from ComEd and PHI helped lead a project that explored smart inverters used for solar installations and other distributed generation for their capability to improve grid reliability. The industry- leading efforts at ComEd and PHI not only encourage increased penetration of distributed energy resources (DER) but also showcase the preparedness of the system when it is subjected to potential disruptions.
- Engineers from PHI received an award for their Universal Electric Transportation Infrastructure project, which focused on increasing electric vehicle charging opportunities for all customers. With the aid of EPRI research, PHI is projecting electric vehicle adoption and customer needs to develop a Vehicle Charging Infrastructure plan across its service territory.



Exelon utilities representatives recognized by EPRI for technology innovation and research.

FOCUS AREA

Maintaining operational excellence, productivity and efficiency

MAINTAINING OPERATIONAL EXCELLENCE, PRODUCTIVITY AND EFFICIENCY

Operational excellence at our regulated utilities and in our generation business is foundational for Exelon as a next-generation energy company. Our 10 million utility customers depend on us to provide affordable, reliable and clean energy safely every day of the year. To drive improvement, Exelon’s operating companies engage in frequent industry benchmarking and utilize a variety of management tools to identify and share best practices across and within our operating companies. Given Exelon’s size, scale and scope, even small opportunities for improvement can yield big results for our customers.

Regulated Utilities

Exelon’s utility management model focuses on the continuous pursuit of operational excellence in areas such as system reliability, customer service and safety. As Exelon incorporated new utilities into our portfolio, we identified, developed and shared best practices to drive continually higher levels of operational performance. As depicted in the adjacent table, Exelon’s utilities achieved top quartile performance in outage frequency metrics in 2018, with outage duration and customer satisfaction each at top quartile for three out of four utilities.

In addition to performance driven by best practice sharing, we enhance performance over time through the deployment of innovations and technology on our systems, such as smart meters, as well as capital investment to modernize utility electric and natural gas T&D infrastructure.

Exelon Utilities Operational Metrics vs. Industry Peer Group (Results compared to 2016 benchmark) ¹					
OPERATIONS	METRIC	2018			
		BGE	ComEd	PECO	PHI
Electric Operations	OSHA Recordable Rate				
	2.5 Beta SAIFI (Outage Frequency)				
	2.5 Beta CAIDI (Outage Duration)				
Customer Operations	Customer Satisfaction				
	Service Level — Percentage of calls answered in <30 seconds				
	Abandon Rate				
Gas Operations	Percentage of calls responded to in <1 hour		No gas operations		
Performance Quartile Legend		Q1	Q2	Q3	Q4
¹ As Exelon has grown our portfolio of utilities over time, we have worked to identify, share and leverage best practices to drive operational excellence, productivity and efficiency across all of our utilities in order to advance clean, reliable and affordable energy systems for our customers and communities. Source: Adapted from Exelon 2018 Q4 earnings call materials.					

Exelon Generation

Exelon Generation continues to focus on operating power generation assets at world-class performance levels. We take pride in safely operating one of the most reliable power generation fleets in the country. Our nuclear, wind, solar, hydroelectric and battery storage plants represent about 22,500 MW of zero-emission electricity. Exelon Generation is the largest generator of zero-carbon power in the United States due to our generation technology investments and our methodical approach to operational excellence and investment in increased capacity at existing zero-carbon plants.

By operating our electric generating plants efficiently and working to make sure that they are available to meet demand, we are working to provide our customers with affordable, reliable and clean energy. In 2018, for the third year in a row, the Exelon-operated fleet achieved a capacity factor in excess of 94.6 percent, with record production of 158,522 gigawatt-hours (ownership share). Our dispatch match — a measure of unit revenue capture when it is called on for generation — was 98.1 percent. Our fossil equivalent forced outage rate was 5.4 percent. Our utility-scale wind and solar energy capture rate was a record 96.1 percent. Our current wind fleet includes 824 utility-scale wind turbines operating at project locations across 10 states.



INVESTING IN OUR MARKETS AT ATTRACTIVE RETURNS

Regulated Utilities

Exelon invested \$5.3 billion across its regulated utilities in 2018 and plans to invest approximately \$23 billion in our utilities from 2019 through 2022. As can be seen in the chart below, most of Exelon's utility investments over the next four years will be in the electric distribution system, followed by the electric transmission and gas distribution systems. Of note, Exelon's utilities have completed most of their investments in smart meter technology. The

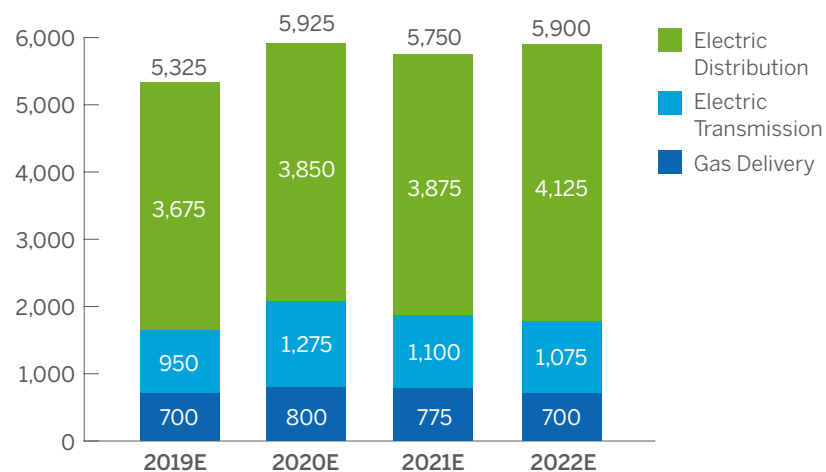
OPTIMIZING OUR PORTFOLIO

	2016	2017	2018
Nuclear Capacity Factor ¹	94.6%	94.1%	94.6%
Dispatch Match ²	97.2%	98.8%	98.1%
Fossil EFORD ³	3.1%	3.2%	5.4%
Wind/Solar Energy Capture ⁴	95.6%	95.8%	96.1%

- 1 Nuclear Capacity Factor: Capacity factor for the nuclear fleet excludes Salem. 2017 fleet capacity factor includes Fitzpatrick from acquisition date of March 31, 2017. 2018 fleet capacity factor reflects Oyster Creek operation prior to planned retirement on September 17, 2018. Capacity factors reflect Exelon's ownership share.
- 2 Dispatch Match: Expressed as a percentage, dispatch match reflects fossil and hydro units' revenue capture when they are called upon for generation. Factors that adversely impact dispatch match include forced outages, derates and failure to operate to the desired generation signal.
- 3 Fossil Equivalent Forced Outage Rate (EFORD): Measure of the portion of time a unit is in demand but is unavailable due to a forced outage.
- 4 Wind/Solar Energy Capture: The energy capture percentage is an indicator of how efficiently the installed assets capture the natural energy available from the wind and the sun. It is expressed as an energy-based fraction, the numerator of which is the energy produced by wind turbine generators or solar cells, and the denominator of which is the total wind or solar energy available at the site during that time period.

EXPECTED EXELON UTILITIES CAPITAL INVESTMENTS

dollars in millions



Source: Adapted from Exelon 2018 Q4 earnings call materials.

details and results of past investments in some of these areas are discussed in more detail in the [Creating a Smarter Power Grid](#) section of this report. Through December 2018, we upgraded more than 10 million smart electric and gas meters at the Exelon utilities. These advanced metering technologies enable a wide range of system and customer benefits. From an operational perspective, these new meters allow the utilities to remotely connect or disconnect service, provide enhanced information to help identify and respond to power outages and better monitor circuit voltage, saving customers money and avoiding excess GHG emissions. At the same time, these technologies give customers real-time insights into their energy usage and opportunities to save energy and money.

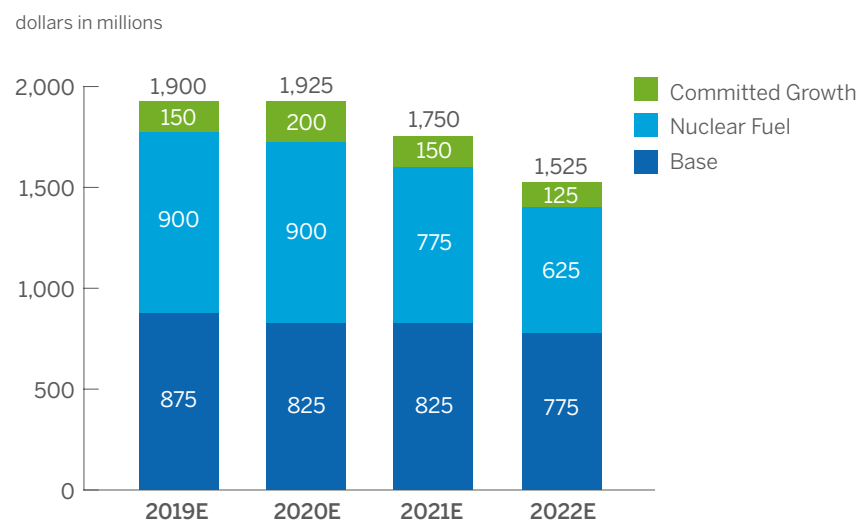
Due to the structure of our industry, Exelon's utilities are generally unable to directly invest in and own power generation resources. However, our utilities worked in other ways to enable renewable energy investment and deployment in our service territories by other parties. For example, we are deploying smart meter technology to integrate local generation and making other physical grid improvements. As described in the [Clean Energy Products](#) section of this report, Exelon's utilities enabled almost 103,688 customers to connect 1,232 MW of local renewable generation to the emerging smart grid, and we continue to work on ways to assist customers in connecting local resources to the grid. Our utilities used almost 8.8 million renewable energy credits (RECs) to meet state renewable energy requirements last year, supporting the deployment of renewable energy resources in the regions where we operate. As described later in this section, Exelon's utilities are also evaluating potential actions to evolve their business models and state regulatory frameworks so they can play an even more significant and central role in enabling renewable energy integration into the emerging smart grid.

Additional investments in our utilities aim to make our existing infrastructure more resilient. These efforts are described in further detail in the [Customer Service and Reliability](#) section and [Natural Gas System](#) case study later in this report.

Investments in Generation

Exelon Generation's capital deployment through 2022 focuses primarily on investments that will support and improve our existing plants' ability to generate electric power efficiently, cleanly and reliably. This focus is due to low market demand for new power generation resources and Exelon's current focus on higher-return utility growth opportunities.

EXPECTED EXELON GENERATION INVESTMENTS¹



Source: Adapted from Exelon 2018 Q4 earnings call materials.

¹ Numbers rounded to nearest \$25M and may not add due to rounding. Rate base reflects year-end estimates.

Our plans do include a limited amount of investment in new generation, primarily commercial solar energy installations at customer locations through Constellation. During 2018, Exelon Generation continued work on its 200-megawatt Medway Peaker Project in Massachusetts, which entered commercial operation in May 2019. This new generation facility, which utilizes two state-of-the-art General Electric LMS100 combustion turbine-generators, can power up to 200,000 homes. With its rapid start technology, the plant can achieve full output within 10 minutes (versus hours for a thermal baseload plant to ramp up to full load), providing ideal responsiveness to balance variable wind and solar energy resources. This project will provide the town of Medway with \$75.2 million in tax payments

over 20 years, in addition to other payments. For additional information, please visit www.medwayenergy.com.

Unfortunately, some nuclear plants across the country continue to face significant economic challenges. Because a Pennsylvania state policy solution was not enacted in time to reverse the premature retirement of Three Mile Island Unit 1, Exelon Generation announced in May 2019 that the plant will shut down permanently by September 30, 2019, as previously announced in 2017. On September 17, 2018, Exelon retired its Oyster Creek Generating Station after 49 years of service. During its operating life, Oyster Creek produced almost 200 million megawatt-hours of carbon-free electricity, enough to power about 600,000 homes each year of its operation. In July 2018, Exelon Generation announced a conditional sale of Oyster Creek to Holtec International, a global leader in used nuclear fuel management technologies. The transaction is expected to close in 2019, pending license transfer approval from the Nuclear Regulatory Commission (NRC). Once the sale is completed, Holtec International will manage all site decommissioning and restoration activities with a goal of full decommissioning within eight years.

Exelon Generation remains committed to the safe, long-term operation of its nuclear plants and has obtained initial 20-year operating license renewal extensions (extending the total license term to 60 years) for all of its operating nuclear units, except for Clinton Power Station. The company intends to apply for an initial 20-year renewal for the Clinton unit no earlier than the first quarter of 2021. Additionally, on July 10, 2018, Generation submitted a second 20-year license renewal application to the NRC for Peach Bottom Units 2 and 3. If approved, it will extend the plant's two operating licenses to 2053 and 2054. The station is the first boiling water reactor in the country to seek second license renewal (SLR).

Exelon Generation has also maximized the output of its nuclear fleet by completing power uprates on many of its generating units over the last



The new Medway Peaker project in Massachusetts is available to balance variable wind and solar energy resources.



NET Power — Development of New Zero-Carbon Technology Solutions

Exelon constantly seeks new technologies to provide customers with low-carbon energy solutions. One example is the NET Power project, located in LaPorte, Texas. The project uses Allam Cycle technology to combust natural gas with pure oxygen and uses high-pressure supercritical carbon dioxide (sCO₂) as a working fluid to drive a combustion turbine. The NET Power plant technology produces a high quality CO₂ byproduct, ready for pipeline transportation and storage. In many locations, this CO₂ could be sold for use in enhanced oil recovery, permanently sequestering the CO₂ and providing significant added value to future plants that use this technology. In March 2016, NET Power, Exelon Generation, McDermott and 8 Rivers Capital broke ground on a 50-MWth plant to demonstrate sCO₂ cycle technology. This technology offers higher density and competitive

thermal efficiencies versus conventional steam- and turbine-driven power generation technologies without producing atmospheric emissions. Construction of the demonstration project was completed in 2017, and combustor testing and Balance of Plant startup completed in August 2018. The turbine testing phase began in November 2018 and first fire was achieved with the integrated turbine and combustor in December 2018. The turbine testing phase will complete in 2019. In November 2018, the NET Power project received the 2018 Breakthrough Technological Project of the Year award at the Abu Dhabi International Petroleum Exhibition and Conference (ADIPEC). ADIPEC is one of the world's largest and most influential oil and gas events. More information is available at www.netpower.com.

decade. In January 2018, Peach Bottom Units 2 and 3 added an additional 40 MW to total plant capacity resulting from measurement uncertainty recapture uprates. These uprates were achieved through the deployment of new measurement and control technologies that were not available at the time of the plant's original construction.

GOING FORWARD

Exelon's business strategy focuses on creating value for customers and building economically vibrant communities that enable a sustainable future. Today, we remain centered on operational excellence and low-carbon resources to deliver clean, reliable and affordable power and energy delivery systems. In the long term, we are working to embrace the possibilities of

innovation, technology and new business models to help us create the connected communities of the future. Over the next decade, we will work collaboratively with our stakeholders to define and implement a shared vision for a system of connected communities. Our early vision is that this system will provide numerous benefits for our business, customers and communities. We envision modernized infrastructure with enhanced resilience and security, enabled by technology and smart planning. Customers will have more choice in their energy consumption — including options to deploy and integrate distributed energy. While this is our vision, we understand that the journey and its planning must be a shared effort with our many key stakeholders, including our customers, communities, governments and investors.



Rising to the Challenge of Climate Change

- Received an A- score for our CDP Climate Disclosure; highest level achieved by a U.S. utility
- Maintained an owned-generation CO₂ emission rate 90 percent below the industry average
- Achieved 2018 interim milestone on reducing operations-driven emissions by 15 percent by 2022

Global climate change and its social and environmental effects are among the most serious challenges facing the world today. In this section of our sustainability report, we summarize the current state of knowledge regarding climate change impacts and possible responses, with a focus on impacts and responses for the power and utility sectors. This section also provides details of Exelon's approach to managing climate change impacts and risks and highlights our efforts as an industry leader in low-carbon electricity generation.

UNDERSTANDING THE ECONOMY-WIDE IMPACTS OF CLIMATE CHANGE

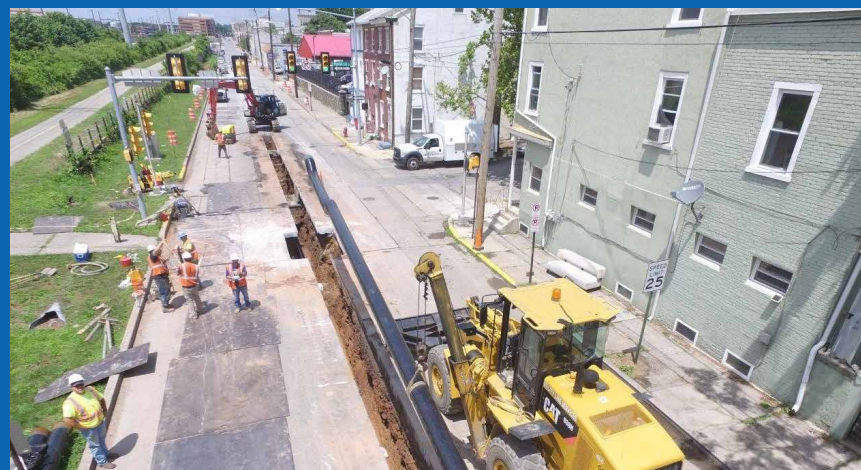
The global scientific community has reached consensus on the profound implications of climate change and the significant consequences of inaction. The Paris Agreement and the recommendations of organizations such as the Task Force on Climate-related Financial Disclosures (TCFD) have inspired nations and companies to develop action plans for reducing GHG emissions and adapting to the emerging consequences of climate change. In many cases, these plans focus on national and company actions designed to prevent average global temperature increases of more than two degrees Celsius (2°C) above pre-industrial levels. Achieving these ambitious plans requires GHG emission reduction goals of at least 80 percent from 1990 levels by 2050 economy-wide.¹

¹ "United States Mid-Century Strategy for Deep Decarbonization," U.S. White House, November 2016, https://unfccc.int/files/focus/long-term_strategies/application/pdf/mid_century_strategy_report-final_red.pdf. "IPCC 1.5-Degree C Special Report," Center for Climate and Energy Solutions, November 2018, <https://www.c2es.org/content/ipcc-1-5-degree-c-special-report/>

Select Exelon Climate Change Actions

Our efforts to address climate change include:

- Generating more zero-carbon electricity than any other company in the U.S.;
- Advocating for strong public policy action to drive GHG emission reductions;
- Maintaining a corporate GHG emission reduction goal that focuses on our own operations;
- Conducting scenario analysis to better understand potential future outcomes;
- Integrating climate change into risk management and corporate governance; and
- Reporting our views and actions related to climate change to our stakeholders.



Exelon is focused on actions to reduce operational GHG emissions, such as replacing older cast iron and bare steel gas pipes to reduce fugitive methane emissions from natural gas distribution.

Mitigating climate change is in the United States' economic interest. As seen in the adjacent image, there is a distinct correlation between negative impacts to GDP and projected average temperature increases.

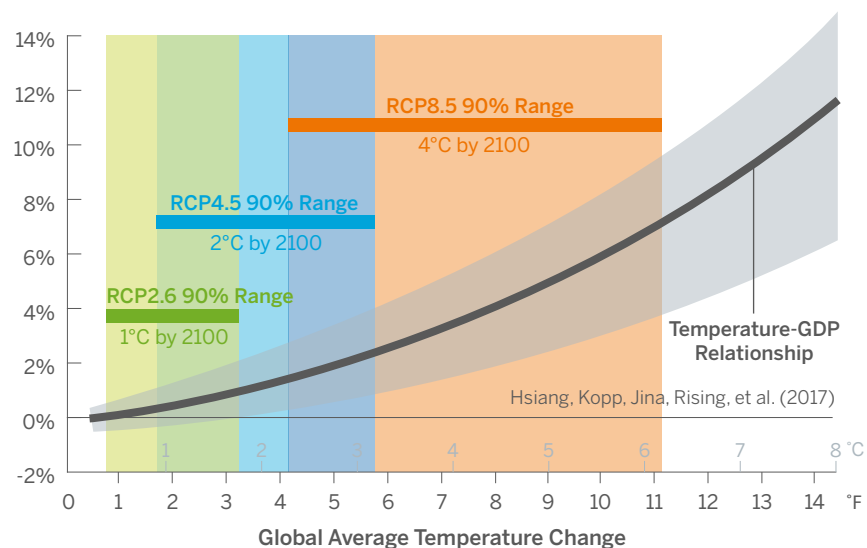
Based on GHG emissions that have already occurred and their long-term residence time in the atmosphere, the world is already experiencing increases in average global temperatures. The question for nations and industries is what actions are necessary to limit additional global average temperature increases to levels where less economic and environmental harm will occur. Specifically, this means limiting future emissions increases to a level where temperature increases level off such that societies are better able to respond to climate change impacts through adaptation programs and other measures that are less costly and more achievable.

We have begun to explore what it would take for the United States to achieve an 80 percent reduction in economy-wide GHG emissions by 2050 as compared to 1990 (referred to as 80x50) and the direct and indirect roles that Exelon and the energy industry can play in this transformation.

Since our formation in 2000, Exelon has been a leader in climate change disclosure and an advocate for low-carbon generation, energy efficiency and customer choice. Given our presence across the energy value chain, Exelon has the expertise to effectively support additional needed actions and participate in the growing dialogue on GHG emission reduction opportunities across the economy.

POTENTIAL DAMAGE TO GROSS DOMESTIC PRODUCT (GDP) INCREASES AS GLOBAL AVERAGE TEMPERATURES INCREASE

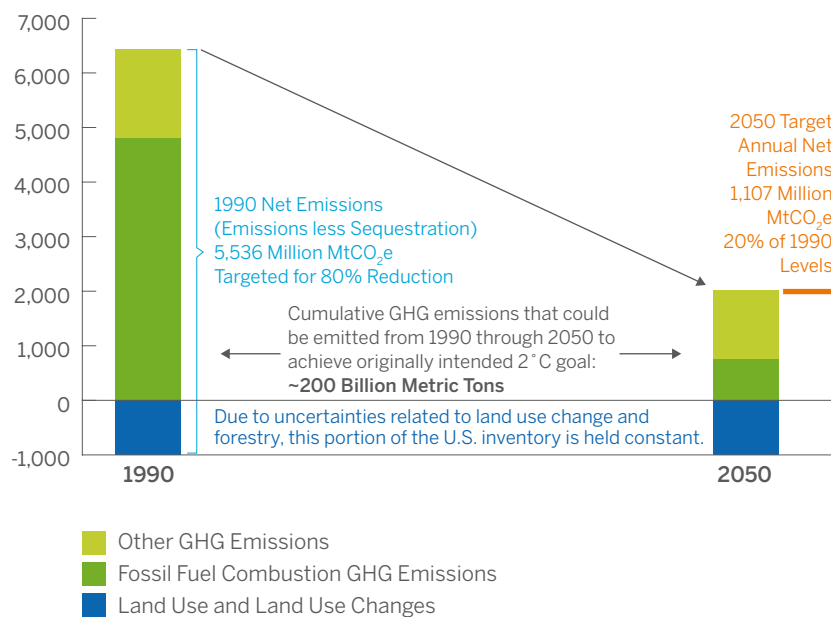
Direct damage from mortality, labor productivity, agriculture, energy demand, and coastal storms. Annual % GDP averaged over 2080–2099.



The Representative Concentration Pathways (RCP) presented depict different scenarios and time periods in which global annual emissions peak, with RCP 4.5 representing a mid-century peak and RCP 8.5 representing continued emission increases through the end of the 21st century.

Source: Forecasting Scenarios for GDP Loss in the U.S. from Rising Temperatures
Hsiang, Kopp, Jina, Rising, et al. (2017)

1990 TO 2050 CUMULATIVE U.S. EMISSIONS BUDGET RELATED TO U.S. SHARE OF GLOBAL ACTION NEEDED TO LIMIT AVERAGE GLOBAL TEMPERATURE INCREASE TO 2°C — 200 BILLION METRIC TONS



The original 80 percent reduction in global 1990 emissions is based on the amount of GHG emissions that could be emitted before a 2°C global average temperature increase would occur. That global target has been used to approximate a carbon budget for the U.S. that would be consistent with the 2°C target. Estimate developed by Exelon based on the area under a direct glideslope from 1990 emission levels to a level 80% lower in 2050. See <https://www.wri.org/ipcc-infographics> for more information.

The adjacent image shows our nation's challenge to reduce annual GHG emissions to levels needed to avoid the worst impacts of climate change. Combined with other countries' reductions, the U.S. would need to reduce GHG emissions from about 5.5 billion metric tons of CO₂e per year in 1990, to about 1.1 billion tons per year by 2050. These reductions need to begin immediately as GHG emissions into the atmosphere accumulate over time. There is a limited budget of GHG emissions that can be introduced into the atmosphere before the 2°C temperature threshold is exceeded.

The U.S. has not taken appropriate action to date to remain within this budget. As time passes without aggressive national action, it becomes increasingly difficult to avoid exceeding the budget. A longer delay in action means greater potential for economic disruptions from climate change and higher costs for more aggressive measures needed for mitigation.

Pathway to 80x50

To achieve an 80 percent reduction in emissions from 1990 by 2050 we must transform to a nearly carbon-free energy system. This includes energy efficiency, electrification of energy uses currently powered by fossil fuels, such as transportation and heating, and zero-carbon electricity generation. These three building blocks are essential and most effectively deployed through integrated energy and climate policies. A successful solution will achieve the desired emission reductions at lowest cost and with the least disruption possible, taking into account regional, technological and local economic differences. As the leading clean-energy company, we provide a range of sustainable energy products and services for our customers and communities, and therefore, can play a key role in working together to find solutions that mitigate climate change, while proactively adapting our systems to be resilient to impacts of climate change.

Economic and energy studies, such as the *Pathways to Deep Decarbonization in the United States* report prepared on behalf of the Deep Decarbonization Project² provide clear insights into the scope and magnitude of the effort required for the United States to reach the 80x50 GHG reduction level. According to this research and analysis, there are many different pathways to achieve the necessary emission reductions. All pathways require broad suites of actions and consideration of the relative trade-offs and implications that arise with the use of different technologies or approaches. Across all potential solution pathways, we see the following common elements:

- 1. An 80 percent reduction in U.S. economy-wide GHG emissions from 1990 by 2050 is only possible with efficient electrification backed by zero-carbon electric generation.** Electrification must be coupled with a transition of electric supply to primarily zero-carbon generation resources, such as renewable energy, nuclear power and other emerging sources of carbon-free energy. Given the size of the needed emission reductions, nearly all fossil fuel emissions that can be eliminated must be eliminated.
- 2. Significant action is needed throughout the economy immediately, with sustained progress** through mid-century. This type of economy-wide transformation requires unprecedented levels of end-user and energy supplier action, supported by effective federal and state policies and market price mechanisms. Current policies and GHG mitigation initiatives will not come close to achieving an 80x50 outcome.

² "Pathways to Deep Decarbonization in the United States," Deep Decarbonization Pathways Project, November 2015, http://deepdecarbonization.org/wp-content/uploads/2015/11/US_Deep_Decarbonization_Technical_Report.pdf.

The Deep Decarbonization Pathways Project (DDPP) is a collaborative global initiative to explore how individual countries can reduce greenhouse gas (GHG) emissions to levels consistent with limiting the anthropogenic increase in global mean surface temperature to less than 2 °C.



Electrification of the economy, coupled with zero-carbon generation supplies, is a key solution set to address climate change.



3. All current commercially viable supply and demand mitigation options need to be deployed and potential future options need to be developed. This will provide the greatest possibility of averting greater than 2°C global average temperature rise beyond 2050. Achieving the emission reductions necessary will require that countries and industries consider all possible technologies and accelerate implementation of many.
4. The necessary economy-wide levels of investment vary based on the mix of options pursued. **Routine equipment replacement cycles are key opportunities for taking advantage of available new technologies at lower cost.** More aggressive replacement programs can accelerate progress in this area. **Coordinated approaches that recognize these opportunities are needed to drive investment for this transition.**
5. The cost of inaction on climate change far exceeds the cost of action. Proactive steps to mitigate GHG emissions have the potential to stimulate economic activity by creating demand for new innovative products, services and technologies, as well as avoiding some of the costs of climate change. The level of investment required economy-wide to mitigate the worst impacts of climate change is estimated at around one percent of annual GDP by 2050.³ In contrast, however, the current trajectory would result in an adverse annual impact on U.S. GDP of approximately three to ten percent by the end of the century.⁴

3 Deep Decarbonization Pathways Project

4 Hsiang et al., "Estimating economic damage from climate change in the United States," June 2017, <http://science.sciencemag.org/content/356/6345/1362>

Jina, Amir. Will Global Warming Shrink U.S. GDP 10%? It's Complicated Says the Person Who Made The Estimate. Forbes. December 2018. <https://www.forbes.com/sites/ucenergy/2018/12/05/will-global-warming-shrink-u-s-gdp-10-its-complicated-says-the-person-who-made-the-estimate/#34e41f9e3f2e>



Equipment replacement cycles are key opportunities for driving more efficient energy use. LED street lighting upgrade in Crestwood, Illinois.



6. While the need to act is urgent, there are trade-offs to all solutions that must be carefully weighed in making decisions on the scale required to transition the economy. For example, large-scale use of biomass for advanced biofuels or deploying wind energy resources would require significant land use changes and transmission expansion. All options pose different challenges for society.

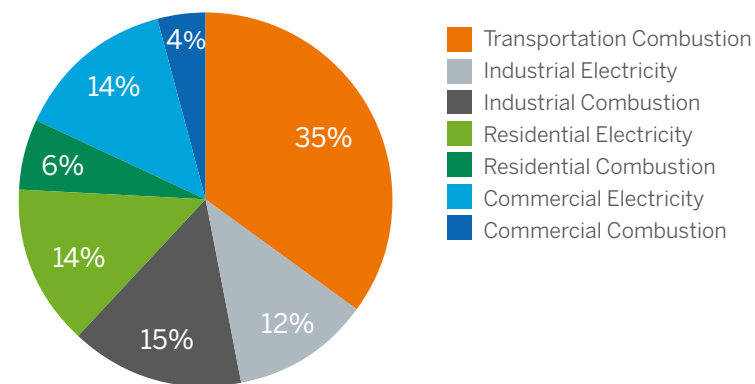
7. Timely, meaningful and effective policy measures are an imperative. Piecemeal state and regional actions are better than no action, but as currently implemented, are insufficient to fully address the challenge. National-scale policies and action are needed to drive the required level of emission reductions.

The changes needed to deeply decarbonize the economy over the next 30 years constitute an ambitious transformation of energy supply and use, requiring investment in new equipment and energy systems in all sectors.

The transition on the energy use side will change the way energy is used in transportation, businesses, industrial processes and homes. As can be seen in the adjacent image, GHG emissions occur across all major segments of the U.S. economy, including from sources associated with transportation, industry, commercial and residential energy usage. To achieve the 80x50 pathway, all of these source categories must significantly reduce their GHG emissions.

Electrification represents a significant opportunity in many sectors to displace end use fossil fuel emissions with lower-emission electric technologies. For example, in the transportation sector, this means significantly increasing adoption of electric vehicles. Current projections of light duty electric vehicle sales in the Annual Energy Outlook based on current policy are nine percent by 2030, 12 percent by 2040 and 14 percent by 2050. This transition is not rapid enough. Based on published studies, these adoption rates would need to increase by 30 percent to 80 percent by 2030 and 60 to 90 percent by 2040, with nearly 100 percent of all light

U.S. CO₂ EMISSIONS FROM FOSSIL FUEL COMBUSTION WITH ELECTRICITY EMISSIONS ALLOCATED TO END USE



Source: U.S. EPA Inventory of U.S. Greenhouse Gas Emissions and Sinks, 1990–2017.

duty vehicle sales being electric by 2050 to reduce emissions sufficiently. State commitments to Zero Emission Vehicle (ZEV) goals in Maryland and New Jersey, regional emission reduction programs through transportation electrification such as the Transportation and Climate Initiative (TCI) supported by a number of northeastern states, and continued federal legislative efforts to preserve and expand tax credits for electric vehicles are important efforts to support electrification of the transportation sector.

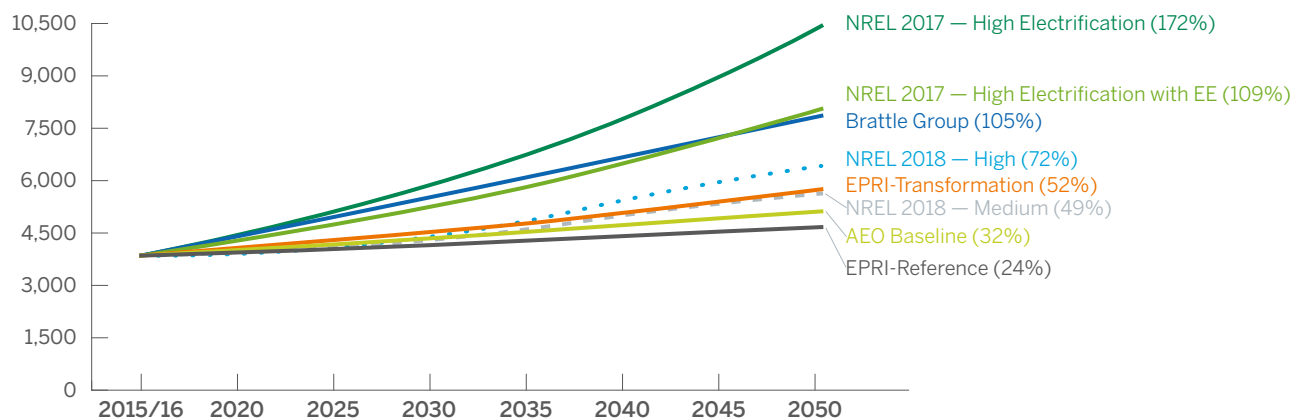
Not all end-uses can be electrified due to either cost or technical limitations that have yet to be solved. Carbon-neutral biofuels and hydrogen are also needed to reduce carbon emissions of some of the more challenging liquid and gaseous fuel demands. As discussed in the [Beneficial Electrification](#) section of this report, Exelon engages in identifying and pursuing electrification opportunities for customers through its [TechEXChange](#) and [Constellation Technology Ventures \(CTV\)](#).

Load Growth Scenarios Drawn from Third-Party Electrification Potential Studies

- **NREL 2017 Electrification & Decarbonization Study.** Explores high potential levels of electrification and their impact on the economy; however does not incorporate the risks, barriers or costs of electrification. The High Electrification Case assumes full electrification potential is achieved by 2050. High Electrification + Energy Efficiency (EE) Case lowers energy intensity of devices over time at same electrification of end-uses.
- **Brattle 2017 Electrification Emerging Opportunities for Utility Growth.** Provides a counternarrative to the 'utility death spiral' through a high-level estimate of full electrification of land-based transportation and residential/commercial heating. Industrial electrification is not included.
- **NREL 2018 Electrification Futures Study.** Explores plausible electrification scenarios for adoption of on-road transportation, most of the building sector and parts of the industrial sector. Medium scenario anticipates widespread electrification in 'low-hanging fruit' (EVs, heat pumps and select industrial applications). High scenario incorporates technology advancement, policy and consumer support that enables transformational change.
- **EPRI 2018 National Electrification Assessment.** Customer adoption analysis focusing on cost-effective technology adoption of reference technologies. Reference case assumes cost and performance improvements over time, in some cases rapidly, while the Transformation Case has the same assumptions, but overlays a price on carbon of \$50/ton in 2020, accelerating at seven percent per year.

THIRD-PARTY STUDIES OF VARIOUS POTENTIAL FUTURE ECONOMIC AND REGULATORY SCENARIOS

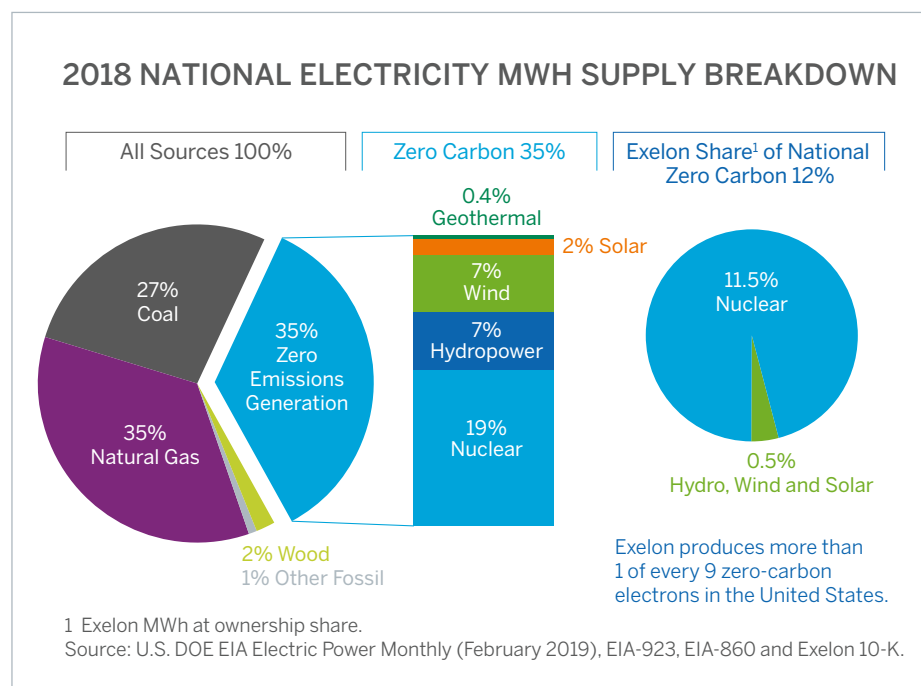
approximate TWh and % growth during study period



Meeting the Need for Electrification

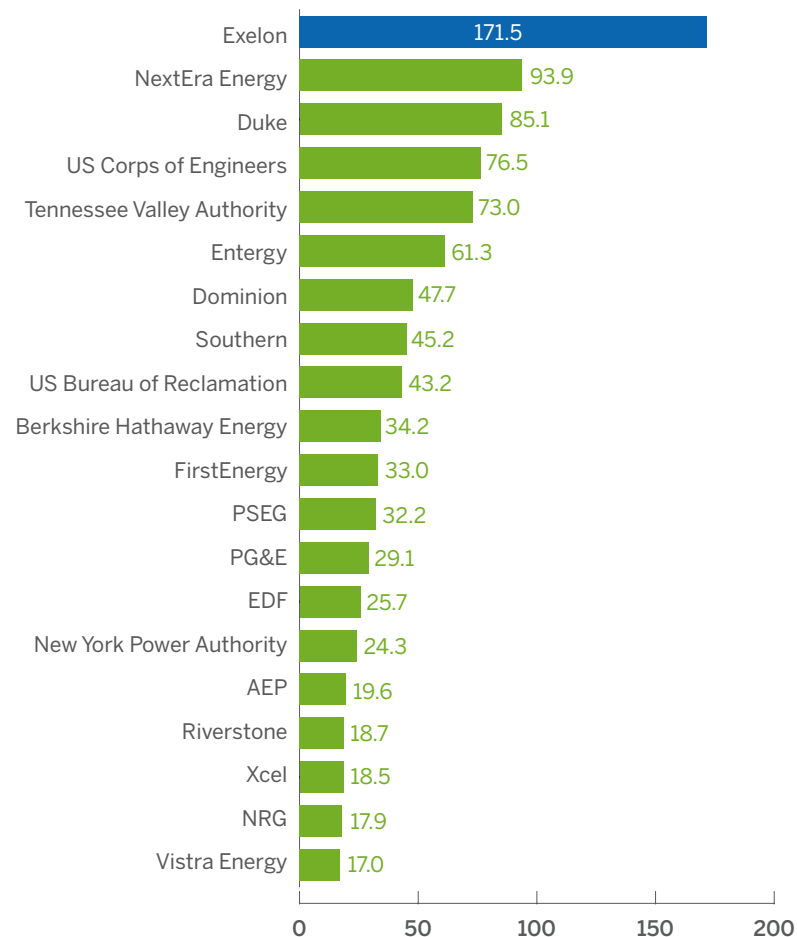
As fossil fuel use is replaced by lower-carbon electricity in 80x50 pathways, we see a near doubling of electric demand in the United States by 2050 across most scenarios. This increase presents a unique challenge and opportunity for the electric sector. Electricity providers must decrease total GHG emissions associated with electricity production even while meeting demand growth due to electrification. On net, achieving the 80x50 pathway across all sectors means that, by 2050, we must double electric production while achieving a 95 percent less carbon-intensive electric supply mix.

To meet the goal, as the U.S. economy electrifies, it is imperative that increasing amounts of zero-carbon sources of electric power are utilized to create true reductions in GHG emissions. As can be inferred from the adjacent image, this is particularly important as currently only 35% of power generation is zero-carbon.



TOP 20 LARGEST PRODUCERS OF ZERO-CARBON GENERATION

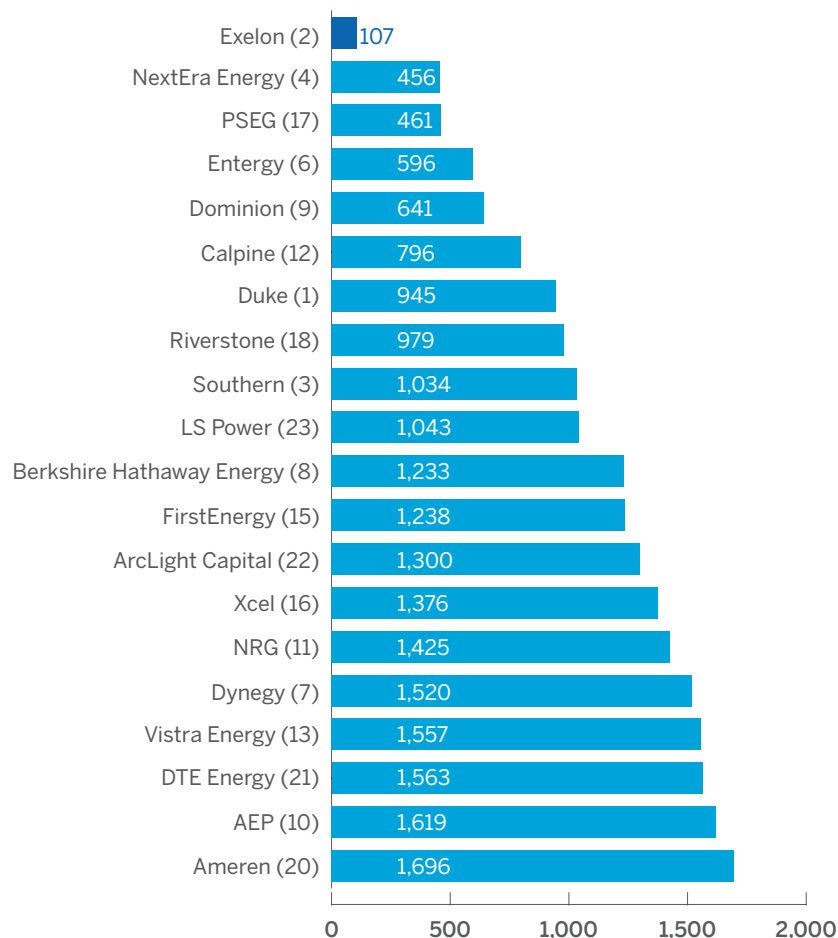
million MWh



Source: Benchmarking Air Emissions of the 100 Largest Electric Power Producers in the United States, M.J. Bradley & Associates (June 2019). Data used in the benchmarking report was calendar year 2017.

CO₂ EMISSION RATES OF THE TOP 20 INVESTOR-OWNED POWER PRODUCERS

all sources (lb/MWh)



Source: Benchmarking Air Emissions of the 100 Largest Electric Power Producers in the United States, M.J. Bradley & Associates (June 2019). Data used in the benchmarking report was calendar year 2017. Number in parentheses is the company generation ranking in 2017. i.e., Exelon was the second largest generator in 2017.

More electricity needs to come from zero-carbon sources if the nation is to meet its 80x50 challenge. Exelon Generation is the largest zero-carbon generator in the United States, producing almost twice as much zero-carbon generation than our next largest competitor. To further reduce GHG emissions in the electric sector, while simultaneously driving beneficial electrification in other sectors to help eliminate other sector fossil fuel emissions, today's levels of zero-carbon electric generation will not be enough. Achieving a fully decarbonized national electricity mix will require the continued operation of the nation's existing zero-carbon generation fleets, plus deployment of significant new zero-carbon generation sources as electrification of the economy increases over time.

Even with Exelon's industry-leading owned generation CO₂ intensity emission rate, we need to consider how to maintain and drive this rate even lower. Exelon's current intensity level is still above the national level likely to be needed by 2050 to achieve an 80x50 pathway. The adjacent image depicts the carbon intensity of the nation's largest investor-owned power producers in 2017 (latest benchmark year available) with Exelon's 2017 CO₂ intensity at 107 pounds per megawatt-hour. Exelon's challenge today differs from our largest competitors. As a foundational matter, we are focused on continued operation of Exelon's zero-carbon generation fleet at world-class output levels. In contrast, some of our competitors that still utilize high-carbon intensity fuels, such as coal, must replace high carbon intensity megawatt-hours with lower carbon intensity resources.

For our industry as a whole, we expect renewables like solar and wind to play a significant role in decarbonization, with nuclear energy also being a key part of the solution set due to its ability to provide reliable electricity under all demand and operational conditions. Technologies that address storage, improved grid integration and demand management are also necessary to accelerate the deployment of new sources of energy. Advances in new nuclear that allow for low-cost, fast-ramping capabilities could help to decrease costs and land use needed to make the transition.

Electric Vehicle Charging Carbon Coalition

Exelon, along with six other organizations from the private and public sectors, was a co-founding partner in the Electric Vehicle Charging Carbon Coalition (EVCCC). The other partners include the Climate Neutral Business Network, Carbon Neutral Cities Alliance, Connecticut Green Bank, Electrify America, EVgo and Siemens. The EVCCC worked to develop a creative new option for expanding EV charging infrastructure by accessing the carbon credit markets. The group developed a new certified methodology through the Verified Carbon Standards (VCS) that monetizes the carbon offset benefits of electric vehicle charging. EVCC was recognized with a Climate Leadership Award Innovative Partnership Certificate in early 2019 for engaging a range of stakeholders to pioneer a new EV charging carbon offset methodology.



Concurrent Need for Climate Adaptation and Mitigation

While action to further mitigate GHG emissions is critical for avoiding more severe physical changes, the reality is that we also need to adapt to the changes already occurring. The Fourth National Climate Assessment Special Report⁵ issued in 2017 predicts that without major reductions in emissions, the increase in annual average global temperature could reach 9°F (5°C) or more by the end of this century. In fact, we are already seeing a sustained increase in the range of 1.3°C. Therefore, businesses must consider the implications of a business-as-usual GHG emission trajectory that will require planning for the worst impacts of climate change.

As Exelon works to mitigate GHG emissions, we must also adapt for the climate change impacts that may uniquely affect our regional operations. We look for opportunities that mitigate GHG emissions and make our business more resilient to a changing climate. Our investments in smart grid technology, innovative customer products that encourage energy efficiency and investment in clean generation are some examples of how Exelon is addressing mitigation and adaptation simultaneously. By incorporating climate change issues into our business strategy and risk management processes, we are ensuring mitigation and adaptation are part of our corporate culture and business-as-usual operations.

⁵ Wuebbles et al., "Climate Science Special Report: Fourth National Climate Assessment, Volume I," U.S. Global Change Research Program, 2017, <https://science2017.globalchange.gov/>

EXELON'S APPROACH TO CLIMATE CHANGE

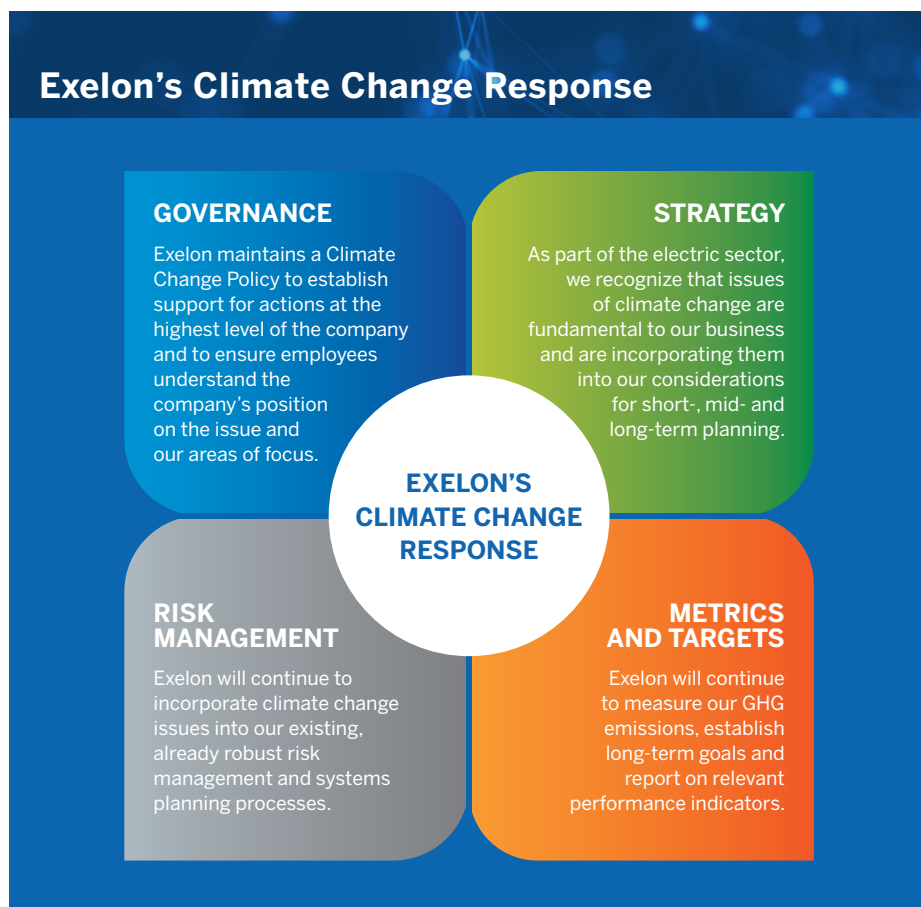
Given the challenges and potential solutions for the electric sector outlined above, Exelon is working to manage these issues in a similar manner as other risks and opportunities associated with our businesses.

Governance

Effective governance of our sustainability performance, including climate change, starts with the Corporate Governance Committee of the Exelon Board of Directors, whose charter includes oversight for this aspect of

our business. We maintain a Climate Change Policy, which establishes our corporate position on this issue. We commit to reducing GHG emissions, innovating to increase our future competitive advantage as a low-carbon energy company and engaging with stakeholders to understand how climate change will affect the economy, communities and Exelon operations. In the [Sustainability Governance](#) section of this report, we further discuss how we integrate climate risk into our risk management and governance procedures.

Our Chief Sustainability Officer is responsible for supporting the senior leadership team with setting the priorities and performance goals for



addressing climate change, overseeing the implementation of our climate change efforts and reporting to the Corporate Governance Committee of our Board at least annually. The Corporate Sustainability team is part of the Corporate Strategy and Innovation team, which helps ensure that the business strategy reflects the most current views on relevant climate-related issues and the interests of our stakeholders. The Strategy, Innovation and Sustainability teams advise senior leadership on how these climate change considerations may affect our business and how they potentially relate to other industry trends that our executive team must consider as it drives Exelon's overall strategic business planning.

Strategy

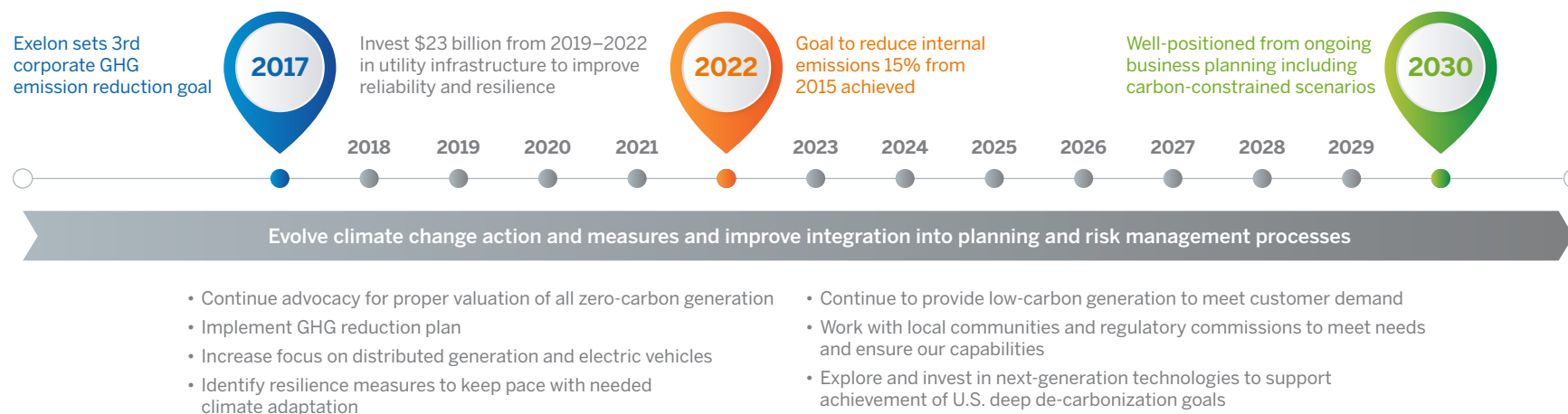
Our business strategy centers on our customers' expectation of reliable and affordable production and delivery of clean power. Our strategy also considers other externalities such as public policy and technological innovation that will contribute to shaping the grid of the future. Being a clean energy company is an important part of our company identity.

Exelon's business strategy is informed by our views of the durable trends in our industry, as discussed in the [Building the Next-Generation Energy Company](#) section of this report. Our sustainability governance strategy recognizes climate change as an issue interwoven into these durable trends. Five of the six durable trends encapsulate climate change risks and opportunities in one form or another, such as potential load changes as a result of carbon mitigation efforts (near-term decrease from electricity efficiency juxtaposed with long-term increases from electrification) or increased interest in distributed generation as a means of accessing more low carbon generation. As a response to these durable trends, our four strategic plan focus areas have been designed to turn these potential business risks into opportunities.

For example, our businesses are innovating to develop and implement low-carbon solutions for both our internal operations and for our customers and communities. Internally, we drive GHG reductions through our five-year corporate GHG emission reduction goal. For our customers, we are maximizing the production of zero-carbon electricity



EXELON CLIMATE CHANGE STRATEGY IMPLEMENTATION THROUGH 2030



and working with customers on electrification, energy efficiency and distributed energy opportunities. Furthermore, our investments in grid modernization are enabling customers to better understand and manage their own energy usage, while at the same time creating a more reliable and resilient power grid. More details on these efforts are discussed in the [Building the Next-Generation Energy Company](#) section of the report.

Based on these focus areas, our strategy with respect to climate issues is focused on:

- **In the short term — reducing carbon emissions and advocating for valuing all clean energy generation options.** Through the cost-effective operation of our zero-emission generating assets and providing customer solutions for using energy more effectively and efficiently we are continuing to mitigate GHG emissions. We are investing in technology solutions that enable our customers to take control of their energy use

and help them achieve their GHG reduction goals. We work with city, state and federal governments on their climate change plans and advocate for legislative and regulatory reforms that fully value existing and new sources of zero-carbon generation like nuclear. In collaboration with stakeholders, we are working to encourage greater investment in zero-carbon resources and recognize potential physical risks from a changing climate in their planning standards. For more information on our current public policy priorities, see [our strategy on public policy engagement](#). Also, see the [Beneficial Electrification](#) Side Bar for more information on how we are investing in electrification.

- **Over the next five years and building on past efforts — reducing emissions in our owned operations and maximizing emission-free generation and reducing emissions in our owned operations.** To maximize emission-free generation, we must continue operating all of

our zero-carbon nuclear generation plants at a high capacity factor. To further maximize available zero-carbon megawatt-hours, we must also use renewable energy when it is available. Furthermore, we must enable the integration of distributed energy resources such as renewables and storage, improve the efficiency of electric delivery, manage how it is used and increase resilience of our systems to adapt to a changing climate. Finally, we must continue working internally on our own [corporate GHG emission reduction goal](#).

- **For the long term — continuing to build customer and community partnerships and driving innovation of the energy sector to achieve the 80x50 target.** Exelon is developing and deploying zero-emission energy sources and energy solutions for our customers to help them meet their interest and for innovative energy products and services, including local renewable generation and electrification of transportation and other systems. Exelon is also exploring the next generation of technologies needed to support a longer-term achievement of U.S. deep de-carbonization goals.

Climate-related Risk Management

Exelon has a well-established approach for Enterprise Risk Management (ERM) that uses a continuous, systematic and dynamic risk assessment process to manage emerging risks, including climate change. We frame, identify, assess, manage, monitor and execute on our short-, near- and long-term risk response plans. In some cases, our risk framework and management plans enable us to turn challenges into new business opportunities. This applies to many business risks, including climate change.

We assess longer-term physical climate change risks at the business unit level and within our infrastructure planning processes. These assessments include the use of regional climate change projections. Our utilities are

required to act in the public interest pursuant to the requirements of state public utility commissions. The investments we make in our T&D systems are supported by credible analysis to gain utility commission approval for earning a return on those investments. Exelon continues to expand its use of alternative future climate change impact projections into our already robust planning processes. We seek to coordinate these efforts with state, regional or other essential services planning efforts as possible.

As part of our climate risk management, Exelon continues to participate in the U.S. DOE Partnership for Electric Sector Climate Resilience. Through the Partnership, we collaborated to develop a maturity model for the attributes of a resilient utility. We are using this document to advance our climate change resilience planning efforts. We are working to better capture the specific elements of climate change projections in our planning processes, recognizing that climate change may affect different parts of our business in different ways. We continue to explore opportunities to increase climate change training and communication efforts, increase climate change awareness in planning and improve coordination with local organizations working on climate adaptation and resilience plans.

Exelon is also a founding member of the Electric Utility Sustainable Supply Chain Alliance. Through this and other supplier engagements, we are assessing and managing our supply chain risks associated with climate change. Through an annual supply chain survey, we gather information to better understand the energy and water dependencies and management strategies of our suppliers. Through the commodity standards developed by the organization, we are helping to educate and improve the environmental performance of our suppliers. We have also begun to request information from our Tier 1 and critical suppliers to ensure they have business continuity plans in place to deal with unanticipated disruptions. Additional information can be found in the [Sustainable Supply Chain](#) section of this report.

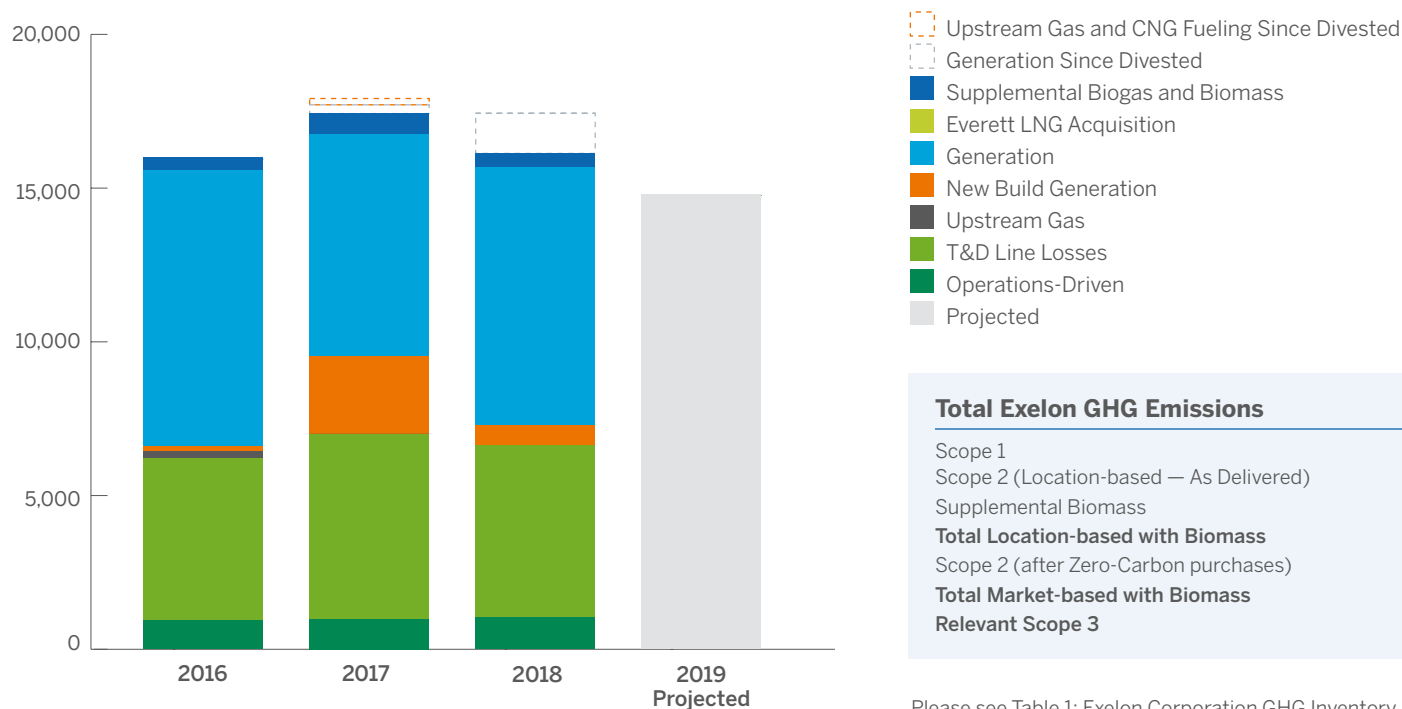
Metrics and Targets

Exelon has maintained a corporate GHG emission inventory since 2001 and has received third-party verification on its inventory since 2008. We have participated in public disclosure programs, such as CDP and The Climate Registry, for over 10 years. The bar chart below depicts Exelon's

latest corporate GHG emission inventory by major emission category, how these emissions have changed over time and what is anticipated for 2019. A detailed accounting of Scope 1, 2 and 3 emissions is presented in the [Appendix](#).

EXELON GHG INVENTORY (SCOPE 1 + SCOPE 2 — LOCATION-BASED ACCOUNTING)

thousand metric tons GHG emissions

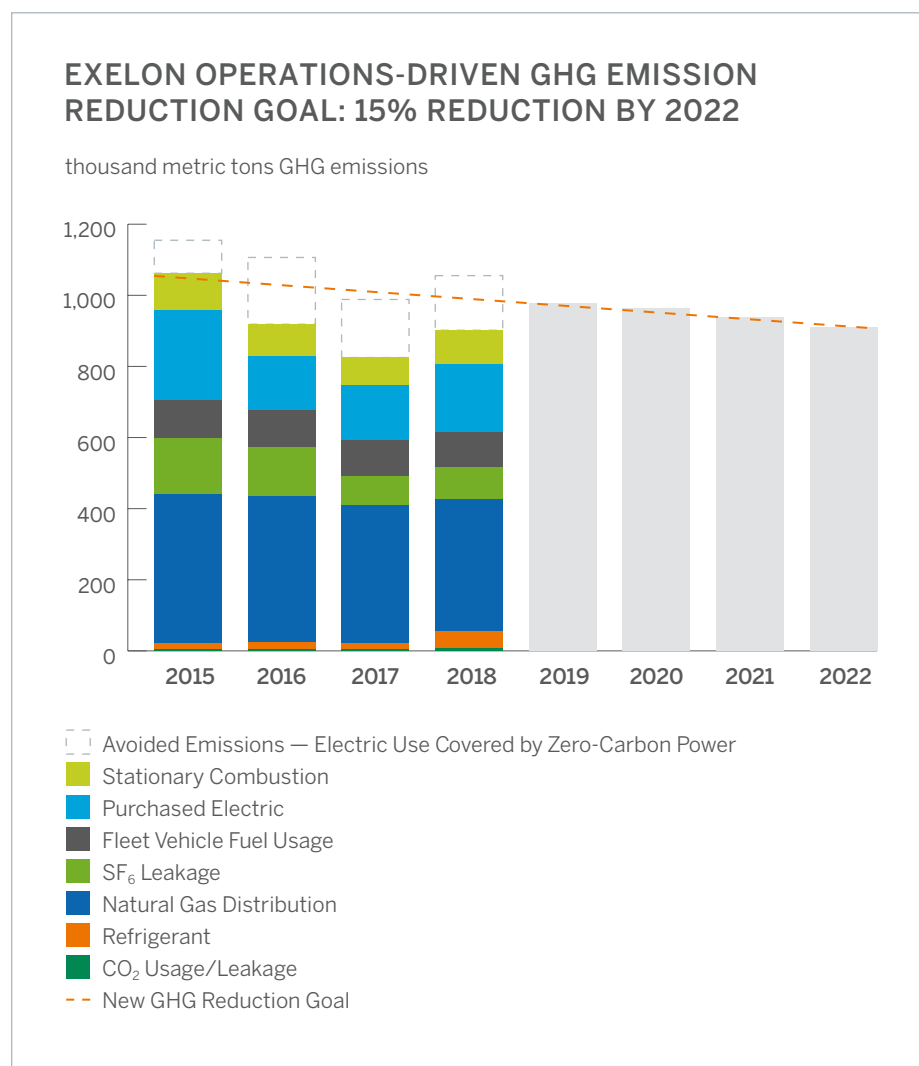


Total Exelon GHG Emissions

	2016	2017	2018
Scope 1	9,723	10,200	9,526
Scope 2 (Location-based — As Delivered)	7,061	6,521	6,120
Supplemental Biomass	345	688	436
Total Location-based with Biomass	17,130	17,409	16,082
Scope 2 (after Zero-Carbon purchases)	5,246	5,037	4,817
Total Market-based with Biomass	15,314	15,926	14,779
Relevant Scope 3	113,242	105,233	110,475

Please see Table 1: Exelon Corporation GHG Inventory Breakdown table in the appendix for a more granular view of Exelon's GHG emission inventory.

Exelon is also on track to meet and exceed its third corporate GHG emission reduction goal announced in 2018. This goal, which builds on significant GHG reductions already achieved over the past 10 years, commits to reducing GHG emissions stemming from our internal operations by another 15 percent by 2022, compared to a 2015 baseline.



The goal focuses on GHG emissions associated with our buildings, our fleet vehicles and our processes and equipment that emit GHGs (methane, SF₆, CO₂ and refrigerants). The goal does not include GHG emissions driven by customer use of electricity (generation and distribution line losses), since these emissions vary with market demand and are captured in our measurement of generation emissions intensity and avoided emissions associated with our customer energy efficiency programs.

We remain on track to achieve our goal in 2022, even while experiencing growth in our portfolio from three new plants that came online in 2018. To reach our operational emission reduction goal, we are:

- Investing in natural gas pipe replacements to minimize methane leakage;
- Investing in new generation transformers to reduce SF₆ volumes on our systems;
- Investing in the electrification of our own fleet; and
- Continuing to focus on energy efficiency and expanding clean energy procurement for our operations.

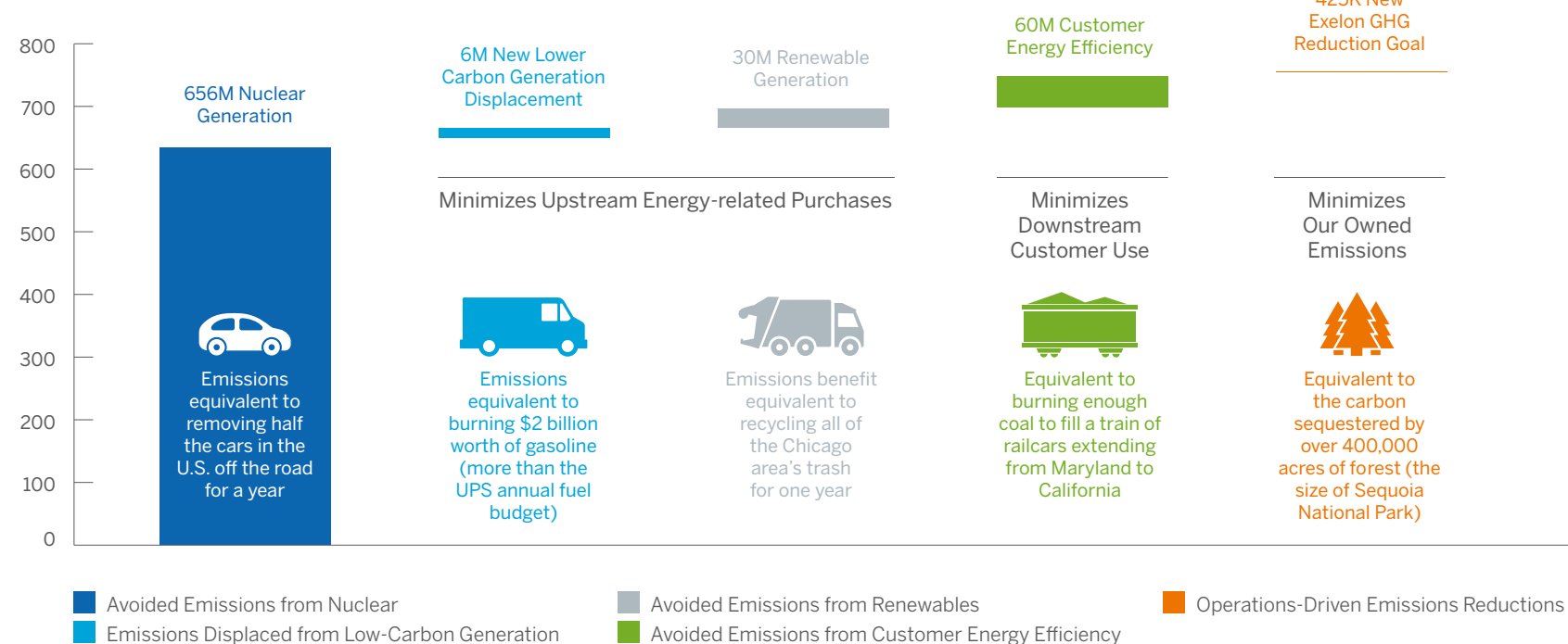
Exelon is also focused on minimizing our customer-driven emissions. Exelon publishes the carbon intensity of our owned generation portfolio in the [Reducing Air Emissions](#) section of this report. In 2018, Exelon Generation's owned-generation intensity rate was 100.4 pounds of CO₂ per MWh, 90 percent lower than the national average emission rate. This level is far below the contemporaneous glidepath intensity rate suggested by the Science Based Targets initiative as necessary for industry to continue progress toward limiting average global temperature increase to 2°C by 2050. As Exelon adjusts our portfolio in the near term to accommodate new generation, retirements and divestitures, we expect our carbon intensity rate in 2020 to increase slightly, to 120 pounds of CO₂ per MWh. However, this intensity level will continue to lead the industry for a power generation company of Exelon's size.

We present our nuclear and renewable electricity generation in terms of the fossil generation emissions that are avoided by the generation they put on the grid as another means of representing their relative importance to national GHG emissions reduction efforts.

Finally, we continue to focus on customer-driven Scope 3 emissions, through our utility customer energy efficiency programs. These emissions are associated with electricity we deliver that is beyond what we produce. These efforts are also quantifiable in terms of fossil generation emissions avoided because of these programs.

EXELON'S CUMULATIVE GHG MITIGATION EFFORTS 2015 THROUGH 2022

million metric tons of avoided GHG emissions



Natural Gas Emissions Reductions

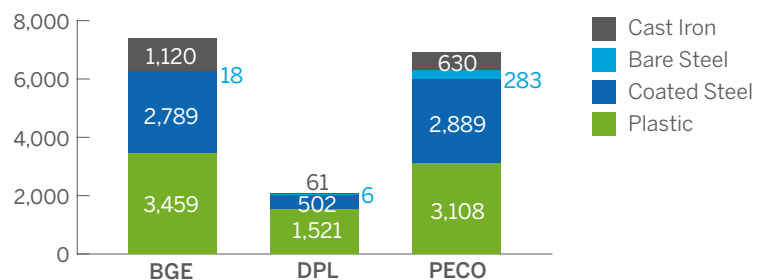
Three of Exelon's utilities — PECO, BGE and DPL — provide natural gas distribution service to customers through approximately 16,000 miles of gas mains, as well as a limited amount of gas transmission pipe (less than 200 miles). Over the course of our industry's long history, a variety of pipe main materials have been used, including cast iron, bare steel, coated steel and plastic. Service connections from the gas main in the street to the home or business have also used various materials, including copper, bare steel, coated steel and plastic, with Exelon's utilities having more than one million gas service connections. [Main and service by company details](#)

Exelon's utilities have active programs in place to replace old cast iron and bare steel gas mains that may be more prone to methane leakage due to their age and physical properties. Similarly, older gas services are being upgraded as needed on a proactive basis. As can be seen in the below bar charts, DPL has already replaced most of its cast iron and unprotected steel mains. BGE and PECO both maintain long-term pipe replacement programs aimed at eliminating all cast iron and unprotected steel pipes and services by 2037. [Replacement program details](#)

From a safety perspective, Exelon conducts periodic surveys of gas main and service assets, regardless of pipe type or age, to identify potential fugitive emission leaks, using a variety of technologies. These include optical methane detectors, remote methane leak detectors and combustible gas indicators. Identified leaks are prioritized for repair based on risk and in conformance with, or faster than, industry standards and regulatory requirements. [Leak detection and repair details](#)

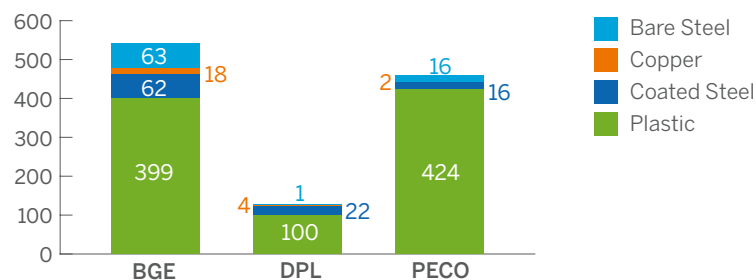
Exelon's gas utilities are members of the U.S. Environmental Protection Agency (EPA) Methane Challenge program, under which our utilities have committed to replace at least two percent of cast iron and unprotected steel natural gas distribution piping per year through 2021. Under Exelon's new GHG emission reduction goal to reduce operations-related GHG emissions by 15 percent by 2022, methane emission reductions are a key component of our emission reduction strategy. Our 2015 baseline year methane emissions were over 420,000 metric tons of CO₂e. In terms of emission intensity, we estimate that methane emissions in our 2015 baseline year were 0.44 percent of weather-corrected total natural gas system throughput. [GHG emission and intensity details](#)

EXELON UTILITIES NATURAL GAS MAIN MILEAGE



EXELON UTILITIES NATURAL GAS SERVICES

in thousands





Creating Value For Customers

- Achieved top quartile performance at our utilities for outage frequency
- Helped utility customers save 21.9 million MWh and avoid 9.9 million metric tons of CO₂e through energy efficiency programs
- Continued to grow our renewable energy offerings at Constellation through commercial solar and innovative renewable energy products

Our customers value clean, affordable and reliable energy and power distribution systems. Energy efficiency and low-carbon energy supplies are important focus areas for our company and our customers alike. We pursue operational excellence that drives efficient transmission, distribution and production of energy, resulting in affordability for our customers. By investing in the smart grid and innovative new technologies, we enable an integrated energy system, improve reliability and empower customers to participate in their energy system.

CONNECTED COMMUNITIES

Our six utilities deliver electricity and natural gas to approximately 10 million customers in communities throughout Delaware, Illinois, Maryland, New Jersey, Pennsylvania and the District of Columbia. To best serve our customers in the future, our utility companies are strategically investing in technologies, information systems and infrastructure that make our physical grid more efficient, resilient and further enable connected communities. We continue making investments in operational efficiency and higher system reliability, but we also make investments in innovative products and services that allow customers to more fully participate in the energy system. By enabling customer access to energy usage data and integrating customer generation into the emerging smart grid, we strengthen connections among people, business and the energy system.

Creating a Smarter Power Grid

A smart grid is a modern electrical system that uses automated data collection, two-way communications and technology to deliver energy

more reliably and efficiently. It provides data on hourly energy usage for customers and allows utilities to control and monitor the power system at a much more granular level than was previously possible. Across our utilities, we have installed, or plan to install, smart meters at customer properties to support smart grid operations. Smart meters not only help customers manage energy use, but they also allow for better integration of distributed energy resources (such as solar photovoltaics at homes and businesses) into the grid. As a result, we can provide more detailed usage information to customers from smart meter data and we supplement this with programs that encourage conservation and energy savings.



Renewable energy lighting pilot
ribbon cutting at ComEd's Community
of the Future in Bronzeville, Chicago.



Smart meters also facilitate improved customer service and smart grid operations. Utilities are able to utilize data from smart meters to more quickly deploy solutions to customer inquiries, including for remote service connect or disconnect. This in turn reduces the utility's fuel consumption, lowering GHG emissions and allows employees to focus on other aspects of our customer service. In 2018, Exelon utilities avoided over 750,000 service truck connect/disconnect trips through the use of smart meters, up from 658,000 in 2017. When outages do occur, the new metering technology significantly aids response time and allows for quicker and more targeted restoration work during storms or other power disturbances. Over the coming years, we expect to leverage smart meter data in increasingly innovative ways to improve service to customers.

Advanced gas meters, like electric smart meters, have remote sensing benefits and provide usage data to support efficiency and reliability. Deployment of advanced gas meters helps improve public safety while reducing maintenance costs.

Exelon utilities invested approximately \$5.4 billion in 2018 in electric transmission, electric distribution and gas distribution systems. Through December 2018, we upgraded over 10 million smart electric and gas meters at the Exelon utilities. Highlights include the following:

BGE. BGE has installed more than 1.2 million electric smart meters and over 650,000 advanced gas meters in total. Through the Smart Energy Manager program, BGE customers reduced energy use by 189,000 MWh in 2018. The Smart Energy Rewards program paid out nearly \$12 million in bill credits in 2018, with the capability to reduce peak load by 150MW. Through continued use of smart meter disconnect switches, BGE avoided nearly 100,000 truck rolls in 2018. In 2018, BGE improved online customer insights, including adding a monthly view option for the Home Energy Analysis tool and showing net generation data for solar customers on the View My Usage tool. In 2018, the Home Energy Report added a welcome

series for new customers, modules that disaggregate energy used for cooling homes and use of program participation data to better identify customer eligibility for additional EmPOWER MD programs. BGE continued deploying the next-generation Itron distribution automation communication network to make its system more reliable and resilient. By the end of 2018, 487 conservation voltage reduction (CVR) and 254 distributed automation (DA) device upgrades had been made since the effort started in 2017. The utility has also deployed CVR at 85 substations, representing approximately 45 percent of the utility's primary electric distribution system. An additional 31 substations will be deployed in 2019, with CVR investments continuing through 2021. CVR involves using smart meters to more tightly control voltage on feeder lines, saving electricity and avoiding GHG emissions. DA involves equipment designed to help the system quickly isolate grid faults and enable rapid system recovery.

ComEd. Through 2018, ComEd has installed approximately 4.1 million smart meters. ComEd's smart meter mass deployment phase was completed in 2018, three years ahead of the originally planned completion date. Deployment acceleration allowed more customers to capture smart meter benefits earlier than originally expected. Peak Time Savings, an innovative demand response program made possible by smart meter technology, completed its fourth summer in 2018 with approximately 277,000 residential customer enrollments. In just four years, Peak Time Savings has issued more than \$5.6 million in cumulative bill credits. ComEd uses smart meter data to provide residential customers with detailed insights into their energy usage. Customers can sign up to receive high usage alerts, notifying them when their usage is trending higher than normal for that period and weekly usage reports that summarize their past week's usage. Customers with smart meters can also view their daily and hourly usage data on ComEd.com/MyAccount and learn about ways to save after completing a short questionnaire on their home. ComEd began a five-year plan to install approximately 140,000 utility-owned smart streetlights. In

2018, it installed approximately 26,000, with plans to complete 21,000 more in 2019. Potential new service offerings are being evaluated for customer-owned streetlights. Additionally, in July 2018 approximately 200 smart water meters were deployed as a proof-of-concept within three local municipalities.

PECO. PECO continues to drive innovation, advancing smart energy to provide safe, reliable, affordable and clean energy to customers. PECO fully deployed smart meters to its electric and gas customers, with the exception of approximately 425 large commercial and industrial accounts where the complex meters are being transitioned to the advanced metering infrastructure. PECO's investment in smart meter technology continues to provide significant benefits to customers. These include faster and more convenient service and enhanced ability for customers to make informed decisions about their energy use. Specifically, PECO continues to improve outage restoration, interruption frequency and interruption duration metrics resulting from smart metering. PECO avoided more than 26,000 outage response truck rolls and approximately 94,000 routine service connect/disconnect trips in 2018. PECO received a 2018 Technology Transfer Award from EPRI for their work related to developing sensors that identify when a pole has significantly tilted or fallen due to storm or third party damage. This solution will help improve emergency event dispatch because the dispatcher will have better insight on the actual damage and be able to send a properly equipped crew to the site. Data analytics solutions also help make significant contributions to reduce customer debt.

PHI. By the end of 2018, PHI installed more than 1.4 million smart meters, which saved approximately 240,000 truck rolls related to service connection and disconnection. PHI customers benefited from smart meters in a number of ways, including outage restoration time improvements, remote pinging of meters, Peak Energy Savings Credit, remote connect/disconnect, credit support activities and interval billing. More broadly, Pepco



In 2018, PECO avoided 493,000 service truck trips due to smart meter deployment completion, representing 43 percent of the Exelon utilities' total.



Maryland and DPL Maryland achieved significant operational and customer benefits to date. This includes over \$23 million in saved meter reading costs, approximately \$15.5 million in saved operations and maintenance costs due to remote connect/disconnect functionality and roughly 1.7 million unique customers accessing the Web Based Energy Management Tools.

The smart meter network and the data it provides are constantly evaluated for improvements. For instance, a CVR program inputs voltage

data from approximately 481,000 Pepco customers and about 51,000 DPL customers, creating energy savings for customers and supporting enhanced distribution system planning and management. To date, the Pepco and DPL CVR programs resulted in a 1.5 percent reduction in substation voltage. Pepco implemented CVR on approximately 85 percent of its Maryland substations and DPL on approximately 24 percent of its Maryland substations. Based on the latest estimates, PHI customers in Maryland saved an annual 118,000 MWh in energy in 2018. The overall peak system demand reductions are calculated to be approximately 26.2 MW for the two utilities in Maryland, which has led to a reduced capacity obligation in the PJM market. PHI has met its goals in Maryland of reaching 85 percent of Pepco customers and 25 percent of DPL customers.

ACE recently completed an Advanced Metering Infrastructure (AMI) business case, which it submitted to the NJ Board of Public Utilities estimating approximately \$569 million in quantifiable operational and customer savings over a 20-year period. Benefits include eliminating approximately 75,000 truck rolls per year, reducing major storm outage duration and cost by 10 percent, saving 954 GWh in energy from CVR and customer-side behavioral changes, improved ability to detect and stop theft, improved integration of distributed energy resources and enhanced customer engagement and choice. This would also serve as a platform for ACE's transformation into a Utility of the Future that builds smart and connected communities in the state. It also enables New Jersey to achieve its renewable energy and energy efficiency goals in pursuit of reducing the state's environmental footprint.

SMART ELECTRIC AND NATURAL GAS METER DEPLOYMENT ACROSS EXELON UTILITIES AS OF DEC. 31, 2018

Electric	BGE	ComEd	PECO	PHI	Total
Total smart meters planned (in thousands)	1,288	4,223	1,772	2,012	9,295
Deployed	1,278	4,215	1,772	1,440	8,705
Remaining ¹	10	1	0	571 ³	582
Planned completion date ²	Complete	Complete	Complete	Complete	
Avoided truck trips related to service connect/disconnect transactions (in thousands, for 2018 only)	100	316	94	240	750
Natural Gas					
Total gas meter upgrades planned (in thousands)	662	N/A	543	139	1,344
Deployed	650	N/A	543	136	1,329
Remaining ¹	12	N/A	0	3	15
Planned completion date	Complete	N/A	Complete	Complete	

1 Some hard to access meters will require additional time to complete beyond program completion dates.

2 For ComEd, remaining excludes 7,000 Non-AMI Meter (Rider NAM) legacy meters.

3 An additional 563,000 meters are planned for installation in ACE's service territory. Approval to purchase and install will be pursued over next 5 years.

Customer Service and Reliability

Our utilities are committed to improving customer satisfaction through the delivery of reliable and cost-effective service. Each utility pursues programs for achieving a high level of reliability and maintaining exceptional customer focus. In 2018, we continued our strong performance in minimizing the average number of interruptions per customer (SAIFI), with ComEd attaining top decile performance and BGE, PECO and PHI all performing at top quartile. Similarly, BGE and ComEd achieved top decile performance for outage duration (CAIDI), while PHI achieved top quartile. Ongoing reliability improvements at our utilities include:

- Continued focus on minimizing interruptions on the transmission systems and connected substations;
- Installation of new electronically controlled switches to reduce the number of customers affected when outages occur;
- Targeted reliability upgrades to address areas where reliability is below the system average;
- Replacement of overhead wires with modern tree-tolerant construction or underground cable;
- Continued integration of information from smart meters into the outage management process;
- Measurement and management of outage restoration processes for improved efficiency;
- Underground distribution cable replacement and remediation programs;
- Ongoing vegetation management to keep overhead lines and other assets free from falling trees and limbs; and
- Investigating new technologies for opportunities to reduce outage frequency and duration.

RELIABILITY

SAIFI ¹	2016	2017	2018
BGE	0.90	0.63	0.84
ComEd	0.62	0.56	0.61
PECO	0.77	0.72	0.82
PHI	1.02	0.81	0.81

CAIDI ²	2016	2017	2018
BGE	87	82	86
ComEd	86	81	81
PECO	88	91	94
PHI	101	86	87

1 System Average Interruption Frequency Index (SAIFI) = Average number of interruptions per customer (total interruptions), excluding major events, per IEEE definition 1366, and planned interruptions.

2 Customer Average Interruption Duration Index (CAIDI) = Average outage duration (in minutes), excluding major events, per IEEE definition 1366, and planned interruptions.

2018 Award: Excellence in Reliability



ACE received the Reliability One award for Outstanding Midsize Utility in 2018. The award recognizes Exelon as the best midsize investor-owned utility in the United States. This was based on Exelon's 2017 reliability performance ranking in the top 95th percentile as benchmarked by PA Consulting.

Improving Reliability through Microgrids in Illinois

In February of 2018, the Illinois Commerce Commission approved ComEd's proposal to install the first utility-operated microgrid cluster in the world. Microgrids are a portion of the electric grid that are powered by distributed energy resources like solar panels and energy storage that can operate either in conjunction with the broader grid, or as an island, ensuring that customers continue to receive power during a wide-scale outage. Experts note that this technology increases community resilience so that the grid can face any challenge, from a major weather event like Hurricane Maria in Puerto Rico to a cyber-attack.

Our utilities offer a wide range of programs enabled by smart grid technologies that enhance the customer experience through improved communication tools. We also offer programs to help customers understand and manage their energy usage and take actions in areas such as energy efficiency. These include:

- Providing innovative service options that offer customers with a wider range of channels to communicate with us and get information (e.g., mobile apps, social media, website, text);
- Improving the accuracy and timeliness of information to customers during outages, including restoration estimates;
- Helping customers manage energy use and lower costs through implementation of a growing portfolio of energy efficiency and smart usage rewards programs;
- New and improved ways for customers to obtain information to understand and monitor their energy use;

- Communicating proactively with government officials, agencies and media during storm events to help customers understand safety concerns, challenges, the extent of efforts to restore power and when they should have their power back on; and
- Supporting the local economy, community, education and nonprofit organizations through dozens of corporate citizenship activities.

Our Customer Satisfaction Index monitors our progress and captures our performance in three survey metrics among residential and small business customers: overall satisfaction, meeting expectations and overall favorability. BGE and ComEd had record customer satisfaction scores and achieved top quartile results in 2018. PECO and PHI utilities also had positive satisfaction scores across both customer segments, with PECO's index score in the first quartile and PHI's index score in the second quartile.

ComEd. ComEd's Customer Satisfaction Index improved due to increasing satisfaction of residential and small business customers related to outage frequency and duration. Among small business customers, there was also meaningful improvement in perceptions of rates and outage information.

CUSTOMER SATISFACTION INDEX

	2016	2017	2018
BGE	7.78	7.94	8.06
ComEd	7.97	8.00	8.04
PECO	7.98	8.07	8.00
PHI ¹	N/A	7.59	7.72

¹ PHI began calculating its customer satisfaction index on the same basis as the other Exelon utilities starting in 2017, the first full calendar year following the PHI merger into Exelon.

PECO. PECO's top quartile performance was attributable to high reliability and customer service satisfaction among both residential and small business segments. In addition, PECO embarked on a company-wide "Plus One" employee training initiative designed to enhance the culture and continuously deliver a premier customer experience.

BGE. BGE's improvement in customer satisfaction was due to marketing campaigns that increased customer awareness of our efforts to improve the billing and payment experience. J.D. Power ranked BGE "Highest in Customer Satisfaction with Business Electric (Large Utilities) and Natural Gas Service in the East"¹.

PHI. PHI has continued strong performance in terms of customer satisfaction with reliability, with ongoing efforts in place to enhance the customer experience across segments. Each of the three utilities showed improved Customer Satisfaction Index scores in 2018.

Customer care center satisfaction continues to improve and all utilities exceeded targets in 2018. These gains are primarily attributed to a focus on improving call resolution, self-service enhancements and standardized training and process improvements.

Energy Efficiency

Our customers are increasingly seeking opportunities to save energy, reducing both their monthly bills and their emissions from energy use. We are committed to assisting our customers in saving money and managing their energy usage, understanding that affordability will always be a critical component of our customers' decisions regarding their energy use. Our programs enable us to partner with our communities, creating innovative opportunities to grow the workforce while helping our communities reach their sustainability goals.

¹ Baltimore Gas and Electric Company (or "BGE") received the highest score in the East Large segment of the 2018 Electric Utility Business Customer Satisfaction Study and the East Region of the 2018 Gas Utility Business Customer Satisfaction Study of electric and gas utility customer satisfaction among business customers. Visit [jdpower.com/awards](https://www.jdpower.com/awards)

2018 Award



J.D. Power ranked BGE "Highest in Customer Satisfaction with Business Electric Service and Business Gas Service in the East among Large Utilities."



Customer care center satisfaction continues to improve with all utilities exceeding performance targets in 2018.



Hourly Pricing and Smart Usage Rewards

Each of the Exelon utilities offers hourly pricing or smart usage rewards programs so that customers are able to manage their costs and reduce load during peak times.

BGE. BGE's residential demand response program, BGE PeakRewardsSM, continued to add participants with more than 318,000 air conditioning and 23,000 water heater customers at year-end receiving nearly \$22 million in bill credits and creating a potential demand reduction of 286 MW. During 2018, the PeakRewards program installed smart thermostats in customers' homes with nearly 17,000 installed during 2018 bringing the total smart thermostats installed under the program to more than 25,000. Since program inception, PeakRewards customers have received over \$250 million in bill credits and benefited from over \$158 million in the value of the devices installed in their homes. BGE customers with a smart meter have the opportunity to participate in BGE's Smart Energy Rewards peak time rebate demand response program. During 2018, BGE initiated three Energy Savers Day events with average participation of 805,000 customers. The demand reduction from these events was estimated at 140 MW. Participating customers received over \$11.6 million in bill credits for their participation during these events based on their individual energy reductions.

ComEd. In 2018, ComEd offered two residential smart usage rewards programs, which included the Central Air Conditioning Cycling Program and the Peak Time Savings Program. The AC Cycling Program at the end of 2018 included 68,918 customers using a traditional direct load control switch option and 24,497 customers using the Nest smart thermostat option for a total of 93,415 customers in the program. The Peak Time Savings Program completed its fourth summer season in 2018 with approximately 270,000 participants and more than \$3.1 million in summer bill credits issued. ComEd also offered a smart usage rewards program to commercial

and industrial customers called the Voluntary Load Response Program that included 2,817 customers. ComEd's Hourly Pricing Program allows residential customers to purchase electricity at prices that vary each hour based on the wholesale market price for electricity. At the end of 2018, the program had over 29,000 active participants. Since the program's inception, Hourly Pricing participants have saved more than \$19 million in energy supply costs, approximately a 20 percent savings versus the ComEd fixed-price rate.

PECO. In 2018, PECO offered the Smart A/C Saver program and Demand Response Aggregator program to residential, small business and large commercial customers to reduce demand during peak times. The Smart A/C Saver program is a summer demand reduction program that cycles central air conditioners during times of peak demand for more than 60,000 control devices installed in residential and small business customer facilities. Customers receive a \$10 per month credit on their bill from June through September. Since program launch, PECO Smart A/C Saver customers received over \$50 million of incentives through bill credits during the four-month summer peak electric load season. The 2018 reported verified gross demand savings was 32 MW for PECO's Smart A/C Saver program. The Demand Response Aggregator program engages large commercial customers in demand reduction activities. When PECO calls a demand response event, customers reduce their electric load by a specified amount for the duration of the event in exchange for financial incentives. For 2018, both residential and commercial reported verified demand savings is 184.8 MW.

PHI. PHI's direct load and behavioral programs continue to offer a range of smart usage reward options for its customers. The Energy Wise Rewards (EWR) program offers residential customers with central air conditioning in Delaware, the District of Columbia, Maryland and New Jersey the option of either a programmable thermostat or outdoor direct control unit (DCU)

switch, which allows the utility to cycle their usage in times of summer demand. In 2018, the programs paid more than \$13 million in incentives and bonuses to nearly 358,000 active customers. Of PHI customers, 71 percent opted for the DCU control switch and 29 percent used thermostats, including over 12,177 Wi-Fi thermostats introduced in Maryland in 2016. An estimated 393 gross MW in demand reduction came from direct load control programs and, since inception, the EWR programs have provided

nearly \$104 million in customer incentives. PHI's voluntary load reduction program, Peak Energy Savings Credit (PESC), is offered to residential customers in Maryland as well as residential and small commercial customers in Delaware. PESC rewards customers by giving credits for voluntary load reduction during events, with an average participation rate of 74 percent in 2018. Pepco's PESC programs returned over \$9.5 million in bill credits to customers in 2018 and provided 477.7 MW of reductions in 2018.

2018 Awards



Exelon utilities received numerous awards for their commitment to providing energy-saving products, programs and services to our utility customers in 2018.

BGE. BGE's EmPOWER Maryland program was recognized for the eighth consecutive year as an EPA ENERGY STAR® Partner of the Year, Sustained Excellence. BGE received the ENERGY STAR Leadership in Housing Award for our work through the ENERGY STAR New Construction Program. BGE received the American Marketing Association (AMA) Marketing Excellence Award for Best Direct Marketing Campaign ("Lighting Limited Time Online Promotion") and Best Social Media Campaign ("Powering Lives through Corporate Citizenship"). BGE also received the 2018 Most Trusted Brands and 2018 Environmental Champion Awards from Marketing Strategies Incorporated (MSI).

ComEd. ComEd was awarded the ENERGY STAR Partner of the Year — Sustained Excellence recognition for the sixth consecutive year, marking the tenth consecutive year of recognition by the U.S. EPA for its energy efficiency program. In addition, the American Council for an Energy-Efficient Economy

awarded ComEd Exemplary Program Awards for our Retro-commissioning (RCx), LED Street Lighting and Small Business offerings.

PECO. In 2018, PECO earned the 2018 ENERGY STAR® Partner of the Year Sustained Excellence award; this is the eighth time PECO received the partner of the year award including three times with the Sustained Excellence distinction. Additionally, PECO earned a third place Self Service Award for its mobile app at the ESource conference. PECO's commercial energy efficiency won the Silver Award for Marketing Best Practices for commercial program marketing from Chartwell, Inc.

PHI. Delmarva Power and Pepco received the ENERGY STAR® Partner of the Year — Sustained Excellence award; this is the second year DPL has received the award and third consecutive year for Pepco. In addition, both utilities also received the ENERGY STAR Certified Homes Market Leader Award for their successful certified homes and products programs. Pepco has also been awarded by Frost and Sullivan with the Excellence in Resourcefulness in Energy for Best Practices for our Demand Response and Direct Load Control Programs.

Business Intelligence and Data Analytics — Smart Energy Services

Traditionally, energy consumers have had a limited relationship with their utility provider. They used energy, paid for energy and occasionally needed service.

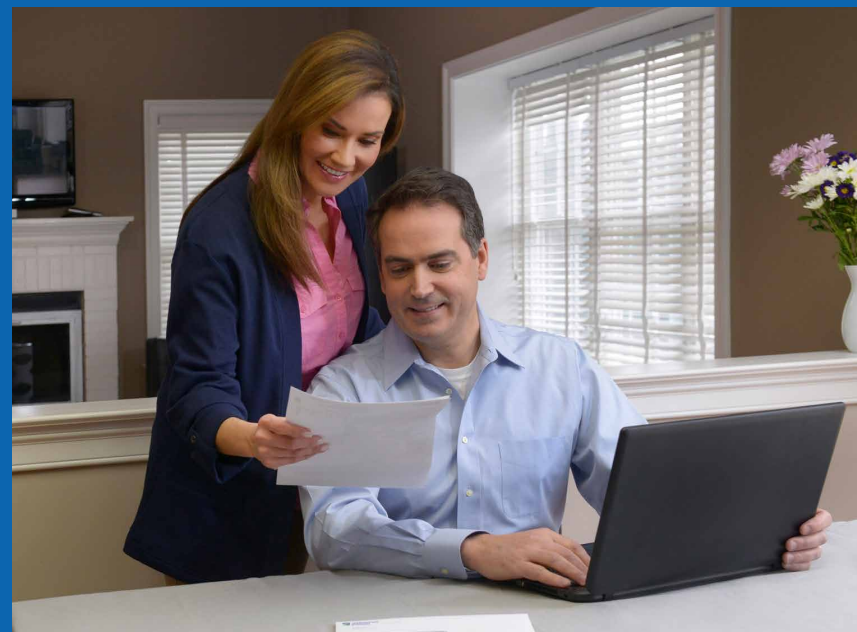
The Smart Energy Services domain (SES) has shifted the nature of that relationship by using newly developed customer interfaces and enormous quantities of data, unlocked through recent smart meter deployments, to create new sources of value for customers. Exelon becomes a Utility of the Future by giving consumers the tools to better understand their own energy usage, the capability to rapidly determine the impact of potential energy savings options and the power to proactively manage and reduce their energy bill.

SES is targeting energy savings of 3.1 million MWh over the next five years, all while increasing customer satisfaction. Specifically, the program will:

- Empower customers to better manage and reduce their energy usage.
- Enable curtailment and demand response to shift customer load off peak.
- Optimize pricing through Utility rate offerings.

SES has piloted these new tools in an optimized, mobile-capable website to residential customers for our 'legacy' utilities: BGE, ComEd and PECO. One of these features allows customers to receive alerts when their bill trends above a threshold defined specifically by them. This capability helps reduce call center calls and, in some cases, decreases the average handle time for complex billing inquiries. Another feature allows customers to determine their cost-friendliest rate based on their specific consumption habits.

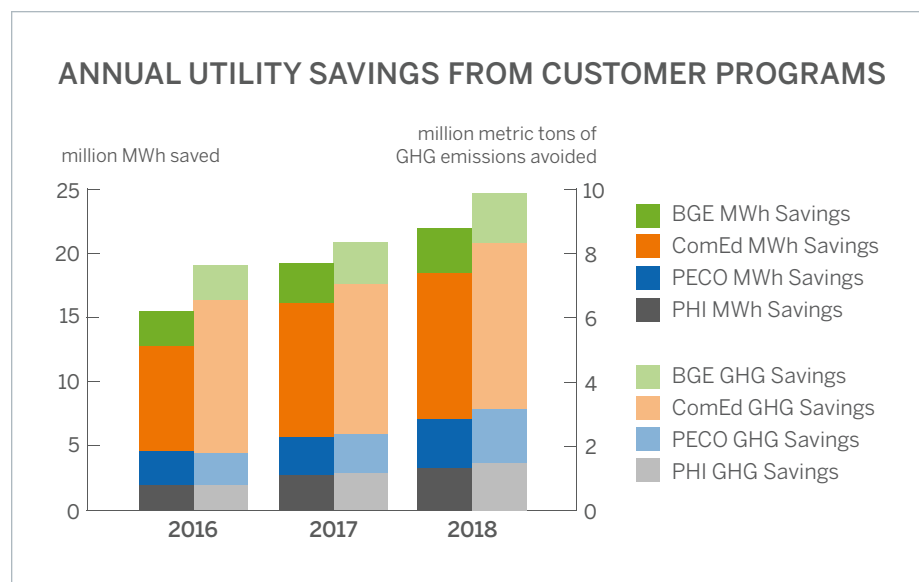
The 3.1 million MWh SES target will result in approximately \$245 million in customer benefits by the year 2021. Looking forward, SES is focused on releasing this functionality to commercial customers and expanding the capability of the foundational Data Analytics Platform (DAP) for our employees. Over 2,000 impacted employees will soon adopt these new tools & technologies to better serve their customers and increase operational efficiency. Over the next year, SES will incorporate these same systems into the PHI utilities, further expanding convergence and adoption of these industry-leading data-driven tools.



Exelon is using business intelligence and data analytics to both engage with and create value for customers.

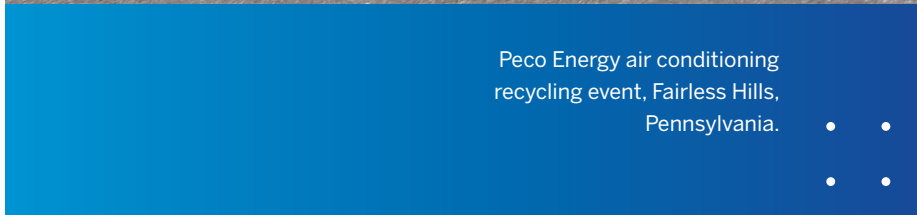
Energy Efficiency Programs

In 2018, through the results of a combination of new and prior-year investments, our Exelon utilities helped customers save over 21.9 million MWh of energy through the ComEd and PECO Smart Ideas® programs, BGE Smart Energy Savers Program® and PHI Home Energy Savings Program®. This equates to almost 9.9 million metric tons of CO₂e emissions avoided, the emission reduction equivalent of taking 2.1 million cars off the road for one year or the amount of carbon sequestered by 11.7 million acres of U.S. forests in one year. These programs encourage customer savings through home energy audits, lighting discounts, appliance recycling, home improvement rebates, equipment upgrade incentives and new innovative programs like smart thermostats and combined heat and power (CHP) programs. The chart on the next page shows a summary presentation of MWh saved and GHG emissions avoided over the past three years as a result of these programs.



BGE. BGE's Smart Energy Savers Program® programs saved over 738,000 MWh and 5.6 million therms in 2018. Participating customers received over \$67 million in rebates and incentives in addition to energy bill savings of nearly \$572 million over the estimated useful life of the installed measures. An estimated 182,000 customers participated in BGE's residential lighting markdown program saving over 169,000 MWh. Over four million LED bulbs were purchased and nearly 500,000 LED bulbs were donated to low-income residents. BGE customers with a smart meter are eligible to participate in BGE's residential behavioral energy efficiency program, which includes home energy reports, usage alerts and online tools. In 2018, nearly one million eligible customers saved over 189,000 MWh of electricity and nearly 3.8 million therms of natural gas. Participants reduced energy use based on data provided by the program. Since inception of the behavioral program, BGE customers have saved nearly 700,000 MWh of electricity and more than 12 million therms of natural gas through their participation. To date, BGE's traditional residential and commercial energy efficiency programs have saved nearly four million MWh and 15.5 million therms of natural gas with more than 2.3 million participants. BGE customers who participate in BGE's energy efficiency programs have received over \$570 million in rebates and incentives since the beginning of the programs. These customers will benefit from lower bills of more than \$4.6 billion over the estimated useful life of the measures installed.

ComEd. The ComEd energy efficiency program provides residential and business customers easy and accessible ways to manage their energy use, save money and help the environment. Residential programs provide lighting discounts, appliance recycling, installation of energy efficient products, such as smart thermostats for single-family homes and rebates for home improvements and qualifying ENERGY STAR® appliances. Business programs give customers the opportunity to improve efficiency in existing building systems, data centers, new construction and industrial systems and provide an array of cash incentives for energy efficiency



PECO. PECO Smart Ideas® has offered residential and commercial customers ways to save energy and money since its launch in 2009. Residential programs include in-home energy assessments, lighting discounts, appliance recycling and rebates for qualified energy efficient appliances and heating and air conditioning equipment. PECO also offers a low-income program that provides weatherization and installation of electric energy efficiency measures for qualified households. Commercial programs include direct-install solutions to small business customers for energy-saving equipment such as lighting upgrades, LED exit signs and energy efficient HVAC and refrigeration upgrades. In addition, PECO offers financial incentives for small businesses, commercial and industrial facilities, government institutions and nonprofit organizations for retrofits, equipment and new construction that incorporate energy efficient equipment such as lighting, chillers and HVAC systems. Through this award-winning suite of energy efficiency program, PECO customers saved approximately \$720 million in energy consumption, incentives and rebates within the first year of installing the measure. This includes \$289 million in rebates, discounts and incentives and \$431 million saved by using less energy overall. Customers reduced electric consumption by more than 3.4 million MWh. In 2018 alone, customers reduced consumption by an additional 400,000 MWh.

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programs began. This equates to 27 million gross MWh in life cycle energy reductions. The energy efficiency programs reached some major milestones in 2018 with the onset of new residential and commercial energy efficiency programs in Maryland. These include residential programs like schools and agriculture for Delmarva Power as well as thermostat optimization for both Pepco and Delmarva Power. For commercial customers, Pepco and Delmarva Power offered Energy Efficient Communities as a new program in 2018. Further, ACE customers continued receiving home energy reports and began the Quick Home Energy Checkup program in 2018. Since the inception of the 2017 program, Atlantic City Electric customers realized 20,410 Gross MWh annualized energy savings with 257,819 participants.

Clean Energy Products

Our utilities use various monetary and billing mechanisms to provide benefits for customers who deploy local renewable generation. ComEd and PECO purchase excess electricity produced from residential and commercial customers' renewable energy equipment, such as solar photovoltaic units, through net metering programs. In 2018, ComEd's total program included more than 1,879 customers providing more than 30.1 MW of renewable generation, while PECO had approximately 8,518 customers with approximately 101 MW in renewable resources. At BGE, the utility does not buy the energy produced by customers; rather, the utility's net metering tariff allows customers to offset their use with self-generation and have the utility apply any excess balance to their use when their self-generation cannot cover their full need. At the end of 2018, BGE had 29,104 customers with almost 318 MW of installed generation capacity participating in its net metering program. Similar to BGE, PHI also credits its customers for their net energy use. In 2018, PHI's total program included 64,187 customers who supplied a total of 782.7 MW of renewable generation: 30,440 customers and 367.6 MW for ACE, 9,582 customers and 143.6 MW for DPL and 24,165 customers and 271.5 MW for Pepco.



Exelon utilities offer a number of mechanisms to provide benefits for customers who deploy local generation.

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State Renewable and Alternative Energy Requirements

Exelon utilities use renewable and alternative energy credits to meet state legislative requirements.

BGE. Approximately 2.3 million renewable energy credits (RECs) were required to satisfy Maryland Renewable Portfolio Standard (RPS) requirements at BGE for 2018 for default Standard Offer Service (SOS) and large Hourly Priced Service (HPS) customers. BGE purchased RECs for HPS customers and incremental SOS load, while REC requirements for residential and small and medium commercial SOS customers were met by winning wholesale energy suppliers under full requirements contracts in PSC-approved auctions. The requirement at BGE was 18.3 percent in 2018, increasing to 25 percent in 2020.

ComEd. In 2018, ComEd procured approximately 1.3 million RECs from wind and solar renewable energy resources to meet the Illinois Renewable Energy Portfolio Standard requirement. For ComEd, this was 14.5 percent of supplied load for the 12-month period ending June 1, 2018. The RPS renewable energy supply requirement mandates increases of 1.5 percent each year thereafter to 25 percent by June 1, 2025. The passage of the FEJA in Illinois included a Zero Emissions Standard, providing compensation in the form of ZECs for nuclear-powered generating facilities that meet specific eligibility criteria. ComEd procured 22 million ZECs in 2018. Under the FEJA, ComEd's RPS requirements were expanded to include procurement of RECs for all customers by June 2019, a focus on future procurements seeking RECs from new projects and the development of an adjustable block program. The expanded requirements also encompass the Illinois Solar for All Program to encourage expanded participation in renewable energy programs in low-income communities and the development of a community renewable generation program allowing customers to subscribe to shares of a facility within their service territory. In 2017 and 2018, ComEd entered into

contracts for the annual procurement of 4.2 million RECs from new wind and solar projects over a 15-year period.

PECO. PECO is meeting Pennsylvania's Alternative Energy Portfolio Standards requirements that increase through 2021. Over PJM reporting year 12 (June 2017 to May 2018), PECO retired for compliance more than 1.71 million alternative energy credits to satisfy the requirement of 15.1 percent alternative energy. This requirement is set to increase on a yearly basis until it hits 18 percent in 2021. In addition, this year PECO was required to retire solar RECS that meet the requirements of Act 40 (signed into law December 2017) which requires all credits for the AEPS solar component to be generated within Pennsylvania.

PHI. ACE, DPL and Pepco met the RPS requirements in all four jurisdictions in 2018. DPL purchases the RPS requirement for all of its distribution customers in Delaware. In the other jurisdictions, SOS suppliers purchase RECs to meet state RPS requirements, with the exception of hourly or market price service customers in the District of Columbia, Maryland and Delaware. In the District of Columbia, solar RECs are in short supply and many suppliers paid alternative compliance payments. In total, PHI utilities retired 3.59 million RECs to meet RPS obligations in 2018.

Constellation. In addition to Exelon's regulated utility RPS compliance, our competitive energy business unit, Constellation, promotes clean energy through the purchase, sale and retirement of renewable and clean energy attribute certificates on behalf of customers through voluntary programs. Constellation retired eight million renewable and nuclear emission-free certificates (RECs and EFECs) for customers, enabling them to avoid 3.6 million metric tons of GHG emissions for 2018. Constellation also coordinates the sale of RECs associated with Exelon Generation's renewable generation. In addition, Constellation purchases and retires RECs on behalf of Constellation NewEnergy to meet its various state RPS obligations as a retailer in 48 states.

RPS Requirements in Select States Where Exelon Participates in RPS Markets

JURISDICTION	2018 COMPLIANCE REQUIREMENT ¹	COMPLIANCE STANDARD	ELIGIBLE RENEWABLES / OTHER TECHNOLOGIES
Delaware	Compliance Year 2017–2018: Eligible Renewables: 16.0% PV: 1.5% Compliance Year 2018–2019: Eligible Renewables: 17.5% PV: 1.75%	25% by compliance year 2025–2026	Geothermal Electric, Solar Thermal Electric, Solar Photovoltaics, Wind (All), Biomass, Hydroelectric, Fuel Cells using Non-Renewable Fuels, Landfill Gas, Tidal, Wave, Ocean Thermal, Wind (Small), Anaerobic Digestion, Fuel Cells using Renewable Fuels
District of Columbia	Tier I: 15.5% Tier II: 1.0% Solar: 1.15%	50% by 2032	Solar Water Heat, Solar Space Heat, Geothermal Electric, Solar Thermal Electric, Solar Thermal Process Heat, Solar Photovoltaics, Wind (All), Biomass, Hydroelectric, Landfill Gas, Tidal, Wave, Ocean Thermal, Wind (Small), Fuel Cells using Renewable Fuels
Illinois	Energy Year 2018: Overall Standard (% Retail Electric Sales to come from Renewables): 13% Energy Year 2019: Overall Standard (% Retail Electric Sales to come from Renewables): 14.5%	25% by compliance year 2025–2026	Solar Thermal Electric, Solar Photovoltaics, Wind (All), Biomass, Hydroelectric, Landfill Gas, Wind (Small), Anaerobic Digestion Landfill Gas, Anaerobic Digestion, Biodiesel
Maryland	Solar: 1.50% Other Tier I: 14.30% Tier II: 2.50%	25% by 2020	Solar Water Heat, Geothermal Electric, Solar Thermal Electric, Solar Photovoltaics, Wind (All), Biomass, Hydroelectric, Geothermal Heat Pumps, Municipal Solid Waste, Landfill Gas, Tidal, Wave, Ocean Thermal, Wind (Small), Geothermal Direct-Use, Anaerobic Digestion, Fuel Cells using Renewable Fuels
New Jersey	Energy Year 2018: Solar Carve-Out (A.B. 3520): 1,591 GWh Pre A.B. 3520/S.b. 1925 Solar Carve-Out: 3.20% Class I: 12.325% Class II: 2.5% Energy Year 2019: Solar Carve-Out (A.B. 3520): 1,858 GWh Pre A.B. 3520/S.b. 1925 Solar Carve-Out: 3.290% Class I: 14.175% Class II: 2.5%	24.48% by energy year 2027–2028 (20.38% Class I and Class II renewables by energy year 2020–2021 + 4.1% solar-electric by energy year 2027–2028)	Geothermal Electric, Solar Thermal Electric, Solar Photovoltaics, Wind (All), Biomass, Hydroelectric, Municipal Solid Waste, Landfill Gas, Tidal, Wave, Wind (Small), Anaerobic Digestion, Fuel Cells using Renewable Fuels
Pennsylvania	Compliance Year 2018: Tier I (including Solar PV): 6.5% Tier II: 8.2% Solar PV: 0.34% Compliance Year 2019: Tier I (including Solar PV): 7.0% Tier II: 8.2% Solar PV: 0.39%	Tier I: ~8% by compliance year 2020–2021 (includes PV minimum) Tier II: 10% by compliance year 2020–2021 PV: 0.5% by compliance year 2020–2021	Solar Water Heat, Solar Space Heat, Geothermal Electric, Solar Thermal Electric, Solar Thermal Process Heat, Solar Photovoltaics, Wind (All), Biomass, Hydroelectric, Geothermal Heat Pumps, Municipal Solid Waste, Combined Heat & Power, Fuel Cells using Non-Renewable Fuels, Landfill Gas, Wind (Small), Anaerobic Digestion, Fuel Cells using Renewable Fuels, Other Distributed Generation Technologies

¹ Energy year/compliance year for Illinois, New Jersey and Pennsylvania runs from June–May and is defined by the year in which the energy/compliance year ends.

Source: Database of State Incentives for Renewables and Efficiency. www.dsireusa.org

Low-Income Assistance

Each of Exelon's utilities has programs in place to provide financial assistance to low-income households, making energy more affordable for the low-income population in our service areas.

BGE. BGE worked with state, local and nonprofit assistance partners to assist more than 45,000 limited-income households through federal and state grant programs. Through BGE's partnership with the Fuel Fund of Maryland, a nonprofit organization providing energy assistance to low-income customers, BGE customers provided more than \$2 million in matching credits to leverage grants for almost 24,000 Maryland individuals. BGE continued a program to help customers with serious illnesses who struggle to pay their bills and successfully supported legislation to expand the program statewide. The Power of Home, another BGE initiative, ensures that past-due utility bills can be retired, allowing Baltimore residents experiencing homelessness to move into housing. BGE conducted its annual outreach mailing to more than 75,000 households informing them of available energy assistance grants. BGE also worked with the State of Maryland to implement a new program to help limited income customers retire gas arrearages. For more information on BGE's assistance programs, visit [the BGE website](#).

ComEd. Since 2007, ComEd's CARE programs have provided more than \$100 million in grant assistance and educational programs for residential, small business and nonprofit organizations and have assisted more than one million customers. As part of the Energy Infrastructure Modernization Act enacted in 2011, ComEd agreed to set aside \$10 million per year to fund customer assistance programs over a five-year period, starting in 2012. More than 112,000 customers were enrolled in CARE programs or received energy management information between 2012 and 2016. In December 2016, FEJA was passed, which provided an additional \$50 million to extend the ComEd CARE programs, providing \$10 million a year from 2017 through

2021. ComEd CARE also supports the federally funded Low-Income Home Energy Assistance Program (LIHEAP) and state-funded Percentage of Income Payment Plan (PIPP) program. For more information on the ComEd CARE programs, visit [the ComEd website](#).



ComEd employee explains ComEd CARE program to a customer during an educational event.



PECO. PECO's Universal Services is recognized as the largest and most comprehensive low-income program portfolio in the state of Pennsylvania and one of the largest in the nation. The portfolio includes the Customer Assistance Program (CAP), which had approximately 115,000 customers enrolled in 2018. This program provides a monthly credit and forgives the total arrearage of all enrolled customers at the time of their initial enrollment. Additionally, PECO's hardship program, the Matching Energy Assistance Fund (MEAF), provides grants for low-income customers whose service is terminated or in threat of termination. The Low-Income Usage Reduction Program (LIURP) provides energy audits and usage reduction remediation measures for low-income, high-usage customers. PECO also has a Customer Assistance Referral and Evaluation Services program (CARES) to provide one-on-one support for low-income customers with special needs. Finally, PECO participates in the state-sponsored Low-Income Home Energy Assistance Program (LIHEAP) and offers additional benefits to customers that receive LIHEAP crisis grants. The total value of all of PECO's Universal Services' programs is more than \$80 million annually. For more information on PECO's low-income programs, please visit [the PECO website](#).

PHI. PHI offers a variety of programs across all our utilities to assist low- to moderate-income customers. The federal LIHEAP assistance is available across all PHI utilities. In 2018, PHI helped customers secure nearly \$80 million in energy assistance funds through state, federal and nonprofit programs. ACE customers may be eligible to receive assistance for heating and medically necessary cooling costs through the Payment Assistance for Gas and Electric (PAGE) program and the Universal Service Fund (USF). The New Jersey SHARES program is available for families that are not eligible for LIHEAP. The Lifeline Program provides assistance to seniors and the disabled who meet requirements for the pharmaceutical assistance to the aged and disabled eligibility or who receive supplemental security

income. The ACE Helping Hands Energy Assistance Program assists low- to moderate-income customers with bill assistance. In its second year, 4,452 customers received benefits from the \$1 million annual program funding. Information for ACE customer energy assistance programs can be located at [the ACE website](#).

Delmarva Power customers may apply for federal LIHEAP assistance; in Maryland, the program is known as the Maryland Energy Assistance Program (MEAP). Maryland customers may also qualify for the Electric Universal Service Program (EUSP), which provides assistance specific to a customer's electric bill, the Universal Service Protection Plan (USPP), which protects customers from disconnection during the heating season, and Arrearage Retirement Assistance, which assists low-income customers with an electric bill over \$300 for arrearages up to \$2,000. Customers within Delaware and Maryland who are low- to moderate-income and have disconnection notices may also be eligible for the Good Neighbor Energy Fund. Maryland customers who are low- and moderate-income who have disconnection notices or whose services have been terminated may also qualify for the Good Neighbor Energy Fund Expansion Fund. Information for Delmarva Power customer energy assistance programs can be located at [the DPL website](#).

District of Columbia customers can apply for the Residential Aid Discount Program, which provides eligible customers with a monthly credit towards their distribution charges. Pepco Maryland customers may also apply for the EUSP, USPP and Arrearage Retirement programs referenced above. Pepco Maryland customers with a disconnection notice or currently disconnected can receive a \$1,000 grant once a year through the Pepco Washington Area Fuel Fund Partnership. Information for Pepco customer energy assistance programs can be located at [the Pepco website](#).

SUSTAINABLE SOLUTIONS FOR CUSTOMERS IN COMPETITIVE MARKETS

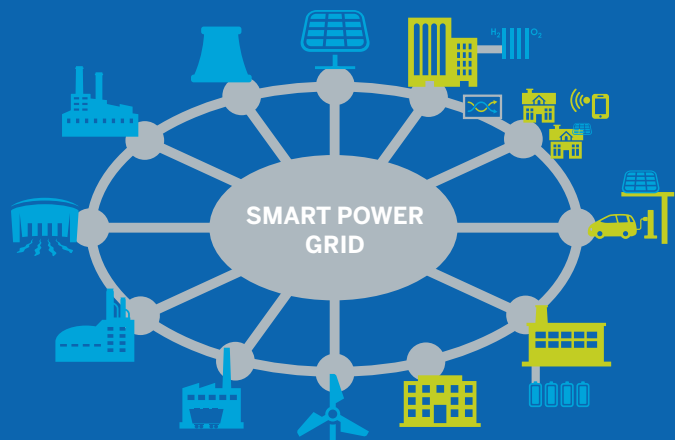
Constellation is Exelon's competitive wholesale and retail business, supplying power, natural gas and energy products and services for homes and businesses across the continental United States, as well as home services in the Mid-Atlantic region and Texas. Constellation Retail serves approximately two million residential, public sector and business customers, including more than two-thirds of the Fortune 100. Constellation's wholesale electricity supply business provides energy to utilities, municipalities, co-ops and energy retailers nationwide, managing the sales, dispatch and delivery from Exelon's portfolio of owned and contracted power generation. In 2018,

Constellation's power and gas business served 211 terawatt-hours of electric load and 1,634 billion cubic feet of gas to wholesale and retail customers.

Competitive markets drive choice, innovation, savings and environmental sustainability. Constellation's integrated energy solutions — from electricity and natural gas procurement and renewable energy supply to demand side management and connected home technology — are designed to empower customers in how they buy, manage and use their energy.

Constellation is committed to a clean energy future, offering customers energy options that are sustainable for the environment and the economy. The company is one of the largest owners and operators of commercial solar in the nation, based on the number of projects in operation or under construction.

Constellation: Innovative, Integrated Solutions for Customers



Electricity. Offering customers budget stability and purchasing flexibility, with options for fixed, index and blended pricing solutions, as well as renewable energy supply.

Natural Gas. Creating custom natural gas strategies that meet the needs of customers' risk tolerance, budget management and overall energy goals.

Distributed Energy. Installation and operation of on-site solar and other energy assets to help customers more efficiently and reliably meet their energy budget and sustainability goals.

Home Services. Giving homeowners more choices to manage energy costs and keep their families comfortable with options for solar, heating and air conditioning systems, water heaters, plumbing systems and electrical systems, replacement windows and doors, and attic insulation.

Energy Efficiency. Energy management options to help customers meet their financial and environmental goals, often as part of an energy performance contract or supply contracts to ease upfront capital expenses for customers.

Offsite Renewables. Enabling businesses to combine location-specific renewable energy purchases and renewable energy certificates (RECs) with a physical load-following energy supply contract.

Distributed Energy

Constellation offers a number of distributed energy solutions, including solar and cogeneration, to help customers more efficiently and reliably meet their energy needs. These offerings give customers the power to optimize performance, manage risk, maximize efficiency, meet sustainability goals and achieve the highest value of energy investment across the life of their facilities and operations. In 2018, Constellation had more than 484 MW of distributed energy assets in operation or under development for commercial and government customers in the United States, of which 378 MW was commercial solar operating at over 525 sites in 12 states and the District of Columbia.

Constellation expanded its retail solar business in fall 2018 when it acquired California-based solar developer PFMG Solar LLC. The acquisition will enable Constellation to grow its solar footprint in the most active U.S. solar market, California, and extend Constellation Offsite Renewables (CORG), energy efficiency and other retail energy offerings to new markets. Constellation has worked with PFMG Solar to develop and install 42 of the more than 100 megawatts of solar generation that PFMG has completed over the last decade.

In May 2018, Constellation teamed with GE to complete a 554 kW (DC) solar generation project for The Home Depot's Washington, D.C., store location. The solar project, the largest single rooftop array in the District, is expected to supply more than 9.9 million kWh of electricity to The Home Depot over a 15-year period, accounting for an anticipated 35 to 40 percent of the store's annual energy use.

For Constellation, the Home Depot project is part of the seven MW of solar generation that Exelon committed to install in Washington D.C. when it merged with PHJ in 2015. It is also the first of multiple Constellation-owned rooftop arrays for The Home Depot, which added solar on stores in Prince George's and Montgomery counties in Maryland in 2018. For The Home Depot, the D.C. project is the latest of 50 planned rooftop solar projects that the company is undertaking to reach its goal of utilizing 135 megawatts of alternative and renewable energy by 2020.

2018 Award



Constellation was named 2018–19 Supplier of the Year by The Energy Professionals Association (TEPA). The Supplier of the Year award recognizes the TEPA member company with the most comprehensive, innovative and strategic vision for competitive electricity and natural gas markets. It also takes into consideration the company's customer service reputation among its customers and employees.

Energy Efficiency Services

Constellation works with customers to help them achieve their sustainability goals. Energy efficiency projects driven by Constellation enable customers to better manage their energy and operational costs through investments in infrastructure improvements that are paid for by the ensuing energy cost savings. In designing and implementing projects, Constellation utilizes tools that may include audits, engineering, design, construction management and long-term monitoring and analytics. The focus is on asset optimization and leveraging faster payback measures, such as lighting improvements, to help pay for slower payback investments such as chillers or distribution systems. The Efficiency Made Easy (EME) program is one example of Constellation's service offerings. Under this program, customers save money and reduce energy consumption by incorporating the cost of efficiency projects into an energy supply agreement. In 2018, Constellation EME customers saved 80,000 MWh of electricity and prevented emissions of 36,000 metric tons of CO₂e. Constellation also implements energy efficiency projects through offerings outside of EME and these offerings saved customers more than an additional 54,000 MWh of electricity which prevented the emissions of more than 40,000 metric tons of CO₂.

Energy Efficiency for the Department of Energy

In January of 2018, the United States Department of Energy (U.S. DOE) and Constellation announced the completion of more than \$6 million in energy efficiency upgrades at the U.S. DOE's Germantown, Maryland, campus. The energy conservation measures are expected to help the DOE avoid 900 metric tons of CO₂ emissions and save more than \$425,000 annually over a 17-year contract.

The most significant undertaking of the project called for replacing the facility's three boilers, which were originally installed in 1957. After nearly 60 years of operation, the boilers were approaching the end of their life cycle and required immediate replacement. By selecting the Utility Energy Service Contract (UESC), offered by Constellation, U.S. DOE bundled energy conservation measures to pay for the improvements that generate those savings.

In addition to the boilers, supplementary energy conservation measures include:

- Retrofitting 8,000 lighting fixtures to LED;
- Reinsulating bare pipes and installing removable covers for fitting and valves;
- Installing five steam meters connected to the control system for monitoring;
- Replacing the steam kettle with an electric kettle to remove the need for year-round steam pressure;
- Installing controls to allow for ventilation to be provided based on occupancy instead of a preset value based on full occupancy; and

- Completing building envelope improvements, including sealing exterior and interior penetrations to reduce unconditioned air infiltration.

The UESC contract allowed for a collaborative process with U.S. DOE Germantown, Maryland, facilities and engineering staff to ensure the design met all requirements and needs specific to the facility.



Constellation's energy efficiency project for the Department of Energy included replacing three boilers at the end of their life cycle.

Constellation Projects and Announcements

Constellation is involved in a variety of innovative, low-carbon projects for customers across the United States. Several highlights are listed below; please click the links to learn more about each project and initiative.

Constellation Begins Construction on 10-Megawatt Solar Array Outside of Ocean City, Maryland »



Constellation to Begin Work on \$110 Million Energy Efficiency Project for the New York City Housing Authority »



Constellation Awarded \$21.5 Million Contract to Implement Energy Conservation Measures at the University of Maryland, College Park »



Constellation Expands Existing Retail Solar Business with Acquisition of PFMG Solar LLC »



Chicago Bulls, Constellation Team Up to Educate Elementary School Students on Energy Efficiency »



Solar for Tucson Unified School District

Constellation added to its growing national solar portfolio when it completed a 23.8 MW solar generation project for Tucson Unified School District (TUSD). Spread over 82 school campuses and support facilities, the project — the largest of its kind among K-12 school districts in Arizona — is expected to account for 47 percent of TUSD's annual electricity use.

The project required no upfront capital from TUSD, which purchases the electricity generated by the solar arrays through 20-year solar services agreements with Constellation.

Consisting of more than 73,000 photovoltaic panels, the solar arrays are expected to produce 41.6 million kWh of electricity and prevent the release

of nearly 31,000 metric tons of carbon emissions annually. The avoided emissions have the same benefit to the environment as taking more than 6,600 cars off the road.

The project spanned three phases over five years in collaboration with TUSD, Constellation and developer Urban Energy Solutions. Each phase and individual solar project site was designed to maximize cost savings while also providing shade for several parking areas and playgrounds.

Constellation's solar portfolio now includes 127 MW of generation for K-12 school districts nationwide.



Constellation leadership and Tucson public officials at the ribbon cutting ceremony to celebrate the completion of the solar generation project with TUSD.



Students at Dietz K-8 School in Tucson learn about solar generation through hands-on experiments led by Constellation volunteers.

Constellation Offsite Renewables (COrE)

With businesses nationwide exploring avenues to reduce their carbon footprint, the Constellation COrE product was launched in late 2017 to provide commercial customers with access to offsite renewable energy projects through the simplicity of a retail power contract. Through COrE, businesses can leverage Constellation's size, scale, scope and expertise in the renewable energy market to meet their sustainability goals.

They can also point to the specific renewable project they are receiving their renewable energy from, which they can share with customers, shareholders, communities and employees.

To date, COrE has helped eight companies procure offsite renewable energy through the simplicity of a retail electric supply agreement, preventing the emission of approximately 121,000 metric tons of CO₂ annually. Highlights in 2018 include:

Starbucks signed a long-term agreement to power more than 340 of its Illinois stores with 100 percent renewable energy produced by Enel Green Power North America, Inc.'s HillTopper wind project in Logan County, Illinois. This will support the generation of approximately 48,000 megawatt-hours of wind power — enough to brew 100 million cups of coffee or more than seven cups of coffee for every Illinois resident. HillTopper entered into service in early 2019 and has a total capacity of 185 megawatts. Once fully operational, it will be able to generate around 570 gigawatt-hours of electricity annually.

Comcast Spectacor entered into a long-term agreement with Constellation to supply 100 percent renewable energy to its Philadelphia arena, the Wells Fargo Center — home of the city's professional basketball and hockey teams. Comcast Spectacor also supported the development of

the HillTopper Wind project through its COrE procurement. The power and renewable energy certificates (RECs) purchased from Constellation will help Comcast Spectacor prevent the emission of more than 14,000 metric tons of GHG annually.

Herman Miller signed a four-year agreement to match 100 percent of the energy consumption from its Spring Lake, Michigan, manufacturing locations with renewable energy. The power is sourced from the Harvest II wind project in Elkton, Michigan, which is managed by Exelon Generation. The agreement is expected to supply Herman Miller with roughly 25,000 megawatt-hours of wind energy annually, which is enough to power more than 2,700 homes for one year, according to U.S. EPA estimates. The Spring Lake campus is responsible for about a quarter of Herman Miller's global energy consumption and is the biggest consumer of electricity in Spring Lake.



HillTopper Wind project in Logan County, Illinois.



Partnering With Our Communities

- Donated \$51.3 million to 3,318 organizations, benefiting nearly 3.7 million people
- Volunteered 240,950 hours on community projects through the work of 9,185 Exelon employees
- Supported STEM education through grants, internships and partnerships; benefiting over 745,000 students

Our success as a company relies on our ability to connect to and partner with communities. By providing safe, clean, reliable and affordable energy, we support economic growth and create vibrant communities. We also strive to support our communities by fostering economic growth, giving back and being a considerate and responsive neighbor. Exelon considers it our responsibility to improve the quality of life for people in the communities where we live, work and serve.

LOCAL ECONOMIC BENEFITS

The prosperity and vibrancy of our communities and customers is a priority for Exelon. We positively impact our local and state economies through our commitment to sourcing from local and diverse suppliers and through the high-quality jobs we create — directly and through our subcontractors. At the end of 2018, Exelon had 33,383 employees, in electric and gas T&D operations, Exelon commercial offices and power generation facilities.

Taxes are another important way we support local growth and development. In 2018, Exelon paid, or collected and remitted, a total of \$4.4 billion in taxes. Of this total, \$1.9 billion was paid in federal income and payroll taxes and state income/franchise, payroll, property, sales/use and utility taxes directly related to our business operations. Exelon collected and remitted to federal and state governments an additional \$2.5 billion in taxes, such as employee payroll, sales/use and utility taxes.

Local Economic Development

We are committed to facilitating economic growth in our communities. When our communities succeed, we thrive together. Each of our utilities has a team dedicated specifically to fostering economic growth in its service

EXELON CORPORATION AND SUBSIDIARIES — 2018 TAXES PAID¹

dollars in millions

	Paid by Exelon Entity	Collected and Remitted by Exelon Entity on Behalf of Government Agencies	Total Taxes Paid or Collected and Remitted by Exelon Entity
Federal Income, Payroll and Other Taxes	311	1,069	1,380
State and Local Taxes²			
Delaware	33	10	43
District of Columbia	171	29	200
Illinois	455	621	1,076
Maryland	548	285	833
New Jersey	21	132	153
New York	51	77	128
Pennsylvania	256	127	383
Texas	42	37	79
Other States	56	97	153
Total 2018 Taxes Paid	\$1,944	\$2,484	\$4,428

1 Numbers reported on a tax basis and rounded in each jurisdiction to the nearest million dollars.

2 State and local taxes include: Income and franchise; payroll; property; sales and use; and/or utility and other taxes as applicable in each jurisdiction.

area and attracting new business growth to its local communities. The following are examples of 2018 activities.

ACE. ACE partnered with three southern New Jersey vocational schools and four local workforce development boards to facilitate a comprehensive clean energy workforce development program. The program's mission is to educate the clean energy workforce of tomorrow through innovative and inclusive initiatives. Parts of the program include the Get into Energy Math Test and Boot Camp, Women in Sustainable Employment (WISE) Pathway,



Dave Velazquez, president and CEO of Pepco Holdings, addresses attendees of the Atlantic City Electric Workforce Development Program Celebration.

Atlantic City Electric Line School and the High School Energy Career Academy. This six-year, \$6.5 million program is expected to influence hundreds of students and local community members to gain employment within the electric utility and other in demand industries.

BGE. In 2018, 35 businesses joined BGE's Smart Energy Economic Development (SEED) program. Expanding businesses creating new, full-time positions can qualify for SEED incentives that discount natural gas or electric connection and usage costs. BGE developed SEED to meet the needs of contemporary businesses by including natural gas discounts

and increasing the potential size of incentives compared to previous economic development programs. In 2018, the businesses participating in the program added 3,500 new jobs in Maryland. Since the inception of the program three years ago, 65 businesses added more than 6,700 jobs and received more than \$4 million in service extension discounts and nearly \$150,000 in distribution discounts.

ComEd. In 2018, ComEd completed an initiative to improve customer satisfaction by simplifying our commercial and industrial (C&I) underground service standard to be more consistent and aligned with peer utilities. ComEd successfully changed the C&I tariff related to the installation of conduit on customer properties related to the ComEd cables serving customer locations. ComEd will now provide 700 feet of cable and underground street crossings at no charge. ComEd will also maintain any length of cable at no charge when installed in customer-owned conduit even if charges applied to the initial installation. Customers benefit from improved reliability and avoided repair costs. Feedback has been favorable.

DPL. The Delaware Public Service Commission allocated funds from the Exelon merger to the state's Energy Efficiency Investment Fund. Of this, \$6 million was awarded to the Delaware Economic Development Office for supporting natural gas infrastructure. In 2018, DPL applied and was approved for \$1.8 million in grant dollars, from this fund, to be spread across four redevelopment projects, growing jobs and the local economies. New natural gas infrastructure will provide additional choices and reduced energy costs to residential and commercial customers.

PECO. PECO continues to work with state, regional and county economic development partners by providing utility information services for new business prospects during the site selection process. The team also supports business retention and expansion projects. In 2018, for example, they were instrumental in developing a solution to provide high-pressure gas for Kimberly-Clark's new gas-fired cogeneration plant, which will

replace an existing plant, help the manufacturer of paper product achieve its sustainability goals and support the economy with the retention of 600 jobs in a distressed community. PECO's economic development team also functions as the utility's primary point of contact for many of Greater Philadelphia's largest developers.

Pepco. In 2018, Pepco provided power to projects in the District of Columbia that will help to stimulate economic and community growth, development and vibrancy across the entire city, but with a particular focus on the neighborhoods adjacent to the Anacostia River, in the southeast and southwest quadrants of the District. Audi Field, home to the District's Major League soccer team, D.C. United, opened for its first game in June 2018. The stadium represents a public-private partnership that will generate an anticipated more than \$6 million annually in new tax revenues. The project is expected to result in over \$16 billion in total economic activity. The stadium is in the immediate vicinity of Pepco's award-winning Waterfront Substation, which was completed and put into service in December 2017. This new substation is supporting both existing customers and planned development in the Capitol Riverfront and Southwest Waterfront areas. This area is witnessing an expansion of retail, housing and entertainment.

In Maryland, as part of the merger agreement, Exelon committed to partnering in the development of a multi-use recreational trail in Montgomery County, Maryland. Exelon partnered with the Maryland Department of Natural Resources, Montgomery County, the Maryland-National Capital Park and Planning Commission, Montgomery County Department of Parks and the Mid-Atlantic Off-Road Enthusiasts (MORE). Pepco provided the property to facilitate the six-mile trail along a transmission corridor that connects the Muddy Branch Stream Valley to the South Germantown Recreational Park, with the other organizations taking responsibility for constructing, monitoring and maintaining the trail.

2018 Award



Site Selection Magazine recognized both ComEd and PECO in its list of Top 10 utilities supporting economic development for business nationwide, as measured against utility peers across the country.



Pepco's new Waterfront Substation supports existing customers and new development in the District of Columbia.



ENGAGING WITH COMMUNITIES

Our mission is to provide clean, reliable and affordable energy systems to our communities. In providing this service to our customers, we also recognize that electricity service requires care and caution as well. We aim to effectively engage with customers to ensure their safety at all times. The safety and well-being of our customers and communities is an important aspect of our vision of connected communities. We aim to protect the public and minimize potential adverse impacts of our operations at all times, especially during potential emergencies. As part of this commitment, we prioritize strong communication networks with our neighbors.

Disaster Preparedness and Awareness

We proactively engage with our communities so we can all respond to emergency events quickly and effectively. Each of our operating companies maintains an educational outreach and preparedness program to protect the communities surrounding our operations in the unlikely event of a disaster. Our operating companies prepare for potential emergencies using tabletop exercises, drills and real-world exercises. Activities are conducted both internally with our employees and, in many cases, with local, state and federal emergency response organizations. They may also include:

- Direct mailings to residents living within each station's emergency response area containing details about emergency warning systems, evacuation routes and other safety issues;
- Community information nights to answer questions from local residents;
- Educational programs at schools to teach children about energy safety;
- Routine social media reminders on disaster preparedness and emergency response ahead of storms and seasonal changes;
- Training for contractors and excavators working in the vicinity of operations; and
- Online information on disaster preparedness.

All of our utilities provide extensive safety information on their websites. Online, customers can find tips for how to protect themselves and their families during power outages or when power lines are down, along with information on natural gas safety. We use a range of social media platforms, including Twitter, Facebook and Pinterest, to communicate directly with our customers and communities. These platforms are used to respond to customer inquiries and concerns and to provide real-time outage information. Please visit our utilities' websites at [ACE Safety](#), [BGE Safety](#), [ComEd Safety](#), [DPL Safety](#), [PECO Safety](#) and [Pepco Safety](#) for more information.



Students visit Calvert Cliff's Nuclear Power Plant in Lusby, Maryland as part of Exelon's support of student education.

Community Engagement at Nuclear Plants

Local stakeholder engagement is particularly important for our nuclear operations. At each of our plants we conduct outreach through the following mechanisms:

Tours. We periodically provide nuclear plant tours to stakeholders, such as elected officials, community leaders, opinion leaders, schools and the media. Tours offer a first-hand look at the safe operations of Exelon Generation nuclear power facilities.

Speakers' Bureau. The speakers' bureau program takes our message of safe, reliable, zero-carbon operations on the road to a broad audience of schoolchildren, civic organizations and the public. A company representative or other communicator will give a speech or attend an event and deliver key themes and messages to a target audience.

Community Outreach. We maintain ongoing, open and honest relationships with public officials, business and community leaders, opinion leaders, the public and the media through planned community events, sponsorships and other public interactions.

Community Information Nights. We hold annual open-house events at all of our nuclear sites, which give members of the public an opportunity to visit the plant, meet plant leaders, talk with employees, ask questions and learn about nuclear energy and how their neighborhood plant operates.

State of the Plant Events. We host an annual event for local governing bodies, key county officials and community leaders in which site leaders share information about plant performance, projects, issues and involvement in the community.

The collective engagement efforts of our 14 owned nuclear sites resulted in 152 strategic tours, 55 speakers' bureaus and 156 community outreach events, reaching more than 50,000 community members and other key stakeholders during 2018.



STEM students explore a nuclear power plant control room simulator as they learn about how electricity is produced.

Nuclear Plant Safety

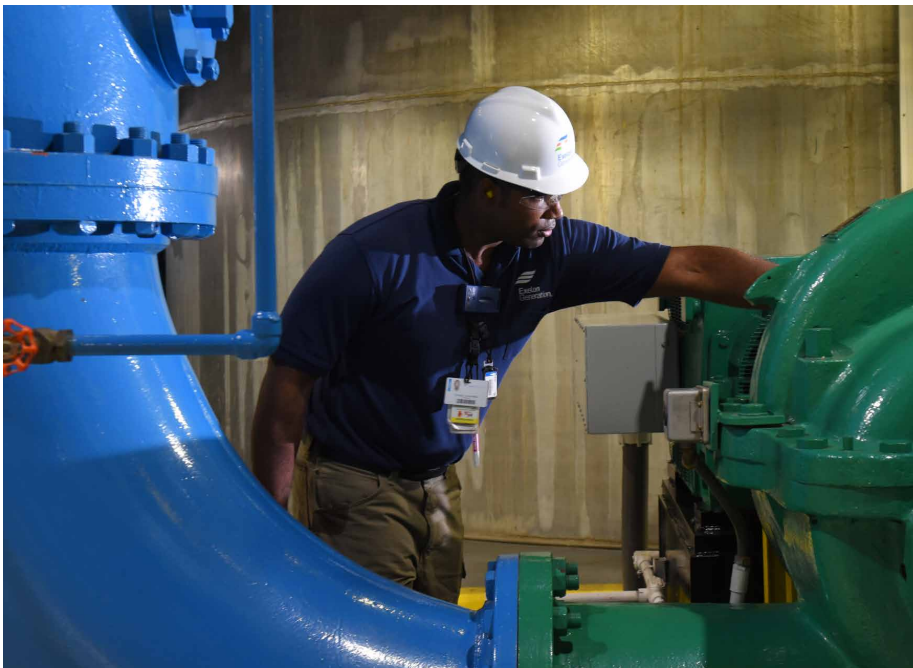
Exelon operates the largest zero-carbon generation fleet in the United States, the majority of which is nuclear, followed by renewable energy resources. While nuclear power generation does not produce GHG emissions, it requires detailed attention to safety. The health and safety of our plants, employees, neighbors and the environment are of the highest priority.

Exelon Generation's nuclear fleet has one of the best industrial safety records in the industry. Nuclear plants consistently have the lowest

recordable injury rates of any form of electricity generation and we employ multiple levels of oversight to ensure continued safety in this area. Exelon uses the proven, proprietary fleet-wide Exelon Nuclear Management Model for managing all aspects of nuclear plant operations. Line management maintains a strong safety culture at the plant level and implements the Management Model with executive oversight. Each plant has independent Nuclear Safety Review Boards to ensure safety and compliance. Additionally, Exelon's Generation Oversight Committee rigorously monitors and evaluates nuclear performance. As a result, we are in full compliance with required and industry-led reporting and actively support extensive transparency and reporting regarding the safe operation of nuclear facilities.

In addition to internal monitoring, plant and industry safety and reliability are also evaluated by the Institute of Nuclear Power Operations (INPO), with the objective of maximizing plant and industry performance and sharing best practices and improvement opportunities. The NRC performs ongoing oversight and review of our nuclear plants in the areas of operations, maintenance, emergency planning, security and environmental and radiological impacts. The NRC may modify, suspend or revoke operating licenses and impose civil penalties for compliance failure. As of December 31, 2018, performance indicator results from the NRC's 2018 Reactor Oversight Process indicate that all 22 nuclear generating units operated by Exelon are in the highest performance group, indicated by their green band classification. More information is available on the [NRC website](#).

All of our nuclear facilities are highly secure, virtually impenetrable facilities. Our defense-in-depth security systems include vehicle checkpoint stations and barriers, security towers, complex engineered barrier systems, site security fences and highly trained security officers, all of which make these facilities the strongest industrial site defenses in the nation. As described in the [Cybersecurity](#) section of this report, we also focus on protecting our assets from internet and other electronic threats.



Exelon's Nuclear Management Model
is focused on operational excellence
and safe plant operations.



Our highly skilled and professional workforce receives regular and rigorous training to maintain and improve their performance and knowledge of the special and unique technology they operate. We conduct training at each of our 14 Exelon-operated nuclear sites, three centralized training facilities in Pennsylvania, New York and Illinois and a fire-training academy located in the Midwest. Every new employee at a nuclear power plant receives orientation and initial training. Our instructors receive initial training from the INPO Instructor Certification Program and are equipped with company-specific training and knowledge of requirements. Certified instructors maintain their skills and knowledge with annual continuing instructor training accredited by the National Academy for Nuclear Training. Line department employees, supervisors and work groups attend discipline-specific initial training programs that prepare them to be highly skilled nuclear employees. The initial training programs vary in length depending on the discipline — from nine months for skilled tradespeople to 18 months for NRC-licensed nuclear control room operators. In 2018, we completed training and licensing for 94 new control room operators.

Exelon's nuclear fleet uses distance learning technology and classrooms to conduct its initial maintenance and technical training programs. There are 28 classrooms in 12 different locations in Illinois, Pennsylvania, New York and Maryland that include the latest audio and video equipment, allowing interactive training to occur simultaneously with a multitude of students taught by a single instructor. In addition, three centralized lab locations are used for hands-on portions of maintenance program training. In 2018, continued integration of distance learning technology resulted in the graduation of 371 prospective new technicians and engineers. The Exelon American National Standards Institute (ANSI) Management Certification class also used distance-learning technology, which enabled 65 students and one external student to receive their management certification. Employing new and innovative technologies affords our employees a more streamlined training schedule, more time at their home facility and less time traveling.



Training at the Braidwood
Nuclear Power Plant in
Braidwood, Illinois.



GIVING BACK TO COMMUNITIES

At Exelon, we are committed to supporting community progress in the areas in which we live and work. We engage directly with people in our local communities to make a positive difference in the areas that matter most to the customers and communities that we serve.

We are proud to share that our 2018 philanthropic efforts benefited nearly 3.7 million people. We focus our giving in five critical areas.

Educational programs that promote science, technology, engineering and mathematics (STEM) learning or encourage students to stay in school. Our efforts in education involved more than \$13.7 million donated to education-related causes, which benefited 746,302 students, including helping 11,356 students graduate from high school. A total of \$664,658 was donated in scholarships, furthering 536 students' educational goals.



STEM Academy students at Constellation's Baltimore, Maryland Headquarters learn about power trading and the building's LEED features.



BGE Chief Executive Officer Calvin Butler Jr. with STEM Academy students at the University of Maryland.

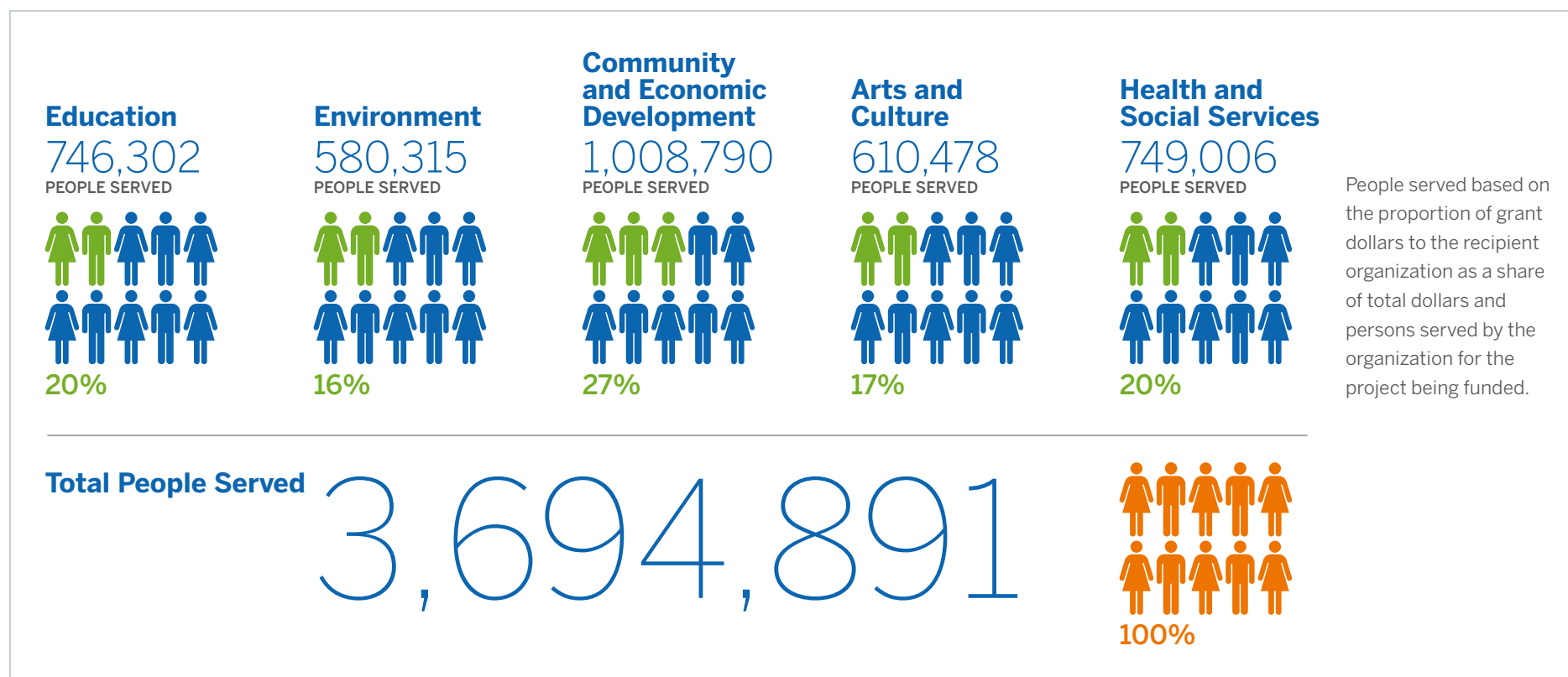


Environmental programs that improve the health of the environment and promote energy efficiency. Our \$3.3 million in financial support of environmental projects in 2018 benefited 580,315 people and resulted in 74,916 pounds of trash collected, 330 acres of land preserved, 58,692 trees planted and 22,322 animal habitats saved.

Community and economic development collaboration with local civic organizations that improves the quality of life in our communities. Our community and economic development contributions of nearly \$7.3 million positively impacted more than one million people, with more than 100 energy efficient homes built and 788 community organizations benefiting from Exelon grants.

Partnerships with **arts and cultural institutions** with broad public exposure supporting programs designed to make arts more accessible to a wider audience, benefiting 610,478 people. Our donations of \$7.7 million allowed 62,595 people to engage in arts and culture performances they would not otherwise experience. These efforts also resulted in a remarkable 171,650,899 media impressions (including both Exelon and grantee organizations).

Health and social services programs support the health and wellbeing of our communities. In 2018, our donations of \$8.7 million in this area served 749,006 people.



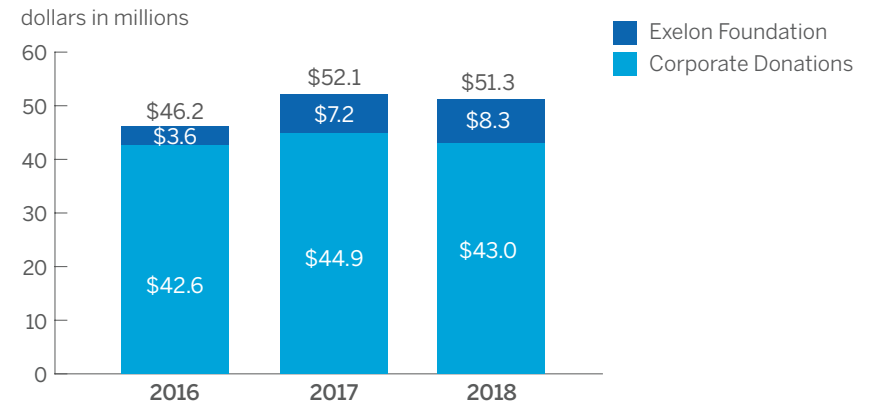
Corporate Giving

Every year, we give a portion of our revenue back to our communities. In 2018, Exelon's corporate contributions totaled \$43 million. In addition to our corporate contributions, the Exelon Foundation provided \$8.3 million in contributions in 2018. Nearly \$43 million — more than 80 percent of our total contributions — supported organizations, programs or events that serve the needs of diverse populations.

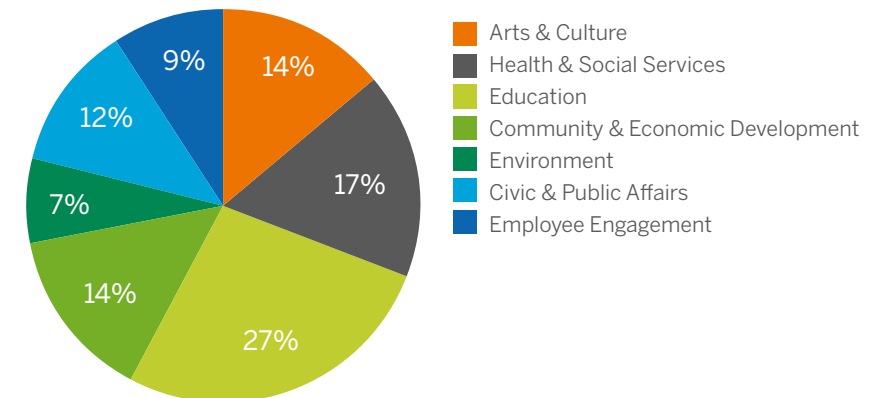
Sponsorship of WeDC Fest

Exelon and Pepco served as sponsoring partners for Washington D.C.'s WeDC Fest in 2018. WeDC Fest is a three-day conference to celebrate collaboration around technology, social impact and the local creative economy. The conference provided an array of opportunities for local businesses, entrepreneurs, investors and government leaders to display their talents, diversity and inclusiveness in the area. The conference was free to the public and had more than 1,900 attendees across 64 unique events and sessions that included 211 local speakers and 90 exhibitors held at three venues, one being the Pepco Edison Place Gallery. Additionally, Pepco awarded a \$65,000 grant to Jubilee Housing to support their "Innovative Housing Pilot Resiliency Program," to fund battery storage systems at their Maycroft affordable housing property in the Columbia Heights neighborhood. For more information, please see www.wedcfest.com.

CORPORATE GIVING



2018 CONTRIBUTIONS BY PROGRAM AREA



STEM Academies

As part of Exelon's ongoing efforts to empower young women and advance gender equality, the Exelon Foundation, in partnership with the UN Women HeForShe initiative, held STEM Innovation Leadership Academies in Chicago and Washington, D.C. In 2018, nearly 100 high school girls participated in a week of STEM and leadership development experiences in these cities. The Washington, D.C. Academy brought together nearly 60 women ages 14 to 17 to engage in interactive experiences, field trips and conversations with leaders in STEM fields. The event included several energy-focused workshops led by the National Energy Education Development Project (NEED), as well as visits to the BGE training facility, University of Maryland's Training Reactor and the Calvert Cliffs Nuclear Power Plant for unique hands-on experiences. A STEM-focused competition challenged participants to design fully sustainable habitats that can be deployed to disaster areas to meet the needs of occupants with minimal supplies. The winning team was recognized with a small cash prize and an opportunity to present their ideas during Exelon's Innovation Expo.

For one student, Aniaa Johnson, it was the sheer size and complexity of the nuclear power plant they visited that drove home the immensity of modern power generation. The STEM Academy exposed Aniaa to a number of experiences that remained with her. After winning the STEM Academy Innovation Challenge, where her team worked to reimagine the East Potomac Park, Aniaa and her team presented their project to a panel of judges at the Exelon Innovation Expo and met one of the judges of Shark Tank as a result. Aniaa's team redesigned the amenities to include an electric bike, water fountains with electric filters, electric power stations and electric scooters, all powered by on-premise solar energy.

More than anything, it was the experiences interacting with professionals in the STEM fields that helped shape Aniaa's overall experience. After speaking with some of BGE's "Women on the Lines", Aniaa was inspired to pursue a field in technology. "When speaking with these women and meeting them in person, they become more human. I realized I can do what they do, too. It taught me that women have the brainpower to do things like that, which inspires me to want to pursue coding and computer science."



STEM Academy Innovation Challenge winners.

Employee Philanthropy and Volunteerism

Exelon encourages volunteerism and supports employees in their community service work. In 2018, 9,185 Exelon employees volunteered 240,950 hours in their communities, supporting 1,586 volunteer projects. This amounts to a 40 percent increase in volunteer hours over three years.

Employee Giving Campaign and Matching Gifts Programs. Exelon employees contributed over \$12.6 million through the Exelon Foundation Employee Giving Campaign and Matching Gifts programs. The Foundation matched a portion of the donations, resulting in \$20.8 million going directly back into the communities we serve.

National Volunteer Month. One of our signature volunteer programs is National Volunteer Month, held in April 2018. Exelon employees were involved in 396 volunteer events in 15 states and 104 cities, with 5,233 employees volunteering for a total of 18,206 hours.

Giving Tuesday. In honor of #GivingTuesday, 1,813 Exelon employees volunteered 16,845 hours of their time at 166 service projects and 47 holiday drives around the country following Thanksgiving weekend. Exelon volunteers supported more than 526 nonprofit organizations during the month of November.

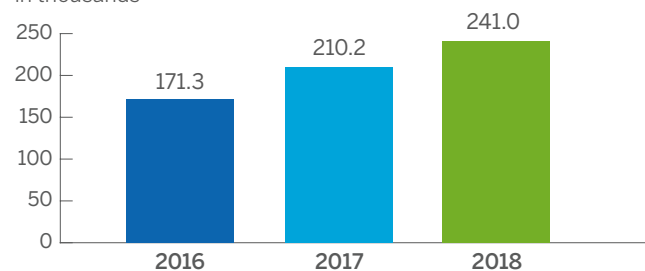
Employee Volunteer Awards. To reward our employees who volunteer more than 50 hours a year, Exelon presents Employee Volunteer Awards, with an associated financial grant of \$5,000 to \$20,000 given to the recipient employee's nonprofit organization of choice. In 2018, 20 awards totaling \$200,000 were awarded to nonprofit partners.

Dollars for Doers Program. In 2018, 2,281 employees participated in Dollars for Doers, a program through which Exelon provides \$100, \$200 and \$400 grants to nonprofits in honor of employees' volunteer service of 10, 20 and 40 hours, respectively. In 2018, 3,908 grants totaling \$910,000 were awarded. In 2018, Exelon provided \$1.1 million in recognition of our employee volunteers.

Board Representation. Giving back to our communities is a theme that runs through all levels of Exelon, including our corporate executive suite. Exelon was represented on more than 700 nonprofit boards in 2018.

VOLUNTEER HOURS

in thousands



Exelon employees volunteered a record 240,950 hours of community service in 2018.



2018 Volunteer Activities Highlights

In all of our business units, Exelon employees are active participants in their communities. In 2018, teams throughout the company gave back to their communities through volunteer activities in our service areas.

BGE. In September 2018, BGE employees, in partnership with KaBOOM!, built a fifth playground in Brooklyn Park. The project helps fulfill part of the organization's mission, which is to create fun play spaces in underserved neighborhoods. In five hours, BGE employees and community volunteers built a playground at the Brooklyn Park Youth Athletic Association site. More than 800 kids a year will use this playground to provide meaningful interactions through play and relationship building. Nearly 160 volunteers, including 120 BGE employees, participated in this event.

ComEd. Through our DePaul College Prep scholarship program, we focus on students in need of financial opportunities who excel in STEM subjects. Students are chosen for the program in high school and then mentored by ComEd employees, who visit the scholars monthly. In 2018, three juniors were selected for the program, joining six seniors. Upon graduation, students are encouraged to attend DePaul University with a continued STEM scholarship from ComEd. Currently, three students are attending DePaul University on a ComEd scholarship as a result of this program.

PECO. In 2018, we continued sponsorship of PECO Free First Sunday Family Day. The program provides free monthly access to Philadelphia's internationally acclaimed Barnes Foundation, home to one of the world's greatest collections of impressionist, post-impressionist and early modern paintings. PECO Free First Sunday Family Day celebrated multigenerational families through a variety of cross-cultural programming and family activities for audiences of all ages. In addition to offering free access to the Barnes collection and exhibitions, the program highlighted performances

by young and emerging talent, hands-on experiences and stimulating talks. In 2018, approximately 20,000 visitors attended these events, a 20 percent increase from the previous year. Almost three-quarters of the visitors who took advantage of this program were under the age of 45, almost half were minority individuals and one-third were families.

PHI. The PHI utilities, ACE, Delmarva Power and Pepco partner with the Arbor Day Foundation to provide 3,500 free trees to residential customers through the Energy-Saving Trees program, an initiative that helps customers conserve energy and reduce household energy bills through strategic tree planting. An online tool assists customers in finding strategic locations for planting trees and estimates the annual savings.

Constellation. Through the E2 Energy to Educate grant program, Constellation offers students in grades six through 12 and college opportunities to solve current and future energy challenges. Grant funds support projects designed to enhance students' understanding of science and technology and inspire them to think differently about energy. In 2018, 20 STEM projects received more than \$410,000, reaching more than 18,000 students nationwide. Since the program's inception, 123 projects received more than \$3 million and 180,000 students benefited from the program.

Exelon Generation. Through Operation Warm, Gloves with Love and other initiatives, we donate to community members in need of warmth. In 2018, we provided a \$30,000 donation and coats for 1,650 elementary children in five states (Pennsylvania, Maryland, Delaware, Massachusetts and Texas), spanning 11 counties in or around our facilities. At Oyster Creek, Limerick and Nine Mile Point, coat drives benefited more than 1,000 people. We also donated more than 1,000 hats, gloves and mittens to people in New York through the Gloves with Love campaign.



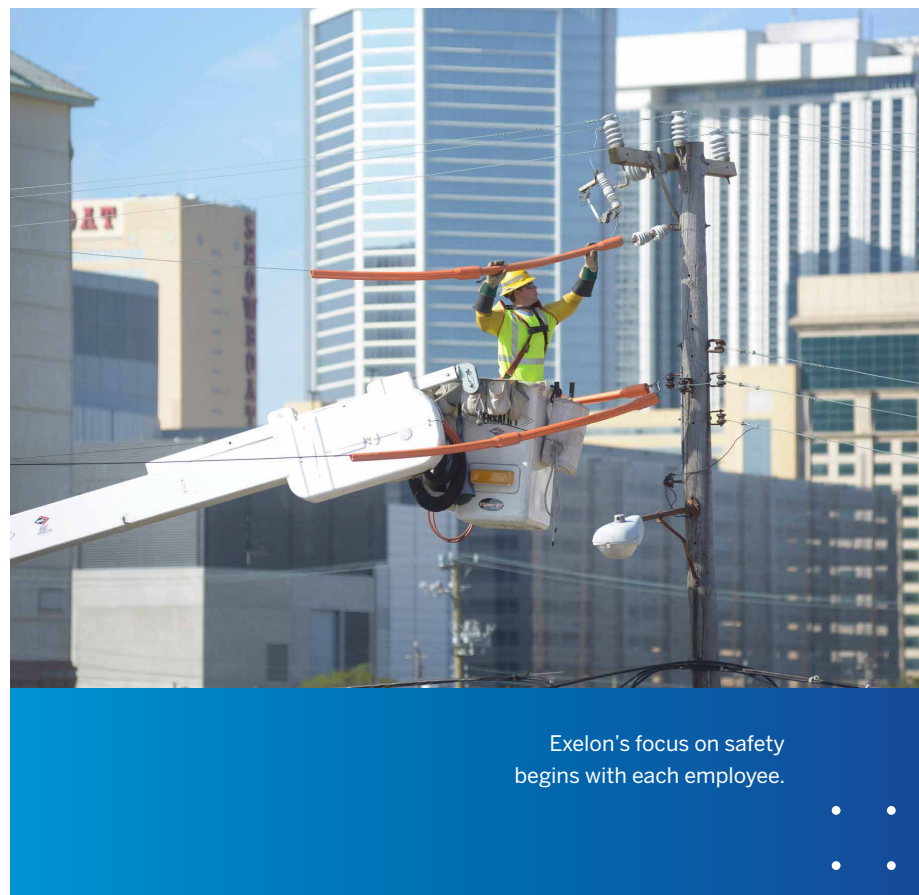
A Safe, Innovative and Rewarding Workplace

- Deployed innovative technology to improve safety performance and began deployment of our cognitive safety awareness strategy
- Continued our support of the United Nations Women's HeForShe campaign, with over 2,500 employees pledging their commitment to reach global gender equality
- Recognized as a top employer for military veterans and lesbian, gay, bisexual and transgender employees

We foster a diverse, innovative and above all, safe workplace for our employees. Exelon's talented, committed and diverse workforce is critical to our company's future success. Workforce safety and health is our highest priority and we implement policies and programs that maintain a strong safety culture. Within Exelon, we advance a culture of innovation by bringing together diverse perspectives and finding new ways to encourage, inspire and reward new ideas and entrepreneurship. To promote employee engagement and retention, we provide employees with rewarding growth opportunities, competitive compensation and benefits and a variety of training and development programs. Through our programs, we strive to create a vibrant, collaborative and fulfilling workplace.

ENABLING A CULTURE OF SAFETY AND HEALTH

At Exelon, our focus on safety and health begins with each employee. We integrate safety and health into every level of our company. Each day our employees embark on a range of critical work activities, from securing transmission lines after a storm to overseeing electricity generation, which sometimes exposes them to hazardous conditions. Through the strength of our safety programs and the commitment of our line employees and leadership, Exelon focuses on achieving top safety performance. Our Safety Peer Group consists of each business unit's safety managers, corporate safety managers, industrial hygienists and legal and medical professionals. The group seeks out and identifies successful pilot programs or new practices to be adopted by the entire corporation. We reinforce safe work



Exelon's focus on safety
begins with each employee.

practices and identify potential risks before an incident occurs through peer-to-peer and manager safety observations. By recording safety observations and near misses, and tracking incident trends, we identify systemic issues and pinpoint improvement opportunities. Above all else, our most important safety and health goal is to achieve zero employee and contractor fatalities. We failed to achieve that goal in 2018; one contractor was fatally injured while performing work on behalf of Exelon. In 2019, we will continue to improve our programs and focus on serious injury and fatality prevention.

Safety Management

We prioritize health and safety performance improvements through our comprehensive safety management systems (SMS) and targeted initiatives for areas of high risk. We conduct risk assessments, track and investigate incidents and implement corrective action programs through our SMS in accordance with applicable Occupational Health and Safety Assessment Series (OHSAS) and American National Standards Institute (ANSI) standards. The executive-level Safety Council and Safety Peer Group review risk assessment and benchmarking results and recommend specific safety initiatives. Additionally, Exelon evaluated the International Organization for Standardization (ISO) 45001 Safety Management System Standard for best practices that could be integrated into the safety management systems going forward.

We enhance our safety program through industry benchmarking with our peers, evaluating new technologies and seeking to better utilize data to manage hazardous conditions and prevent injuries. We collaborate with EEL and EPRI on safety initiatives within our industry. As Exelon has grown to become the largest utility company in the United States, we see the value in expanding our safety benchmarking to larger companies outside our industry. Since 2016, Exelon has been a member of the Campbell Institute, a group of leading companies from the National Safety Council regarded as thought leaders on environmental, health and safety (EHS) issues. Exelon works with the Campbell Institute in five major focus areas — employee well-being, leading EHS indicators and data analytics, serious injury and fatality prevention programs, sustainability and contractor management.

Engaging our employees on safety is a critical component of creating our safety culture. One way we motivate employee involvement in safety innovations is through Safety Achievement Awards. The awards are peer-nominated and awarded to employees who go beyond their normal job duties to make work safer and, in some cases, to improve public safety

as well. In 2018, 46 employees were nominated for Safety Achievement Awards. Three projects receive the award and the winners donate the prize money to safety-related charities of their choosing. In total, Exelon donated \$55,000 to these charities in 2018. The three winning projects are highlighted below:

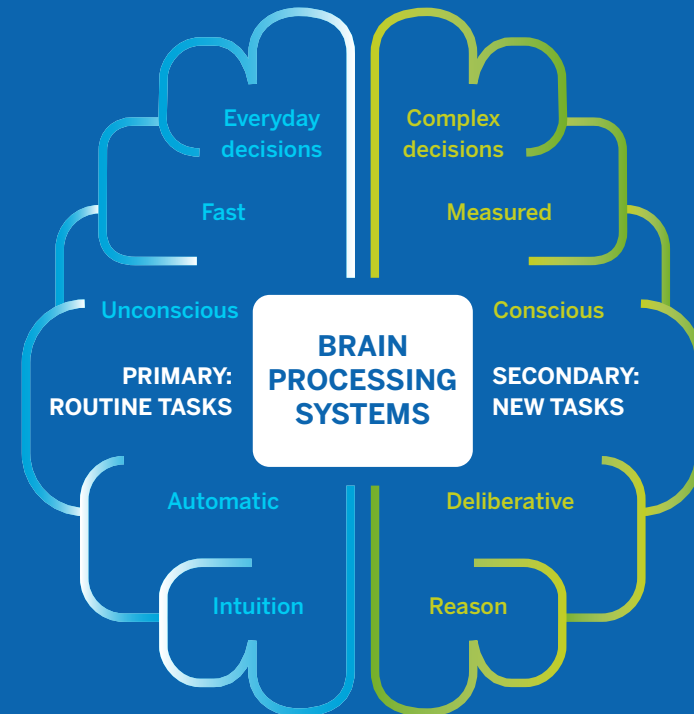
Conowingo Dam Subterranean Crosswalk. Employees and contractors at the Conowingo Dam needed to walk across a heavily traveled roadway that runs across the dam to access the face of the dam. The hydro management team and site safety committee sought out a solution using the dam's unique construction for a subterranean walkway that allows safer access in all types of weather. The Conowingo team chose [America's VetDogs](#) as their charity to receive \$10,000.

BGE Gas Ignition Injury Risk Reduction and BGE Electrical Contact Injury Risk Reduction. BGE developed two programs to assist in reducing the risk of injury due to gas ignition and electrical contact. The team developed an innovative fault tree analysis technique that uncovers critical risks of gas ignition injury related to burn-through of plastic gas pipe that can be caused by electric cable faults in common trenches housing both electric and gas lines. They applied this technique to reduce the risk of electrical contact in overhead distribution work as well. BGE chose the [National Safety Council](#) as their charity to receive \$10,000.

Implementation of Fire and Ice at PECO. Two employees at PECO developed a new way to implement a fire suppression technology and presented their ideas to utility leaders through Exelon's Innovation program, with widespread adoption now underway throughout the company. The new solution is a safe, non-toxic gel that sticks to the targeted surface when deployed and does not blow or burn away like traditional fire extinguishing agents. It is non-conductive up to 50,000 volts and reduces thermal heat up to 10,000 degrees Fahrenheit. PECO chose the [Lion's Eye Bank of Delaware Valley](#) to receive \$10,000.

Using Brain Theory to Improve Training

At Exelon, we must go beyond our strong behavior-based safety program to further reduce injuries. Our Cognitive Safety Strategy began in 2018 with a focus on technology and neuroscience techniques. We work to use technology in place of people to perform riskier tasks or to provide tools to reduce risks. The use of neuroscience and an understanding of the difference between the primary and secondary thought processing in the brain, is key to closing the error traps in which our employees may find themselves. By teaching front line employees to understand and recognize when their brains are in “auto pilot” or otherwise distracted and by giving them tools to stop and engage their brain to manage risks we can reduce injuries and human performance errors. We also added a step in our change management process to ensure any new technology implementation includes a review of the way the new technology could affect employee engagement of an employee’s primary and secondary thought processing.



The Exelon Safety Team explores new ways to improve the safety training sessions we offer. We collaborate with the **Corporate Innovation Team** to incorporate new and emerging technologies, such as virtual and augmented reality systems, to enhance experiential learning where hands-on training is not an option. We developed a comprehensive safety training program through our learning information management system which assigns and tracks training completion on a per-employee basis. In 2018, our employees received more than 750,000 hours of safety-related training through hands-

on, classroom and computer-based training. We integrate safety training into our new employee orientation and leadership development programs to foster a company-wide culture of safety.

Safety Technology and Engagement

Across Exelon, our business units often test innovative methods for improving safety performance. We leverage technology to reduce our employee risk exposure while improving our service. For example,

unmanned aircraft for transmission line and wind turbine inspections can limit the risk to employees while improving inspection quality and speed. Other areas where we seek to improve our safety performance through technology include:

Exelon Power and BSC performed a pilot using Garmin's Vivosmart® to help employees monitor stress and heart rate, which could help to identify when employees are at a higher risk for heart or heat stress related issues.

Exelon Utilities businesses continued a partnership with Proxxi to provide feedback on their Proxxi Band technology, which can detect voltage and induced voltage, a development with lifesaving implications. The data and feedback we provide informs upgrades to Proxxi Band prototypes, with the goal to improve their product and benefit the entire industry.

Exelon Nuclear continues to experiment with technology to conduct remote inspections and repairs, thereby avoiding employee exposure to radiation and heat stress.

Digital Worker

Digital Worker technologies directly interact with individuals in the workplace, contributing to safe, productive, efficient work environments in the office, field or industrial settings. To drive adoption and create value from these technologies, it is important to understand the culture, roles, behavior and physical working environment of the individual. The Innovation Team and teams across Exelon are conducting pilots to explore the connections between individuals and technology. A few examples include using mobile applications for faster communication, augmented reality (AR) for virtual tours and job trainings, wearable devices for safety improvements and other digital assistance.

Through a Digital Worker initiative, a team from BGE experimented with AR to create a tour and simulation of the Coldspring Substation battery energy storage system (BESS). Since the BESS is installed at a substation, physical tours require fire resistant clothing and a qualified escort. The team felt that there was a simpler way to promote this latest technology. They collaborated with Earthborn Interactive to develop an AR model of the BESS equipment from aerial drone imagery, a 3D point cloud, interior photos and simulation parameters. Creating the AR tour and simulation

allows for better visualization and understanding of the BESS technology, installation and operations.

The Innovation Team launched another pilot in this space: a mobile application specifically for desk-less workers to communicate more quickly and efficiently while on the job. The application allows for team collaboration amongst peers to help locate parts and tools needed, communicate status of projects during shift changes and increase coordination between teams and sites. Additionally, it allows for fast knowledge transfer among peers and experts by allowing employees to take pictures and videos of a problem and receive "group-sourced" solutions. Through this application, field workers communicate and solve problems more readily, thus reducing response time for our customers.

Exelon continues to explore, test, validate and learn from these Digital Worker technologies through pilots and experiments ranging in size and investment with the ultimate goal of executing these technologies at scale in our operations to improve efficiency, safety and better serve our customers.

Safety Performance

At Exelon, safety performance is integral to our culture. Our overall performance in 2018 was strong; however, there are certain areas where we can improve our performance. In total, Exelon experienced 234 Occupational Safety and Health Administration (OSHA) recordable incidents, up from 216 in 2017. Simultaneously, we saw improvements in many of our individual businesses. Of particular note, in 2018 the PHI utilities reduced employee lost time to 280 days, representing a decrease of over 78 percent. Exelon experienced a contractor fatality at DPL when a vegetation management contractor was electrocuted. We at Exelon are deeply saddened by this loss of life. We investigated the circumstances pertaining to the loss of this PHI contractor to make sure we thoroughly understand the situation and take preventive steps in the future.

In 2018, Exelon employees drove more than 118 million miles in a combination of Exelon-owned, employee-owned and rental vehicles. Our driver safety performance declined with a fleet-responsible vehicle accident rate of 2.57, up from 2.10 in 2017. The majority of Exelon's motor vehicle accidents are the result of being struck by another vehicle, in many cases because the other driver was driving while distracted. Where Exelon is at fault, the leading cause continues to be striking stationary objects at low speeds, such as backing into a mailbox. We will continue to work to prevent accidents and near misses that occur due to these types of incidents and pilot new or improved technologies to help us be safer on the road. Exelon coordinates efforts with the [Network of Employers for Traffic Safety](#) (NETS) to leverage best practices and improve the safety of our drivers. NETS provides Exelon with valuable insight from other utilities and other industries like insurance, telecommunications and transportation services.

Ensuring that our contractors return home safely is as important as our efforts to safeguard our own employees. In 2018, Exelon's contractors worked more than 40 million work hours in support of our operations.

EXELON EMPLOYEE SAFETY PERFORMANCE

	2016	2017	2018
OSHA Recordable Rate ¹	0.65	0.52	0.57
OSHA DART Rate ²	0.44	0.32	0.36
OSHA Severity Rate ³	12.11	8.17	9.06
Exelon EEI Serious Injury Incident Rate ⁴	0.10	0.07	0.04
Exelon's Contractor OSHA Recordable Rate	0.68	0.59	0.59

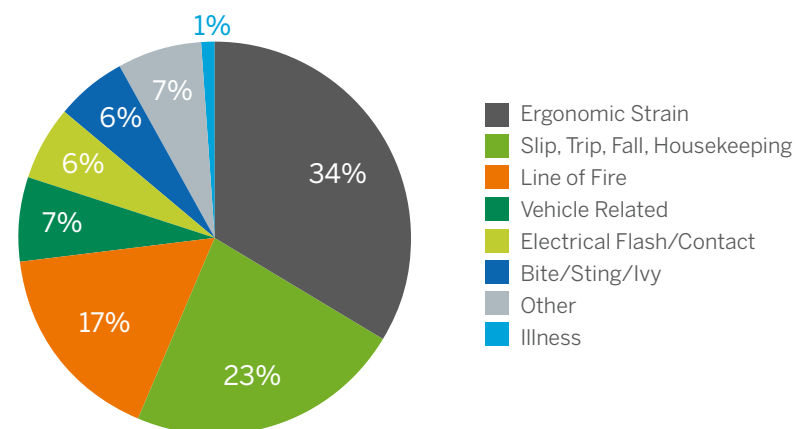
1 The number of work-related injuries or illnesses requiring more than first-aid treatment, per 100 employees.

2 The number of work-related injuries or illnesses that result in days away from work, restricted work or transfer, per 100 employees.

3 The number of days away from work per 100 employees as a result of work-related injuries or illnesses.

4 The EEI Serious Injury Incident Rate is a benchmarkable metric of significant and fatal injuries shared by EEI members.

2018 EXELON OSHA RECORDABLE INJURIES BY CAUSE



Eliminating Severe Injuries

As a member of Edison Electric Institute (EEI), Exelon participates in the Serious Injury and Fatality (SIF) Program, which collects best practices and develops tools that aim to prevent severe injuries and fatalities.

Through this program and others at EPRI and the Campbell Institute, we benchmark our processes and SIF performance against our peers and find opportunities for learning and improvement. SIFs account for seven percent of our overall OSHA Recordable injuries. They are also the most impactful type of injuries and have a lasting effect on our employees and

their families. At Exelon Utilities, we are piloting a Potential Serious Injury and Fatality (P-SIF) metric which considers not only actual SIF injuries, but instances where a SIF could have occurred but did not. This P-SIF metric captures more information and provides a wider lens to review all instances of high risk. When these injuries or incidents are identified, we investigate as if the injury was severe and work to determine how we can prevent that potential serious injury in the future. By learning from mistakes and near-miss incidents Exelon can continue to reduce our instances of severe injury.

We expect our contractors to meet high standards for safety. We require our contractors to implement safety best practices that go beyond regulatory minimums. Before selecting contracting partners, Exelon evaluates both their safety and environmental performance. We provide contractor safety training and employ human performance error reduction tools to minimize incidents. We track contractor OSHA recordable rates and review them monthly. Each year we set a safety performance goal for all major contractors to match or improve prior-year performance. We also conduct internal audits and self-assessments on a periodic basis to ensure that our contractors adhere to the safety program requirements. When working with contractors that have higher recordable rates, we monitor their work more frequently and in some cases terminate contracts because of poor safety performance. In 2018, our contractor OSHA recordable rate was 0.59, a 21 percent reduction over the past five years and nearly the same as the rate for Exelon employees.

Health and Wellness

Exelon employees power our company and we are committed to helping our employees maintain and improve their health. The Exelon Power Through Health wellness program offers a wide range of health and wellness services including on-site biometric screenings, walking and nutrition challenges, health coaching, fitness reimbursements, smoking cessation, heart health education, opportunities for volunteerism and more. By participating in our Power Through Health wellness program employees can save money on their medical plan premiums. In 2018, nearly 42 percent of eligible employees completed their biometric screening and personal health assessment. Nearly 40 percent of employees took part in at least one challenge. To encourage healthy living at home we extend the benefits of biometric screening and personal health assessment to employees' spouses and domestic partners. To improve at-work health and wellness practices we are working to increase healthier food choices at select worksite locations.

Exelon Healthcare Program

Offering a competitive selection of benefits is one of the ways Exelon creates a safe and rewarding workplace for our employees. Beyond Exelon's commitment to employee health and wellness, we pride ourselves on the variety of competitive medical and other benefits we provide. Exelon offers benefits for our employees, retirees and their families. We manage our benefits programs proactively by investing in innovative employee solutions that save time and money. Learn more about some of these benefits in the section [Progressive Workforce Policies](#). Identifying these efficiencies and savings allows us to reinvest and continue to expand and improve our wellness programs for the future.

ATTRACTING TOP TALENT

Exelon's attributes its success to the talented, dedicated employees that work at our company. We prioritize cultivating the success of our employees by attracting highly qualified and diverse talent. With this in mind, our recruiting strategy is closely aligned with our core competencies as an innovative, forward-thinking, people-focused organization. The following section outlines a few of Exelon's talent priorities and accomplishments in 2018.

Internships and University Recruitment

Exelon hosts hundreds of collegiate interns annually across our operating companies with the goal of building a diverse talent pipeline for future jobs and exposing young talent within our communities to valuable applied experience and career opportunities in the energy industry. We maintain strategic partnerships with key academic institutions and organizations based on academic excellence in relevant areas of study, student diversity and proximity to our major markets of operation. Each of Exelon's operating

2018 Award



Exelon was named #14 on Indeed's Best Places to Work 2018. This is Exelon's second consecutive year on this list, which is a testament to our ongoing commitment to our employees and creating a diverse and inclusive work environment.

companies has established additional academic partnerships aligned with their unique markets and needs. In 2018, we employed 496 interns, many of whom may become Exelon employees in the future. We continue to explore opportunities to create efficiencies and automate our process of connecting with and recruiting students as our geographic footprint increases.

Advancing our Recruiting Technologies

Our commitment to technological innovation extends to our recruiting processes as we adopt new tools and technologies that drive more efficient and data-driven hiring. In 2018, we introduced HireVue, a video interview tool that facilitates recorded one-way candidate interviews and real-time two-way interviews with hiring managers. Using this technology, we are better able to measure and improve our candidate engagement and experience, while optimizing the recruiting process for time and cost. In addition, we adopted technology that provides critical data insights related to our job postings, enabling us to consolidate and optimize our virtual outreach to reach more of our targeted candidate pool, which reduces our overall investment.

ACCELERATING TALENT

Talent is foundational to our organization. Exelon began a strategic transformation in 2016 called Talent Accelerated. Talent Accelerated focuses on providing development opportunities for our employees and driving our enterprise strategy forward. This initiative helps Exelon navigate a changing landscape by focusing managers and employees on what matters: contributing their best and attracting, developing and rewarding talent in alignment with our strategic objectives. The adjacent strategic imperatives translate into key areas of focus for this initiative.



Talent Accelerated is how we help our employees grow their skills and careers.



Exelon Talent Accelerated	
OUR STRATEGIC IMPERATIVES	WHAT WE FOCUSED ON AND WHY
Strategically optimize talent as a competitive differentiator for Exelon, by equipping leaders to be coaches and enhancing our talent review process	• Implemented a “leader as coach” model to help managers successfully facilitate growth and development of their teams, to better shape and evolve our talent • Elevated our business talent review process to better identify and drive focus on the future and on key talent
Help managers and employees focus on what matters , by streamlining our performance management process and refining our competency model to align with our business strategy	• Refined core and leadership competencies, to define “what good looks like,” with a focus on what our talent needs to succeed, today and in the future • Redesigned processes from performance management to coaching conversations to focus on development activities that drive higher performance and eliminate activities that don't • Modernized learning, focusing on the skills and capabilities needed to drive the business forward
Providing processes and systems that are fast, smart and simple , modernizing and simplifying our tools	• Continued to enhance our ePeople Talent system to provide managers and employees with modernized technology, advanced functionality and easier and direct access to information they need
Leveraging advanced analytics to understand talent priorities and inform key business decisions	• Expanded talent analytics solutions to go beyond collecting data to generating insights that includes: - Streamlining and simplifying dashboards and reports - Ensuring data quality, alignment and governance - Exploring artificial intelligence along with other advanced analytics to identify complex patterns in data across multiple data sources
Support innovation by building a diverse workforce and an inclusive culture , where all of our people feel they can contribute their best	• Value of Mutual Respect training continues to be conducted for Key Managers and those employees who manager others. Over 2,160 Exelon employees have successfully completed the ½ day course • Offered innovation training to all employees to foster an innovative culture and ensure all understand the impact of innovation at Exelon
Attracting and selecting talent that can help us win in the marketplace, adding new skills for new markets to our talent portfolio	• Leveraged a range of assessments to hire the best talent for the job and provide critical information to help with ongoing development

EXELON INTEGRATED TALENT MANAGEMENT



EXELON KEY TALENT PROCESSES

Core Competencies



Focus on Capabilities —
The way we act and lead

- Six competencies, modern business language
- Clear link to mission, vision and values
- Redefined role-based behavioral anchors
- No formal assessment of each competency

Performance Development



Focus on Impact and Behaviors —
The way we grow as individuals and teams

- Three ratings with no distribution requirements
- Continuous and crowdsourced feedback with frequent “check ins” (no mid-year)
- Simplified goal setting process
- De-couple performance from compensation discussion

Leader as Coach



Focus on Growth and Development —
The way we accelerate employee development

- One formal feedback process at year-end, informal “check ins” throughout the year
- Training will focus on helping all leaders have constructive conversations and help with consistency in approach

Business Talent Review



Focus on the Future —
The way we build our talent pipeline

- Talent map with development guide
- Refined and modern tools
- Enterprise-wide guidance; introduce “Success Profiles” for critical roles

Employee Insights and Experience

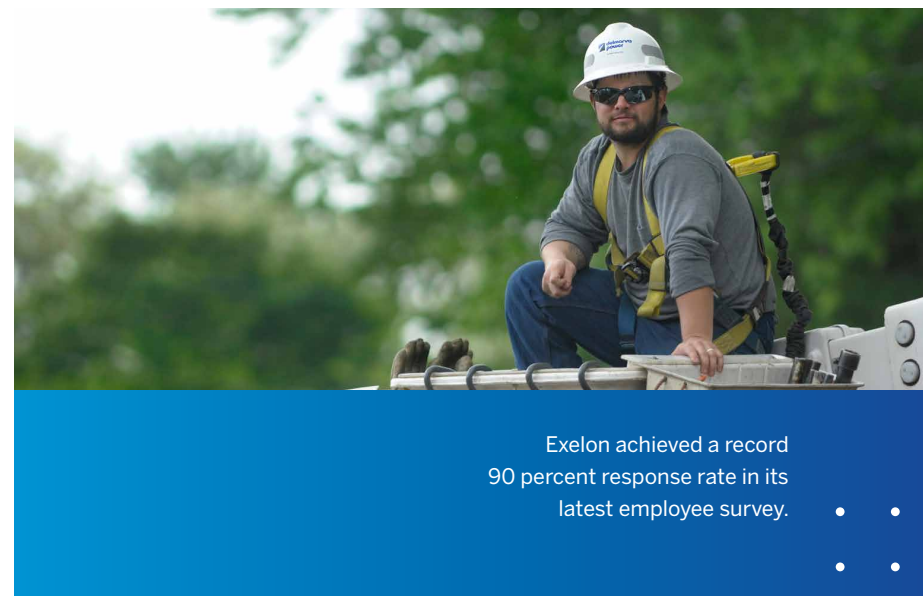
An important part of accelerating our employees is retaining the best talent and ensuring our employees work in an environment where they can perform at their fullest potential. We believe this ensures our employees are engaged and are having a rewarding experience at work. One way we measure and manage our performance is by frequently soliciting employee feedback on their experience at the company. We conduct periodic surveys to better understand and address any issues raised by our employees. The surveys measure employee engagement, development, innovation, diversity and inclusion, safety and other aspects of the employee experience.

Employee Engagement Survey

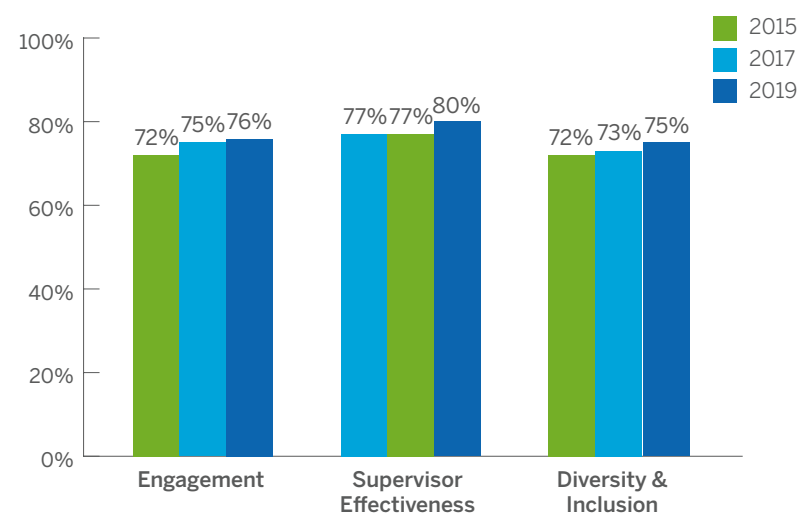
Our largest employee experience research is our biennial Employee Engagement Survey. In 2019, we achieved a response rate of 85 percent (5 points above the IBM/Kenexa average response rate of 80 percent) and received positive ratings and increases in all of our critical focus areas: engagement, supervisor effectiveness, and diversity and inclusion. The positive results were driven by employees feeling more appreciated, improved access to development opportunities, leaders demonstrating they care about what is on employees' minds, and leadership behaving consistently with company values. Exelon's employee engagement was rated as 76 percent favorable, above external norms and approaching best-in-class designation (categorized as 78 percent favorable or better). Between our major biennial Employee Engagement Surveys, we conduct interim, targeted surveys to stay connected to our employees and gather insights to help us create an engaged workforce and rewarding experiences at work.

Culture of Inclusion Survey

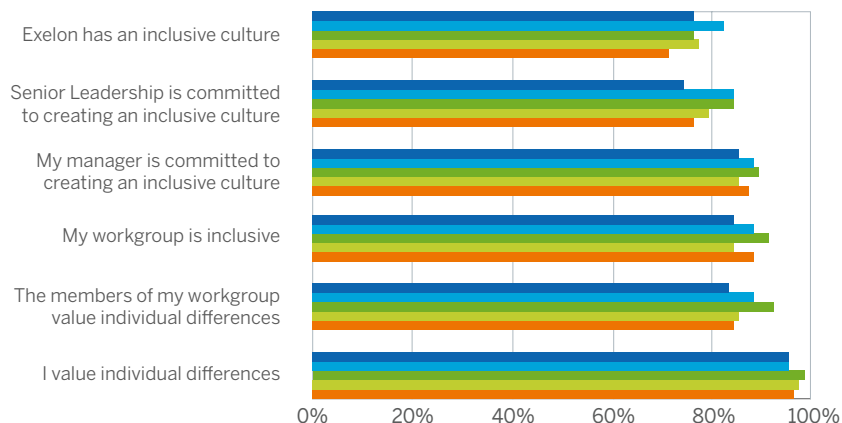
Exelon developed and piloted a Culture of Inclusion Survey to assess employee perception of the inclusiveness of the culture, drivers of inclusion



KEY EXELON EMPLOYEE ENGAGEMENT SURVEY RESULTS AND TRENDS



OVERALL CULTURE OF INCLUSION RATINGS BY PARTICIPATING PRACTICE AREA/OPERATING COMPANY



and the impact inclusion has on employee and organizational outcomes. Constellation piloted the survey in 2017, with other operating companies and practice areas subsequently launching the survey. The findings were favorable and suggest that Exelon's efforts to build an inclusive culture are impactful. Survey results will inform strategies and action plans to drive an inclusive culture.

Employee Development and Training

Exelon offers a variety of robust development programs for all levels of employees and leaders. These programs focus on developing employees' technical job-related skills and help employees gain insight into their soft skills such as communication and leadership abilities.

Innovation Training

Beginning in June of 2016, Exelon developed and offered innovation training in coordination with the Exelon Innovation Team. An open enrollment

course, Experience Innovation, is available for Exelon employees and provides participants with a working knowledge of the Exelon innovation methodology. The course builds an understanding of different types of innovation and offers case study-based practice activities using an innovation framework. Additionally, we implemented a multi-module toolkit and supportive training to transfer innovation concepts from theory to practice. We developed the toolkit through a partnership of Exelon's Innovation Team and subject matter experts throughout the business.

Leadership Training and Employee Development

Throughout 2018, our Talent Management Center of Excellence (COE) successfully delivered a variety of leadership courses and programs targeted at nearly every level of leadership across Exelon to help employees build skills that align with the Exelon core competencies. The courses cover topics such as change management, presentation skills, diversity and inclusion, conflict management, situational leadership, strategic thinking and team building. The COE also offers a robust set of development programs for nominated employees. These programs include extensive training in people leadership and coaching skills, management requirements, labor relations and business-unit specific management skills.

In 2018, the COE, in collaboration with the operating companies, completed a thorough analysis of learning at Exelon. Based on the analysis, we identified the most impactful employee development skills and experiences and will launch an enhanced approach throughout 2019 and 2020. Our new approach will emphasize on-the-job experiences, comprehensive program-track designs, partnerships with respected universities and a women's leadership program.

Each operating company offers development opportunities to its employees and leaders. Training opportunities range from technical courses to personal development courses delivered in both in-person and online sessions. Select training highlights from our operating companies include:

BGE. BGE maintains a centralized technical skills training center in White Marsh, Maryland. In addition to ongoing employee skill-building sessions, the training center provides both classroom and hands-on training to hundreds of BGE employees, as well as contractor certifications to ensure compliance with state regulations.

ComEd. ComEd builds leadership, professional and technical capability by providing development programs to crew leaders, field supervisors, professional employees and people managers through the Crew Leader Academy, Supervisory Development Program, Emerging Leaders Program, EngineeringU and expanded leadership development programs. The programs offer resources for leadership, professional and technical development including in person workshops, webinars, job aids, reference materials and videos.

PECO. PECO focuses on developing employees' technical and leadership capabilities while improving the customer experience. Our training facilities for Gas, Electric, Transmission & Substation and Customer Operations enable employees to work in real-world situations. At PECO, hands-on classroom training, online learning and virtual learning are available for topics spanning from people skills to technical knowledge. PECO's leadership development programs include the Supervisory Development Program, Manager Essentials, the Emerging Leaders Program and Power to Lead. In addition, PECO offers all employees online learning and classroom training to enhance personal and professional growth.

PHI. PHI's Training and Methods teams successfully design, deliver and support the development of field, technical and administrative employees. PHI's role-based career path curriculum is designed to prepare employees for each level of progression. Innovation is at the root of PHI's learning strategy. PHI most recently introducing the Mobile Training/Virtual Reality trailer that provides an incident-free training space for employees. Emergency preparation programs provide employees with opportunities for inclusion and exposure to work processes and environments that



PHI employees use Mobile Training/
Virtual Reality trailer to practice
simulated equipment operation.

employees would not experience in their typical daily routine. PHI launched three new programs in 2018. emPower prepares individual contributors for future leadership roles, while Inclusive Leadership and a series of Power Up webinars strengthen existing leaders' ability to effectively lead, coach and engage employees in an inclusive culture.

Constellation. Constellation offers technical and professional development opportunities for all employees through customized in-person, online and virtual programs. Constellation developed the Career Development Week program to support the continued growth and development of all employees and create opportunities for meaningful career conversation between employees and their managers. More than 400 leaders participated in the Leadership in Action conference, a training session focused on driving an inclusive and innovative culture. Respectful Workplace Conduct training sessions were launched to drive inclusive behaviors across the organization and foster a work environment that allows all employees to feel respected and included.

Advancing Our People Technologies

Promoting a culture of technology and innovation is a core focus of Exelon's strategic plan. Exelon's HR team aspires to be at the forefront of this movement by advancing our HR systems. Throughout 2018, Exelon continued to operate and evolve the company's largest cloud-based application with the latest HR management and payroll technologies.

Exelon Generation. Exelon Generation uses industry-leading talent management practices to identify and develop talent, focusing on an integrated leader-led philosophy designed to advance the strategy of the business. Leadership development programs start with executive alignment to kick off the year and cascade through management levels to ensure consistency of skill development throughout the organization. Between programmatic events, Exelon Generation seeks opportunities to reinforce learning and offer on-the-job practice and skill development.

Progressive Workforce Policies

Paid Leave. By offering industry-leading paid leave benefits for new mothers, fathers and adoptive parents, we demonstrate our commitment to helping our employees balance work and family responsibilities. We also offer time away from work to care for a critically ill family member. At Exelon, mothers are eligible to receive up to 16 weeks of paid leave after giving birth and fathers and adoptive parents are eligible to receive up to eight weeks of paid leave when a child arrives. Employees are eligible to receive up to two weeks of paid leave to care for a family member with a critical illness. Exelon approved 1,780 employees for bonding leave and/or primary caregiver leave from January 2017 to March 2019 (1,458 males and 322 females).

Equal Pay. In 2016, Exelon partnered with the White House as a signatory to the Equal Pay Pledge, an initiative to encourage action and commitment to closing the national gender pay gap. As part of our commitment, we employ an independent third-party vendor to run regression analysis on all management positions each year. The analysis consistently shows that Exelon has no systemic pay equity issues. We also reviewed hiring and promotion processes to neutralize any unconscious bias and embed equal pay efforts into broader enterprise-wide equity initiatives. We are devoted to creating an environment that allows women to stay in the workforce, grow with us and move up in the ranks, all with parity of pay.

Tuition Reimbursement. Continued education leads to a more engaged, skilled and productive workforce. We support our employees in their educational endeavors in order to attract and retain people who are committed to personal and professional development. We reimburse employees who are pursuing professional credentials up to \$10,000 annually for undergraduate or certificate courses and up to \$15,000 annually for graduate courses.

Employee & Labor Relations. Exelon has a highly engaged, innovative and collaborative workforce. Approximately 12,000 of our 33,000 employees are represented by labor unions. Within the represented population, Exelon has successfully negotiated 33 collective bargaining agreements with labor unions. In doing so, Exelon balances the needs of a high performing company with the interests of the affected employees. During the last 12 months alone, Exelon successfully negotiated and ratified collective bargaining agreements at the Braidwood Generating Station, Hyperion Generating Station and two at Atlantic City Electric. In addition, Exelon and IBEW Local 410 are currently negotiating a collective bargaining agreement covering approximately 1,400 employees at BGE. Both parties continue making progress towards a first contract.

DIVERSITY & INCLUSION

To deliver on our commitments to customers, employees and communities, we need the best teams. In our experience, the best teams are diverse and inclusive. As we work to attract and retain top talent, we see that a workforce that reflects the communities we serve directly affects our ability to provide the energy products and services our customers expect. Incorporating a range of perspectives and experiences into the way we think, plan and work leads to innovative concepts, increased stakeholder engagement and better solutions to any challenges we face. We make it our business to nurture a workplace where all employees can fully contribute and build fulfilling careers. Our CEO has demonstrated the criticality of this value by dedicating his time to meeting with all Exelon Executives in more than a dozen small group dialogues beginning in 2018 and continuing into 2019. The conversations focused on individual leadership accountability for creating an inclusive culture.

24-hour Access to D&I Resources. All employees have one-click access to tools and information regarding D&I through a dedicated intranet site. This internal website provides information on Exelon D&I partner organizations, Employee Resource Groups, event calendars, toolkits, articles, webinars and e-learning modules.

D&I Quarterly Webinars. For the sixth consecutive year, we offered voluntary, live D&I quarterly webinars to all employees. The webinar series continued to be one of the most highly attended voluntary learning and development offerings in 2018. Participants gained insights and learned valuable skills in becoming an Inclusion Ally.

Commitment to Inclusive Culture. Inclusive Leadership was the primary focus of the fall 2018 Exelon Leadership meeting. All leaders had the opportunity to hear from dynamic keynote speakers, self-reflect on their personal inclusive leadership practices and learn from employee resource groups and community partners on the importance of social resilience. Each

operating company's annual D&I plan incorporates Inclusive Leadership Actions, focused on engaging all employees. Additionally, in 2018 we developed an Inclusive Leadership Model consisting of seven pillars to enable our leaders to turn inclusivity into action.

United Nations HeForShe. As a HeForShe Champion, Exelon committed to improve the retention of women at the company with a goal to reach parity in voluntary turnover of men and women professionals. We also commit by 2020 to invest an additional \$3 million to support STEM education for young women. We formed executive lead action teams to focus on reaching gender retention parity by focusing on career development, inclusive culture and work life integration. In its inaugural year, over 2,500 employees pledged their commitment to reach global gender equality. Exelon employees coordinated and participated in over 50 companywide events championing the HeForShe initiative and STEM focused goals. Exelon



STEM students visit the
Constellation trading floor in
Baltimore, Maryland.

sponsored STEM innovation academies in Chicago and in the Washington D.C.-Baltimore region, as well as four STEM Saturdays to generate interest for the academies. Additionally, Exelon sponsored the #GetFree bus tour reaching over 5,000 students at universities on the East Coast to focus on the STEM commitment.

Value of Mutual Respect. The Exelon family of companies places a continued focus on the value of a respectful workplace. Efforts to promote this focus included continuing to disperse the Value of Mutual Respect training for Key Managers, a Respect Lives Here campaign and Respectful Workplace Conduct program. These in-person sessions explore the practical aspects of maintaining a respectful work environment. During the sessions, we review and practice inclusive behaviors, articulate Exelon's workplace harassment and discrimination policies, educate on the legal implications of workplace harassment and discrimination and emphasize our responsibility as leaders to act when we observe behaviors that go against this critical value.



At Exelon, the best teams
are diverse and inclusive.



2018 Awards



DiversityInc Top 50 Companies for Diversity (2018). Exelon improved its standing on DiversityInc's Top 50 Companies for Diversity by moving up 15 spots to earn the 32nd placement on the list. For the fourth time, we remained in the top 15 companies for hiring veterans. This recognition is a tremendous accomplishment as more than 1,800 companies were under consideration for the Top 50 honor.

Human Rights Campaign Best Places to Work 2011–2018. Exelon was selected as one of the best places to work by the Human Rights Campaign, the nation's largest LGBT civil rights organization.

U.S. Veterans Magazine's Best of the Best (2013–2018). U.S. Veterans Magazine polled hundreds of Fortune 1,000 companies for its "Best of the Best status" and Exelon placed on its Top Veteran-Friendly Companies list. The list honors businesses with military-friendly policies and programs to actively recruit and hire veterans.

G.I. Jobs Military Friendly Employer Award Recipient (2008–2018). Exelon was recognized as one of G.I. Jobs Military Friendly Employers for the tenth consecutive year. The ranking validates Exelon's strong military recruiting and retention efforts, high percentage of new hires with military experience and favorable policies on National Guard and Reserve service.

The Military Times Best for Vets (2013–2018). For the sixth year in a row, Exelon received recognition for our commitment to providing opportunities to America's veterans. Military Times magazine recognizes employers based on recruiting and hiring policies, social recognition for veterans and pay and benefits for reservists. Exelon was ranked 51 out of 100.

Employee Resource Groups

Exelon's nine Employee Resource Groups (ERG) with over 50 chapters are a critical component to our D&I strategy. These groups serve as a forum for professional development, cultural education and community involvement. In 2018, the ERG chapters expanded to PHI and Nuclear sites as well as smaller regional offices in DePere, Wisconsin, Houston, Texas and Louisville, Kentucky. The community engagement amongst ERG resulted in 100 plus volunteer activities and over \$75,000 in scholarship dollars raised.

- Asian American Resource Group (AARG)
- Developing Young Professionals (DYP)
- Exelon African-American Resource Alliance (EAARA)
- Eco-Team (Environmental)
- Exelon Militaries Actively Connected (EMAC)
- Exelon Network for Awareness Benefiting Leaders & Employees About Disabilities (ENABLED)
- Network of Exelon Women (NEW)
- Organization of Latinos at Exelon (OLE)
- Pride (LGBTQ)

In 2018, we increased the number of chapters to 52, which reach more than 10,000 employees.

Exelon's Ally program continues to support the LGBTQ community in partnership with our Pride Employee Resource Group. Our goal is to encourage all LGBTQ colleagues to bring their whole selves to work and to commit ourselves to visibly advocate for equality and mutual respect. In 2018, Exelon Allies held their annual Ally Appreciation Day in concert with National Coming Out Day. This year's theme was "Coming Out for Equality" showcasing the importance of Allies standing up and speaking out and joining in for LGBTQ support.



ERG East Forum leadership team members meet in Baltimore, Maryland.



National Diversity Organization Partnerships

We partner with a number of national diversity organizations to identify highly qualified talent in STEM fields, including the Society of Women Engineers (SWE), the Society of Hispanic Professional Engineers (SHPE), the Black Engineer of the Year Awards (BEYA) and the Society of Asian Scientists and Engineers (SASE). We increasingly engage with these organizations at the regional and local level and on campuses. These partnerships help us connect with diverse talent to discuss career opportunities, promote Exelon as a diverse and inclusive organization, and provide professional development and recognition opportunities for our current employees.

Military and Veterans Initiatives

In 2018, we continued our focus on Exelon's commitment to hiring candidates with military experience, hiring 199 veterans. Our partnerships with organizations including Hirepurpose, RecruitMilitary and Veteran Recruiting give us access to a broad network of veteran job seekers and help those job seekers connect with Exelon at military bases, career fairs and via online media.

Disability Outreach

Exelon embraces the talents and skills that individuals with disabilities bring to our workplace and our communities. Exelon's disability outreach strategy comprises three key elements: promoting Exelon's open jobs, increasing brand recognition and creating and supporting a disability-inclusive culture. We will continue to learn and share best practices through events like the Disability Matters Conference, the U.S. Business Leadership Network Conference, the National organization on Disability CEO Council Forum and Americans with Disabilities Act Disability Inclusion Opportunity Summit.

EMPLOYEE DIVERSITY

Employees ¹	2016	2017	2018	2018%
Female	7,926	8,082	7,900	23.7%
Minority	8,460	8,891	8,768	26.3%
Aged <30	4,108	4,123	3,672	11.0%
Aged 30–50	16,834	17,526	17,374	52.2%
Aged >50	13,033	12,880	12,252	36.8%
Full-time	33,708	34,260	33,041	99.2%
Part-time	267	269	257	0.8%
Total Employees	33,975	34,529	33,298	
Turnover Rate ²	6.9%	7.6%	8.5% ³	

1 Employee totals at December 31 of each reported year.

2 Turnover calculated using December headcount.

3 Increase in 2018 turnover primarily due to plant closures, PHI merger commitments and subsequent staff reductions.

MANAGEMENT DIVERSITY

Employees in Management ⁴	2016	2017	2018	2018%
Female	1,196	1,310	1,342	23.6%
Minority	1,110	1,209	1,224	21.5%
Aged <30	164	178	176	3.1%
Aged 30–50	2,939	3,098	3,089	54.2%
Aged >50	2,514	2,551	2,430	42.7%
Within 10 Years of Retirement Eligibility	3,579	3,592	3,420	60.1%
Total Employees in Management	5,617	5,827	5,695	

4 Management is defined by EEOC Functions "Executive/Senior Level Officials and Managers" and "First/Mid Level Officials and Managers".



Managing Our Environmental Impacts

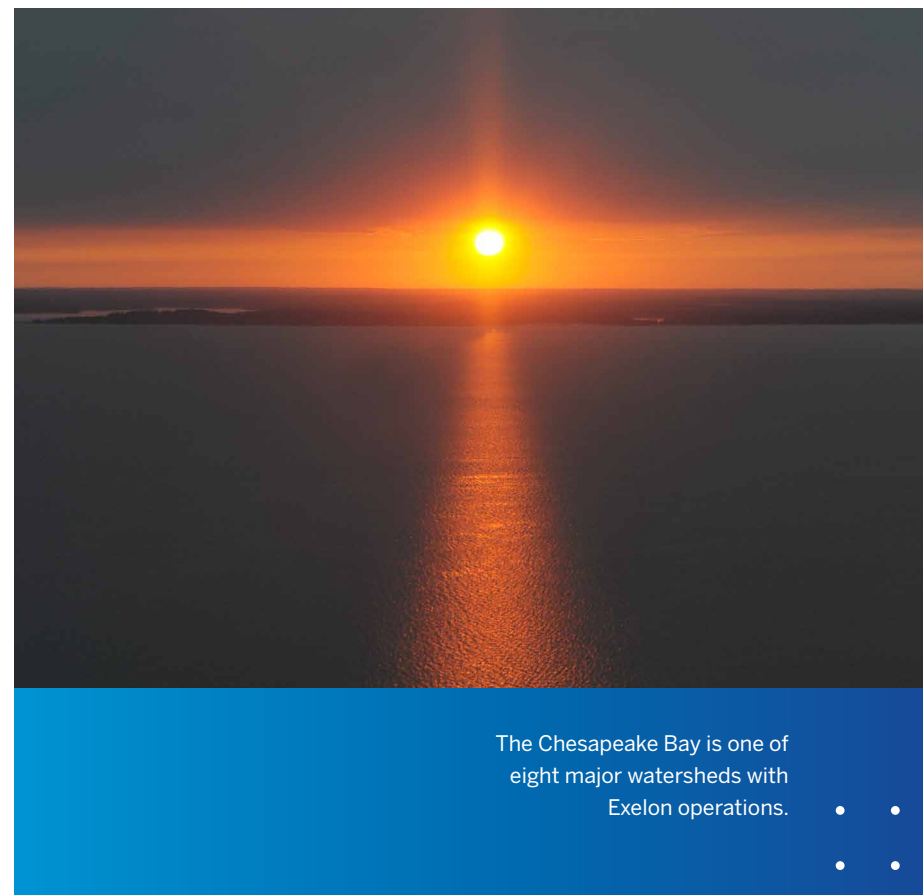
- Achieved ISO 14001 Environmental Management System certification at all six utilities
- Maintained a score of A- on our CDP Water Response; highest level achieved by a U.S. utility
- Increased Wildlife Habitat Council certifications to 40 locations for enhancing wildlife habitats and implementing environmental education programs

Environmental stewardship — a key element of sustainability — has been a core value and business driver for Exelon since our beginning. Successfully managing our environmental impacts strengthens our relationship with our customers and communities. We minimize impacts to watersheds and habitats by creating new processes to reduce our waste and emissions and being responsible stewards of the resources we use. Our environmental management system is critical to managing risks and any potential environmental impacts. We established goals for many of our environmental impacts and report against these goals every year. For more information on climate change impacts and efforts, please see [Rising to the Challenge of Climate Change](#).

IMPROVING WATERSHED MANAGEMENT

Exelon's business depends on access to reliable and adequate water supplies. Water is essential for the production of electricity — it drives our hydroelectric facilities and cools our thermal generation stations. We recognize that water is a shared resource that is also critical to communities, economic development and wildlife, and we work to minimize our impacts to this valued resource.

As we look toward the future, water is a key challenge for Exelon and many other businesses around the world. With changing weather patterns and growing competition for existing resources, effective water management is increasingly important. Water scarcity is a critical risk factor for our



industry with the potential to be exacerbated by climate change. Exelon is continually working to define the scope of this issue and refine our management strategies.

We are committed to preserving the long-term viability of the water resources we utilize. Guided by our Water Resource Management Policy, we address site-specific, water-related opportunities and risks. Engaging with relevant stakeholders at the local level enables us to most effectively address specific water challenges.

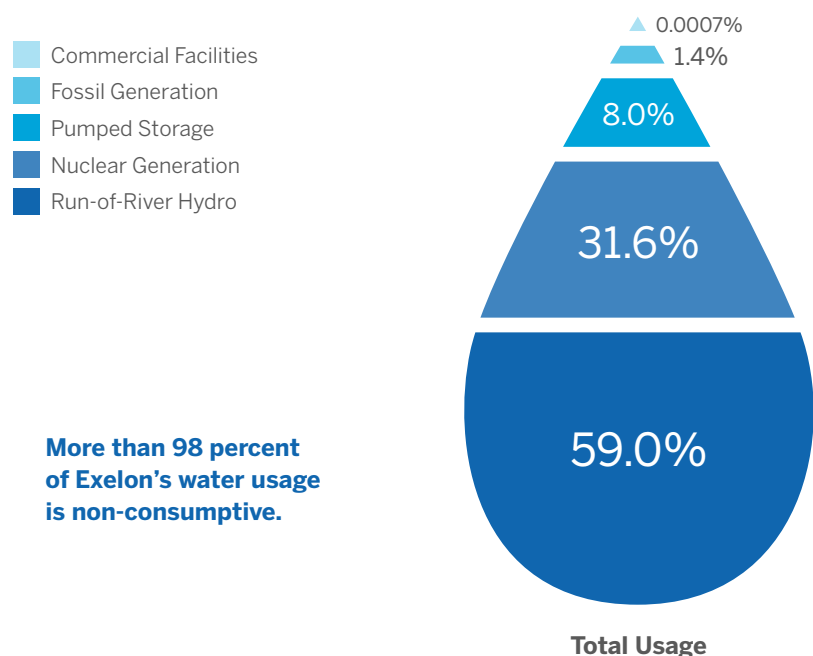
Water Withdrawals and Consumption

In 2018, Exelon-operated facilities used approximately 52 billion gallons (or 197 million cubic meters) of water per day, more than 98 percent of which was directly returned to its source. Our fossil fuel and nuclear thermal power plants contribute a significant portion of our overall water use, as they require cooling water to condense steam after it has passed through turbine generators. Cooling water flows through either an open- or closed-cycle cooling system. Approximately 55 percent of our thermal steam generating capacity in 2018 used closed-cycle systems that evaporate water in a recirculating tower or a dedicated pond to achieve cooling (consumptive use). The balance of our thermal plants used open-cycle cooling systems

(where water is drawn from a river, pond or bay for cooling and is then returned to the same water body) or dry cooling technologies that use little or no water in the cooling process. In the case of open-cycle cooling systems, the only consumption is a small percentage of evaporative loss in the source water body due to the increased temperature of the cooling water discharge. Due to higher than normal rainfall in 2018, Exelon's run-of-river hydro megawatt-hour production in 2018 was more than 43 percent higher than in 2017, with run-of-river hydro accounting for a higher than normal share of Exelon's water use by operational activity in 2018.

Each year, we report our water use and conservation activities in our response to the CDP water disclosure questionnaire. In 2018, we maintained

2018 WATER USE BY OPERATIONAL ACTIVITY



Exelon Generation 2018 Water Use by Watershed

(million gallons per year)

Watershed Zone	Consumptive Use	Non-consumptive Use	Total Water Use
Boston Harbor	83	15,599	15,682
Barnegat Bay	693	193,552	194,245
Delaware River Basin	12,908	175,822	188,730
Chesapeake Bay	157,464	1,218,131	1,375,595
Susquehanna River	15,370	13,715,827	13,731,197
Upper Mississippi	36,044	2,764,249	2,800,294
Texas-Gulf	1,233	157,825	159,057
Lake Ontario	4,626	516,635	521,261
Total	228,422	18,757,640	18,986,062
Total Fresh Water	70,182	17,330,358	17,400,540
Total Salt/Brackish Water	158,240	1,427,282	1,585,522



The Muddy Run Pumped Storage Facility can provide 1,070 megawatts of power on demand.



a leadership category score of A-, which recognizes Exelon's use of best management practices to mitigate water risk across our business and beyond. For information on the types of cooling systems used at each of our generating stations, please see the [Generation Station Appendix](#) and our [2018 CDP Water Response](#).

Addressing Water Supply Risks

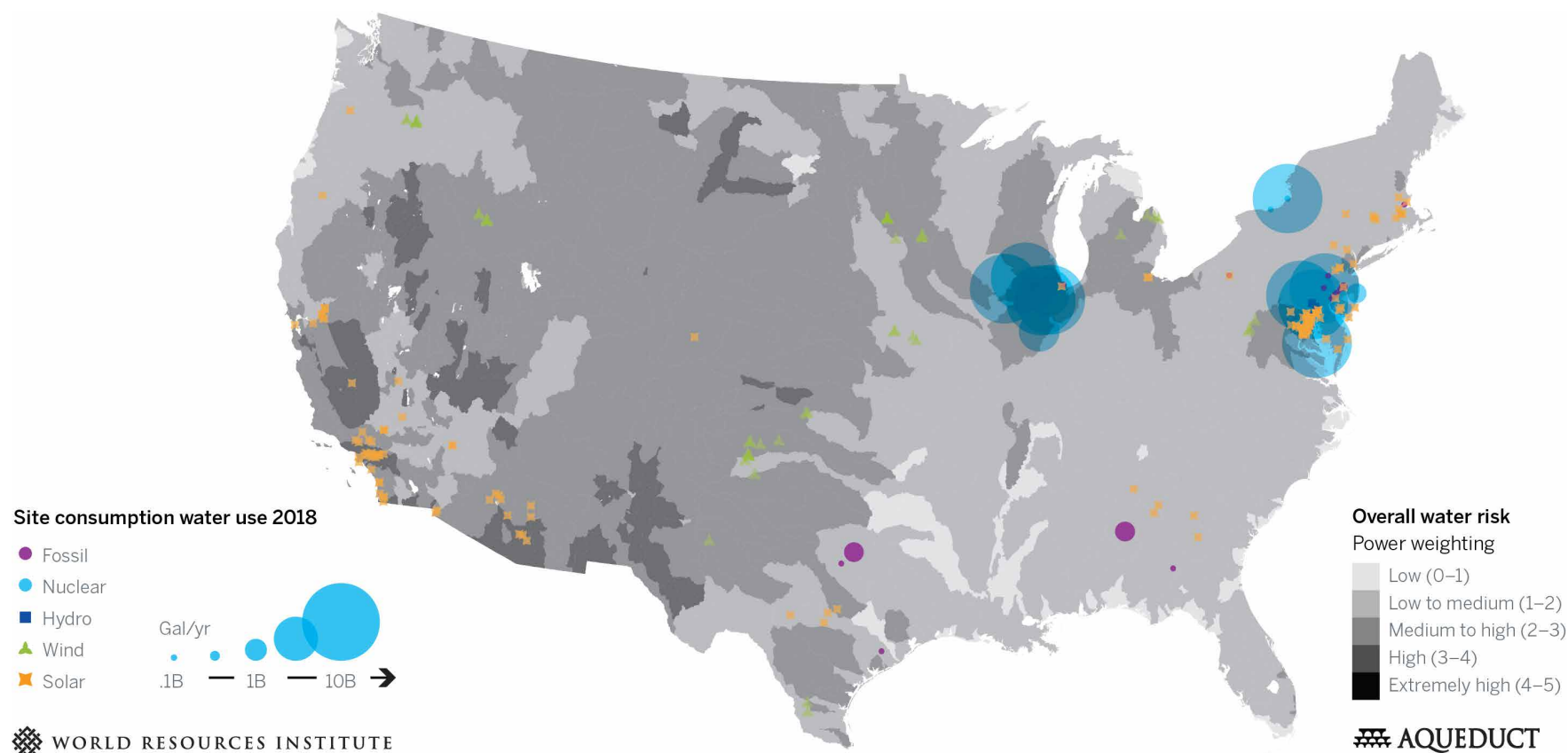
Climate change poses a threat to water supplies that are critical to our business, communities and wildlife. We closely monitor drought risk and changing precipitation patterns that have the potential to impact electricity production. Water-related climate change risks may affect our generation fleet by disrupting cooling water supplies and by restricting cooling water. These conditions can limit production levels at certain times for facilities in water-scarce areas.

We address these risks in a variety of ways. We invest in programs at our utilities that help customers manage and reduce their demand, allowing us to reduce our impacts on local water resources. We are also using and evaluating new cooling technologies and thermal monitoring systems to better respond to higher ambient air and water temperatures in the future. We engage with academic and other organizations conducting cutting-edge research into potential water impacts from climate change. In 2018, we continued work on our climate change vulnerability assessment as part of the U.S. DOE Partnership for Energy Sector Climate Resilience. This assessment reviewed climate-related risks to all of our operating companies and in all geographical areas where we operate. We have already been working to address many of these risks and to improve the resilience of our operations. In the coming years, we will continue to identify and implement best practices within the industry. These actions are necessary to minimize impacts to watersheds and have enough water available to provide low-carbon electricity to our customers.

WATER CONSUMPTION AND REGIONAL WATER RISK LEVELS AT EXELON FACILITIES

Exelon uses a variety of tools to identify water risk. One of these tools is WRI's Aqueduct global water risk mapping tool. This map presents the WRI's composite water risk assessment of the United States as an aggregated measure of 12 global water stress indicators weighted according to use factors for the power industry, including water quantity and quality, as well as regulatory and reputational risks. The risk analysis is based on historic trends over the past half-century and does not currently consider forward-looking modeling of climate change effects.

The map shows Exelon generation facilities overlaid on the WRI default map, with the size of Exelon facilities scaled based on consumptive water use. This overlay reveals that some of our facilities with the largest consumptive use are located in areas of medium risk in the Northeast and upper Midwest. The only facilities we operate in areas of the country with high water risk are those with small or negligible consumptive water use, such as solar and wind power installations. For more information on the WRI Aqueduct mapping tool, please visit aqueduct.wri.org.



Commitment to Watershed Stewardship

Exelon utilizes conservation stewardship and sustainable business practices within watersheds where we have an operational footprint. Comprehensive environmental stewardship strategies provide long-term guidance for identifying and addressing priority issues relevant to our business objectives and key stakeholder interests within watersheds like the Chesapeake Bay and others. Environmental conservation plans guide our pursuit of emerging technologies to address those issues. The ecological well-being of watersheds is linked to the social fabric of communities, the economic health of the regions and the quality of life of many of our customers.

Exelon uses watershed strategies and conservation stewardship plans to address issues such as water quality, species of concern, vegetation management and climate change. We engage in restoration and enhancement projects. We collaborate with communities and environmental

stakeholders to implement projects, such as habitat restoration activities that support rare, threatened or endangered species.

Mitigating our Impacts on Water Resources

Consumptive use. We withdrawal water from a variety of sources for a variety of uses including hydroelectric power generation, thermoelectric cooling, and general commercial purposes. Most of the water we withdrawal is not consumed but is returned to its source for further use and support of aquatic habitats within the watershed. Less than two percent of our total water use is consumptive.

Thermoelectric power generation from fossil and nuclear sources represent approximately 90 percent of our annual electrical output and 33 percent of our overall water withdrawals. Evaporative cooling and other losses from the thermoelectric process are responsible for approximately 30 percent of

Watershed Stewardship in the District of Columbia

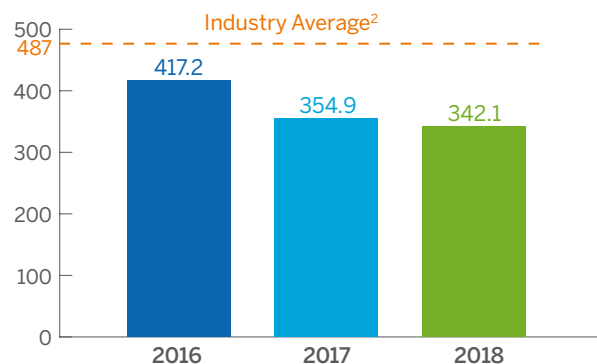
In 2018, Exelon finalized a conservation stewardship strategy for operations within Washington, D.C. By partnering with the Wildlife Habitat Council, we developed a data driven methodology to efficiently and effectively evaluate stewardship opportunities within the city. The strategy provides a mechanism for assessing potential sites for stewardship activities throughout the city and supports timely evaluation of new projects based on company operations or stakeholder interests. Exelon conducted a conservation spatial analysis of multiple data sets including, but not limited to future Pepco infrastructure projects, conservation habitat opportunities, social characteristics and stakeholder interests in order to identify areas with the highest suitability for stewardship project

implementation. Tree planting, rain gardens and bioswales, pollinator habitat and conservation education outreach were among the projects that were considered using this tool.

In support of the conservation stewardship strategy, Exelon partnered with the Anacostia Waterfront Trust to support the development of stormwater best management practices on church properties in Wards 7 and 8. Another project undertaken is a rain garden, constructed as part of the Golden Triangle Business Improvement District. Exelon will continue seeking other stewardship projects to implement in the area, as well expanding the program to other geographies as appropriate.

CONSUMPTIVE THERMOELECTRIC COOLING WATER USE INTENSITY¹

gallons per MWh



¹ Water used in the process of generating electricity with steam-driven turbine generators. Thermoelectric-power water use includes water provided by a public water supply (deliveries from public suppliers), self-supplied water (fresh and saline), and reclaimed wastewater.

² Industry average consumptive use from : US Geological Survey, Estimated Water Use in the United States 2015 (2018).

consumptive use across our operations, totaling 195 million gallons per day in 2018.

We calculate the thermoelectric water consumption intensity in gallons per megawatt hour (gal/MWh) of electricity produced as one indicator of our enterprise-wide water efficiency. Our intensity rate has decreased by 18 percent over the past three years from approximately 420 gal/MWh to approximately 340 gal/MWh and an overall consumption rate of 1.2 percent. Comparatively, our rates are 30 percent and 60 percent below the industry average rates of approximately 500 gal/MWh and three percent total consumption respectively, as reported by the US Geological Survey in their most recent report of the estimated water use in the US (2015).

Entrainment and impingement. In any withdrawal from surface water, aquatic organisms are drawn in with the water (entrained) or trapped on intake screens (impinged). To minimize these occurrences, power plants implement measures to prevent entrainment and impingement at intake structures and return aquatic organisms safely to the water body. In October 2014, the U.S. EPA's final Clean Water Act Section 316(b) rule went into effect. The purpose of the rule is to minimize the impacts of power plant cooling water intake structures on aquatic life. Exelon believes that the final rule strikes a careful balance between meaningful environmental protections and the need to maintain electric reliability and reasonably priced power by means of cost-effective regulatory requirements. Under the rule, operators select from a variety of pre-approved environmentally effective measures to minimize impingement and develop site-specific technologies or operating practices to reduce entrainment. Operators may alternatively develop site-specific technologies or operating practices that need approval by the state permitting director. The rule additionally requires a series of studies and analyses confirming the effectiveness of the selected measures. The timing for compliance is related to the status of each facility's current National Pollutant Discharge Elimination System (NPDES) permit and the subsequent renewal period. In general, these measures will be completed within the next decade.

Thermal modeling and upstream water monitoring telemetry. To address changing waterbody conditions due to climate change impacts, Exelon has installed monitoring systems in river bodies with telemetry to increase data availability, trending and station response times. A daily river report based on our plant thermal modeling telemetry of upstream river stage and temperature is circulated internally. We manage water supply data with models that use real-time data gathered in the watershed. A key benefit of the thermal models is their ability to evaluate the impact of different weather scenarios and operational responses on water discharges.

HABITAT AND BIODIVERSITY

Our operational footprint stretches over large tracts of land and is adjacent to a variety of water bodies. Diverse flora and fauna exist in these areas and Exelon embraces our responsibility to protect wildlife and habitats, guided by our corporate Biodiversity and Habitat Policy. We work to improve understanding of biodiversity through partnerships with experts and regulatory agencies. We collaborate on a variety of studies and provide educational opportunities for employees and community members through our Wildlife Habitat Council-certified sites.

Protecting Aquatic Ecosystems

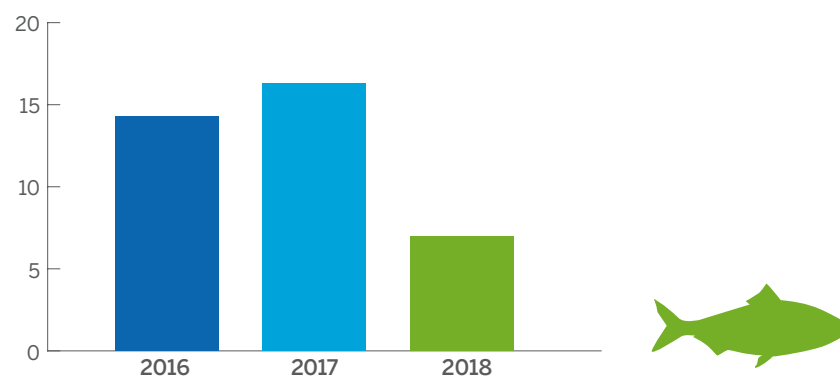
Exelon has worked to restore migratory species passage for many years along the Susquehanna River in Pennsylvania and Maryland, where we operate the Conowingo Hydroelectric Project and the Muddy Run Pumped Storage Project. Specifics of our fish and eel passage projects are described below. Another project that benefits the Susquehanna watershed is our work with the Donegal Chapter of Trout Unlimited's improvements to Peter's Creek in Fulton County, Pennsylvania. Trout Unlimited works across the country, restoring degraded trout and salmon waters and making them viable and fishable once again. In 2018, Exelon participated in these stream restoration efforts for the seventh consecutive year, supporting sediment reduction in the Susquehanna River above Conowingo, which feeds into the Chesapeake Bay. Stream improvements provided by the project included the installation of muddsills, rock vanes, log vanes and cribbing to restore fish habitat to this cold-water stream.

American Shad. American shad are a species of concern for resource agencies due to a decline in the population that has been occurring since the late 1800s. This decline has been observed in rivers both with and without dams. Since the early 1970s, Exelon and our predecessor companies operating the Conowingo Hydroelectric Project in Maryland

have facilitated migration of American shad within the Susquehanna River Basin. During the 2018 migratory season, Conowingo passed 6,992 American shad via its east fish lift (EFL). Through 2018, this lift has passed a total of 1,240,181 American shad. The number of American Shad decreased in 2018, potentially due to higher river flows (correlated with lower passage rates at the facilities), insufficient quantities of American Shad successfully reaching spawning habitat above other dams, and reduced hatchery production of American Shad fry over the past 10 years. The EFL also passes many other species of fish, such as alewife, blueback herring, river herring, striped bass, small- and large-mouth bass, walleye and gizzard shad. In 2018, 33 species of fish and two hybrids passed through the EFL for a total of 1,040,789 fish, including the 6,992 American shad. The smaller fish lift on the western side of the dam continues to support Pennsylvania Fish and Boat Commission activities related to the study and protection of American shad. In 2018, 465 American shad were collected through the west fish lift.

CONOWINGO FISH LIFT — AMERICAN SHAD

number migrated upstream (thousands)



American Eel. Exelon continued coordination of the Eel Passage Advisory Group in support of the commitments established in the Eel Management Plan of the Pennsylvania 401 Water Quality Certification (WQC) finalized in December 2014 for the Muddy Run Pumped Storage Project FERC license. As required by the Pennsylvania WQC, Exelon installed a permanent eel trap consisting of one collection tank, three holding tanks and one ramp at Conowingo, beginning operation on May 1, 2017. Exelon also operates a temporary eel trapping facility in the Octoraro Creek watershed. At Octoraro Creek, 4,203 eels were collected and transported to holding tanks at Conowingo. The Conowingo site collected 67,949 eels. Collectively from both sites, 69,803 were transported and released at upstream stocking sites. This represents a decrease from the 129,902 transported and stocked in 2017. This decrease may be related to above average river flows during the collection period or eel populations growing in different tributaries

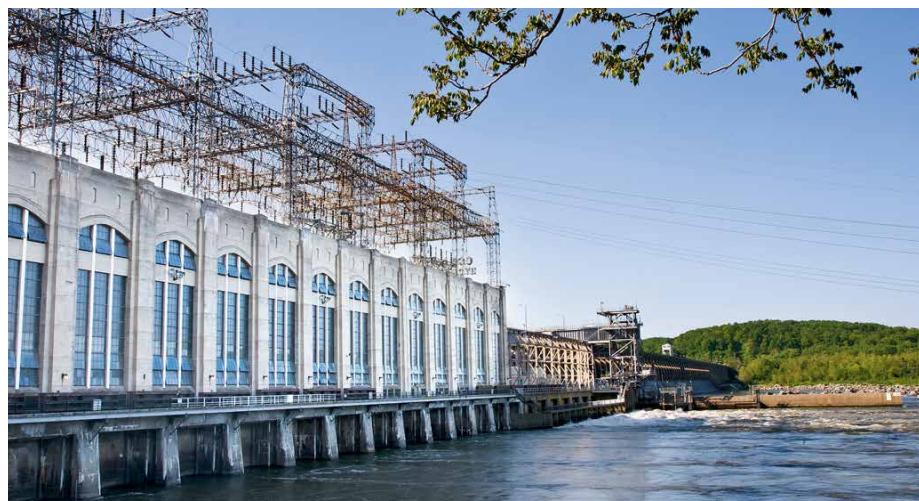
within the Chesapeake Bay watershed. Exelon will continue operations and monitoring of eel populations at both Conowingo and Octoraro in 2019.

Conowingo Relicensing Status

The Conowingo hydroelectric facility is undergoing relicensing with FERC. On April 27, 2018, the Maryland Department of the Environment (MDE) issued a 401 Water Quality Certificate (WQC) for Conowingo. The 401 WQC contains unfair and onerous conditions, including those relating to reduction of nutrients flowing through the dam. On May 25, 2018, Exelon filed legal actions in federal and state court, alleging that MDE violated its regulations, state, federal, and constitutional law in issuing the 401 WQC. In addition, Exelon has requested that MDE reconsider its decision by removing certain provisions of the 401 WQC and further that MDE stay the Certification while reconsideration and judicial review are pending.



Eel trapping facility,
Octoraro Creek watershed.



The Conowingo Hydroelectric Dam,
Susquehanna River, Darlington, Maryland.



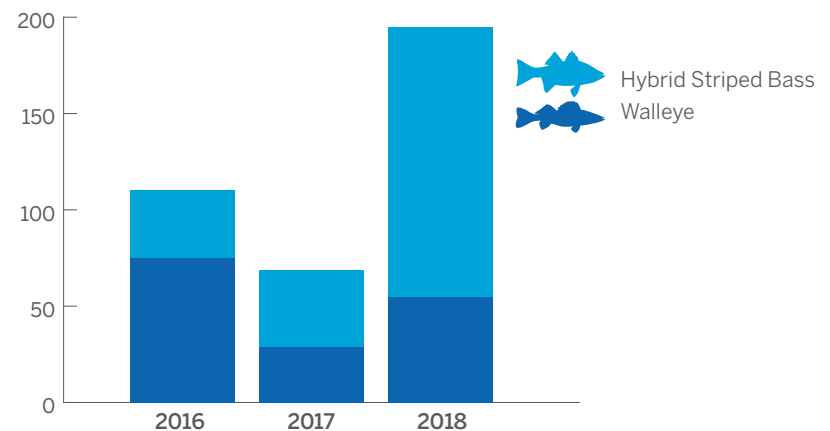
Quad Cities Fish Hatchery

We are proud to own and operate a major aquaculture facility at the Quad Cities Nuclear Station in Illinois, in partnership with Southern Illinois University, to enhance stocks of several aquatic species in the area. The hatchery celebrated its 35th year of operation in 2018. The Iowa Department of Natural Resources (DNR) began using the Quad Cities hatchery for their Mississippi River walleye collections in 2018 and collectively took 19 million eggs for stocking purposes. The Quad Cities hatchery produced over 140,000 advanced fingerling walleyes that were stocked into the Mississippi River along with over four million fry being stocked back into the Mississippi River or other area waters. Over 55,000 advanced fingerling hybrid striped bass were produced for the Mississippi River, Clinton, Braidwood and LaSalle Lakes, as requested by Illinois DNR. The hatchery also produced 3,000 blue catfish for Clinton Lake, ranging in size from six to nine inches. The hybrid striped bass and blue catfish programs are just a few of the cooperative projects with the Clinton, LaSalle and Braidwood Nuclear Stations conducted from the Quad Cities hatchery. Year-to-year production levels vary due to a variety of factors, including the number of fish requested each year by state agencies. The site also continues its alligator gar production as part of the state alligator gar recovery program. The Station has been working with Illinois DNR since 2011 to reintroduce this species back to its historical range. The hatchery has partnered with multiple government agencies for nearly a decade to grow freshwater mussels on site using local mussel beds for brood stock, including the federally endangered Higgins eye mussel. This year the site produced several hundred one-year-old black sandshell (Illinois State threatened) and nearly 40,000 yellow sandshell transformer (Iowa State threatened), which were distributed to Illinois, Iowa and federal

hatcheries. Two-year-old black sandshells and Higgins Eye were stocked in local Iowa streams as well. All mussels have been grown and released into local waters. Nearly 1,600 students and adults have either directly toured the fish hatchery or received offsite presentations about the programs in 2018. The hatchery also regularly assists fishing tournaments to transfer, transport and conduct releases for the major events. This is done to maximize the welfare of the fish caught during the tournaments and minimize impacts on the local fisheries.

QUAD CITIES FISH HATCHERY

number of fish (thousands)



Terrestrial Habitats and Wildlife

Our generating stations and rights-of-way (ROWs) traverse thousands of acres of land, which we carefully manage to protect habitats of a wide range of plant and animal species. As we incorporate greater levels of emissions free solar and wind power into our generation portfolio, we must balance the increasing potential for impacts to birds, bats and terrestrial habitats that arise from these technologies.

Right-of-Way Management

Vegetation on transmission line ROWs must be managed on a regular basis to ensure safety and system reliability. Managing these areas presents an opportunity to promote open, low-growing habitats favored by certain

plants and wildlife. We undertook a number of initiatives to promote diverse habitats in our ROWs. In ComEd's territory, most ROWs are managed as natural green space using a selective management approach that preserves compatible habitat, including more than 300 acres managed as high quality, native prairie ecosystem. PECO uses Integrated Vegetation Management (IVM) to manage transmission ROW's in a manner that promotes native biodiversity, with 30 percent of ROW lands (representing 3,626 acres) certified as conservation habitat. PECO received an Exelon Environmental Achievement Award in 2018 for its innovative Conservation Rights-of-Way program. BGE implemented, or is in the process of implementing, IVM at multiple high-voltage transmission ROW locations on approximately 1,250 acres of land throughout its service territory. PHI employs a selective management strategy within its ROWs to promote natural habitat and actively manages for wildlife benefits along two ROW segments that also serve as U.S. Fish and Wildlife Service (FWS) research sites. Additionally, in 2018 PHI (DPL) and PECO embarked on a joint ROW habitat enhancement project on a shared portion of transmission ROW in Maryland. The project involves the conversion of approximately 14 acres of shared ROW to pollinator habitat. Once established, the utilities hope to seek certification of the newly established habitat.

Wildlife Habitat

Exelon has a longstanding partnership with the Wildlife Habitat Council (WHC) to restore and enhance wildlife habitats at our facilities and on our ROWs. Exelon has been a member of the WHC for 13 years, with a total of 40 sites that are certified by WHC. The WHC certification program provides us with a guidance tool and objective oversight for creating and maintaining high-quality wildlife habitats, as well as implementing environmental education programs. In addition, 52 locations or programs have National Wildlife Federation (NWF) habitat certifications. To learn more about the WHC and NWF, visit www.wildlifehc.org and www.nwf.org.



Vegetation enhancement at
Atlantic City Electric right-of-way,
southern N.J.



Exelon Habitat Certifications 2018				
Company	Program Name	WHC	NWF	Acres
BGE	Bagley Substation		✓	11.1
	BGE-Patuxent National Research Refuge ROW Partnership	✓	✓	8,000
	BGE ROW Environmental Stewardship Program	✓	✓	N/A
	BGE ROW Columbia/Lake Elkhorn Vicinity		✓	25
	BGE ROW Liberty Reservoir		✓	10
	BGE ROW Flag Ponds		✓	62
	BGE ROW American Chestnut Land Trust		✓	30
	BGE ROW South River Greenway Partnership		✓	200
	BGE Riverside Facility		✓	5
	BGE Howard Service Center		✓	135.4
	BGE Notch Cliff		✓	20.2
	Northwest Substation		✓	66
	Spring Gardens Facility	✓	✓	72
	Whitemarsh Center		✓	19.8
ComEd	Buffalo Grove Prairie	✓	✓	10
	Swift Prairie	✓	✓	8
	Romeoville Prairie	✓	✓	26
	Calumet City Prairie		✓	5
	Burnham Prairie	✓	✓	24
	Cherry Valley ROW Prairie	✓		18
	Greene Valley Prairie	✓	✓	16
	Hitt's Siding Prairie	✓	✓	12
	Kloempken Prairie	✓	✓	8
	Lake Forest Prairie	✓	✓	10
	Lake Renwick Prairie	✓	✓	12
	Linne Prairie	✓	✓	10
	Pratt's Wayne Woods	✓	✓	12
	Wentworth Prairie		✓	5
	Superior Street Prairie	✓	✓	14
	West Chicago Prairie	✓		7
Exelon Generation	Kennett Square Campus	✓		51.7

Exelon Habitat Certifications 2018				
Company	Program Name	WHC	NWF	Acres
Exelon Nuclear	Calvert Cliffs Nuclear Power Plant	✓		2,500
	Byron Generating Station	✓		1,300
	Three Mile Island Nuclear Generating Station	✓		382
	Limerick Generating Station	✓		650
	Braidwood Generating Station	✓		4,320
	Clinton Power Station	✓		14,000
	Oyster Creek Generating Station	✓		600
	Dresden Generating Station	✓		1,600
	LaSalle County Generating Station	✓		3,055
	Peach Bottom Atomic Power Station	✓		620
	Quad Cities Generation Station	✓		765
	Nine Mile Point	✓		900
	James A Fitzpatrick Nuclear Power Plant	*		702
	R.E. Ginna	✓		426
Exelon Power	Perryman Generating Station		✓	5
	Criterion Wind	✓		117
PECO	Brandywine River Trail		✓	4
	Manor Road ROW	✓	✓	26
	Cherry Lane Meadow		✓	7
	Morton Wetland	✓	✓	1.8
	Honey Hollow Meadow		✓	12
	Newtown Square Wetlands	✓	✓	0.4
	PECO Conservation ROW	✓		3,600
	Pollinator Pilot Project		✓	2
	Ring Road Meadow		✓	14
	Rock Spring Natural Area		✓	25
	Upper Gwynedd Preserve ROW	✓	✓	0.2
	Brandywine ROW		✓	8.1
	Route 202 ROW		✓	21
	West Chester University ROW		✓	3.4
PHI	Benning Service Center	✓	✓	0.5
	Pepco Transmission ROW	✓	✓	80
	Dewey Beach Lions Club Wetland		✓	1
	WaterShed Sustainability Center	✓	✓	1

* Anticipated certification in 2019

2018 Awards



WHC Employee Engagement Award. The 2018 Wildlife Habitat Council (WHC) Awards honored Exelon with an award recognizing corporate conservation efforts. Exelon received the Employee Engagement Award, which distinguished its employee efforts and engagement in conservation. Exelon takes pride in its large-scale conservation work by involving numerous employee teams working to understand conservation through a variety of education activities. WHC also recognized Exelon in specific Project Awards including the Bats Project Award, the Integrated Vegetation Management Award and the Land Conservation Agreements Award.

WHC Bats Project Award. The 2018 WHC Awards specifically recognized Exelon for its Criterion Wind Project in western Maryland with the Bats Project Award and Land Conservation Agreement Award. The project also received Gold Certification from the WHC and is the first such wind project to be recognized. The project was the first of its kind in the industry, recognizing the importance of bats to ecosystems, minimizing potential impacts on bats and working to conserve regional bat habitats.



Exelon WHC Employee Engagement
Award winners with Exelon Chief
Sustainability Officer Chris Gould.



Criterion Wind project
bat cave protection,
Oakland, Maryland.





American Bald Eagle near the Conowingo Hydroelectric Dam on the Susquehanna River near Darlington, Maryland.



2018 Awards



Pepco Employee receives National Technology Award for work with Bald Eagles. In April 2018, EPRI honored Cristina Frank, a principal environmental scientist at Pepco, with the EPRI Energy and Environment Sector Technology Transfer Award. This award is given to a utility employee who has explored and implemented innovative technologies on behalf of their company and the industry. The research incorporated telemetry data of eagle flight paths with geospatial data and existing T&D lines. This effort identified 78 new eagle roosts in the company's service territory and highlighted 21 segments with potential risk of collision. This project provided new data to decrease the number of eagle collisions, reducing injury to eagles and outages due to collisions.

Protected Species Management

In addition to wildlife habitat certifications, we maintain special management plans to protect biodiversity on our sites and ROWs as outlined in our Biodiversity and Habitat Policy. For example, our utilities each have a detailed Avian Protection Plan to manage interactions of birds and power lines. Where threatened or endangered species are located on or near our sites, we work with regulatory agencies and interested stakeholders to develop and implement agreed-upon management plans or special mitigations to reduce impacts on wildlife.

American Bald Eagle

Exelon tracks the federally protected American bald eagle at a number of our facilities in Pennsylvania and Illinois. In 2018, PECO initiated discussions with EPRI to work jointly on a line-marking project at the Conowingo Dam to limit eagle interactions. The Center for Conservation Biology, College

of William and Mary and Virginia Commonwealth University conducted eagle nest and roost monitoring within the Muddy Run Pumped Storage Project and the Conowingo Hydroelectric Project. Both facilities are within the Upper Chesapeake Bay Bald Eagle Concentration Area, which supports a large and growing breeding population of bald eagles. It is also a convergence area for resident non-breeding eagles and migratory eagles from populations along the entire Atlantic Coast. The survey found that the breeding population has increased 290 percent since 2010, representing an average doubling time of 5.2 years.

Exelon Pollinator Initiative

Exelon is engaged in a variety of pollinator habitat projects across the company at our generation and utility sites. Our habitat management supports a range of pollinators such as insects, birds and mammals. The monarch butterfly, a species of concern for many scientists and resource

management groups, has become a recent priority for Exelon. Several Exelon sites lie in areas where monarch butterflies may rest and feed along their 3,000-mile journey. Our efforts support national goals for pollinator species recovery and position Exelon as one of the nation's leading energy companies with regard to recovery of the iconic monarch. We collaborate with a number of academic institutions, nonprofit organizations, community and youth organizations, federal and state agencies, trade associations and other Exelon business units to progress our habitat and species conservation plans. We also support public education programs that enhance society's commitment to habitat conservation.

In 2018, Exelon Generation continued to support 225 acres of pollinator habitat. Milkweed plugs and bulk seed mixes were planted on our properties to support the restoration and creation of habitat. In addition, Exelon Generation distributed or planted seed balls with regionally appropriate seed mixes. Site preparation, planting and monitoring activities in

2018 included numerous volunteers and the participation of outside organizations such as local chapters of Pheasants Forever, FFA groups, and schools, Boy Scouts, Girl Scouts and Illinois DNR. Beehives and solitary bee hotels were also installed at several sites. For more information about Exelon's pollinator programs, visit our [website](#).

In 2018, Exelon Utilities started an initiative to develop strategies to support pollinators at the various utilities. Exelon also joined the EPRI Power in Pollinators Initiative. ComEd continues to expand its pollinator initiatives. It started a pilot with The Conservation Foundation to work with Fischer School to use The Mighty Acorns curriculum, so students can work on restoring ComEd ROW for habitat. ComEd also finalized two ecological leases with local forest preserve districts to leverage and enhance stewardship efforts within these counties. ComEd continues its involvement in the Rights-of-Way as Habitat Working Group to stay on the forefront of pollinator practices and regulatory concerns in rights of way.



Monarch caterpillar at PECO Energy's Morton Wetland location.



Prairie Cardinal Flower, Great Blue Lobelia and Bur Marigold at ComEd Swift Prairie location.



WASTE MANAGEMENT

We seek to prevent waste before its generation; however, in some cases, waste is unavoidable. In these situations, we find ways to safely dispose of it, or we find recycling and beneficial reuse options for other types of waste.

Managing Our Nuclear Fuel Cycle

As the largest nuclear power plant operator in the U.S., nuclear safety is a fundamental element of our license to operate. We diligently manage our nuclear wastes — both low-level radioactive waste and spent nuclear fuel — safely, securely and responsibly. We must always remain in compliance with the stringent requirements of the U.S. NRC, the U.S. DOE and the U.S. EPA. The health and safety of our communities, our employees and the environment are of high priority to our company.

Low-level Nuclear Waste

The bulk of the radioactive waste generated by nuclear power plants is low-level dry, inert matter that is processed into a solid state before being placed in specially designed, high-integrity containers for storage and disposal. Typical low-level waste includes materials such as contaminated personal protective equipment, used ion exchange resin and equipment such as filters, tools and rags that come into contact with varying amounts of radioactive substances. More than 90 percent of the low-level waste generated at nuclear stations is designated as Class A, which is the least radioactive. This waste is disposed of at EnergySolutions' disposal site in Clive, Utah.

Class B and C wastes have higher levels of radioactivity and include items such as core components, filters and ion exchange resins. Where we do not have adequate storage capacity on site, we ship waste off site to qualified disposal facilities. Waste from Oyster Creek Generating Station is shipped to the Barnwell disposal facility in South Carolina. Since 2015, we shipped all of the Class B and C wastes from our other facilities to the Waste Control Specialists disposal facility in Andrews, Texas, thus reducing our inventory.

The Nuclear Waste Policy Act of 1982

The Nuclear Waste Policy Act (NWPAct) codified the U.S. DOE's responsibility for developing a geologic repository for spent nuclear fuel. To pay for this repository, the NWPAct established a \$0.002/kWh fee to be collected from each operating nuclear power plant to be paid into a Nuclear Waste Fund (NWF) managed by the DOE. Exelon has paid almost \$4.2 billion into the NWF.

In 2002, the President and Congress approved Yucca Mountain in Nevada as the site for this repository. In 2010, despite decades of scientific study that had consistently concluded that the proposed repository could safely protect future generations, the DOE shut down the Yucca Mountain project. At the time, \$12 billion had already been spent on Yucca Mountain and 65,000 metric tons of spent fuel were in temporary storage across 39 states. In 2014, a federal court ordered the U.S. NRC to complete safety and environmental reviews of the site. While these reviews have since concluded that Yucca Mountain complies with all regulations, a final decision awaits an extensive formal hearing that requires Congressional funding to complete.

Exelon supports the following advocacy positions to ensure that the U.S. government meets its obligations under the NWPAct:

- The Nuclear Waste Fund should be utilized as intended under the NWPAct.
- Congress should provide funding for a final decision on Yucca Mountain.
- Congress should authorize a centralized interim storage approach, pending development of an alternative long-term spent fuel strategy.

Spent Nuclear Fuel

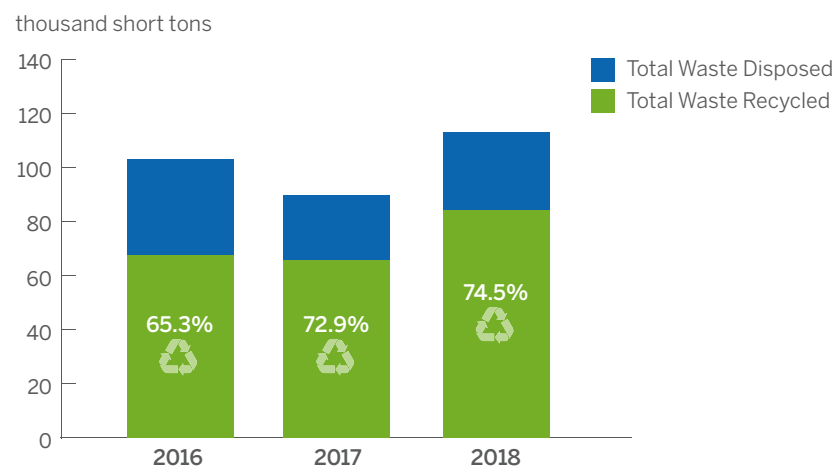
While required to do so by the NWSA, the federal government has yet to establish facilities for the permanent storage or disposal of spent nuclear fuel (SNF) in the United States, so Exelon Generation safely stores SNF from our nuclear generating facilities on site in storage pools and dry cask long-term storage facilities. As of the end of December 2018, Exelon Generation had approximately 87,100 SNF assemblies, or 21,400 short tons of fuel, stored on site. This includes approximately 53,200 assemblies in pools and 33,900 assemblies in 620 dry cask storage systems. Using this combination of storage methods, we project that we will have adequate storage for SNF produced through the decommissioning of our plants. The total volume of SNF produced by Exelon's entire fleet of nuclear plants since 1969 could fit in approximately four Olympic-sized swimming pools. One hundred percent of this SNF is packaged, numbered, catalogued, tracked and isolated from the environment.

Reducing Operational Waste

Across our businesses, we are enacting best management practices to reduce, reuse and recycle the waste we generate. Many of our initiatives stop the generation of waste before it begins, including double-sided copies in the office, reusable totes in the field, contractor take-back programs and finding outlets for refurbished meters and computer electronics. Likewise, our extensive recycling programs target conventional materials like paper, plastic and metals as well as non-conventional materials such as construction and demolition debris. These programs not only keep waste out of landfills, but they also save money, conserve energy and natural resources and reduce GHG emissions.

Through the efforts of our employees and contractors, we achieved a company-wide recycling rate for municipal solid waste of approximately 75 percent during 2018. Additionally, our utilities found beneficial outlets, including new construction materials and utility excavation backfill, for more than 399,000 tons of recovered materials, leading to an overall recycling rate of nearly 85 percent for the combined municipal and industrial solid waste we generated in 2018. During 2018, we also generated approximately 1,460 tons of hazardous waste, recycling more than 20 percent of these materials before they required highly regulated disposal.

MUNICIPAL SOLID WASTE GENERATED AND RECYCLED 2016–2018^{1,2}



1 Municipal solid waste includes wastes such as durable goods, nondurable goods, containers and packaging, and other wastes (e.g., yard waste, food). This category of waste generally refers to common household waste, as well as commercial wastes, that are readily recyclable by conventional methods, but excludes industrial, hazardous and construction wastes. Industrial solid waste is not included in this chart.

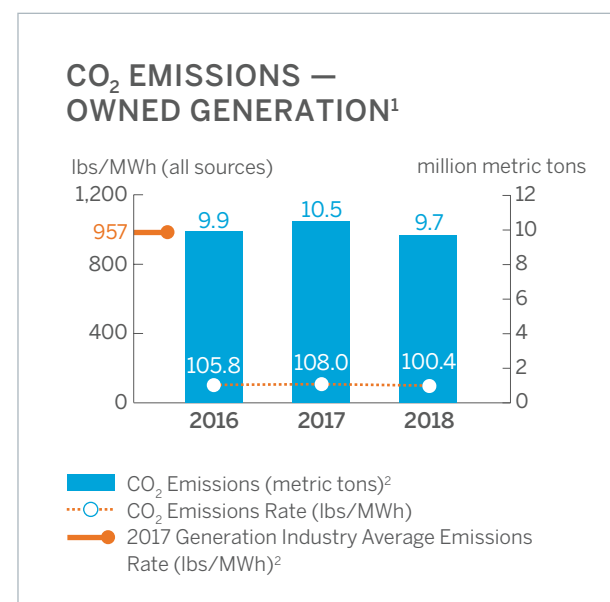
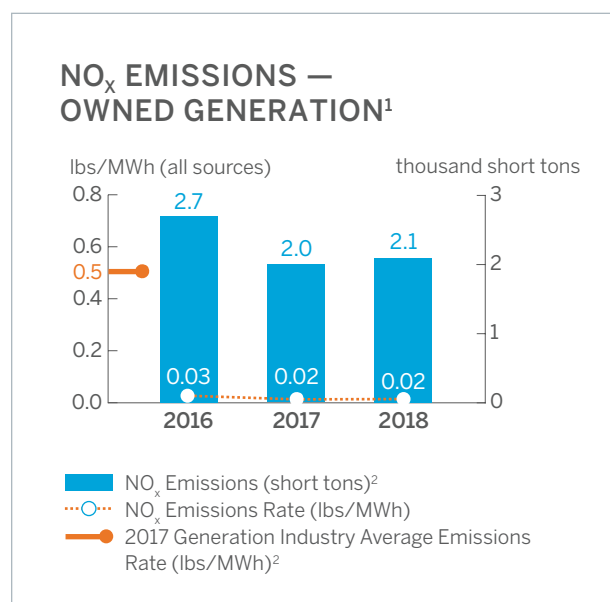
2 Quantities of materials recycled in 2017 and 2018 reflect additional computer and electronics waste not previously reported.

REDUCING AIR EMISSIONS

We recognize that air emissions, such as those that contribute to ground-level ozone and particulates, can negatively impact public health and the environment. Exelon Generation is committed to operating a low-emission intensity energy portfolio to minimize our contribution to air emissions as we contribute to the nation's need for electricity. In 2018, our generation portfolio emission rates for NO_x, SO₂ and CO₂ were 0.02, 0.01 and 100.4 pounds per MWh, reflecting emission rates that are 97, 99 and 90 percent lower than the latest available electric generation industry averages, respectively. Exelon Generation does not release any mercury emissions, as it does not own any coal-fired power plants. Reporting on other air toxics emissions under the U.S. EPA Toxics Release Inventory (TRI) regulations is limited to a few low utilization oil-fired units with de minimis emission levels.

During 2018, we continued to participate in federal, state and regional regulatory efforts to improve regional air quality and reduce emissions. Because our power generation emission levels and emissions per megawatt-hour are already very low, Exelon is already prepared for future emission reduction regulations, as compared to our competitors. Regarding federal regulation of GHG emissions, Exelon submitted several sets of comments to U.S. EPA in 2018 related to the Agency's proposed repeal of the Clean Power Plan (CPP) and its proposed replacement rule, the Affordable Clean Energy Rule (ACE). Exelon has objected to further delay of meaningful federal GHG limits. At the federal level, Exelon has defended federal rules limiting mercury and other neurotoxin emissions under the Mercury and Air Toxics Rule (MATS).

The [Climate Change](#) section of this report provides detailed information regarding Exelon's GHG emissions, mitigation strategies and policy positions.



¹ Data include the emissions and production of acquired, retired and divested generation for the period of ownership in each year.

² Source: M.J. Bradley & Associates (2019), *Benchmarking Air Emissions of the 100 Largest Electric Power Producers in the United States*.

MANAGING ENVIRONMENTAL RISKS

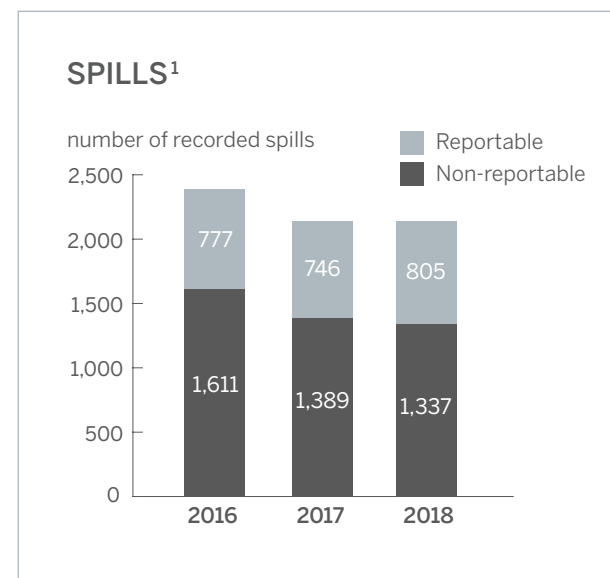
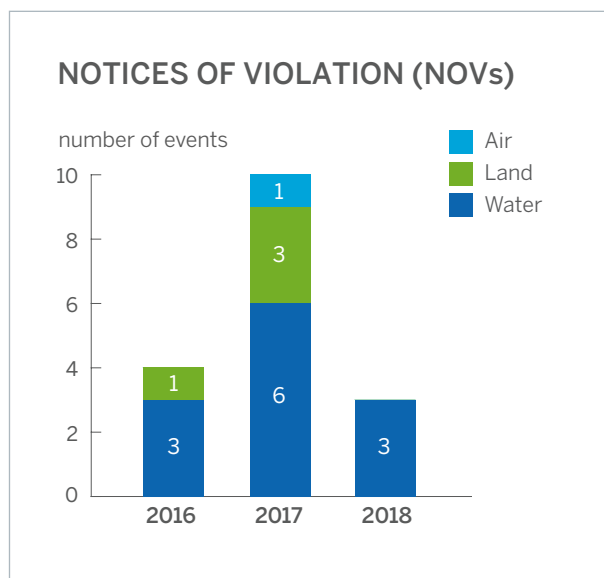
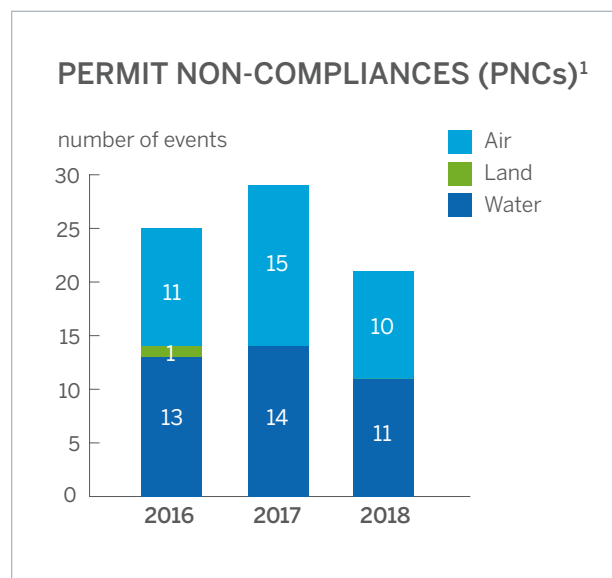
Throughout our value chain, we constantly assess the potential environmental impacts of our operations. Guided by the Exelon Corporate [Environment Policy](#), we strive for full compliance with applicable legal requirements and we ensure our actions, and the actions of those working on our behalf, meet this commitment. We incorporate risk management into siting of new facilities, minimizing impacts at existing facilities and working with local communities and regulators to ensure stakeholders are informed of our activities.

Our environmental management system (EMS) is an integral part of managing our environmental risk. Exelon's EMS, designed to conform to ISO 14001:2015, lays out the necessary steps to maintain responsible operations throughout our businesses. We also conduct regular internal and external compliance audits of our environmental programs. During 2018, we completed phasing in the latest ISO standards, ISO 14001:2015, reinforcing our continued commitment to environmental risk reduction

and performance improvement across the company. As of 2018, 71 percent of our facilities were certified. We obtained independent verification of conformance to the ISO 14001 standards. Exelon's corporate-level EMS certification is available [on our website](#).

Improving Compliance Performance

We monitor, measure and report our environmental performance by tracking cases where we violated an applicable environmental regulation or permit, or released a regulated substance into the environment. These include notices of violation (NOVs) — formal written notifications of an environmental violation from a government agency; permit non-compliance events — instances where a permit condition or administrative requirement was not satisfied; and spills of oil or chemicals that require reporting to applicable agencies, as well as non-reportable spills that involve small quantities of material that can be quickly contained and do not result in significant environmental impact.



¹ Compliance metrics have been adjusted to include PHI for the years reported.

In 2018, Exelon received three NOV's from regulatory agencies:

Exelon Nuclear Limerick Generating Station, Limerick, Pennsylvania.

During an extreme precipitation event, a cooling tower blowdown holding pond overflowed part of its contents to the surrounding land area in violation of the facility's NPDES permit.

PECO Oregon Avenue Shop Facility, Philadelphia, Pennsylvania.

A November 2018 effluent sample from the Oregon Avenue Shop Facility wastewater treatment system did not meet the Philadelphia Water Department permit criteria for PCBs. A cause evaluation was conducted and the conditions leading to the exceedance were corrected.

Pepco Brighton Dam Substation, Montgomery County, Maryland.

The Montgomery County Department of Environmental Protection issued a Stormwater Inspection and Maintenance Work Order to Pepco for maintenance issues related to a pond infiltration basin. The work order cited spalling present on concrete around the outfall, concrete joint misalignment and sediment accumulation in filter media.

In 2018, we also reported 22 permit non-compliance events for regulated discharges to air and water and 2,142 total spills. These events are summarized in the charts on the previous page.

In September 2010, PHI received a letter from EPA identifying the Benning Road site in Washington, D.C., as one of six land-based sites potentially contributing to contamination of the lower Anacostia River. The site once hosted a Pepco Energy Services (PES) electric generating facility that was deactivated in June 2012 and razed in July 2015. Today, a Pepco T&D service center operates there. In December 2011, the U.S. District Court for the District of Columbia approved a Consent Decree entered into by Pepco and PES with the city's Department of Energy and Environment (DOEE). This requires Pepco and PES to conduct a Remediation Investigation (RI)/Feasibility Study (FS) for the Benning Road site and an approximately 10-to-15-acre portion of the adjacent Anacostia River. This work is ongoing.

Following a public comment process and DOEE's approval of the final RI/FS reports, Pepco and Generation will have satisfied their obligations under the Consent Decree. DOEE will then prepare a Proposed Plan regarding river cleanup measures. After considering public comment on the Proposed Plan, DOEE will issue a Record of Decision to identify any necessary response actions, including those for which Pepco and PES may be responsible for as a result of past activities at the Benning Road site.

While the Benning RI/FS is performed by Pepco and PES, DOEE and certain federal agencies have also been conducting a separate RI/FS focused on the entire tidal reach of the Anacostia River. This reach extends from just north of the Maryland-D.C. boundary line to the confluence of the Anacostia and Potomac Rivers. In March 2016, DOEE released a draft of the river-wide RI Report for public review and comment. It incorporated results of the river sampling by Pepco and PES as part of the Benning RI/FS, similar sampling efforts by owners of other sites adjacent to this segment of the river and supplemental river sampling conducted by DOEE's contractor. DOEE asked Pepco and other responsible parties along the river to participate in a "Consultative Working Group" to provide input into the process for future remedial actions addressing the entire tidal reach of the river and to ensure proper coordination with the other river cleanup efforts currently underway. Pepco responded that it will participate in the Consultative Working Group, but its participation is not an acceptance of any financial responsibility beyond the work performed at the Benning Road site. In April 2018, DOEE released a draft remedial investigation report for public review and comment. Pepco submitted written comments to the draft RI and participated in a public hearing. Pepco continues outreach efforts in accordance with local agencies, governmental officials, community organizations and other key stakeholders. A draft feasibility study of potential remedies and their estimated costs is being prepared by the agencies and is expected to be released in 2019; the Record of Decision in this RI/FS process is scheduled for completion by December 31, 2019.

In addition to the activities associated with the remedial process outlined above, there is a complementary statutory program that requires an assessment to determine if any natural resources have been damaged as a result of the contamination that is being remediated. If so, the statutory program mandates that a plan be developed by the federal, state and local Trustees responsible for those resources to restore them to their condition before injury from the environmental contaminants. Compensation for the injury can be sought from the party responsible for the release of the contaminants if natural resources are not restored. The assessment of Natural Resource Damages (NRD) typically takes place following cleanup because cleanups sometimes also effectively restore habitat. During the second quarter of 2018, Pepco became aware that the Trustees are in the beginning stages of this process that often takes many years beyond the remedial decision to complete.

Eliminating Equipment with PCBs

We are actively working to manage the risk posed by electrical equipment containing polychlorinated biphenyls (PCBs). During replacement, repair and servicing efforts at our power plants and on our T&D networks, we eliminate equipment containing PCBs in concentrations greater than 49 parts per million, the regulatory threshold. Exelon Power facilities no longer have any oil-filled electrical equipment containing regulated levels of PCBs. Exelon Nuclear plans to replace two remaining PCB transformers at one site no later than the end of 2020.

Similarly, our electric utilities proactively identify equipment for replacement when it is likely to be contaminated. Among other methods, we participate in EPRI's Program 51. This allows us to use EPRI's industry-wide database to gather nameplate information and identify if a piece of equipment is likely to have PCBs or not, which maximizes efficiency in identifying potential PCBs and then targeting this equipment for removal. These replacement efforts, combined with voluntary retro-fill

and reclassification programs, are resulting in the continued reduction of PCB-containing equipment across the company and are therefore reducing environmental risk.

Managing Remediation at Historic Manufactured Gas Plants

Our utilities continue to remediate former manufactured gas plant (MGP) sites that were used primarily by predecessor companies between 1816 and 1970. We participate in the MGP Consortium, which allows us to leverage research and advocacy programs and lessons learned from other utilities. Our utilities anticipate that the majority of remediation at remaining sites will continue for several more years. ComEd closed three MGP sites in 2018, with 21 remaining in the system with remediation expected to continue through at least 2023. PECO remediated one MGP site in 2018, with nine remaining in the system with remediation expected to continue through 2022. BGE gained closure of one MGP site in 2018, with four open sites remaining, of which two locations require some level of remediation and/or ongoing monitoring. DPL has identified two former MGP sites and remediation of both has been completed and approved by MDE and the Delaware Department of Natural Resources and Environmental



Remediated and restored former
ComEd MGP location (River Edge Park)
along Fox River in Aurora, Illinois.



Control, respectively; a third site is currently undergoing study. The status of the utility MGP programs and remediation reserves are discussed in more detail in [Exelon's 2018 10-K](#) Environmental Remediation Matters discussion.

EXELON ENVIRONMENTAL AWARDS

Each year, Exelon conducts an Environmental Achievement Awards campaign. These awards recognize outstanding employee projects that help sustain the environment while creating value for the company and local communities. Employees have submitted projects that reduce environmental risks, enhance environmental stewardship, increase operational efficiency, utilize innovation and heighten the company's environmental reputation, for example. In 2018, we announced three award winners and 10 honorable mentions out of 51 total nominations. The winners were awarded money to donate to a nonprofit organization of their choosing. The three 2018 award winners and the organizations receiving the donations are described below.

Calvert Cliffs Artificial Reef. In 2017, the Calvert Cliffs Nuclear Power Plant partnered with the Maryland Artificial Reef Initiative (MARI) to establish



Calvert Cliffs nuclear power plant
overlooking Chesapeake Bay,
Lusby, Maryland.



an artificial reef in Plum Point, located roughly 11 miles north of the plant site. MARI is a volunteer organization for reef development in Maryland that assists in preserving, restoring and installing water life habitats. The reef provides habitat, food and cover for native species such as rockfish, barnacles, mussels and the eastern oyster. The reef also offers oysters a hard substrate to attach to which aides in the overall increase of oyster populations. Ecosystem restoration, biodiversity and new fishing habitat add recreational value for the surrounding public. Calvert Cliffs donated its environmental award funds to [MARI](#).

PECO Re-utilization of Asphalt Millings. In 2016, PECO began to investigate the use of an asphalt crusher on its system. The goal was to reuse the asphalt and modified material generated from our annual gas pipe replacement. Previously, modified stone was purchased to temporarily fill the repair job, removed as part of the paving process and then replaced as part of the final repaving. In 2017, the team conducted a limited trial to test using an asphalt crusher to help reuse the material. The project is now able to reuse 100 percent of the material being removed from the system, saving materials from being disposed of and saving the company \$1 to \$1.5 million annually. The team has donated their award money to the [John James Audubon Center](#), a Pennsylvania museum dedicated to conservation history and public access to hiking and birding trails.

Clinton Lake Management and Fish Stocking Program. The Clinton Power Station partnered with the Illinois Department of Natural Resources and Quad Cities Fish Hatchery to conduct several fish stocking initiatives. The partnership, which has reduced gizzard shad populations, reduced site workload and created enhanced angling opportunities for local residents, has benefitted both the local community and the power station. The Clinton Power Station donated their award money to [The Vault Community Center](#) in Clinton, Illinois, a facility where teenagers can hang out with their friends while also receiving mentoring and participating in service activities.



Effective Governance

- Enhanced our security governance programs in alignment with the National Institute of Standards and Technology Cyber Security Framework
- Increased supply chain spend with diversity-certified suppliers to \$2.2 billion
- Leadership on the Electric Utility Industry Sustainable Supply Chain Alliance executive committee to drive industry performance improvement

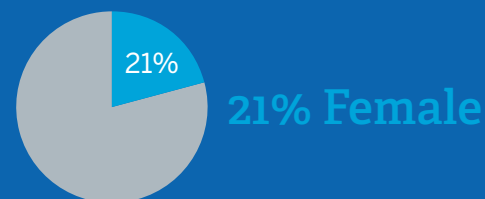
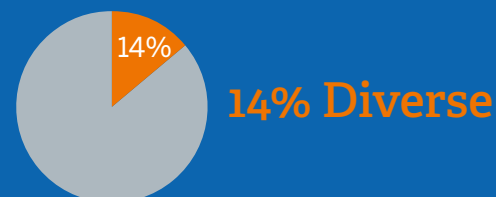
Effective corporate governance is a critical component embedded within Exelon's business strategy. The Corporate Governance Committee of Exelon's Board of Directors oversees specific areas of our sustainability strategy and performance. Our Board of Directors also provides leadership and guidance that drives our sustainability efforts and helps us achieve our mission of providing reliable, clean, affordable and innovative energy products.

BOARD OVERSIGHT

The Corporate Governance Committee of the Board is responsible for overseeing Exelon's climate change and sustainability policies and programs and for providing updates to the Board. All members of the Board, with the exception of Exelon's President and Chief Executive Officer, are independent according to applicable law and the listing standards of the New York Stock Exchange, as incorporated into the Independence Standards for Directors found in Exelon's Corporate Governance Principles. As of year-end 2018, our 14-member Board includes three women and two racially diverse members, with an average director tenure of approximately eight years. For more information on Exelon's governance structure, please see the [corporate governance section of our website](#).

Stakeholders and other interested parties may communicate with the Board Chair or with the non-management directors as a group, through Exelon's Corporate Secretary. The Corporate Secretary will directly forward communications raising substantial issues to the Board and all communications are made available to Directors upon request. Stakeholders may communicate with the Board by writing to:

Board of Directors: Key Statistics



65 YEARS
Average Age

7.7 YEARS
Average Tenure

Thomas O'Neill, SVP, General Counsel & Corporate Secretary
Exelon Corporation
10 S. Dearborn St., 54th Floor
Chicago, IL 60603

Six Committees of the Board of Directors

The Exelon Board has six standing committees. Each committee has clearly defined roles and responsibilities that are detailed in their respective [charters](#).

Audit Committee. The Audit Committee oversees financial reporting, accounting practices and internal control functions and the performance and selection of the independent registered accounting firm. The Audit Committee also oversees compliance with Exelon's ethics and compliance program as defined in [Exelon's Code of Business Conduct](#).

Compensation and Leadership. The Compensation and Leadership Development Committee oversees Exelon's executive compensation program and human capital management practices. The Committee also supervises leadership development and succession planning.

Corporate Governance. The Corporate Governance Committee oversees the governance practices of Exelon including the composition of the Board and its Committees. This Committee also oversees Exelon's strategies and efforts to protect and improve the quality of the environment, including but not limited to, climate change and sustainability policies and programs.

Investment Oversight. The Investment Oversight Committee oversees Exelon's investment management functions, including the management and investment of the assets held in trusts for funding decommissioning nuclear facilities.

Generation Oversight. The Generation Oversight Committee oversees the safe and reliable operation of all generating facilities with a principal focus on nuclear safety. The Committee also oversees compliance with policies and procedures to manage and mitigate risks associated with the security and integrity of generation assets. This committee is also tasked with reviewing environmental, health and safety issues related to generating facilities.

Finance and Risk Committee. The Finance and Risk Committee oversees the risk management functions and matters relating to the financial condition and risk exposures of Exelon and its subsidiaries. The Committee monitors the financial condition, capital structure, financing plans and programs, dividend policy, treasury policies and liquidity and related financial risks.

SUSTAINABILITY GOVERNANCE

Sustainability is a key component of Exelon's success as a business, and we manage sustainability at the highest levels of the company. As we continue on our journey to become the next-generation energy company, we evaluate the sustainability goals we have set for ourselves, measure our performance and assess our impacts. We have designated leadership and dedicated team members who ensure we are moving in the right direction. Led by our Chief Sustainability Officer and Senior Vice President of Corporate Strategy, Innovation and Sustainability, our sustainability team sits within our corporate strategy function. This helps incorporate sustainability into decision-making at the highest levels, including our approach to investments, energy efficiency programs, climate risk mitigation and other important issues facing our business. As an energy company, sustainability and environmental management are interwoven throughout our entire business, requiring the Board to actively participate in decision-making on our most pressing sustainability challenges. When appropriate, we update the Corporate Governance Committee and other Board Committees on sustainability strategy and performance. These reports focus on legacy environmental risks, climate change and investor interest in sustainability issues. The connections between sustainability and our business strategy are further discussed in the [Building the Next-Generation Energy Company](#) section of the report.

INVESTOR ENGAGEMENT

Exelon engages with its investors on a regular basis and provides information through multiple channels. In addition to quarterly earnings conference calls, investors may elect to receive updates on Exelon Leadership, Sustainability, Policy, Community and Financial news as soon as such news is released publicly. Exelon's Investor Relations staff regularly engages with investment professionals on Exelon's financial and operational performance. Leadership also provides information at the EEI annual conference on important financial, policy and market updates.

Exelon leadership regularly engages with investors to discuss Exelon's governance, compensation and sustainability practices. From time to time, these discussions include the participation of one of Exelon's independent directors. In 2018, Exelon engaged with shareholders representing about one third of all outstanding shares on such topics. All input received is reported to the relevant Board Committee and the Board as a whole.



Exelon President and CEO Chris Crane, and Board Chair Mayo Shattuck III, address investor questions at the 2018 shareholder meeting.

RISK MANAGEMENT

Managing business risks of all types, from regulatory and market risks to global risks like climate change, is an important facet of our company's governance system. The Enterprise Risk Management (ERM) team, working with our operating companies, is responsible for coordinating Exelon's risk management program. Exelon aims to be the leading diversified energy company by institutionalizing an enterprise-wide risk management framework and products. This framework enables Exelon to anticipate strategic and emerging risks, integrate risk into business planning, minimize unexpected performance variances and support growth initiatives within Exelon's risk appetite policy. Working closely with our operating companies, our risk team leads dynamic and interactive risk assessments to identify, assess, mitigate and monitor risk. Risk assessments deepen our understanding of risks, enable effective action to mitigate risks and strengthen our risk culture. We align our key risk indicators with our risk appetite and industry-leading practices. Key success factors for our enterprise-level risk management program include collaboratively working with the operating companies to identify risks, helping the businesses better understand how to manage risks and establishing acceptable risk tolerances that allow for growth while staying within our risk appetite.

Successfully managing risk requires participation from teams across our businesses. Each business unit has a Risk Management Committee tasked with identifying and evaluating the most significant risks of the business and the actions needed to manage and mitigate those risks. The Chief Risk Officer and senior executives of the business unit discuss risks with the Finance and Risk Committee, the Audit Committee of the Exelon Board of Directors and the Boards of Directors of each operating company.

In 2018, Exelon made significant progress on evaluating emerging technologies risk. The emerging technologies framework includes stress-testing, scenario planning and system dynamics modeling to evaluate a range of potential risks our company may experience. Another area of

emerging risk that is being analyzed across Exelon is the risk of climate change and associated impacts. This work has helped to advance Exelon's risk culture by raising visibility of emerging risks and mitigation planning processes.

Managing Risk at Exelon

Exelon regularly completes risk assessments to identify and focus on the top risks facing our company. Our assessment framework looks at strategic, financial, operational, regulatory/compliance and reputational risks and is being automated for improved intelligence and risk analytics. Additionally, Exelon employs various market, credit, liquidity and operational risk assessment tools to identify financial and business risk exposures that are evaluated by risk management committees at the corporate level and within each business unit.



THE EXELON ENTERPRISE RISK MANAGEMENT MODEL: AN INSTITUTIONAL APPROACH TO RISK MANAGEMENT

Frame	Identify	Assess and Manage	Monitor and Respond
<i>Relevant and reliable information upon which to base decisions or actions</i>	<i>Systematic identification of key risk drivers</i>	<i>Frameworks, tools and analyses that formulate risk management strategies</i>	<i>Risk response plans, tracking and monitoring of residual and emerging risks</i>
• Strategic purpose and objective • Type of decision • Time horizon	• Risks to execution of strategy • Risk driver type and causes • Interconnected and emerging risks	• Risk vs. return profile • Alignment with Risk Appetite • Controls and mitigations	• Control and mitigation effectiveness • Key Risk Indicators (KRIs) and exposure thresholds/limits • Trigger events and decisions
What is the risk to our strategy?	What are the risks? Where could there be blind spots?	What is our risk management strategy? What could go wrong?	What do our KRIs indicate? What is the competition doing?

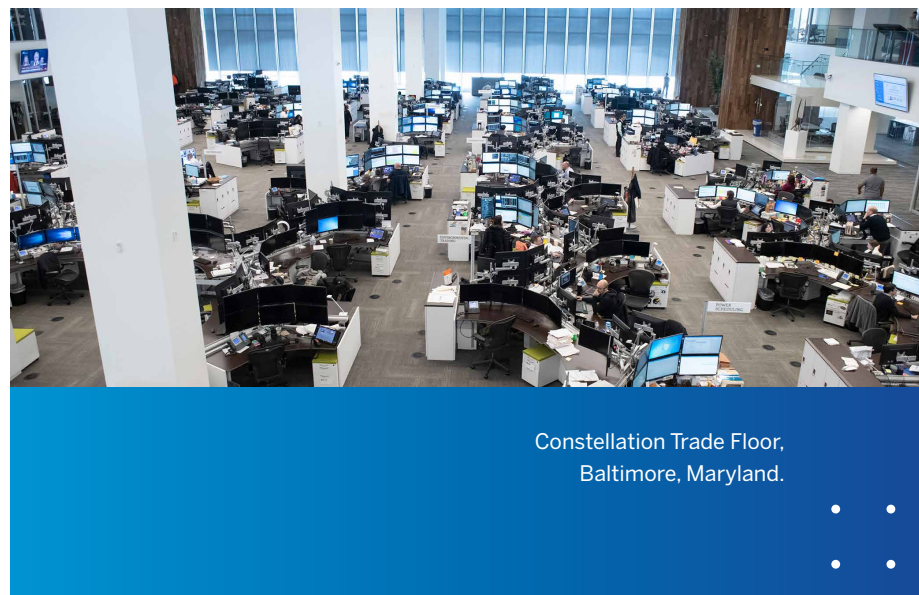
Cybersecurity

Exelon is involved in every aspect of the energy business, from generating power to distributing electricity to homes and businesses. Many of our customers are located in the most densely populated areas of the country, making us a part of the nation's critical infrastructure. Security at Exelon is not an option; it is an imperative.

Exelon's Corporate & Information Security Services (CISS) team maintains an enterprise-wide, risk-based, intelligence-driven, "defense-in-depth" security approach. By applying the layered, defensive mechanisms, CISS proactively provides the security needed to deter and delay attacks and withstand their potential impacts. This extends to the security programs, which were collaboratively developed with input from Information Technology (IT) and key stakeholders across Exelon. The integrated approach means that all operating companies benefit from the pooled investment into a unified and flexible security program.

In 2018, we enhanced our security governance programs and created a more consistent governance structure and plans for the security of all our assets. Our approach drives the development, implementation and continuous improvement of both our cyber- and physical-security controls. We refreshed our security controls program to better align with industry standards, principally the National Institute of Standards and Technology (NIST) Cyber Security Framework (CSF). This framework helps promote the protection and resilience of critical infrastructure at multiple levels, consisting of controls designed to identify, protect, detect, respond to and recover from a spectrum of threats. In addition, our CISS team rolled out an expanded set of key risk and performance indicators and increased the frequency of threat assessments and reporting.

Exelon implemented the mandatory regulatory requirements defined by the NERC and NRC standards, ensuring further protection of our assets. Regulated critical cyber assets are isolated within restricted networks,



segmented from the enterprise IT environment and the Internet, continuously monitored for malicious activity and routinely evaluated for vulnerabilities.

Exelon also continues to grow our Cyber Mutual Assistance Program, working with industry peers, government entities and technology firms to share cyber and physical threat information, with the goal of providing cooperation and support during event response and recovery efforts.

Physical Security

Exelon's facilities are implementing additional physical security measures to reduce vulnerability to physical attacks against and unauthorized access to personnel, equipment, systems and materials at substations. In coordination with CISS, we identified critical sites and potential major threats to substations such as terrorism, theft and vandalism. We designed and implemented multi-layered and integrated security controls, including physical barriers, detection systems, access control, cameras and video-analytics. We also maintained and enhanced relationships with law enforcement.

Business Resilience

Exelon maintains robust response and recovery programs to ensure the company's resilience amidst an evolving landscape of physical and cyber threats to personnel, assets, operations and customers. Exelon ensures business resilience through the combination of incident response, crisis management, business continuity and systems recovery programs. As with all security efforts, these programs are aligned with the NIST CSF and apply to all hazards.

The plans to support response and recovery activities are deployed by Exelon's corporate security, IT and emergency preparedness teams and their associated programs. Exelon's business continuity program covers all Exelon business functions, focusing on maintaining operational readiness for an evolving threat landscape. When events do occur, Exelon quickly and effectively responds, mobilizing resources and executing recovery strategies and workarounds. The systems recovery and IT disaster recovery programs aim to minimize downtime for systems, services and applications through a coordinated team approach that informs and consults all key stakeholders throughout the process of addressing and resolving a priority incident.

On an annual basis, functional leadership reviews and approves the business continuity and systems recovery plans. Regular updates are captured and reflected in the plans to address business disruptions, outages, drill results and lessons learned. Both teams conduct relevant training and exercises to test the validity and completeness of resilience plans, with participation by operating company leadership and relevant functional personnel. Following any event or exercise, the teams and their business partners identify corrective actions, document and communicate lessons learned and implement enhancements to support plan growth and response capabilities.

In 2018, Exelon's successful response and recovery efforts crossed a broad spectrum of events that had the potential to result in significant operational, financial, reputational and personnel impacts. The Exelon teams responded to issues including total building loss, third-party concerns and civil unrest.

ETHICS AND COMPLIANCE

Ethics and integrity are at the foundation of our business. To deliver on our vision of providing reliable, clean and affordable energy we require every one of our employees to uphold their commitments. Each of our employees plays a role every day in building our sustainable future. To guide them we place unwavering importance on making ethical decisions. Exelon's Code of Business Conduct provides a foundation for our approach to ethics and integrity. The Audit Committee of our Board oversees compliance with the Exelon Code of Business Conduct and employees are required to take training modules on the Code on a yearly basis, as a reminder of our core values.

We uphold these values and take responsibility for the Code by treating each matter seriously, no matter how it is reported, who it involves, or where it has taken place. We maintain a HelpLine and a dedicated

The Code Responsibilities of Exelon Employees

We are all responsible for understanding and following the Code. Integrity and accountability require that we:

- **Are honest**
- **Live our values every day**
- **Follow the law and Exelon policies when conducting company business**
- **Treat everyone with respect and decency**
- **Use common sense and good judgement**
- **Promptly seek guidance when unsure about the right thing to do**
- **Speak up when we see a problem**

website for stakeholders to report concerns regarding potential ethical, compliance or legal violations. The HelpLine is available seven days a week, 24 hours a day. Reporters can choose to identify themselves or remain anonymous. HelpLine reports are actively monitored by the compliance and ethics practice area of the legal department. Ethics personnel oversee investigations conducted by seasoned, trained investigators. Exelon takes appropriate action, up to and including dismissal, when any wrongdoing is substantiated. In 2018, Exelon was not involved in any legal actions related to anti-competitive or anti-trust behavior.

We have procedures and guidelines in place for managing and reacting to potential situations related to our Code:

Investigations. Exelon takes each report seriously, no matter how the report is received. Our procedures and guidelines are designed to promptly, efficiently and objectively review and resolve each issue.

Disciplinary Action. The Code will be appropriately enforced, regardless of the seniority, role or location of those involved in misconduct.

Certification of Compliance. All non-represented employees and members of the Board of Directors must complete a compliance certification each year. All responses that identify potential violations of the law or the Code are fully investigated under the guidance of the Ethics and Compliance Office.

Waivers. A waiver of any provision of the Code will be made only in exceptional circumstances for substantial cause. Requests for waivers must be submitted to the corporate general counsel, or his or her designee. Any request for a waiver by any director or executive must be submitted to the Board or a board committee. All waivers will be reported to the Exelon Ethics and Compliance Steering Committee. In addition, any waiver of provision in the Code for any director or executive officer will be disclosed to shareholders.

Exelon's suppliers and third-party business partners are also required to comply with Exelon's Code of Business Conduct.

Required Ethics Trainings

Exelon prioritizes ensuring that expectations around ethics, integrity and the Code are understood. We manage this through a number of mandatory ethics training modules, including Exelon Code of Business Conduct Training, Exelon Security Awareness, Creating a Harassment Free Work Environment, Preventing Insider Threats and NERC General Awareness, among others. Further, numerous in-person training sessions occurred throughout 2018 related to the topic of maintaining a respectful workplace. Role-based training obligations, which flow from discrete compliance risk areas, also emphasize performing job responsibilities with integrity.

PUBLIC POLICY

Exelon actively advocates for federal, regional, state and local policies based on sound science and thorough consideration of environmental, economic and community impacts to promote clean, affordable and reliable electric and gas service to our customers and the communities we serve. We discuss our positions on specific legislation and regulation throughout this report.

Exelon also participates in various trade organizations, like EEI, the Nuclear Energy Institute and the Clean Energy Group, that advocate on behalf of the industry broadly. In many cases, we are in alignment with the advocacy positions of these organizations, but not always. In cases where our views diverge, we use other means to voice our positions, most notably in support of strong policies to support and encourage clean energy. Exelon also contributes to political candidates and organizations as part of our engagement in policy dialogue. We do so in accordance with our Corporate Political Contributions Guidelines, available on our [website](#) along with the semiannual disclosures of our political and trade association contributions.

SUSTAINABLE SUPPLY CHAIN

Exelon has approximately 8,000 suppliers that provide a wide range of materials and services to support our company operations. We actively engage, evaluate and monitor our suppliers to better understand our supply chain and proactively identify and address potential business continuity or related risks. In addition to managing our supply chain from a risk and performance perspective, we also work to align Exelon's sourcing practices with company objectives in environmental responsibility, supplier diversity and local economic development.

Supply Chain Risk Management

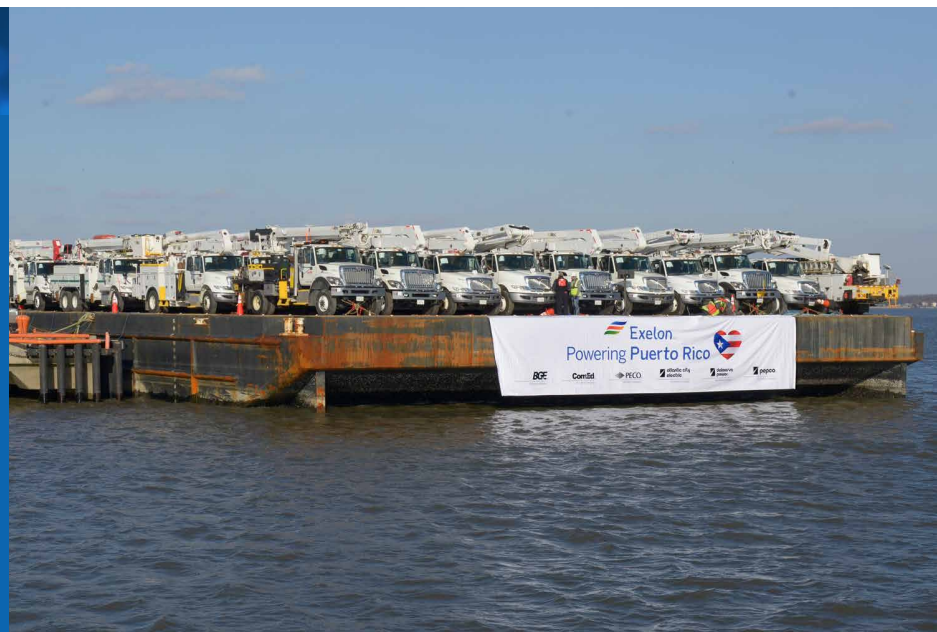
Exelon employs a risk management process developed by our Supply and Enterprise Credit Risk Management team to identify, communicate and mitigate risks. Our semiannual review of all suppliers determines supplier criticality to our business. This team conducts in-depth risk reviews of

our critical suppliers, considering how essential the supplier is to Exelon's business functions and company objectives (such as diversity and sustainability), probability of a risk event, the potential severity of impacts and our resilience to a disruption through alternate suppliers. The results of these risk reviews are regularly communicated to management.

In December 2018, Exelon conducted its semiannual detailed risk assessment that identified 96 critical Tier 1 suppliers, representing 54 percent of total spend. As part of this process, we identified two high-risk critical Tier 1 suppliers and implemented risk mitigation strategies with these suppliers. Of the 96 critical Tier 1 suppliers, six percent were audited in 2018 and five percent were on a supplier watchlist or performance improvement plan in 2018. Exelon actively works with all suppliers on a watchlist or with a performance improvement plan to implement corrective action strategies to remediate any performance issues.

Hurricane Response

When significant events or disasters occur, such as Hurricanes Florence and Michael in 2018, Exelon engages with suppliers to take proactive steps to ensure continuity of necessary services and materials. In 2018, Exelon was recognized for the extraordinary work done to restore power in Puerto Rico after Hurricane Maria. The State of Illinois Legislature presented a resolution thanking ComEd employees and crews for their support in the restoration of power to the people of Puerto Rico, with key ComEd team members invited to the state capital in Springfield, Illinois to be part of the reading of the resolution.



2018 Awards



Industry Excellence Award in Supply Chain from the Southeastern Electric Exchange (SEE). ComEd Supply Operations were honored to accept an Industry Excellence Award in Supply Chain for their Field Force Manager (FFM) initiative. Field Force Manager tracks poles and other large materials via real-time GPS and confirms deliveries through pictures taken and uploaded to the FFM application. This process enables ComEd to track our materials through the chain of custody in order to provide complete transparency throughout the delivery process. The Southeastern Electric Exchange (SEE) is a nonprofit, non-political trade association consisting of 62 investor-owned electric utility companies. Each year, the association offers Industry Excellence Awards in eight categories, one of which is supply chain management.



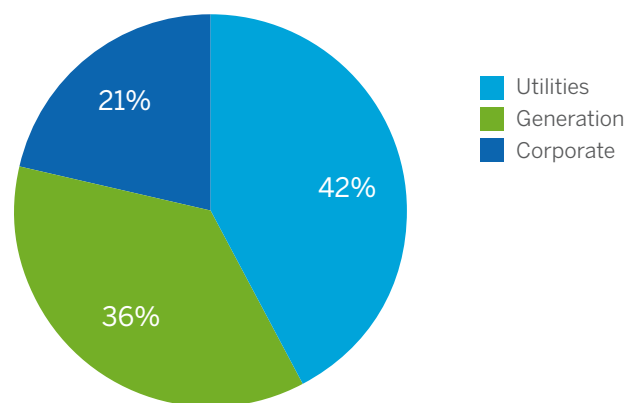
Debbie Babec, Senior Manager Material Availability, and Matt Tassone, Director ComEd Supply Operations (second from left), receive award.

Nuclear Energy Institute's (NEI) "Best of the Best Top Innovative Practice Award". Exelon's Parts Quality Initiative (PQI) was awarded the Nuclear Energy industry's highest innovation award, the "Best of the Best Top Innovative Practice Award" at the Nuclear Energy Institute's (NEI) annual conference held in Atlanta. PQI is a process that was conceived by Supply, Nuclear and collaboratively developed with Exelon PowerLabs, to identify defective parts before they are installed in our nuclear plants. This program was adopted by other nuclear operators and has enhanced equipment reliability and supply chain quality across the industry. The PQI process has already prevented the installation of more than 2,100 deficient parts in Exelon's plants and reduced the impact of defective parts on generation losses by 69 percent.

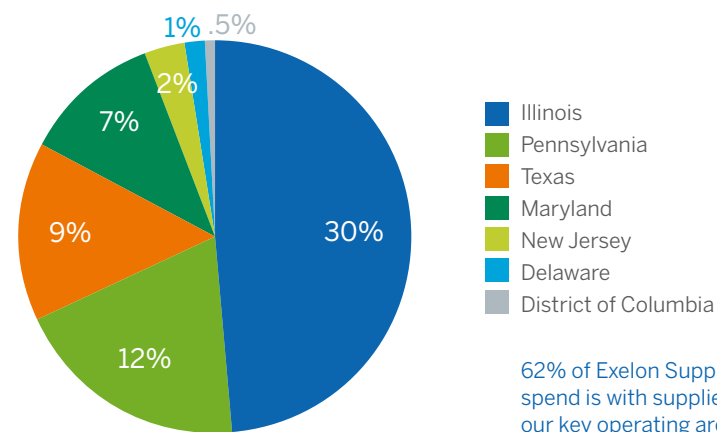


The PQI team with the NEI Best of the Best Top Innovative Practice Award.

SUPPLIERS BY SOURCING AREA



SUPPLIER SPEND BY STATE



Supply Chain Spend Analysis

Exelon sourcing professionals manage approximately 90 categories of supply spend, with those categories rolling up into Corporate, Generation or Utilities supply teams. Over half of Exelon's supply chain spend is with suppliers in our key operating areas, where our businesses are most heavily concentrated.

Improving Sustainability with Our Suppliers

In addition to meeting contract terms and conditions tailored to manage each supplier's engagement, all Exelon business partners, including our suppliers are required to comply with Exelon's Code of Business Conduct, which establishes requirements for how Exelon and our business partners will conduct their business operations. All suppliers must meet Exelon's standards, including environmental performance review.

Exelon participates in industry and government efforts to evaluate and improve the environmental and social performance of our supply chain operations. As an industry leader in sustainability, we are conscious of the

influence we have to encourage sustainable practices in our supply chain. At Exelon, we make a concerted effort to minimize potential impacts of the goods and services we procure and to motivate our suppliers to improve their operational performance. We advance sustainability in our supply chain through both our direct relationships with our suppliers and our engagement with the Electric Utility Industry Sustainable Supply Chain Alliance (EUISSCA) of which Exelon was a founding member. EUISSCA, or "The Alliance", is an organization of utilities and suppliers working together to advance sustainability best practices in utility supply chain activities and supplier networks. Exelon continues to pursue progress against the Alliance's sustainability maturity model by creating more rigor around the scoring of sustainability aspects of supplier proposals in bids and by recognizing top suppliers with awards related to their environmental performance. In 2018, Exelon was represented on the Alliance's executive committee, serving in the role of Vice Chair and in 2019, Exelon's Chief Supply Officer became Chair of the executive committee.

In 2018, EUISSCA launched [The Sustainability Project \(TSP\)](#), a new supplier survey tool designed to educate suppliers on environmental best practices and benchmark their sustainability progress. The survey tool has customized questions for over 23 supplier types that ask a variety of questions, from the details of a supplier's operational controls to the level of leadership engagement and commitment. It also offers benchmarking which enables suppliers to plan for improved performance in the future and can be used for sharing best practices. For more specifics on our supplier engagement around environmental performance, see [Rising to the Challenge of Climate Change](#).

Exelon targeted 93 of its critical Tier I suppliers (as identified by our risk profile model), representing approximately 50 percent of our spend, to take the TSP Survey in the fall of 2018. We are using the results of the survey to help us further identify sustainability risks associated with our current

suppliers and potential future business partners. Of the suppliers invited to participate, 36 did not. These suppliers have been contacted to confirm Exelon's expectation that they participate. The survey, which is tailored to different categories of suppliers, focuses on an initial assessment of performance and programs, with benchmarking and other tools provided to aid in the identification and implementation of performance improvement opportunities. This effort helps Exelon to work collaboratively with its suppliers to advance sustainability performance in the most relevant areas for each type of supplier and the services or materials that they are providing to Exelon.

Supporting Local and Diverse Suppliers

At Exelon, we share a passion for diversity and inclusion that guides the way we work and do business. Through our Exelon Diverse Business Empowerment (EDBE) program, we realize competitive advantages from the talents each of us brings to the workplace. Exelon serves some of the nation's largest and most ethnically diverse metropolitan areas — including Baltimore, Chicago, Washington, D.C. and Philadelphia. This means our supplier base, as well as our workforce and culture, must reflect the diversity of our customers and our communities. We view diversity-certified businesses as valued partners in our efforts to serve our customers and we believe that partnership will help diverse business enterprises to develop and grow.

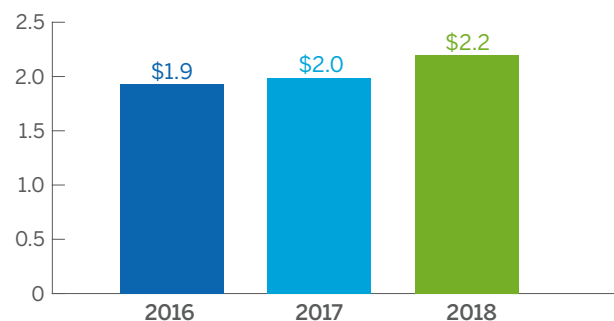
Not only does this benefit Exelon, but it also empowers the community. Exelon sources materials, goods and services from thousands of large and small businesses across the country. In 2018, Exelon spent approximately \$9 billion with suppliers, excluding fossil and nuclear fuel purchases. More than 60 percent of this was spent locally in our key operating areas — Illinois, Pennsylvania, Maryland, New Jersey, Delaware, the District of Columbia and Texas — where our businesses are most heavily concentrated.

Exelon EUISSCA/TSP Supplier Survey Results

- **93 Exelon suppliers** were targeted to complete the TSP Survey
- **57 suppliers** completed the Survey, representing 61%
- **23 suppliers** completed the Survey, Assessment Phase and Planning Phase, representing 25%
- **14 suppliers** completed the Survey, Assessment Phase and have started the Improvement Planning process, representing 15%
- **20 suppliers** completed the Survey and Assessment Phase, representing 22%

DIVERSITY-CERTIFIED SUPPLIER SPEND

dollars in billions



Dave Velazquez, President & CEO PHI,
addressing participants in the Pepco
Target 25 EDBE development program.

In 2018, our spending with diversity-certified suppliers reached more than \$2.2 billion — an increase of more than 106 percent since 2014 — and accounted for 25 percent of our sourceable spending. As further recognition for Exelon's commitment to building a diverse supply chain, in 2018 Exelon maintained its membership in the prestigious **Billion Dollar Roundtable**, a top-level advocacy organization that promotes corporate supplier diversity excellence. The organization recognizes companies that spend at least \$1 billion annually with Tier 1 diverse suppliers. Tier 1 suppliers are those with whom Exelon spends directly. Exelon Corporation was also recognized in 2018 by Minority Business News USA as one of the Best of the Decade corporations for its commitment to minority business development and inclusion.

High-margin spend with diversity-certified suppliers totaled \$124 million in 2018. The Exelon "high-margin" strategy has been regarded as a utility industry best practice. This strategy focuses on fully integrating diversity certified suppliers in underutilized professional services categories. We

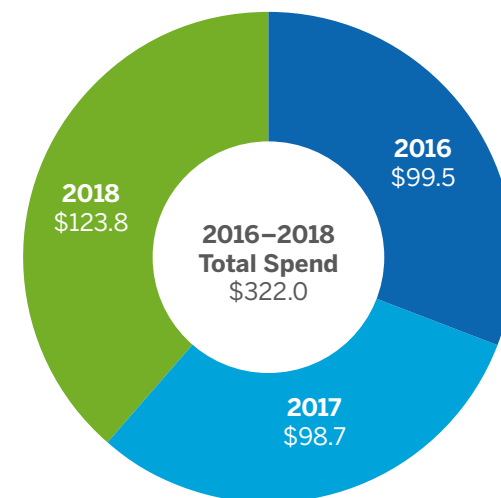
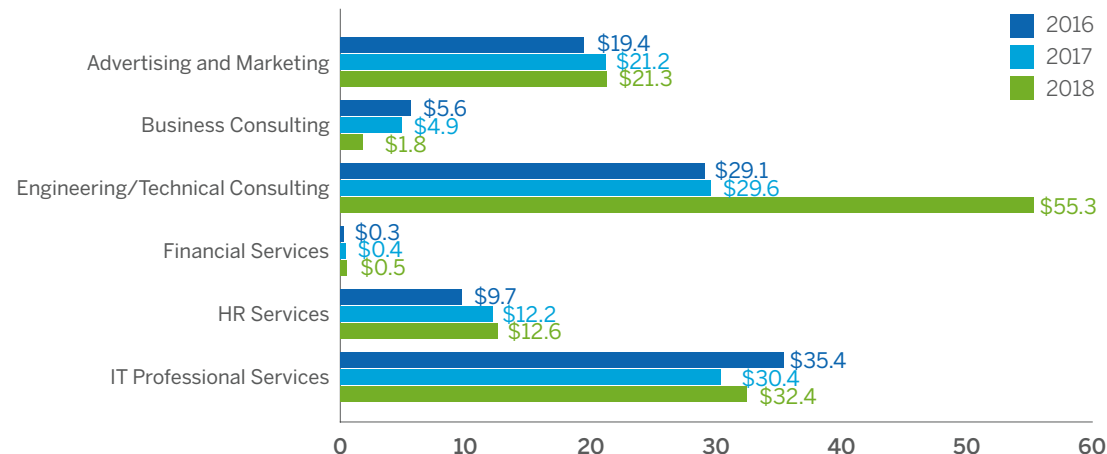
embarked on the high margin strategy because businesses in the professional services industries typically have higher profit margins and therefore have an increased capacity to contribute to community economic development through job creation and community-based organization support.

The strategy highlights eight categories of spending in the professional services areas:

- Advertising and marketing
- Banking
- Business consulting
- Engineering and technical consulting
- Financial services
- HR services
- IT professional services
- Legal

HIGH MARGIN SPEND WITH DIVERSITY-CERTIFIED SUPPLIERS

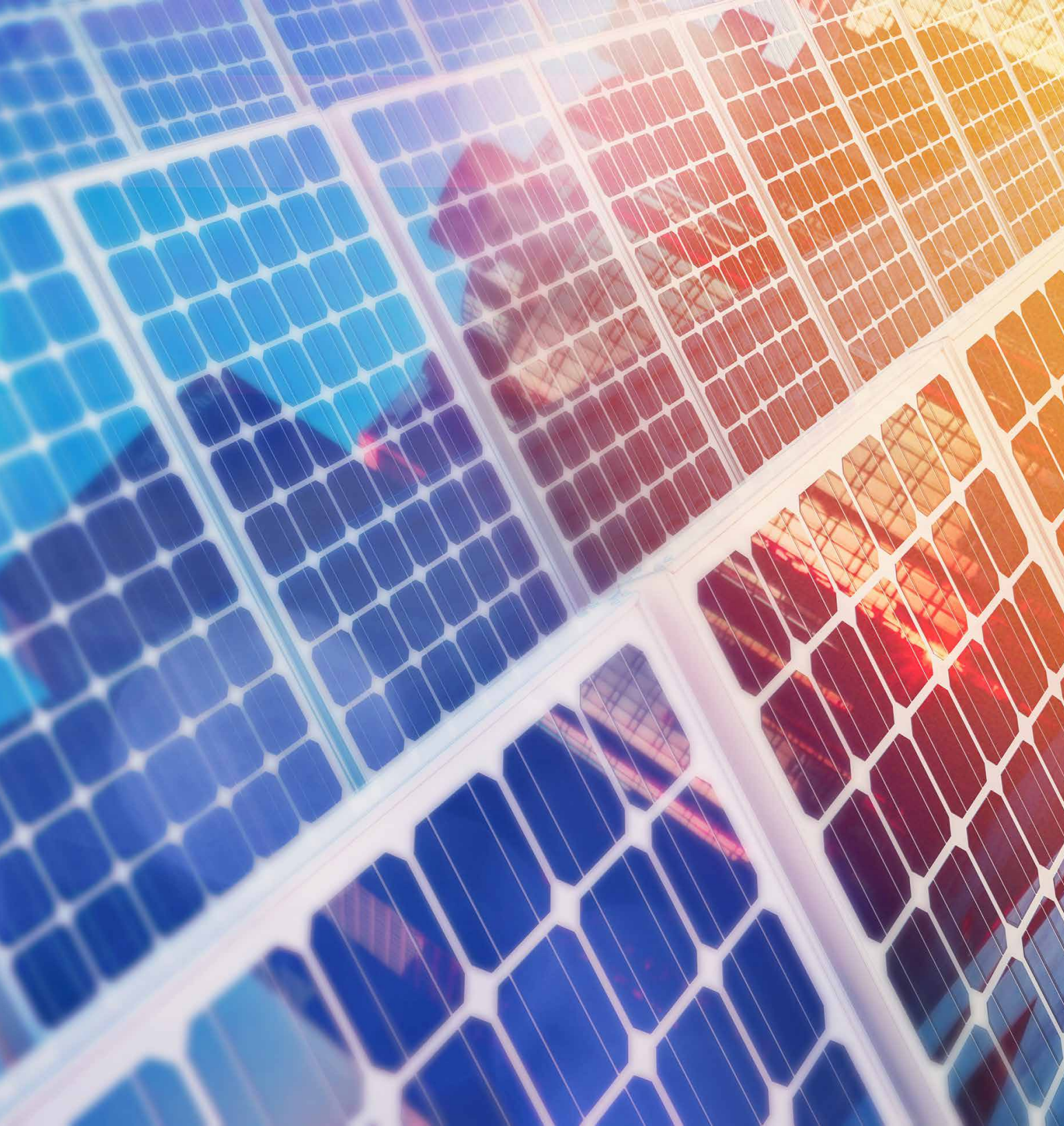
dollars in millions



In 2018, Exelon arranged \$135 million in credit lines with 24 community and minority-owned banks in Illinois, Maryland, New Jersey and Pennsylvania, reinforcing the company's commitment to invest in local communities. These transactions help grow local businesses and the local economy and are critical to communities that remain challenged in current economic conditions. Exelon's minority and community banking program, which began in 2003, is unique in the energy industry. Administered by JP Morgan Chase since its inception, the program now has 24 participating banks across the country, more than four times the original number. Exelon Corporation currently has \$2.8 billion in pension, employee savings plan and retiree health care assets invested with 24 diversity-certified investment firms. In addition, another 18 minority investment firms participated in or co-managed \$3 billion in corporate bond deals.

Conflict Minerals

We adhere to all regulatory requirements related to our supply chain practices. In alignment with Section 1502 of the Dodd-Frank Act and the U.S. Securities and Exchange Commission's (SEC) conflict mineral reporting requirements, Exelon reviewed whether conflict minerals — including tin, tantalum, tungsten and gold, and other minerals determined by the U.S. government to be financing conflict in the Democratic Republic of the Congo or its neighboring countries — were necessary to the production or functionality of any product manufactured or contracted for manufacture by the company. After a review of the products we sell and services we deliver, we concluded that we do not have any reporting requirements under the rule.



Appendix

2018 Electric Generation By Major Station^{1,2}

FOSSIL	Location Water Body	Net Operational Capacity (MW) ³	GENERATION (GWh) ⁴			EMISSIONS (thousand short tons) ⁵				TECHNOLOGY	
			2016	2017	2018	Type	2016	2017	2018	Current Air Pollution Control	Cooling Water ⁶
Colorado Bend II⁷ Combined cycle: 4 gas turbines & 2 steam generator (intermediate)	Wharton, TX Colorado River	1,088	2,239	5,462	4,751	SO ₂ NO _x CO ₂	* 0.1 1,130	* 0.2 2,381	* 0.1 2,018	SCR, low-NO _x burners	Dry Cooling
Eddystone 2 oil/gas steam units (intermediate) 4 combustion turbines (peaking)	Eddystone, PA Delaware River	820	141	12	17	SO ₂ NO _x CO ₂	* 0.1 147	* * 44	* 0.1 50	Low-NO _x burners with separated overfire air	Open
Handley 3 gas steam units (2 peaking and 1 intermediate)	Fort Worth, TX Lake Arlington	1,265	550	355	757	SO ₂ NO _x CO ₂	* 0.1 401	* 0.1 255	* 0.1 549	SCR	Open
Hillabee Energy Center Combined cycle: 2 gas 2X1 turbines & 1 steam generator (intermediate)	Alexander City, AL Municipal Supply	753	5,387	3,095	4,376	SO ₂ NO _x CO ₂	* 0.1 2,227	* 0.1 1,299	* 0.1 1,852	SCR	Closed
Mystic & Mystic Jet Combined cycle: 2 gas 2X1 turbines; Conventional: 2 gas/ 1 dual-fueled steam generators & 1 oil combustion turbine (intermediate)	Charlestown, MA Mystic River	1,999	6,940	7,158	4,550	SO ₂ NO _x CO ₂	0.8 0.5 3,151	0.4 0.3 3,178	0.4 0.3 2,134	SCR, low-NO _x burners	Dry Cooling (Combined Cycle)/Closed (Conventional Steam)
Wolf Hollow II⁷ Combined cycle: 4 gas turbines & 2 steam generator (intermediate)	Granbury, TX Lake Granbury	1,064	3,030	6,137	5,477	SO ₂ NO _x CO ₂	* 0.3 1,390	* 0.3 2,620	* 0.1 2,259	SCR	Dry Cooling

2018 Electric Generation By Major Station^{1,2} (Continued)

RENEWABLE	Location Water Body	Net Operational Capacity (MW) ³	GENERATION (GWh) ⁴			EMISSIONS (thousand short tons) ⁵				TECHNOLOGY	
			2016	2017	2018	Type	2016	2017	2018	Current Air Pollution Control	Cooling Water ⁶
Albany Green Energy Biomass-fueled combined heat (steam) and power generation (baseload) 99%	Albany, GA <i>Groundwater</i>	52	-	282	70	SO ₂ NO _x CO ₂	- - -	* 0.1 372	* * 1	SNCR, sorbent and activated carbon injection, baghouse	Closed
Fairless Hills⁸ 2 landfill gas units (peaking)	Fairless Hills, PA <i>Delaware River</i>	60	242	230	212	SO ₂ NO _x CO ₂	0.1 0.1 11	0.1 0.1 11	0.1 0.1 6		Open
Conowingo⁹ 11 hydro units (baseload)	Darlington, MD <i>Susquehanna River</i>	572	1,369	1,945	2,788	AVOIDED GHG EMISSIONS (thousand metric tons CO ₂ e) ¹⁰ 964					Run-of-river
Muddy Run 8 pumped-storage units (intermediate)	Drumore, PA <i>Susquehanna River</i>	1,070	1,258	1,416	1,468	AVOIDED GHG EMISSIONS (thousand metric tons CO ₂ e) ¹⁰ 508					Pumped storage
Exelon Wind¹¹ 812 units 51–100%		915	3,790	4,050	2,769	AVOIDED GHG EMISSIONS (thousand metric tons CO ₂ e) ¹⁰ 1,442					
Solar¹¹ 432 units 4.2–100%		555	984	1,057	1,086	AVOIDED GHG EMISSIONS (thousand metric tons CO ₂ e) ¹⁰ 364					

2018 Electric Generation By Major Station^{1,2} (Continued)

NUCLEAR ¹²	Location Water Body	Net Capacity (MW) ³	GENERATION (GWh) ⁴			Avoided GHG Emissions (thousand metric tons CO ₂ e) ¹⁰	TECHNOLOGY Cooling Water ⁶	NUCLEAR OPERATIONS DATA			
			2016	2017	2018			Unit	Commercial Ops. Began	Current License Expiration ¹³	Spent Fuel Pool Capacity Reached ¹⁴
Braidwood 2 PWR units (baseload)	Braidwood, IL <i>Kankakee River</i>	2,386	19,849	19,944	19,343	10,672	Closed (dedicated pond)	1 2	1988 1988	2046 2047	Dry cask storage in operation
Byron 2 PWR units (baseload)	Byron, IL <i>Rock River</i>	2,347	19,600	19,153	20,051	11,062	Closed	1 2	1985 1987	2044 2046	Dry cask storage in operation
Calvert Cliffs 2 PWR units (baseload) 50.01%	Lusby, MD <i>Chesapeake Bay</i>	895	7,382	7,555	7,495	4,135	Open	1 2	1975 1977	2034 2036	Dry cask storage in operation
Clinton 1 BWR unit (baseload)	Clinton, IL <i>Clinton Lake</i>	1,069	8,914	8,348	8,397	4,633	Closed	1	1987	2026	Dry cask storage in operation
Dresden 2 BWR units (baseload)	Morris, IL <i>Kankakee River</i>	1,845	15,444	15,445	15,538	8,573	Open	2 3	1970 1971	2029 2031	Dry cask storage in operation
Fitzpatrick¹⁵ 1 BWR unit (baseload)	Scriba, NY <i>Lake Ontario</i>	842	-	5,396	6,528	1,750	Open	1	1974	2034	Dry cask storage in operation
LaSalle 2 BWR units (baseload)	Seneca, IL <i>Illinois River</i>	2,320	19,144	18,908	19,346	10,673	Closed	1 2	1984 1984	2042 2043	Dry cask storage in operation
Limerick 2 BWR units (baseload)	Sanatoga, PA <i>Schuylkill River¹⁶</i>	2,317	19,395	18,553	19,357	10,679	Closed	1 2	1986 1990	2044 2049	Dry cask storage in operation
Nine Mile Point 2 BWR units (baseload) Unit 1: 50%, Unit 2: 41%	Scriba, NY <i>Lake Ontario</i>	838	6,842	6,997	6,797	1,822	Open/Closed	1 2	1969 1986	2029 2046	Dry cask storage in operation
Oyster Creek¹⁷ 1 BWR unit (baseload)	Forked River, NJ <i>Barnegat Bay</i>	625	4,585	5,430	3,540	1,953	Open	1	1969	2029	Dry cask storage in operation
Peach Bottom 2 BWR units (baseload) 50.00%	Peach Bottom Township, PA <i>Susquehanna River</i>	1,324	10,938	10,861	10,837	5,979	Open	2 3	1974 1974	2033 2034	Dry cask storage in operation
Quad Cities 2 BWR units (baseload) 75.00%	Cordova, IL <i>Mississippi River</i>	1,403	11,741	11,551	11,607	6,404	Open	1 2	1973 1973	2032 2032	Dry cask storage in operation

2018 Electric Generation By Major Station^{1,2} (Continued)

NUCLEAR ¹²	Location Water Body	Net Capacity (MW) ³	GENERATION (GWh) ⁴			Avoided GHG Emissions (thousand metric tons CO ₂ e) ¹⁰	TECHNOLOGY Cooling Water ⁶	NUCLEAR OPERATIONS DATA			
			2016	2017	2018			Unit	Commercial Ops. Began	Current License Expiration ¹³	Spent Fuel Pool Capacity Reached ¹⁴
R.E. Ginna 1 PWR (baseload) 50.01%	Ontario, NY <i>Lake Ontario</i>	288	2,535	2,349	2,349	630	Open	1	1970	2029	Dry cask storage in operation
Salem 2 PWR units (baseload) 42.59%	Lower Alloways Creek Twp., NJ <i>Delaware Estuary</i>	1,002	6,685	7,641	8,048	4,440	Open	1 2	1977 1981	2036 2040	Dry cask storage in operation
Three Mile Island¹⁸ 1 PWR unit (baseload)	Middletown, PA <i>Susquehanna River</i>	837	7,083	6,861	7,335	4,047	Closed	1	1974	2034	Dry cask storage in 2021

- 1 Owned generation as of Dec. 31, 2018. Table does not include station auxiliary equipment, plants comprised solely of peaking units or joint-owned plants where Exelon owned less than 100 MW. However, the corporate emission and intensity totals presented in the Reducing Air Emissions section of this report include emissions and generation from all equity-owned generation. Further, the emissions and intensities shown in the Reducing Air Emissions section of the report include retired and divested fossil unit emissions for the time periods in 2016–2018 during which Exelon had an ownership interest in these units. Numbers have been rounded. For more information on Exelon's generation fleet, please see Item 2: Properties, in Exelon's 2018 10-K.
- 2 Percentages listed under station name reflect Exelon's fractional ownership interest for those assets that are not 100 percent.
- 3 For nuclear stations, capacity reflects the annual mean rating. Fossil stations reflect a summer rating. Wind and solar facilities reflect nameplate capacity. Depicted capacity is operational only and does not include retired unit capacity.
- 4 Net generation.
- 5 * Indicates emissions less than 50 short tons.
- 6 Open — a system that circulates cooling water withdrawn from the environment, returning it with waste heat to its source.
Closed — a system that recirculates cooling water with waste heat dissipated to the atmosphere through evaporation.
Dry Cooled — a system that uses air-flow cooling without using water.
- 7 On November 7, 2017, EGTP and all of its wholly owned subsidiaries filed voluntary petitions for relief under Chapter 11 of Title 11 of the United States Code in the United States Bankruptcy Court for the District of Delaware. The Chapter 11 bankruptcy proceedings were finalized on April 17, 2018, resulting in the ownership of EGTP assets (Colorado Bend I, LaPorte, Mountain Creek, Wolf Hollow I) being transferred to EGTP's lenders. Generation and emissions for the period of Exelon ownership during 2018 are included in this table for those facilities listed.
- 8 Fairless Hills CO₂ emissions are those related to fossil fuel combustion and exclude landfill gas CO₂ emissions.
- 9 On August 29, 2012 Generation submitted hydroelectric license application to the FERC for a 46-year license for the Conowingo Hydroelectric Project. Based on the FERC procedural schedule, the FERC licensing process was not completed prior to the expiration of Conowingo's license on September 1, 2014. On September 10, 2014, FERC issued an annual license for Conowingo, effective as of the expiration of the previous license. If FERC does not issue a new license prior to the expiration of annual license, the annual license will renew automatically.
- 10 Avoided greenhouse gas (GHG) emissions for renewable energy sources are calculated using USEPA eGrid regional or national emissions factors for CO₂e where applicable for distributed energy sources. Avoided GHG emissions for nuclear sources are calculated using the applicable eGrid regional ISO (PJM & NYISO) averages adjusted to remove Exelon-owned nuclear contributions. In 2018, Exelon's renewable energy plants avoided 3.278 million metric tons of CO₂e and our nuclear plants avoided 87,452 million metric tons of CO₂e, for a total avoidance of 90.740 million metric tons of CO₂e from Exelon's ownership in zero-emission generation. Avoided GHG emissions calculated based on 2018 production levels.
- 11 Ownership may vary with each asset.
- 12 BWR — boiling water reactor; PWR — pressurized water reactor.
- 13 Dates in bold indicate that NRC license renewals have been received. Generation is in the process of pursuing a 20-year license extension for the Clinton plant, the application is currently expected to be submitted no earlier than the first quarter of 2021.
- 14 Dry cask storage will be in operation at all sites prior to the closing of on-site storage pools.
- 15 On March 31, 2017, Generation acquired the single-unit James A. Fitzpatrick nuclear generating station located in Scriba, New York from Entergy Nuclear Fitzpatrick LLC.
- 16 Supplemented with water from the Wadesville Mine Pool and the Still Creek Reservoir at Tamaqua via the Schuylkill River, and the Delaware River via the Bradshaw Reservoir, and Perkiomen Creek.
- 17 On September 17, 2018, Exelon permanently ceased generation operations at Oyster Creek. In July 2018, Exelon Generation announced a conditional sale of Oyster Creek to Holtec International. The transaction is expected to close in 2019, pending license transfer approval from the NRC. Once the sale is completed, Holtec International will manage all site decommissioning and restoration activities with a goal of full decommissioning within eight years.
- 18 Because a Pennsylvania state policy solution was not enacted in time to reverse the premature retirement of Three Mile Island Unit 1, Exelon Generation announced in May 2019 that the plant will shut down permanently by September 30, 2019, as previously announced in 2017.

ABOUT THIS REPORT

The Exelon 2018 Sustainability Report details our company's programs and performance in the areas of economic, social, governance and environmental initiatives. Exelon is committed to reporting on our sustainability performance annually and this report follows our 2017 Sustainability Report.

Data in this report cover 2016 through 2018, with an emphasis on activities in the reporting period of January 1, 2018 through December 31, 2018.

Where it may be helpful for the reader to understand relative trends over time, we have provided graphs or tables covering three years of performance. Data reflect all wholly or partially owned generating units for the period of ownership unless otherwise noted. Contracted power (i.e., purchases for trading or resale) is outside the scope of this report.

We also seek annual assurance of our GHG emission inventory. Lloyd's Register Quality Assurance, Inc. (LRQA), an accredited GHG verifier, provided verification of our 2018 inventory to a reasonable assurance level in accordance with The Climate Registry and ISO 14064 standards. The verification statement is available on [our website](#).

GRI INDEX

The indicators below are from the GRI Standards and the Electric Utilities Sector Supplement. This report has been prepared in accordance with the GRI Standards: Core option. All disclosures in this GRI Index refer to GRI Standards 102 and 103 and the 200, 300 and 400 series of Standards published in 2016.

GENERAL DISCLOSURES		REPORT SECTION
Organizational Profile		
102-1	Name of the organization	About Exelon
102-2	Activities, brands, products, services	About Exelon
102-3	Location of headquarters	About Exelon
102-4	Location of operations	About Exelon
102-5	Ownership and legal form	About Exelon
102-6	Markets served	About Exelon
102-7	Scale of the organization	About Exelon
102-8	Information on employees and other workers	Diversity & Inclusion Exelon reports the total number of employees, identifying gender, minority and age group breakdowns. As all of Exelon's employees are located in the United States and less than 1 percent of employees are part-time, we have not provided gender and regional breakdowns for these categories.
102-9	Supply chain	Sustainable Supply Chain
102-10	Significant changes to the organization and supply chain	About Exelon
102-11	Precautionary principle or approach	Exelon 2018 10-K
102-12	External initiatives	Managing Sustainability; Stakeholder Engagement; Rising to the Challenge of Climate Change; Sustainable Supply Chain Exelon website
102-13	Membership of associations	About Exelon; 2018 Electric Generation by Major Station
EU1	Installed capacity	About Exelon; 2018 Electric Generation by Major Station
EU2	Net energy output	About Exelon
EU3	Number of customers	About Exelon
EU4	Length of transmission and distribution lines	About Exelon
EU5	Allocation of CO ₂ e emissions allowances	Exelon fossil plants in Massachusetts utilize Regional Greenhouse Gas Initiative (RGGI) CO ₂ e allowances.

GENERAL DISCLOSURES (continued)		REPORT SECTION
Strategy		
102-14	Statement from senior decision-maker	A Message from Our CEO
Ethics and Integrity		
102-16	Values, principles, standards and norms of behavior	Managing Sustainability; Ethics and Compliance
Governance		
102-18	Governance structure	Sustainability Governance; Effective Governance
Stakeholder Engagement		
102-40	List of stakeholder groups	Stakeholder Engagement
102-41	Collective bargaining agreements	As of December 31, 2018 , Exelon and its subsidiaries had 33,383 employees in the following companies, of which 11,372 or 34% were covered by collective bargaining agreements.
102-42	Identifying and selecting stakeholders	Stakeholder Engagement
102-43	Approach to stakeholder engagement	Stakeholder Engagement; Disaster Preparedness and Awareness
102-44	Key topics and concerns raised	Stakeholder Engagement
Reporting Practice		
102-45	Entities included in the consolidated financial statements	Exelon 2018 10-K
102-46	Defining report content and topic boundaries	Managing Sustainability
102-47	List of material topics	Managing Sustainability
102-48	Restatements of information	No material restatements; footnotes on charts and tables throughout the report indicate any adjustments and scope of data.
102-49	Changes in reporting	No significant changes
102-50	Reporting period	About This Report
102-51	Date of most recent report	About This Report
102-52	Reporting cycle	About This Report
102-53	Contact point for questions regarding the report	Back Cover
102-54	Claims of reporting in accordance with GRI Standards	GRI Index
102-55	GRI content index	GRI Index
102-56	External assurance	About This Report
Management Approach		
103-1	Material topics and boundaries	Managing Sustainability
103-3	Evaluation of management approach	Managing Sustainability; Effective Governance

SPECIFIC DISCLOSURES		REPORT SECTION
Economic Performance		
103-2	Management approach	About Exelon; Exelon 2018 10-K
201-1	Direct economic value generated and distributed	About Exelon; Local Economic Benefits; Giving Back to Communities
201-2	Climate change financial implications	Exelon's Approach to Climate Change
Indirect Economic Impacts		
103-2	Management approach	Partnering with Our Communities
203-2	Significant indirect economic impacts	Local Economic Benefits
Procurement Practices		
103-2	Management approach	Sustainable Supply Chain
204-1	Proportion of spending on local suppliers	Sustainable Supply Chain
Anti-Competitive Behavior		
103-2	Management approach	Ethics and Compliance
206-1	Legal actions for anti-competitive behavior	Exelon was not involved in any regulatory enforcement actions alleging anti-competitive or anti-trust behavior in 2018.
Availability and Reliability		
103-2	Management approach	Building the Next-Generation Energy Company; Connected Communities
EU10	Capacity and demand	Building the Next-Generation Energy Company; Connected Communities
Demand-Side Management		
103-2	Management approach	Energy Efficiency
Research and Development		
103-2	Management approach	Building the Next-Generation Energy Company
Plant Decommissioning		
103-2	Management approach	Exelon 2018 10-K
System Efficiency		
103-2	Management approach	Maintaining Operational Excellence, Productivity and Efficiency
EU11	Generation efficiency	Maintaining Operational Excellence, Productivity and Efficiency
Energy		
103-2	Management approach	Exelon 2018 CDP Climate Change Response
302-1	Energy consumption within the organization	Exelon 2018 CDP Climate Change Response
302-4	Reduction of energy consumption	Exelon 2018 CDP Climate Change Response
302-5	Reduction in energy requirements of products and services	Maintaining Operational Excellence, Productivity and Efficiency; Energy Efficiency

SPECIFIC DISCLOSURES (continued)		REPORT SECTION
Water		
103-2	Management approach	Improving Watershed Management; Exelon 2018 CDP Water Response
303-1	Water withdrawal by source	Improving Watershed Management; Exelon 2018 CDP Water Response
303-2	Water sources significantly affected	Improving Watershed Management; Exelon 2018 CDP Water Response
303-3	Water recycled and reused	Improving Watershed Management; Exelon 2018 CDP Water Response
Biodiversity		
103-2	Management approach	Habitat and Biodiversity
304-1	Sites near areas of high biodiversity value	Habitat and Biodiversity
304-2	Impacts on biodiversity	Habitat and Biodiversity
304-3	Habitats protected or restored	Habitat and Biodiversity
Emissions		
103-2	Management approach	Rising to the Challenge of Climate Change; Full GHG Inventory and Accounting Protocol; Exelon 2018 CDP Climate Change Response
305-1	Direct (Scope 1) GHG emissions	Rising to the Challenge of Climate Change; Full GHG Inventory and Accounting Protocol; Exelon 2018 CDP Climate Change Response
305-2	Energy indirect (Scope 2) GHG emissions	Rising to the Challenge of Climate Change; Full GHG Inventory and Accounting Protocol; Exelon 2018 CDP Climate Change Response
305-3	Other indirect (Scope 3) GHG emissions	Rising to the Challenge of Climate Change; Full GHG Inventory and Accounting Protocol; Exelon 2018 CDP Climate Change Response
305-4	GHG emissions intensity	Rising to the Challenge of Climate Change; Full GHG Inventory and Accounting Protocol; Exelon 2018 CDP Climate Change Response
305-5	Reduction of GHG emissions	Rising to the Challenge of Climate Change; Full GHG Inventory and Accounting Protocol; Exelon 2018 CDP Climate Change Response
305-7	NO _x , SO _x and other air emissions	Reducing Air Emissions
Effluents and Waste		
103-2	Management approach	Waste Management
306-2	Waste by type and disposal method	Waste Management
306-3	Significant spills ¹	Managing Environmental Risks
Environmental Compliance		
103-2	Management approach	Managing Environmental Risks
307-1	Non-compliance with environmental laws and regulations	Managing Environmental Risks
Employment		
103-2	Management approach	Diversity & Inclusion
401-1	New employee hires and employee turnover	Diversity & Inclusion
401-3	Parental leave	Progressive Workforce Policies

SPECIFIC DISCLOSURES (continued)		REPORT SECTION
Occupational Health and Safety		
103-2	Management approach	Enabling a Culture of Safety and Health
403-2	Injury and absenteeism rates ²	Safety Performance
Training and Education		
103-2	Management approach	Accelerating Talent
404-2	Programs for upgrading employee skills	Accelerating Talent
Diversity and Equal Opportunity		
103-2	Management approach	Diversity & Inclusion
405-1	Diversity of governance bodies and employees	Diversity & Inclusion
Local Communities		
103-2	Management approach	Engaging with Communities; Giving Back to Communities
413-1	Local community engagement	Engaging with Communities; Giving Back to Communities
EU22	Displacement and compensation	Not applicable to Exelon.
Political contributions		
103-2	Management approach	Public Policy
415-1	Political contributions	Public Policy, Exelon website
Customer Health and Safety		
103-2	Management approach	Disaster Preparedness and Awareness
416-1	Assessment of health and safety impacts	Disaster Preparedness and Awareness
EU25	Injuries and fatalities to the public	Confidential information; Exelon does not disclose information that may relate to potential litigation.
Access		
103-2	Management approach	Low-Income Assistance
EU28	Power outage frequency	Customer Service and Reliability
EU29	Power outage duration	Customer Service and Reliability
EU30	Average plant availability factor	Maintaining Operational Excellence, Productivity and Efficiency
Omissions		

1 Exelon reports total reportable and non-reportable spills based upon applicable state and federal reporting requirements, which may also include voluntary reporting agreements with regulatory agencies. Due to the mix of reporting requirements across our operating states, Exelon does not publish spill volumes.

2 Exelon internally tracks rates by operating company, but presents data at the corporate level to provide an overall view of company performance.

SDG MAPPING

The United Nations Sustainable Development Goals (SDGs) were released in 2015 and outline an ambitious agenda for governments, businesses and organizations to stimulate action toward sustainable development. The 17 goals and 169 targets aim to set the world on a sustainable path by 2030. Many of the 17 SDGs align with Exelon's identified material issues; we have mapped these below.



Key Sustainability Issues	Relevant SDGs
BUILDING THE NEXT-GENERATION ENERGY COMPANY	
Energy system resilience	7, 9, 13
Generation efficiency	7, 12
Investments in energy infrastructure	7, 9, 13
Value of clean energy	7, 13
RISING TO THE CHALLENGE OF CLIMATE CHANGE	
Climate change risks and opportunities	11, 13
Greenhouse gas (GHG) emissions	7, 9
CREATING VALUE FOR CUSTOMERS	
Energy affordability	7
Innovative products and services	7, 9, 13
Service to customers	7
PARTNERING WITH OUR COMMUNITIES	
Community and economic development	4, 8, 10
Public health and safety	3
A SAFE, INNOVATIVE AND REWARDING WORKPLACE	
Diversity and inclusion	5, 8, 10
Employee engagement	8
Health, safety and wellness	3
Talent attraction, development and retention	4, 8
MANAGING OUR ENVIRONMENTAL IMPACTS	
Air quality	3, 11
Habitat and biodiversity	6, 14, 15
Nuclear fuel cycle	12
Water management	6
EFFECTIVE GOVERNANCE	
Corporate governance	16
Cybersecurity/physical security	13
Policy engagement	13
Sustainable supply chain	12

FULL GHG INVENTORY AND ACCOUNTING PROTOCOL

Direct and Indirect Emissions

Exelon calculates its GHG emissions inventory in conformance with The Climate Registry General Reporting Protocol, which allows for the use of U.S. EPA mandatory Reporting Rule (40 CFR Part 98) requirements where applicable and is based on the WRI GHG Protocol. The inventory is also third-party verified to these standards each year to assure its correctness. Our third-party verifier for the 2018 inventory verification was LRQA. Emissions include stationary and mobile combustion of fossil fuels, fugitive emissions of GHGs (e.g., methane, SF₆, CO and hydrofluorocarbons) and indirect emissions associated with the purchase of electricity from external sources. Exelon uses the global warming potentials (GWPs) from the Fourth IPCC Assessment Report (AR4) to align with the November 2013 regulatory revisions to the U.S. EPA GHG regulations (40 CFR Part 98). Our primary inventory reporting uses an equity-share reporting boundary, although emissions relating to our operational reporting boundary are available through The Climate Registry.

As shown in Table 1, Exelon segregates the GHG inventory between operations-driven and customer-driven sources. We present our inventory under both the location-based Scope 2 accounting and the market-based accounting as defined by the World Resources Institute (WRI) GHG Protocol. Location-based accounting is representative of how electricity is delivered over wires and is calculated using the latest regional transmission organization (RTO) average emissions rates (if available, or latest eGRID sub-regional factors if RTO factors are not available). Market-based accounting is calculated using emission factors relative to the way

electricity is purchased, substituting zero emissions where renewable or nuclear power sources were specified in procurement contracts. Per The Climate Registry protocol, emission rates are adjusted to account for the fossil generation Exelon has in each region, to avoid double counting of these emissions already captured in our Scope 1 accounting.

Efforts to reduce the customer-driven segment of our inventory are associated with our customer programs for energy efficiency, access to clean energy and increasing generation of low-carbon electricity. These impacts are referred to as customer abatement, emissions displacement and avoided emissions — each of which relate to overall GHG emissions associated with grid-level electric generation and distribution. These customer programs result in real GHG benefits, apply to the broader electricity sector level and cannot always be tied directly to immediate reduction of our own GHG inventory.

Scope 2 Accounting

Under the market-based Scope 2 accounting view, Exelon is recognizing the following market-based elements: electricity we purchase specifically from Exelon-owned generation assets, Green-e® certified RECs (renewable generation emissions attributes) and PJM-issued EFECs (nuclear generation emissions attributes). All other electric use is currently assigned a residual emissions rate for the region (the emissions rate of generation after all retired attributes are removed). An independent system operator residual rate is used where available, as it is considered the most current and accurate (currently only available in PJM, NEPOOL, ERCOT and CAISO). U.S. EPA e-GRID sub-regional average emissions rates are used if no ISO residual rate is available. Supplier-specific rates will be used once verified factors become available.

TABLE 1: EXELON CORPORATION GHG INVENTORY BREAKDOWN

Equity-share Boundary, showing both Location-Based and Market-based for Scope 2 Accounting

Total Exelon GHG Emissionsthousand metric tons CO₂e

	2016	2017	2018
Scope 1	9,723	10,200	9,526
Scope 2 (Location-based — As Delivered)	7,061	6,521	6,120
Supplemental Biomass	345	688	436
Total Location-based with Biomass	17,130	17,409	16,082
Scope 2 (after Zero-Carbon purchases)	5,246	5,037	4,817
Total Market-based with Biomass	15,314	15,926	14,779
Relevant Scope 3	113,242	105,233	110,475

Customer-Driven Emissionsthousand metric tons CO₂e

	2016	2017	2018
Scope 1: Direct Emissions			
Stationary Combustion	8,954	9,545	8,862
Upstream Gas (combustion & fugitive)	29	0	0
Total Customer-Driven Scope 1	8,983	9,545	8,862
Scope 2: Indirect Emissions			
T&D Line Losses (Location-based)	6,554	6,016	5,596
Muddy Run Pumping Power (Location-based)	165	187	179
Upstream Gas (purchased electric)	17	0	0
Total Customer-Driven Scope 2 (Location-Based, As-Delivered)	6,735	6,203	5,776
Total Customer-Driven Scope 2 (after Zero-Carbon Purchases)	5,113	4,883	4,627
Total Customer-Driven Scope 1 & 2 Emissions	14,096	14,428	13,489
Supplemental Biomass (Generation)	338	681	428
Relevant Scope 3: Customer-Driven Supply Chain Emissions¹	113,203	105,194	110,436
Longterm and Spot Market Power Purchases For Resale — Fossil ²	22,486	17,693	21,022
Longterm Power Purchases For Resale — Biomass	299	1,070	708
Electricity Distributed by our Utilities ³	78,888	75,316	76,991
Natural Gas Distributed by our Utilities (as used) ⁴	11,248	10,759	11,257
Heating and Cooling Equipment Operated for Others	283	356	458

1 There are 17 potential Scope 3 categories. Exelon currently tracks and reports those most pertinent to our business and where we can most effectively take action today. Additional information on Scope 3 accounting can be found at <http://ghgprotocol.org/scope-3-technical-calculation-guidance>.

2 Includes Owned and PPA Renewables for which attributes may have been sold or retired.

Operations-Driven Emissionsthousand metric tons CO₂e

	2016	2017	2018
Scope 1: Direct Emissions			
Stationary Combustion — Support Operations	88	79	96
Natural Gas Distribution & LNG Import (Fugitive Methane)	409	388	373
Electrical Equipment (Fugitive SF ₆)	132	81	87
Fugitive Refrigerants, Bulk CO ₂ , Coal Pile	11	8	8
Vehicle Fleet Operations	100	100	100
Total Operations-Driven Scope 1	741	656	664
Scope 2: Indirect Emissions			
Building Electric, District Heating and Cooling	139	140	131
Grid Supplied Plant Electric Use	187	178	214
Total Operations-Driven Scope 2 (Location-based, As-Delivered)	326	318	344
Total Operations-Driven Scope 2 (after Zero-Carbon Purchases)	132	154	191
Total Operations-Driven Scope 1 & 2 Emissions	873	810	855
Supplemental Biogas (Mobile)	7	7	8
Relevant Scope 3: Operations-Driven Supply Chain Emissions¹	39	38	39
Employee Business Travel ⁵	26	30	29
Waste Generated in Activities	12	8	10
Employee Commute ⁶	Not Yet Quantified		
Purchased Goods and Services ⁶	Not Yet Quantified		
Capital Goods ⁶	Not Yet Quantified		

3 Exelon Utilities are required to buy electricity from the market. It does not come directly from Exelon Generation.

4 These are emissions associated with the end use of the natural gas as delivered.

5 Scope 3 Business Travel emissions only — owned corporate aircraft is included under Scope 1 mobile emissions.

6 Not yet quantified.

TABLE 2: EXELON SIDE-BY-SIDE SCOPE 2 ACCOUNTING¹

	2016 (Incorporates PHI after time of merger)			2017 (Inventory as owned)			2018 (Inventory as owned)		
	MWh Use (in thousands)	Location-based Emissions (thousand metric tons CO ₂ e)	Market-based Emissions (thousand metric tons CO ₂ e)	MWh Use (in thousands)	Location-based Emissions (thousand metric tons CO ₂ e)	Market-based Emissions (thousand metric tons CO ₂ e)	MWh Use (in thousands)	Location-based Emissions (thousand metric tons CO ₂ e)	Market-based Emissions (thousand metric tons CO ₂ e)
T&D Line Losses	14,245	6,554	5,097	13,326	6,016	4,883	13,013	5,596	4,627
Muddy Run Pumping Power ²	361	165	-	417	187	0	422	179	0
Upstream Gas (electric compressors)	24	17	17	0	0	0	-	0	0
Building Electric, District Heating and Cooling	324	139	74	311	140	85	320	131	81
Grid-Supplied Plant Electric Use	462	187	59	443	178	70	538	214	109
Exelon Total	15,416	7,061	5,246	14,497	6,521	5,038	14,293	6,120	4,817

1 Historical years have been adjusted to remove plants since divested, incorporate ISO emission rates as available. eGRID average factors were used in lieu of residual rates not available during those years.

2 Muddy Run pumping power results in an emission benefit of avoiding nearly 1 million mtCO₂e from emissions displacement that occurs from storing power generated at night and returning it to the grid at peak hours. This emissions displacement is not currently able to be included as part of TCRs Scope 2 accounting. Electric use is less that returned to the grid at peak hours.

Scope 3

There are 17 potential Scope 3 categories. Additional information on Scope 3 accounting can be found at <http://ghgprotocol.org/scope-3-technical-calculation-guidance>. Exelon currently tracks and reports the Scope 3 emissions that are most relevant for our business. We report WRI Scope 3 supply chain categories such as business travel, long-term power purchase agreements and spot market purchases used to fulfill customer load, electricity delivered by utilities (customer use of electricity), use of natural gas delivered by utilities (customer use of natural gas) and emissions associated with heating and cooling equipment we operate for others. We plan to expand our Scope 3 reporting to include employee commute, purchased goods and services, and capital goods once we

develop a repeatable methodology for estimating and addressing these emissions categories.

Clean Attributes and Offsets

Clean power attributes and CO₂ offsets include clean emissions attributes purchased to cover our internal electricity use (such as REC and EFECs), as well as carbon reductions we support that reduce CO₂ emissions outside of our verified GHG inventory. RECs and EFECs as shown are now also accounted for as part of the new market-based accounting. Currently our offsets include Climate Reserve Tonnes (CRTs) retired to offset the carbon footprint associated with our business travel and Natural Gas STAR emissions reductions associated with PECO's natural gas system operating at a lower than average operating pressure.

Customer Abatement

Customer abatement refers to customer programs that result in reduced GHG emissions associated with customers' use of electricity. These include the BGE Smart Energy Savers Program®, ComEd and PECO Smart Ideas programs and the PHI Home Energy Savings program, all which help our customers reduce their electricity use through energy efficiency measures in conformance with state-mandated requirements. Our utilities and Constellation are procuring and retiring RECs for retail customer supply, in compliance with state-mandated renewable supply requirements.

The customer energy efficiency estimates for GHG abatement are based on the megawatt-hours reported to the Energy Smart Savers in Maryland for BGE, to the Illinois Commerce Commission by ComEd, to the Pennsylvania Public Utility Commission by PECO and to the regulatory commissions associated with the PHI utilities. When estimating emissions avoided by these efforts, Exelon is using the PJM system mix average (lbs/MWh) for the program year being reported.

Constellation's retail energy efficiency and clean energy products sales are also accounted for as customer abatement. Estimated megawatt-hours reduced as a result of Constellation efforts are those associated with estimated savings in its Efficiency Made Easy contracts and actual performance as measured in its performance-based contracting. Voluntary REC sales are based on actual annual sales volumes for national wind RECs. We use the PJM system mix average (lbs/MWh) for the program year being reported for estimating avoided emissions from these programs.

Avoided Emissions from Nuclear and Renewable

Exelon presents estimations for avoided emissions associated with our nuclear and renewable electric generation sources. Avoided emissions during past years are calculated based on the actual generation and a GHG

emissions per MWh factor of 1,194.03 pounds/MWh (the U.S. eGRID 2012 national average adjusted to remove Exelon's nuclear generation). Projected avoided emissions for current and future years are based on the EIA Outlook Report 2017, pulling emission rates from regional data that includes both generation and emissions projections. Avoided emissions are estimates designed to give a sense (order of magnitude) of the amount of additional emissions that would be created if that amount of generation had not been produced, or was no longer provided by a low- or zero-carbon source and thus replaced by the remaining grid supply. This projection is one possible outcome, as actual replacement of generation would ultimately be driven by market function, fuel prices and viable and available technologies at a given time.

Supplier-Specific Emissions Factors

In order to help our customers more accurately report their GHG emissions, Constellation and our utilities began calculating, verifying and publishing supplier-specific emissions factors (lbs/MWh) for the electricity we sell. These emissions rates are calculated based on our owned generation coupled with long-term power purchase agreements and other market purchases associated with how we fulfill our customer's load. Emission rates are state specific where states have renewable or alternative energy portfolio standards that require clean energy attributes (RECs or EFECs) be retired on behalf of customers. Because we also sell RECs, we backfilled grid residual emission attributes for clean power generation for which attributes have been otherwise sold. Similarly, if clean energy attributes for Exelon's nuclear plants have not been specifically retired from the grid mix, grid residual mix attributes are used in the Constellation supplier-specific factor calculation. This is done to ensure no double counting of clean energy attributes and further promote recognition of these attributes as part of the clean energy market.

TABLE 3: AVOIDED EMISSIONS AND OFFSETSthousand metric tons CO₂e

	2016	2017	2018
Clean Attributes and Offsets			
RECs Purchased for Corporate Buildings	(28)	(69)	(31)
EFECs Retired	(740)	(1,900)	(777)
Verified Offsets Retired	(20)	(30)	(0)
U.S. EPA Natural Gas STAR Reduction	(9)	(9)	(9)
Customer Abatement and Avoided Emissions			
Mandated Utility Customer Programs	(7,629)	(8,650)	(9,878)
Utility Renewable Portfolio Obligations	(1,202)	(1,458)	(1,625)
Competitive Retail Customer Energy Efficiency Programs	(120)	(190)	(254)
Competitive Retail Voluntary REC Sales	(972)	(1,085)	(1,928)
Avoided Emissions — Competitive Retail Distributed Generation ¹	(188)	(176)	(165)
Avoided Emissions — Exelon-owned Utility Scale Renewable Generation ²	(3,234)	(3,423)	(2,562)
Avoided Emissions — Exelon-owned Nuclear Generation ³	(86,731)	(86,698)	(87,452)
Displaced Emissions from Storage Time-of-Day Shifting ⁴	(191)	(211)	(259)
Displaced Emissions from New High-Efficiency Natural Gas Generation ⁵	N/A	(1,023)	(850)

1 All years reflect emissions associated with their regional average emissions rate.

2 All years revised to reflect emissions based on the latest eGRID regional average emission rate.

3 Emission rate based on regional average less Exelon nuclear.

4 Calculates emissions saved from storing low-emission grid power at night for use during peak demand.

5 Calculates emissions displaced generation at ERCOT regional grid rates due to these new lower-emitting plants.

TABLE 4: CONSTELLATION NEWENERGY (CNE) 2018 CO₂ EMISSIONS FACTOR SHEET

State	CNE Supplier-Specific Emissions Factor (lbs/MWh)	Residual Emissions Factor Comparable Regional Default (lbs/MWh)	Grid Average Comparable Regional Average (lbs/MWh)	Data Source
Maine	610.60			
New Hampshire	745.42			
Rhode Island	771.90	788.84	914.45	NE-ISO - CY 2017
Massachusetts	647.29			
Connecticut	741.84			
New York — Upstate	294.70	294.7	294.7	
New York City	635.80	635.80	635.80	EPA eGRID - CY2016
New York — Long Island	1,178.30	1,178.30	1,178.30	
Delaware	985.82		948.43	
Maryland	873.39	985.82	948.43	PJM-ISO - CY2017
District of Columbia	823.49		948.43	
New Jersey	847.38			
Pennsylvania	950.24	985.82	947.59	PJM-ISO - PY17/18
Ohio	957.27	985.82	954.00	PJM-ISO - CY2017 / PUCO
Illinois	921.74	985.82	947.59	PJM-ISO - PY17/18
Michigan	1,272.05	1,272.00	1,272.0	EPA eGRID - CY2016
Texas	1,048.91	1,112.31	1,017.41	ERCOT - CY2017
Oregon	651.20	651.20	651.20	EPA eGRID - CY2016
California	580.46	943.58	527.90	CA-ISO / eGRID - CY2017

- This CNE 2018 CO₂ Emissions Factor Sheet has been third-party verified through LRQA.
- While a significant amount of Constellation supply flows directly from Exelon's fleet of clean generation units (with a CO₂ emissions intensity of 100 lbs/MWh nationally), Constellation is limited to claiming clean attributes from Renewable Energy Credits (RECs) retired for State Renewable Portfolio Standards (RPS) due to the de-regulated market structure and limitations in preventing double-counting of nuclear supply in existing market-derived residual emission rates currently used by others. This differs from utilities in regulated markets where owned generation flows first to its utility supply and is not being potentially reported by other entities.
- There is currently no ISO-level emissions reporting (average or residual emission rates) for NY-ISO or MISO; thus the most recent eGRID 2016 data set (issued 2/15/2018) has been used as the highest quality proxy for the system average, residual and our supplier rate per the WRI Scope 2 Standard.
- CNE currently has no RPS obligations in Delaware, thus the CNE emissions rate is equivalent to the residual rate for the region.
- Emissions rates in NEPOOL ISO has been adjusted to reflect emissions benefits as shown in eGRID 2016. This applies to anthropogenic emissions from biomass, biogas and municipal waste plants; as well as the dual power benefits of combined heat and power plants.
- IL, PA, and NJ use the reporting year time frame of June 2017 through May 2018 for the RPS programs in these states. A comparable average emissions rate for that same time period has been listed, although as residual rates are not available for this time frame the PJM 2017 residual has been used as a proxy.

Comments

We welcome your comments and questions regarding this report. Please e-mail us at responsibility@exeloncorp.com or write to: Bruce Alexander, Senior Manager, Strategic Environmental Analysis, 2301 Market Street, Floor S23-3, Philadelphia, PA 19101.

Cautionary Statements Regarding Forward-Looking Information

This report contains certain forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995 that are subject to risks and uncertainties. The factors that could cause actual results to differ materially from the forward-looking statements made by Exelon Corporation, Exelon Generation Company, LLC, Commonwealth Edison Company, PECO Energy Company, Baltimore Gas and Electric Company, Pepco Holdings LLC (PHI), Potomac Electric Power Company, Delmarva Power & Light Company, and Atlantic City Electric Company (Registrants) include those factors discussed herein, as well as the items discussed in (1) Exelon's 2018 Annual Report on Form 10-K in (a) ITEM 1A. Risk Factors, (b) ITEM 7. Management's Discussion and Analysis of Financial Condition and Results of Operations and (c) ITEM 8. Financial Statements and Supplementary Data: Note 22 Commitments and Contingencies; (2) Exelon's First Quarter 2019 Quarterly Report on Form 10-Q in (a) Part II, Other Information, ITEM 1A. Risk Factors; (b) Part I, Financial Information, ITEM 2. Management's Discussion and Analysis of Financial Condition and Results of Operations and (c) Part I, Financial Information, ITEM 1. Financial Statements: Note 16; and (3) other factors discussed in filings with the SEC by the Registrants. Readers are cautioned not to place undue reliance on these forward-looking statements, which apply only as of the date of this report. None of the Registrants undertakes any obligation to publicly release any revision to its forward-looking statements to reflect events or circumstances after the date of this report.

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CERTIFICATE OF SERVICE

I hereby certify that a copy of Potomac Electric Power Company's Initial Comments on the Staff proposed Opinion and Order in the PowerPath DC proceeding was served this September 16, 2019 on all parties in Formal Case No. 1130 by electronic mail.

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