FC1156 - 2020 - E - 746

RECEIVED 2020 DEC 24 9:00 AM

Larry Martin
GRID2.0 Working Group
6612 Piney Branch Rd. NW
Washington, DC 20012
(202) 308 5642
lmartindc@gmail.com

December 23, 2020

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

Re: Formal Case No. 1156 in the matter of the application of Potomac Electric Power Company for authority to implement a multiyear rate plan for electric distribution service in the District of Columbia

Dear Ms. Westbrook:

The GRID2.0 Working Group respectfully submits the attached comments on behalf of GRID2.0, the DC Consumer Utility Board, DC Chapter of the Sierra Club and General Microgrids in response to the PSC Order No. 20632, note 71, rel. September 24, 2020.

Sincerely,

Larry Martin
GRID2.0 Working Group

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE DISTRICT OF COLUMBIA

IN THE MATTER OF

The application of Potomac Electric Power Company	**]**	
for authority to implement a multiyear rate plan	**]**	**Formal Case No. 1156**
for electric distribution service in the District of Columbia	**]**	

COMMENTS OF GRID2.0 WORKING GROUP, DC CONSUMER UTILITY BOARD, DC CHAPTER OF SIERRA CLUB, and GENERAL MICROGRIDS

The Grid 2.0 Working Group, DC Consumer Utility Board, DC Chapter of Sierra Club, and General MicroGrids ("GRID2.0" or "Parties") respectfully submit these final comments to the FC1156 docket in response to PSC Order No. 20632, note 71, rel. September 24, 2020.

SUMMARY

Because the 1156 process has been so fraught, the Commission is now presented with the dilemma of accepting a bad multiyear rate plan (MRP) or rejecting the plan and leading the development of a MRP more suited to the District. We acknowledge the several potential advantages of a multiyear plan, but the reduction in frequent rate-cases is not reason enough to accept the multiple flaws in the Pepco proposal which will then launch a poorly designed MRP in a malformed trajectory. The Commission should accept that the best intention to improve the rate-setting process broke-up upon the rocky shore of a contested rate-case. The Parties recommend that the Commission reject Pepco's MRP, and carry the 1156 docket and transcripts and notes from the technical meetings and to FC1130 to inform further discussion and design of a MRP fully integrated with performance based regulation (PBR) and a more comprehensive grid modernization plan.

INTRODUCTION

GRID2.0 (Parties) has previously commented to the PSC that the MRP and associated performance incentive mechanisms (PIMs) proposed by Pepco in FC 1156 to be poorly designed, lacking the support of ratepayers and clean energy advocates, and substantially deficient. The Parties have advocated for a methodical and better-informed stakeholder process to design and implement a robust performance based regulatory strategy for the electric utility that would shape and conform the utility's business plan to the District's clean energy and CO2 reduction goals. The steps taken by Pepco in FC1156 fall far short of this and are wholly insufficient. The Commission should reject Pepco's MYP and PIMs entirely. They do not serve the interest of ratepayers, nor do they serve to advance the District's goals for clean and efficient energy distribution.

These comments summarize and reiterate the Parties' argument for adoption of PBR while highlighting our opposition to "a multiyear plan that incorrectly or inadequately implements performance-based rate regulation (PBR)… It would be better to phase PBR into a MRP over time than to agree on an

incomplete or inadequately conceived PBR and lock the District and Pepco into it for 3 years or more."[1]

These comments also encourage the Commission to use this leadership opportunity to advance a broad spectrum of tracking metrics, some of which will inform the basis for performance incentive mechanisms in a future MRP more appropriate to meet the Commission's broad charter. We urge that such PIMs include an array of well-founded metrics for reducing peak demand, for streamlining interconnection of distributed energy resources, and for enabling transportation electrification in the District.

Finally, these comments also reiterate the parties' previous argument that a MRP, PIMs and PBR generally should be considered systematically in the context of a framework for grid modernization, which although is the intent of FC1130, has not yet been realized, as discussed further below. Suggestions are presented for next steps by the Commission to achieve this necessary milestone.

THE ARGUMENT AGAINST PEPCO'S MRP PROPOSAL BUT IN FAVOR OF PBR

On most points, GRID2.0 agrees with the Office of Peoples Council (OPC), the District's Department of Energy and the Environment (DOEE), and other intervening parties critical of the initial filing and subsequent amendments made by Pepco concerning a multiyear rate plan (MRP). Major technical points of contention include the fundamental design of the Pepco proposal (the MRP fashioned on an old-fashioned formula rate-plan) and the few rudimentary performance incentives in the proposal (which largely ignore the District's aggressive energy goals and the Commission's PowerPath DC). GRID2.0 agrees the intervening parties in FC1156 have rightly objected to the muddled and half-baked roll-out of Pepco's MRP proposal and will not repeat the many objections submitted by those critics.

The District's clean energy and climate change mandates, as well as the DOEE's Clean Energy Plan DC are "game-changing" in nature. The Commission will need to develop and deploy alternative forms of regulation (MRP, PIMs, etc.) cost-effectively and in a manner that these tools can work effectively in concert with one another, complementing and supplementing one another to achieve the desired, planned policy outcomes. These tools can provide a powerful means for achieving the policy outcomes by helping to transition to a modern electric system, one that can integrate and harness the net benefits of renewable and distributed energy resources (DER) to meet cost-effectively the DC mandates and policy commitments.

Other jurisdictions are designing and implementing efficiency incentives (MRPs) and "outcome-based" PBR measures not only to improve utility performance, but also, to change materially the portfolio of services that a utility can offer its customers; to incentivize pro-active utility network management; to make available a range of revenue opportunities that a utility can pursue; to embrace and compensate customer and third party contributions to meeting power system, customer and societal needs; and to shape a modern interactive, flexible and innovative grid. PBR can help shift the regulatory focus from predominantly "capital intensive asset development" to "value creation" and from the delivery of a homogeneous commodity to the delivery of a wide range of efficient and reliable electricity services.

[1] GRID2.0 et al. comments to PSC in FC1156, Dec.13, 2019, Docket item#74

MODERN PIM DEVELOPMENT

GRID2.0's goal is modernization of the electrical distribution grid and more generally, the energy sector in the District. For this reason, we will focus on what the Commission can do to introduce strategic performance measurements for alignment of utility performance with DOEE clean energy and PSC PowerPath goals. At this time, the parties are not commenting on the financial dimension of PIMs implementation as we believe that is appropriately defined once performance metrics are identified and agreed upon.

The parties observe that many states are far ahead of the District in developing such performance incentive mechanisms (PIMs)[2]. We can adopt and adapt much of that experience. Despite the opportunity to learn from peers, we emphasize that the actual implementation of a good collective set of performance metrics requires several years of baseline data and evaluation of negative consequences or missing components before imposing any financial valuation. While known performance measures with existing baseline data (e.g. customer satisfaction, SAIDI/SAIFI) can be shifted into an *actual* PBR framework, there is no justification for merely tacking on PIMs to a formulaic rate-plan which will do no more than simply reward the utility for performance that is already expected.

PIMs, properly understood within a PBR rate design, have real financial consequences for the utility and typically are just one part of a cluster of related metrics. Such clusters bolster the core PIM metrics, help to prevent unintended negative consequences, and establish potential baselines for future financial PIMs. Setting up all this takes considerable time and effort.

GRID2.0 offers that successful development of performance metrics has generally followed this simple PIM development framework[3]:

1. Consensus goals are identified.
2. Targeted outcomes that advance these goals are accepted.
3. Well-defined metrics that measure progress toward the outcomes are negotiated.
4. After sufficient baseline data is documented and evaluated, some of these metrics are adopted as key PIMs, with financial rewards and/or penalties for the utility, and some are adopted to coordinate and reinforce those PIMs or other targeted societal goals.

Note that PIM Stage 4 may require years to complete, so moving swiftly through the first three stages is recommended. Metrics can be adjusted or added in Stage 4, but it is usually wise to start with a

[2] Rocky Mountain Institute (2020) Using Performance Incentive Mechanisms to Accelerate Progress on Energy Policy Goals. https://rmi.org/insight/pims-for-progress/#:~:text=PIMs%20can%20motivate%20utilities%20with,gas%20(GHG)%20emissions%20reductions

[3] NARUC Center for Partnerships & Innovation Webinar Series Lessons Learned in Applying Performance Incentive Mechanisms 4/11/2019; Staff Proposal For Updated Performance-Based Regulations - Proceeding to Investigate Performance-Based Regulation (2018-0088) Hawaii Public Utilities Commission, February 7, 2019; NREL Next-Generation Performance-Based Regulation, Emphasizing Utility Performance to Unleash Power Sector Innovation, Sept. 2017; US DOE State Performance-Based Regulation Using Multiyear Rate Plans for U.S. Electric Utilities, July, 2017; Mandel, Benjamin, NYU Law, Designing performance incentives to advance New York State's policy agenda, July 2015

large set of tracking metrics to give a sufficient data-set for modeling of the effectiveness of PIM clusters.

A Modest Set of Proposals

With GRID2.0's focus on modernization of the electrical energy sector in the District, we assert that the six most urgent goals we face in this area are:

Goal 1. Reduce peak demand in the District,
Goal 2. Streamline the interconnection of distributed energy resources in the District,
Goal 3. Electrify transportation in the District,
Goal 4. Reduce GHG Emissions,
Goal 5. Maximize Energy Efficiency, and
Goal 6. Increase Customer Value Creation.

These goals overlap and are mutually reinforcing; and many of the proposed PIMs will serve multiple goals. These goals are explicitly targeted in the Clean Energy DC Omnibus Act of 2018, and reflected in and expanded upon in the Clean Energy Plan DC, with the Commission largely responsible for Goal 2 and a very large role for the Commission to achieve Goals 1 and 3. The Commission can also materially influence the achievement of Goals 4, 5 and 6, by incenting cost-effective procurement, programs and pricing of Utilities that will further the DC's clean energy and climate commitments, indifferent to the source of clean, efficient and reliable products and services; and also by supporting an expanding role for customers and third parties in providing grid services, participating in the marketplace, and undertaking efficient and clean energy usage and investment decision-making, all within an evolving integrated and interactive modernized grid. The Commission can use these clear goals to establish desirable targeted outcomes (PIM Stage 2) and then targeted metrics (PIM Stage 3) for setting the stage for the final stage of PIM development.

The Parties propose the following concrete examples, largely modeled on tracking metrics adopted in other states. These metrics could be further broken down by substation, neighborhood, or zip-code, if the Commission wishes to ensure equitable progress across the District's eight wards. We consider these recommendations consistent with or complementary to those proposed by DDOE.

Goal 1: Peak Demand Reduction
- Outcome: Maximize DER Asset Effectiveness
  - PDR Metric 1. Demand Response: Annual max MW reduction as % of load, by class
  - PDR Metric 2. Demand Response: MW enrolled as % load, by class
  - PDR Metric 3. PV: MWh generated as % of sales, by class
  - PDR Metric 4. PV: MW installed as % load, by class
  - PDR Metric 5. Storage: MWh installed energy capacity as % sales, by class
  - PDR Metric 6. Storage: MW installed capacity as % load, by class
  - PDR Metric 7. Non-Wires Solutions: MW as % of (peak) load
  - PDR Metric 8. Non-Wires Solutions: % customers participating
  - PDR Metric 9. Non-Wires Solutions: savings per year
  - PDR Metric 10. % grid supporting services provided by DER vs. traditional
- Outcome: Maximize customer engagement and customer value creation

PDR Metric 11. Demand Response (DR): % participation, by class
PDR Metric 12. Time of Use (TOU): % participation, by class
PDR Metric 13. TOU: % of all customers participating
PDR Metric 14. Customer access to hourly or sub-hourly data
PDR Metric 15. Third-party service access to customer data
PDR Metric 16. PV: % customer adoption, by class
PDR Metric 17. Community solar: % participation, by class
PDR Metric 18. Storage: % participation, by class

Goal 2: DER Interconnection Streamlining

Outcome: Efficient response time

DER Metric 1. Interconnection time by DER category
DER Metric 2. Interconnection time by Independent Power Producer (IPP)

Outcome: Proportionate cost

DER Metric 3. Interconnection cost by DER category
DER Metric 4. Interconnection cost by IPP

Outcome: Responsivity to DER marketplace

DER Metric 5. Results of IPP satisfaction surveys

Note 1. Independent Power Producers are suppliers of local power, installation of DER equipment, or provision of independent energy services within the District. IPP supply can be any combination of hardware and software that needs integration with the District electric or gas grids and can be single-meter or aggregated over multiple meters.

Note 2. IPP satisfaction survey questions are created and controlled by the Commission.

Goal 3: Transportation Electrification

Outcome: Nurture adoption

TE Metric 1. Net number of charging stations, by Level
TE Metric 2. Cumulative MWh supplied to these charging stations, by Level

Outcome: Minimize impact on grid

TE Metric 3. % of EVs in demand response programs, by Level
TE Metric 4. % of EVs on Time-of-Use rates, by Level

Goal 4: Reduce GHG Emissions

Outcome: Reduce GHG Emissions consistent with DC Mandates and DOEE's Clean Energy Plan DC

GHG Metric: MM tons of CO2 equivalent (MMT CO2e; Annual CO2 Tons)
GHG Metric: Carbon Intensity (C02e/MWh; C02e/MW)
GHG Metric: GHG equivalent benchmark for Energy Efficiency

Goal 5: Maximize Energy Efficiency

Outcome: Maximize cost-effectively customer energy efficiency

EE Metric: Use DCSEU Metrics for Measuring, Tracking, Verifying Energy Efficiencies and Costs Savings

Goal 6: Increase Customer Value Creation

Outcome: Maximize DR program enrollment; MW reduction as % of load (see, Metrics above);
Outcome: TOU enrollment by class; % of all customers; MW reduction as % of load (see, Metrics above);
Outcome: Customer access to customer energy usage data (hourly, sub-hourly, see Metric above);
Outcome: Third Party access to customer data (see, Metric above);
Outcome: Availability of information relating to feeder performance data (load profiles, voltage sag, power quality) and map updates; sufficiently granular feeder and substation performance data for DER development;
CVR Metric: Nature, Quality and Extent of Information made available;
Outcome: Granular Pricing and Event Market Signals to reflect locational value of DER, Microgrids;
CVR Metric: Sufficiently granular economic market signals; moving towards more dynamic pricing;
Outcome: Value/Compensation of DER/Microgrid Service Contracts
CVR Metric: Number and Value of DER/Microgrid Service Agreements entered into;
CVR Metric: % of Grid spending on services provided by DER vs. traditional

These proposed metrics build upon information provided to the 1156 Working Group meetings on Jan. 28 and June 8, 2020 (see attachment) and represent the Parties' initial recommendations because there are many additional metrics required to quantify the effect of progress toward the desired goals and targeted outcomes that stakeholders have not yet collectively explored. The above metrics focus only on achieving the six goals (PDR, DER, TE, GHG, EE, CVC). The Commission must also define a series of tracking metrics to quantify any negative or positive consequences on other Commission goals such as reliability, resilience, affordability, and grid optimization. Only then can there be a sufficient baseline to develop a stable cluster of PIMs and secondary tracking metrics, optimized for the District.

A FRAMEWORK FOR GRID MODERNIZATION

The Parties assert that the development and implementation of PIMs and a MRP are components of a more comprehensive PBR scheme and that must be further nested in a framework for grid modernization so that the District's clean energy goals, legislation, executive initiatives, regulatory framework (i.e. PBR) and the utility's financial incentives are reinforcing. A framework provides that blueprint and the Parties advocated in our Sept. 16, 2019 filing of comments in response to DC PSC order #19984 (FC1130-2019-M-487) that "the Commission develop a new Grid Modernization Framework to integrate renewable energy and distributed resources within a smart grid based on the MEDSIS principles. This Framework would chart a pathway for sustainable grid modernization that harmonizes with the Executive's planning and make clear the grid modernization vision and stages that the Commission will pursue under its jurisdiction in support of the District's clean energy mandates. The Parties strongly agree with DOEE's comments that the "level of grid modernization" (p.5 of DOEE comments)[4] necessary to achieve the District's clean energy goals requires that the Commission

[4] FC1130 Docket Item#493 https://edocket.dcpsc.org/apis/api/filing/download?attachId=87463&guidFileName=70c5e550-78d2-4d3f-a3cd-3ef5332bfc21.pdf

undertake a stakeholder proceeding to develop an "integrated distribution planning framework (IDP)" that will guide and assure that the utility's planned investment decisions are aligned with the District's priorities." As DOEE stated, such an "IDP framework will tie together grid planning, DER integration, NWAs, smart grid investments and forecasting of both load and DER, in a manner that can both reduce the costs to consumers and improve efficiency and reliability, all while driving towards achieving the District's climate goals as embodied under the Clean Energy DC Omnibus Act (2018) and the Clean Energy DC Plan" (p.3 of DOEE comments). The Parties also strongly endorse the pathway that DOEE has proposed in its comments for the development of an "integrated grid" (see, p. 12 – 21 of DOEE's comments). As DOEE explained, "a strategic, phased plan" for evolving an Integrated Grid could maximize the cost-effective use of Distributed Energy Resources (DER) and Microgrids for "the benefit of the Grid and District of Columbia residents and businesses." (p. 12-13 of DOEE's comments). Furthermore, the Parties also agree with Pepco that a plan is needed for achieving a "holistic, integrated, interactive and clean future for the District" (p. 4-5 of Pepco's comments)[5]. This Plan should, as Pepco states, chart a pathway for "a sustainable, well-planned, secure and reliable, affordable, non-discriminatory and more interactive electric system" (p. 4 of Pepco's comments). The Parties do not consider the PowerPath DC NWA planning process to embody these objectives for IDP.

DCPSC'S ROLE IN ADVANCING PERFORMANCE-BASED REGULATION

Designing and implementing alternative forms of regulation, whether energy efficiency mechanisms such as MRPs or PIMs will change the role of the Commission and shape new roles for utilities and market players (active consumers, third parties, DER aggregators, etc.). As demonstrated by other States and jurisdictions that are developing and deploying alternative ratemaking tools, the Commission will need to consider undertaking "consensus-building" venues other than a rate case, such as rulemaking proceedings, technical conferences, working groups, etc. to address the development, design and implementation of these tools. It will be necessary for the Commission to use regulatory venues that attract wide stakeholder participation, provide transparency and objectivity and that are conducive to consensus building. The Commission will need to be pro-active in conducting and overseeing these proceedings to provide a clear set of policy goals; balance stakeholder interests; and support opening market access to customers, DER providers and other third party ESCOs. Consistent with the deregulated generation market, the Commission should strive to increase the role of competition to promote efficient energy usage and investment decision-making. Overall, the Commission will need to assure that outcomes are consistent with and in furtherance of the DC clean energy and climate mandates. The DCPSC's clean energy, energy efficiency, reliability, resiliency, affordability and safety commitments, and the utilities' programs, procurements and pricing must conform to the District's mandates.

The Parties recommend consideration of evolving alternative ratemaking tools over the following types of stages in order to address the development overtime of new utility, customer and third party ESCO business practices:

(1) Minimize and Eliminate Legacy Regulatory Barriers to Achievement of the DC mandates and Clean Energy Plan DC, while affording reliability, resiliency, safety, affordability, and equity. Alternative ratemaking tools should address the inadequacies of the current utility revenue model and

[5] FC1130 Docket Item#488 https://edocket.dcpsc.org/apis/api/filing/download?attachId=87455&guidFileName=cd12c43b-cbfc-478a-ae74-1bb0adc1c235.pdf

rate design with respect to achieving the Commission's policy objectives and remove/minimize barriers that this model presents. PBR and other forms of alternative regulation should be designed and implemented to "re-align" utility financial interests with the new goals and with customer value creation, with an especial focus upon generating information relevant to advancing to the next stage;

(2) Creating a Level Playing Field for New Renewable Energy and Distributed Resources. The Commission should evolve the design and deployment of the tools to go beyond metrics, targets and information tracking and reporting to *setting reasonable and measured financial incentives* (rewards and penalties). This stage should take into account and apply guidance based on the development by the Commission of a "Benefit-Cost Analytical Framework" for consistent accounting of the costs and benefits associated with DER impacts on the Grid; as well as guidance based on the development of an "Integrated Distribution Resources Planning Framework;" and

(3) Shaping a New Utility Regulatory Model. The Commission should re-evaluate the ratemaking tools to assure the "re-alignment" of utility performance and financial interests in a manner that the utility will seek cost-effective solutions to meeting the DC mandates, Clean Energy DC Plan milestones and DCPSC commitments, indifferent to the source of such solutions; and to fairly compare and evaluate alternative distributed and renewable solutions with conventional investments. The Commission should strive to orient the application and deployment of such tools to support greater reliance upon market forces over administrative proceedings.

Attachment

GRID2.0 WORKING GROUP
Response to questions
January 28, 2020 FC1156 Working Group Meeting
Topic: Identification of the District's Energy Goals

1. Energy Policy Goals
    a. In your opinion, what are the District's most important energy policy goals?
    b. To the extent possible, identify the legal or policy source of each identified goal, *e.g., CleanEnergy DC Omnibus Amendment Act of 2018*.

Recognizing the focus and intent of this inquiry is performance incentive mechanisms relevant to the Pepco rate case, nevertheless, GRID2.0 reiterates and emphasizes the importance of the DC PSC's declaration of a vision for grid modernization and the path to achieving it. Not withstanding MEDSIS, the regulatory vision for DC's grid modernization remains ambiguous. In FC 1103, a prior Pepco rate case, GRID2.0 with other parties asserted that Pepco's failure to advance a plan for addressing the critical need for grid modernization with distributed energy resources to promote energy efficiency, greenhouse gas reduction and resiliency was imprudent and their request should not be approved.[6] We argued that no other action was before the PSC that could examine these needs and address them, and thus a rate case was the necessary venue – which in part gave rise to the MEDSIS (FC1130). In the wake of MEDSIS there is still no clearly articulated vision for grid modernization from either Pepco or the PSC. For this reason, the GRID2.0 Working Group prioritizes the following goal as the principle goal necessary for the performance-based regulation of Pepco, and the identification of suitable performance incentive mechanisms (PIMs).

GRID2.0 also notes that an explicit goal of the Commission in this effort is to transition the District to performance-based regulation under a multiyear rate-plan. This goal imposes additional requirements on viable outcomes and metrics to be adopted. These are:

1. Some of traditional utility measures may be converted to PIMs, though GRID2.0 points out that any that are legislatively- required are only allowed to be penalty-only if short of compliance.

2. New grid modernization PIMs must be designed to advance the requirements of the Omnibus Act, MEDSIS, and other District commitments.

Define a vision of the future grid and characterize the stages of grid modernization (Clean Energy DC pg 168)

It is important to note that Energy Omnibus Act of 2018 establishes the goals, objectives and strategies of the Clean Energy DC Plan as valid public purposes. [DC Act 22-904 Title 2, Sec.202]

[6] Sierra Club & GRID2.0 Working Group comments, item #34 to the FC1103 docket, 5/2/13

"Sec. 101. Declaration of public purpose.

"The Council hereby declares that a public purpose will be served through investment by the District, as authorized in this act, in sustainable projects and programs that contribute to the health, education, safety, and welfare of District residents by reducing the causes of, and mitigating the adverse effects of, climate change, reducing air, water, and other pollution, protecting and conserving natural resources, reducing energy costs in the District, promoting energy efficiency, and otherwise achieving the objectives established in the Comprehensive Energy Plan, developed by the Department of Energy and Environment pursuant to section 5 of the District of Columbia Office of Energy Act of 1980, effective March 4, 1981 (D.C. Law 3-132; D.C. Official Code § 8-171.04). Such investment is in the public interest and for the benefit of the public, and the expenditure of monies pursuant to this act serves valid public purposes.".

Reviewing such legislative and Commission sources, GRID2.0 finds the following overarching goals as foundational for regulatory metrics that permit the District to achieve its new standards.

1. Minimize GHG emissions [DC Act 22-904, Title I, Sec.101, Title V, Sec. 504]
2. Maximize energy efficiency [DC Act 22-904, Titles II, III, and IV, Title I, Sec.101 (2)(c)]
3. Encourage electrification of transportation [DC Act 22-904, Title V, Sec. 502 & 503]
4. Increase utility system efficiency and asset utilization (peak demand reduction) (MEDSIS FC1130)
5. Encourage customer value creation (MEDSIS FC1130)
6. Streamline and Increase DER Interconnection (MEDSIS FC1130)

The foundational goals identified above are reinforced and expanded upon by numerous statements of statute and policy (especially reinforced during the MEDSIS proceeding, MEDSIS Vision Statement and Principles and in the Goals, Outcomes and Metrics developed in the Rate Design Working Group) that can be considered to exist on a continuum from goal to outcome to metric. Most will promote two or more of the above overarching goals, if one allows that DERs are desirable because they can promote both efficiency and adoption of clean energy. Each of the following bullets are associated with one or more of the above overarching goals.

[From MEDSIS Vision & Principles (FC 1130 PSC Order# 19275)]

Sustainable: *Goals #1 & 2*

- Protect the District's natural resources and assist the District Government in reaching its Clean Energy DC goals by fostering the use of more efficient energy and renewable energy sources, DER technologies, and controllable demand alternatives to reduce greenhouse has (GHG) emissions and overall energy consumption.

Well-Planned: *Goals #1, 2 & 4*

- Utilities must develop detailed, data driven distribution and integrated resource plans that among other things make infrastructure planning cost-effective, enable the optimal combination of distributed energy resources (DER) with traditional capital investment by exploring non-wires alternatives; comply with the legislatively mandated deployment of DER in the District; permit rational participation of consumers and distribution service providers; and plan for, track and monitor DER penetration on the grid.

Safe & Reliable: Goals #4 & 5

- Continually review interconnection rules to facilitate the interconnection of DERs as well as all generation and storage options in a manner that does not compromise overall system safety and reliability. *Goals #1, 2, 4 & 5*
- Where technically and economically feasible, encouraging the deployment of technologies that will not compromise system safety, will increase system reliability and efficiency, and can accommodate two-way power flow like smart inverters, distributed automation, and sensors to better handle power fluctuations and outages. *Goals #1, 2 & 4*
- Enhance data collection and real-time data sharing between utilities, third party suppliers, customers and stakeholders, like PJM, to increase system visibility, communication, and DER dispatchability, in a manner that increases the safety, reliability, resiliency and efficiency of the energy delivery system and facilitates new products and service options for customers. *Goals #1, 2, 4 & 5*

Affordable:

- [B]efore making investments in large capital projects, the utility must thoroughly examine the feasibility of non-wires alternatives as solutions to meet the stated investment objective at the lowest overall life-cycle cost. *Goals #1, 2, 4 & 5*
- [B]enefits and costs of any proposals to use distribution rates to compensate new DERs must be weighed carefully and considered in connection with the benefits and efficiencies such DER may bring to the distribution system. *Goals #1, 2, 3, 4 & 5*
- Maximize the use of AMI data in Distribution and Integrated Resource Planning, load forecasting, distribution system operations and rate design as well as require activation of the home area network capabilities of the smart meters. *Goals #1, 2, 3, 4 & 5*

Interactive:

- A modern energy delivery system must become more interactive and flexible to accommodate… [new services, data flow in multiple directions, different types and scale of resources on the distribution system]. *Goals #1, 2, 3, 4 & 5*

Non-discriminatory:

- Afford DER providers with a low-cost and streamlined interconnection process to facilitate customer generation. *Goals #1, 2 & 5*
- Unlock customer and system data held by the incumbent utility in a controlled manner so that customers, DER providers and third party suppliers can provide targeted offerings to meet power system and societal needs and better serve the needs of customers. *Goals #1, 2, 3, 4 & 5*

CLEAN ENERGY DC - THE DISTRICT OF COLUMBIA CLIMATE AND ENERGY ACTION PLAN Aug. 2018

- Reduce greenhouse gas (GHG) emissions at least 50% below 2006 levels by 2032 while increasing renewable energy and reducing energy consumption, as directed by the landmark Sustainable DC plan *Goals #1 & 2*
- Achieve carbon neutrality by 2050 (pg iii – [12/4/17 DC Mayor Press Release]) *Goals #1 & 2*

SUSTAINABLE DC 2.0 PLAN (pps 74-79)

- GOAL 1 Improve the efficiency of District-wide energy use to reduce overall consumption.(sust plan) TARGET#1 By 2032, cut per capita energy use District-wide by 50%. *Goal #2*
- GOAL 2 Increase the proportion of energy sourced from both clean and renewable supplies. TARGET#2 By 2032, increase renewable energy to make up 50% of the District's energy supply *Goal #1*

- GOAL 3 Modernize energy infrastructure and operations for improved efficiency and resilience. - Improve the reliability, resilience and efficiency of the transmission and distribution of electricity, using smart grid technologies and distributed energy resources. *Goals #1, 2 & 4*
- Remove all barriers to modernizing electricity infrastructure and operations to enable the deployment of neighborhood scale energy systems and distributed energy resources. *Goals #1, 2, 3, 4 & 5*
- By 2020, complete and begin implementing a neighborhood-scale energy system development plan to target high load growth areas and at-risk communities, with a view to reduce peak demand, improve resilience, increase power system efficiency, while producing cost savings and choices for consumers. *[in service to the "principle goal." Goals 1, 2, 3, 4 & 5*

SUSTAINABLE DC 2.0 PLAN (pps 128-129)

- *GOAL 4 Reduce greenhouse gas emissions and air pollution from the transportation sector. TARGET#4 By 2032, cut greenhouse gas emissions from transportation by 60%. Goal #3*
- *Encourage network of electric vehicle charging stations, maximizing GHG reductions, public benefit, investment from the private sector, and equity. Goal #3*

2. Metrics

The Commission should leverage the advanced work done by Hawaii and in New York. While these jurisdictions have different market characteristics than the District, their efforts and processes represent best practices in the U.S. and can be applied in a manner to meet the particular circumstances in DC.

Rather than re-invent the wheel, GRID2.0 believes that the best model for grid modernization metrics in the District has been done in Hawaii. Appendix A has a summary of the Hawaiian approach, which is simpler than NY and lays out each stage from translating goals to outcomes and then crafting metrics. The HI metrics are a reasonable starting point for our discussion and demonstrates the need to pursue regulatory venues beyond the utility rate case to achieve wider stakeholder participation and vetting and to balance all of the interests affected by the new policy goals and grid modernization efforts.

GRID2.0 notes that the Hawaii metrics explicitly include a number of metrics for which the utility has partial or little direct control over the outcomes, but are nonetheless consistent with the PSC's policy mandates and priority goals. There is cost-recovery for generating these measures, but there is limited or no utility financial incentive attached to these scorecard and reporting metrics. Such metrics are designed to allow the agencies responsible for public programs to have access to the data required to do their work in the most efficient and cost-effective manner, reducing information asymmetries. In the District, such metrics would naturally come from the OPC and from DC government agencies such as DOEE, DDOT and DC Office of Planning.
In that spirit, GRID2.0 strongly urges the Commission to open its consideration of metrics beyond the PIM guidelines required by Commission Order No. 20273, Paragraph 103. Those PIM guidelines, for the second (25 February) meeting, exclude discussion of the type of scorecard and reporting metrics that are natural for an enlightened approach to the District's energy future and to effectively address information asymmetries by using a wide range of tools for data gathering and to build a sound database (that can later help in designing PIMs with financial incentives). Appendix B outlines our position on modern metric guidelines.

Finally, a modern approach to utility regulation in the 21st century also requires adaption of utility business models to this different environment. This is nicely summarized by the Hawaii Commission as additional goals to be embraced. These are not metrics but are necessary changes in the modern regulation of any utility for the greatest public good. GRID2.0 believes they are key to success of performance-based regulation in the District.

1. Capex/Opex Equalization: Offer one or more shared savings mechanisms and explore development of other approaches to equalize treatment of capex/opex, such as a return on service-based solutions and the capitalization of prepaid contracts.

2. Innovation: Develop one or more of the following mechanisms to support utility and third-party innovation: expedited innovative pilot process; a web-based innovation platform; and an innovation fund.

3. Platform Service Revenues: Examine how platform service revenues can be incorporated into the regulatory framework, leveraging the experience of other jurisdictions where appropriate.

Appendix A - Hawaiian Grid Modernization

Regulatory Goal	Regulatory Outcome
Enhance Customer Experience	Traditional: Affordability, Reliability
	Emergent: Interconnection Experience, Customer Engagement
Improve Utility Performance	Traditional: Cost Control
	Emergent: DER Asset Effectiveness, Grid Investment Efficiency
Advance Societal Outcomes	Traditional: Capital Formation, Customer Equity
	Emergent: GHG Reduction, Electrification of Transportation, Resilience

These Hawaii Regulatory Goals and Outcomes result in three lists of relevant metrics to be tracked and publicly reported by the utility.

The first list of metrics has immediate performance incentives for the utility in the areas of reliability, customer engagement, interconnections, and DER incorporation.

The second list of metrics has scorecards for the utility which may be converted to performance incentives in the future. The second list of metrics notably also has scorecards that measure the advancement of societal energy goals that are the current focus of government and non-utility energy programs. The scorecards are in the areas of customer engagement, interconnections, cost control and GHG reduction and would allow for important data collection and analysis that could benefit further PIM design in the future.

The third list has reporting metrics that allow the Commission and the Public to track affordability, equity, resilience, transportation electrification, and utility financial stability.

The Hawaiian metrics are outlined on the following pages. The goals are annotated with the following codes for these DC corresponding goals:

GHG – Greenhouse gas reduction
EE – Energy efficiency increase
EV – Electrification of vehicle transportation
SEAU – Increase of utility system efficiency and asset utilization
CVC – Customer value creation

Hawaiian Metrics Sorted By Goals and PIM/Scorecard/Reporting Status

Traditional Goal	PIM	Scorecard	Reporting
Reliability	System Average Interruption Duration Index (SAIDI) System Average Interruption Frequency Index (SAIFI) Customer Average Interruption Duration Index (CAIDI) Momentary Average Interruption Frequency Index (MAIFI) Call Center response time		
Cost Control		Total energy costs per customer and per MWh Total capacity costs per customer and per MW Generation assets per customer and per MW Transmission assets per customer, per mile and per MWh Distribution assets per customer, per mile, and per MWh Operations & Maintenance cost per customer and per MWh Customer service cost per customer and per MWh Administrative and General expense per customer and per MWh	
Affordability			Average annual bill, by class Average annual bill as % of income, by class Number of disconnections, by month and class
Customer Equity income by LMI			Average annual bill as % of Community solar: number and % of LMI Subscribers % LMI customers participating in DR, PV, Storage, or TOU
Capital Formation common equity			Ratemaking return on Utility credit ratings Utility earnings per share Building permit value of DER deployed by island (Ward?) Value of Independent Power Producer contracts by island (Ward?)

Value of Demand Response service contracts by island (Ward?)

Emergent Goal	PIM	Scorecard	Reporting
Interconnection (IPP) sources (GHG, SEAU, CVC)	Interconnection time by DER and Independent Power Producer Results of developer satisfaction survey	Interconnection cost by DER and IPP sources Public-facing DER interconnection dashboard	
Customer Engagement (EE, CVC)	Demand Response (DR): % participation, by class Time of Use (TOU): % participation, by class TOU: % of all customers participating Customer access to hourly or sub-hourly data Third-party service access to customer data	PV: % customer adoption, by class Community solar: % participation, by class Storage: % participation, by class Variety, quality, accessibility of customer data available	
DER Asset Effectiveness (EE, GHG, SEAU, CVC)	Demand Response: Annual max MW reduction as % of load, by class Demand Response: MW enrolled as % load, by class PV: MWh generated as % of sales, by class PV: MW installed as % load, by class Storage: MWh installed energy capacity as % sales, by class Storage: MW installed capacity as % load, by class Non-Wires Solutions: MW as % of (peak) load Non-Wires Solutions: % customers participating Non-Wires Solutions: savings per year % grid supporting services provided by DER vs. traditional		
GHG Reduction (GHG)		Carbon Intensity: CO2e/MWh; CO2e/MW; CO2e/customer Carbon intensity: sector-wide CO2e System-wide fossil fuel generation (MWh per fuel type)	
Electrification of Transportation (EV)		Number of EVs added per year % of EVs in DR programs % of EVs on Time of Use rates Number of charging stations, by type	
Resilience response		SAIDI, SAIFI, CAIDI time on black sky days	

MW of fast ramping resources
Microgrids: MW as % load, by class
Microgrids: % customers served, by class
Microgrids: % of critical customers served
Ratemaking return on common equity
Utility credit ratings
Utility earnings per share
Building permit value of DER deployed by island (Ward?)
Value of IPP contracts by island (Ward?)
Value of DR service contracts by island (Ward?)

Appendix B – Guideline Critique

GRID2.0 finds the 11 Commission guidelines for PIMs set forth in Paragraph 103 of Order No. 20273 too narrowly focused on measures that are currently available, and not on metrics that better advance District energy goals in the near- and far-term, consistent with the District's legislative mandate. GRID2.0 strongly advocates an alternative viewpoint, namely "If DC owned its energy distribution systems, how would it operate them to achieve DC's energy goals at lowest cost and greatest benefit for all residents and ratepayers?"

Performance Metric Design Principles

Thus, if DC owned the grid, we would start with these internal principles for performance metrics:

1. Design performance metrics for District outcomes, not programs.

2. Design performance metrics to allow the optimal balance between operating expenses and capital expenses so that the most efficient and cost-effective combination is achieved.

3. Design performance metrics so that the value of distributed energy resources is fairly compensated.

However, since Pepco nominally owns the grid, we add:

4. Design performance metrics carefully to avoid any double-counting of utility incentives.

Finally, we add:

5. Design additional and cost-effective tracking, monitoring and reporting performance metrics (non-incentive metrics where the utility has pertinent data) that are essential to effective electricity delivery (efficient, reliable and sustainable), consistent with the District's legislative mandates that affect how electricity services shall be provided in the public interest, to protect consumers and to provide reliable, quality and available electricity services.

GRID2.0 Submission to PIMs Meeting #3
PIMs to Be Considered for Future Implementation
June 8, 2020.

A. Preliminary discussion

As preliminary to PIMs discussion, GRID2.0 asserts 1.The process for identifying PIMs in FC1156 is insufficient, and 2.The identification of PIMs needs to be linked to an integrated planning process, as discussed further below. Section B, presents discussion of tracking metrics for peak load reduction and additional PIMs suitable for consideration in the future.

1. The process for identifying PIMs in FC1156 is insufficient

First, GRID2.0 argues that the process for identifying PIMs, either for inclusion in FC1156 or in the future is insufficiently served by three Working Group meetings and that a supplemental process should be considered. Also, tracking metrics and data collection may likely be a necessary initial step prior to adopting *any* useful PIMs. The Working Group's progress to date is not sufficient for evaluating and identifying a robust and complete set of PIMs for either the present or the future, for reasons discussed further below. Participants in this process have little progress to show in the identification of tracking metrics or PIMs for adoption in 1156. It is not clear what *additional* future PIMs might be warranted in light of no initial PIMs, let alone tracking metrics, having been agreed upon.

As all of the State representatives who participated in the DCPSC "Alternative Forms of Regulation" Technical Conference emphasized, performance-based regulation (PBR) requires a design "process" that must be integrally linked to a jurisdiction's overall grid modernization and clean energy/energy efficiency goals and mandates; and allow for the opportunity for balancing and weighing carefully the interests of all relevant stakeholders in light of well-articulated principles, with a view to maximizing the net benefits of applying PBR tools, such as scorecards, metrics, and performance incentive mechanisms ("PIMs"), to generate value for the power system, customers and society. No State jurisdictions that are adhering to PBR best practices (which were discussed and explained during the AFOR Technical Conference) have found that these tools can be designed cost-effectively within three sessions of less than a day each -- sessions that are linked to an adversarial ratemaking case, and whose discussions and deliverables are overseen and directed by a limited number of "Parties" who are advocating their respective positions within that rate case. All States who are pursuing PBR best practices, including the States that were represented at the AFOR Technical Conference, have recognized that PBR needs a "consensus-building" venue (such as FC1130), not an adversarial one, in which stakeholder engagement, and the balancing of interests can occur.

2. The identification of PIMs needs to be linked to an integrated planning process

Second, Grid2.0 maintains, as we asserted throughout the MEDSIS process, that a successful grid modernization process hinges on integrated planning. The 1156 process to identify PIMs is not integrated into a planning framework and the difficulty parties are experiencing in agreeing to suitable PIMS is also due in part to a fragmented process. The PSC has both received and issued statements regarding the need for an integrated planning

framework, of which performance based regulation (e.g. PIMs) can be an element.[7] GRID2.0 has asserted that this integrated planning process should be staged, as DOEE mapped out in its response comments to the Staff's Proposed MEDSIS Final Rule. That mapping showed the level of technical capability and appropriate functionalities necessary for each grid modernization stage to attain the clean energy and energy efficiency outcomes that the District has mandated.

Following such a staged planning process that addresses the major areas for evolving an "Integrated Grid" will not guarantee agreement among stakeholders and a smooth process, but it builds on agreements systematically and will support a methodical step-wise approach to consensus. A staged planning approach would increase the likelihood of success in transitioning DC's distribution grid to increased efficiency and lower CO2 sources of power, while simultaneously, assuring reliability, designing for rate-payer behavioral synergies; assuring affordability; and aligning utility profitability with distributed power and demand-side management.

GRID2.0 views the current process in 1156 to identify PIMs as potentially fitting into an "integrated framework," a framework that could help put the DCPSC and stakeholders on course, by first obtaining requisite performance tracking information and then also re-orienting the regulatory approach to forward-looking performance and away from a focus on historically-incurred capital investment costs that can lead to excessive and expensive utility asset development, especially in a rapidly changing energy landscape.

B. PIMs discussion

DOEE requested a discussion of PIMs with outcomes related to technology deployment, valuation and pricing, and a non-discriminatory grid. GRID2.0 has tried to accommodate this framework but also highlights that it is essential that the Working Group should, in this 3rd meeting, identify PIMs/tracking metrics that can support/measure performance which is tangibly linked to the clean energy statutory mandates of the District, and to which the DCPSC has committed to support.

GRID2.0 questions if it is realistic to dive into either future or current PIMs without resolving the matter of setting at least a "tracking metric" foundation linked to the outcomes that were agreed upon in the second meeting. GRID2.0 thinks that agreement upon tracking metrics would set a foundation upon which to design appropriate PIMs, by requiring data collection,

---

[7] See FC#1130, IN THE MATTER OF THE INVESTIGATION INTO MODERNIZING THE ENERGY DELIVERY SYSTEM FOR INCREASED SUSTAINABILITY, Order No. 20286 STATEMENT OF COMMISSIONER RICHARD BEVERLY Also; as EPRI outlined, there are four major planning areas that should be advanced in an interrelated way to evolve a Grid that integrates distributed resources (an "Integrated Grid"):

1. Interconnection using new advanced communications and control technologies – that will evolve into interconnectivity and interoperability (support transactional energy); Streamlined and updated Interconnection processes that will support the adoption and use of DER;
2. Assessing and deploying Advanced Distribution and Reliability and Resiliency Technologies;
3. Aligned Distribution Resources Planning with other distribution grid planning using standardized methods to value DER technologies; and
4. Regulatory Reform that removes existing barriers and constraints, creates a level playing field for new DER and Microgrid resources and establishes utility incentives that are aligned with the creation of long-term customer value.

analysis and evaluation that would then enable the design of appropriate PIMs. The process will build a consensus toward suitable PIMs based on the Working Group's foundation agreement on outcomes and the information generated from tracking Pepco's performance with respect to metrics designed to measure achievement of such outcomes. Again, the outcomes are linked to the legislated mandates for which we should identify tracking metrics that will ultimately support PIMs. The period in which the tracking metrics would be evaluated will also accord the PSC and stakeholders additional time to consider PIMs within an integrated planning process including a more robust assessment of performance-based rate regulation.

Peak load reduction

GRID2.0 asserts that a key set of tracking metrics to advance Grid Modernization, as well as cost control will be associated with "Grid Peak Load Reduction." These metrics can drive outcomes related to technology deployment, valuation and pricing, and a non-discriminatory grid. Importantly, it enables a comprehensive oversight of strategies oriented towards reducing the need for investment in new capacity to serve an increasing demand for external sources of distributed power and load management. Also, importantly, it is responsive to shifting electrical grid requirements such as will occur with adoption of vehicle electrification. Another key element of peak load reduction is the cost effectiveness of the strategy that could also be characterized as affordability.

Pepco will have the flexibility to identify and pursue a range of appropriate actions to drive down peak loads, including the application of distributed energy resources, demand-side management, energy efficiency measures, technologies such as battery storage and electric vehicles and non-wires strategies. Tracking metrics for all of these actions will help inform and understand relative contributions to peak load reduction. GRID2.0 recommends an incremental goal, such as 10 to 12% seasonal peak demand reduction or an appropriate MW target.

Grid Peak Load Reduction, and the tracking of seasonal peak reductions should be broken down into subset components of a "Portfolio of Methods," all of which can be influenced by the utility and by the PSC – in different ways; and all of which should be tracked. Components include, for example, NWAs, energy efficiency (building efficiencies and building to grid interaction), price-responsive demand (Time-Varying Rates and managing load based on price signals/rates); demand response programs; energy storage; and electric vehicles. Such tracking metrics would also provide information to help in the design of building efficiency strategies and to better evaluate the costs and benefits of alternative strategies, a point emphasized by AOBA and OPC. In connection with specifying "sub-metrics," Grid2.0 recommends taking into account metrics that DOEE has raised within PIMs Working Group sessions (as important for advancing DC's clean energy and energy efficiency mandates, with needed accompanying grid modernization) and also taking into account an evaluation by Pepco of an initial portfolio of ways that Pepco believes that grid peak load reduction can be pursued cost-effectively in light of market and environmental conditions and other relevant circumstances within its service territory, consistent with and in furtherance of DC's mandates, DCPSC's goals and commitments, and the PowerPath (cum MEDSIS), principles.
GRID2.0 views the concept of "*only measuring the outcomes that the utility can control*" to be a spectrum of utility control that should not be construed as hard and fast, but rather invite deeper inquiry as to how decisions by the utility influence outcomes.

Grid Peak Load Reduction relates to the policy goals (and associated outcomes) of grid optimization and affordability. These goals and associated outcomes should shape the information requirements for tracking Pepco's performance. Pepco should have to disclose, for example, the net benefits it harnesses from DER installed, and demand-side resources of customers/third parties used to manage load and contain costs in connection with reducing peak demand. To be able to design and implement in the future appropriate financial incentives with respect to peak demand reduction (PIMs), this information foundation will be necessary to show how marshalling the net benefits of distributed and demand-side resources can provide cost-effective means for assuring "affordability," while also optimizing power system efficiencies in the course of complying with the District's legislated and policy mandates and DCPSC's commitments.

GRID2.0 anticipates that this information will also show that DER/Demand-Side Solutions can provide an array of more cost-effective solutions than capital intensive investments in connection with meeting challenges and problems facing utilities and the Grid in the 21st century. For this reason, an "affordability" metric should also be a tracking metric associated with peak load reduction. GRID2.0 believes that tracking the many dimensions of peak load reduction, as discussed above will provide useful information on what initiatives may offer the greatest cost reductions and thus "affordability" for various rate classes relative to the benefits gained. We need to agree on well-considered tracking metrics, generally, to aggregate in a cost-effective manner the necessary information to evaluate the costs and benefits of using these strategies and resources to cost-effectively advance the District's legislated clean and efficient energy mandates.

It will be essential to begin collecting that information through the tracking/reporting/measuring requirements for peak demand reduction in order to be able to design effective PIM Clusters in the future to govern Pepco's performance.

<u>Other PIMs GRID2.0 can support</u>

Since we did not move beyond agreement on "outcomes" in the 2nd Workgroup meeting, but did identify the kinds of PIMs and tracking metrics appropriate for measuring progress for such outcomes, GRID2.0 can agree with some of what was discussed, especially the tracking metrics and several of the PIMs that have been proposed relating to grid optimization. GRID2.0 does not provide the requested supporting information, including reporting requirements, on these tracking metrics, but rather identifies them as metrics we can support.

- Reliability
    - SAIFI, SAIDI
    - Neighborhood-level reliability (CEMI)

Pepco's SAIDI and SAIFI PIMs reflect already existing obligations and just extending the timeframes is not sufficient nor consistent with the Commission's principles for AFOR. We support Pepco's CEMI proposal and agree that neighborhood-level reliability is an essential element of grid performance.

- DER Interconnection
    - Interconnection timeline compliance – for Levels 1-4 NEM Interconnections

        - Focus on Authorization to install rather than Authorization to operate because that's where the impact is felt for DER developers
    - Interconnection Costs
    - Interconnection Satisfaction
    - Hosting Capacity

GRID2.0 agrees that DER connection compliance will ultimately be a necessary PIM. Similarly, maintaining capacity for hosting DER is another necessary PIM. Some tracking information for both has been collected and should at a minimum be continued. Both, along with load forecasting are foundationally essential to ensure DER deployment is unhindered and there is transparency in the basic direction/progress of DER adoption, which will be important to refine/further define future PIMs. Load forecasting is problematic as a PIM. However, because it is a foundational element of grid planning and enables the achievement of desired outcomes, a smart tracking metric for load forecasting should be developed that would improve the accuracy and reliability of load forecasting, including addressing the assumptions on which load forecasting methods are based. This needs substantially more discussion and development, and while not ready for near term implementation could be developed further during an extended period of PBR/PIM integration into grid planning (such as recommended above).

- Greenhouse Gas Reduction
    - Metrics: tracking GHG from Pepco's regulated activities, including NWA

This is an important tracking metric that should be implemented now to inform the design of new PIMs.

- Customer Service
    - Need to be specific about the types of customers (residential versus commercial customers require different customer service)
    - *E.g.,* Green Button Connect My Data availability for customers

This outcome can be developed in several directions. GRID2.0 recommends that a customer service metric should support the grid modernization outcome. The Availability of customer information/usage- customer access to web portals (also considered a "2-way Data Flow outcome), such as Green Button "Connect My Data" functionality may be a key part of this desired outcome. This is a forward looking tracking metric and potential PIM that would track the availability of information relating to feeder performance data (load profiles, voltage sag, power quality) and map updates that provide sufficiently granular feeder and substation performance data necessary for third party/customer DER development in support of the goal of customer/DER value creation. Another tracking metric tied to customer service is customer enrollment in and MWs of load reduction from customer response to Time-Varying Rates, as well as related to participation in energy efficiency, demand response, NWA or other programs in support of achieving the peak demand reduction PIM.

- Resilience
    - *E.g.,* 72-hour "energy assurance" period (Federal Gov standard)

GRID2.0 notes that the 72-hour minimum period for “resilience” to major events/energy assurance (Federal Gov standard) is not a “restoration” period; it is the minimum period for withstanding major disruptions and assuring energy access for critical facilities.

The attached appendix is offered as a resource for continued analysis and discussion of how DC can employ PIMs as tool for guiding the evolution of grid modernization and the utility business model.

Appendix

Performance Metrics – State of the Art

The District of Columbia Public Service Commission, in considering appropriate metrics and incentives for meeting District energy system goals beyond the traditional goals, can learn much from the successes of other jurisdictions in the United States for developing their own performance metrics. This report extracts best-practices from this recent track-record in states that have demonstrated closure in this process.

Goals, Outcomes, Metrics

Successful programs for developing performance metrics in other states tend to follow a logical sequence of broad goals, achievable outcomes, and quantification of the progress toward those outcomes. Further outlined below, this framework has been demonstrated to be a complex process, requiring a good deal of research, analysis, modeling, and negotiation, to account for the interrelationships and co-dependencies of the resulting metrics. Furthermore, the process must be repeated on a regular cycle, since the desired outcomes will evolve over the years and metrics will require updating based on experience and new desired outcomes.

The first (and easiest) stage is to establish a list of the consensus goals. Unsurprisingly, such societal goals for the jurisdiction are durable in that they are unlikely to change over many years. Traditional goal examples include safety, affordability, customer service, and reliability. To the traditional goals, we often now see the addition of modern goals such as resilience, climate-change response, or customer value creation.

The second stage is to create a list of targeted outcomes that advance these specific goals. The outcomes are significant targeted steps to make progress toward the durable goals, given the current state of the art. Subcommittees with the aid of topic-area specialists develop a number of medium-term achievable outcomes for each consensus goal, whether or not these outcomes are under the direct control of the utility. With the current revolution in digital technologies, there are many new possibilities for smart-grid outcomes that can advance many of the goals beyond what was possible in the past. This naturally has led to significant challenges. For example, a desired outcome of reducing carbon emissions directly addresses the climate-change goal, but it also cuts across several other societal goals (affordability, reliability, resilience, etc.). The cumulative impact and interdependence of all the desired outcomes needs to be documented before moving to design of specific metrics.

The third stage is to create well-defined metrics that measure progress toward each of the desired outcomes. It is common that multiple metrics are applicable to each outcome, many of which may be adopted as tracking metrics when the most central few metrics become candidates for PIM consideration. It is nearly inevitable that some of the metrics will quantify progress on societal goals that are not under the direct control of the utility, but are considered valuable feedback to the regulator and jurisdiction. The cost of obtaining the metric data and any issues of privacy or security must be considered and minimized. The goal for each metric is to find an appropriate balance of these factors against the benefits that ratepayer and societal accrue from that metric. An important additional factor in metric design is to include metrics that recognize the cross-cutting nature of almost all metrics. Returning to the desired outcome for carbon-reduction, the metric should require demonstration that the reduction is done at minimum cost and does not reduce reliability or resilience. Since our energy systems are complex and are becoming more complex every day, such complexity must not be ignored. For this reason, most advanced metric designs combine multiple metrics into clusters that recognize the direct and indirect impact of efforts to achieve the desired outcomes.

PIMs and Tracking Metrics

The fourth and final stage determines which metrics should have financial impact on a utility and which metrics should remain non-financial tracking metrics, either for feedback on progress

toward critical societal goals or for setting a baseline for potential utility PIMs in the future. This report focused on the three stages up to the development of comprehensive performance metrics. The final stage assigns a monetary value to performance metrics that become formal performance incentive mechanisms. That requires a thorough economic analysis and application of societal valuation, which is normally done once a proper array of performance metrics are decided, and is beyond the scope of this report.

Successfully reaching this concluding stage requires a long process. The development process for metrics and incentives in other jurisdictions takes a year or years of substantial effort and analysis, including innovative data analysis/modeling and evaluation of unintended consequences. Metrics and PIMs clearly have substantial long-term effects and must have a well-documented development record. This record will be an important roadmap for the next cycle of metrics and PIMs - when evaluation of how well the previous round conformed with the design intent and when revisions/additions/deletions are negotiated.

References

"Data and Scorecards and PIMs –Oh My!", Peter Cappers, Electricity Markets and Policy Group, Lawrence Berkeley National Laboratory, a presentation in "Lessons Learned in Applying Performance Incentive Mechanisms", NARUC Center for Partnership & Innovation Webinar Series, April 11, 2019.

"Staff Proposal For Updated Performance-Based Regulations", Proceeding to Investigate Performance-Based Regulation (2018-0088), Hawaii Public Utilities Commission, February 7, 2019.

"Next-Generation Performance-Based Regulation", David Littell, Camille Kadoch, Phil Baker, Ranjit Bharvirkar, Max Dupuy, Brenda Hausauer, Carl Linvill, Janine Migden-Ostrander, Jan Rosenow, and Wang Xuan (Regulatory Assistance Project) and Owen Zinaman and Jeffrey Logan, National Renewable Energy Laboratory, Technical Report NREL/TP-6A50-68512, September 2017.

"State Performance-Based Regulation Using Multiyear Rate Plans for U.S. Electric Utilities", MN Lowry, J Deason, M Makos, and L Schwartz, GRID Modernization Laboratory Consortium, U.S. Department of Energy, July 2017.

"Designing Performance Incentives to Advance New York State's Policy Agenda", Benjamin Mandel, NYU Guarini Center for Environmental, Energy, and Land Use Law, April 2015.

~~~~~~~~~~~~~~~~~~

From "Recommendations on Principles for the Design of Performance Incentive Mechanisms, Docket 4943", State of Rhode Island Division of Public Utilities and Carriers, 13 May 2019:

PRINCIPLE 1: A performance incentive mechanism can be considered when the utility lacks an incentive (or has a disincentive) to better align utility performance with the public interest and there is evidence that a performance incentive will improve the alignment of performance and the public interest.

PRINCIPLE 2: Incentives should be designed to enable a comparison of the expected cost of achieving the target to the expected benefits. Costs and benefits should be defined according to the Commission's 4600 Guidance Document.
~~~~~~~~~~~~~~~~~~

NEW PRINCIPLE: Incentives should be designed to maximize the expected net benefits of the desired outcome.

PRINCIPLE 3: Incentives should be designed to maximize customers' share of total expected net benefits of the desired outcome. Consideration will be given to the inherent risks and fairness of allocation of both monetary and non-monetary system, customer, and societal benefits.

PRINCIPLE 4: An incentive should offer the utility no more than necessary to align utility performance with the public interest. This includes, among other things, that the utility should not be provided with multiple incentives for achieving the same outcome.

PRINCIPLE 5: The utility should be offered the same incentive for the same benefit. No action should be rewarded more than an alternative action that produces the same benefit. Consideration will be given to the other financial incentives provided by the existing ratemaking context.

NEW PRINCIPLE: Financial incentives should be designed to achieve specific desired outcomes and provide the utility with sufficient flexibility as to how those outcomes are achieved.

NEW PRINCIPLE: Financial incentives for the gas utility can be different for the electric utility, if warranted and justified by the proponent.