ORDER NO. 16 405

ENTERED OCT 20 2016

BEFORE THE PUBLIC UTILITY COMMISSION

OF OREGON

UM 1657

In the Matter of PORTLAND GENERAL ELECTRIC COMPANY, Annual Smart Grid Report.	ORDER

DISPOSITION: STAFF'S RECOMMENDATION ADOPTED

This order memorializes our decision, made and effective at our October 20, 2016 Special Public Meeting, to adopt Staff's recommendation in this matter. The Staff Report with the recommendation is attached as Appendix A.

Dated this 20 day of October, 2016, at Salem, Oregon.

Lisa D. Hardie
Chair

John Savage
Commissioner

Stephen M. Bloom
Commissioner

A party may request rehearing or reconsideration of this order under ORS 756.561. A request for rehearing or reconsideration must be filed with the Commission within 60 days of the date of service of this order. The request must comply with the requirements in OAR 860-001-0720. A copy of the request must also be served on each party to the proceedings as provided in OAR 860-001-0180(2). A party may appeal this order by filing a petition for review with the Circuit Court for Marion County in compliance with ORS 183.484.

ORDER NO. 16 405

ITEM NO. 1

PUBLIC UTILITY COMMISSION OF OREGON
STAFF REPORT
SPECIAL PUBLIC MEETING DATE: October 20, 2016

REGULAR X **CONSENT** ___ **EFFECTIVE DATE** **N/A**

DATE: October 7, 2016

TO: Public Utility Commission

FROM: Michael Breish MB

THROUGH: Jason Eisdorfer JE and John Crider JC

SUBJECT: PORTLAND GENERAL ELECTRIC: (Docket No. UM 1657) Annual Smart Grid Report.

STAFF RECOMMENDATION:

Staff recommends the Commission accept Portland General Electric Company's (PGE or Company) *2016 Smart Grid Report* filing as having met the requirements of Order No. 12-158 established in Docket No. UM 1460. Staff also requests the Commission accept Staff recommendations described below for future PGE *Smart Grid Reports*.

Discussion:

Background

In 2012, the Commission issued Order No. 12-158, establishing smart-grid policy goals and objectives, utility reporting requirements, and Commission guidelines for utility actions related to smart grid. Under Order No. 12-158, utilities were required to file an initial smart grid report that, at a minimum, included the following main elements:

1. Smart grid strategy, goals and objectives.

2. Status of smart grid projects, initiatives, and activities that are underway, results of implemented smart grid projects, and planned smart grid investments for the next five years.

3. Smart grid opportunities the company is considering for the next five years and any constraints.

4. Targeted evaluations pursuant to Commission-approved stakeholder recommendations.

5. Related activities.

Thereafter, utilities are required to file an annual smart grid report that, at a minimum, includes incremental additions and updates of all elements of the initial report.[1]

The Commission accepted PGE's third *Smart Grid Report* (the 2015 report) as having met the requirements of Order No. 12-158.[2] At the same time, in its order accepting the 2015 report, the Commission adopted a combined list of Staff and Commission recommendations for PGE's *2016 Smart Grid Report*.[3] The Commission expressed the expectation that in the next smart grid report PGE would:

1. Provide the results of the dynamic pricing stakeholder process for developing a cost-effective methodology, the exploration of cycling load, tracking of customer fatigue, and the exploration of enabling technologies;

2. Include any preliminary results and findings from its dynamic pricing pilot and DLC pilot;

3. Continue the stakeholder process for researching and including additional reliability and operational metrics in its next smart grid report as well to improve existing metrics;

4. Include Project-X's scope and timeline as well as the projected costs and benefits;

5. Work with Staff and other Salem Smart Power Project (SSPP) stakeholders to produce a comprehensive report with subsequent, reoccurring updates as work continues on the SSPP;

6. Conduct a stakeholder process with Staff and stakeholders when it considers future pricing programs in order to assist and guide pilot and program design and implementation;

7. Continue to document and report on efforts related to smart inverters;

[1] Commission Order No. 12-158, page 4, Docket No. UM 1460, May 8, 2012.
[2] Commission Order No. 14-333, Docket No.UM 1657, October 1, 2014.
[3] Ibid.

8. Begin a recurring stakeholder meeting where Staff and stakeholders discuss customer education, outreach, marketing, and related strategies;

9. Include the status of non-wire alternative distribution upgrade research, including possible pilot projects;

10. Provide a summarizing table of all research, development, and pilot projects, their respective descriptions, expected benefits and costs; and

11. Provide an interim update on its efforts to develop a vision and road map as part of its *2016 Smart Grid Report* at a Commission workshop.

As explained in more detail in this Staff report, PGE complied with the recommendations in Order No. 15-314, which is the order arising from PGE's 2015 report. PGE's current report is consistent with the Commission's reporting requirements outlined in Order No. 12-158.

Staff Review

The standard utilized by Staff in its review of the utilities' smart-grid reports subsequent to their initial reports is set forth below. Staff employed this same standard in reviewing the Company's *2016 Smart Grid Report*:

1. Whether the Company met the guidelines set forth by the Commission in Order No. 12-158[4]; and
2. Whether the Company addressed prior Commission-approved recommendations from prior smart grid report reviews regarding potential smart grid investments and applications.

On May 11, 2016, prior to filing its final report, PGE held a smart grid workshop to receive and consider feedback from stakeholders on its *2016 Smart Grid* Draft *Report*. PGE submitted its fourth annual smart grid report on May 31, 2016, per Commission requirements found in Order No. 12-158.[5]

Interested parties were asked to file written comments on PGE's *2016 Smart Grid Report* by July 15, 2016. The NW Energy Coalition (NWEC) and Oregon Department of

[4] This should also include incremental additions and updates of all elements of the first report. *See* Order No. 12-158 at 4.
[5] Commission Order No. 12-158, at page 4, Docket No. UM 1460, May 8, 2012.

Energy (ODOE) filed written comments. In its Reply Comments filed on August 26, 2016, PGE addressed Staff's and the two interveners' comments.

Analysis

Staff finds PGE's *2016 Smart Grid Report* to be the Company's best report to date and reflects the Company's growing efforts in continually improving the *Smart Grid Reports*. The Company's changing approach to smart grid, including use of the Smart Grid Maturity Model and a "cross-company" perspective, are reflected in the *2016 Smart Grid Report's* more comprehensive content. Adjustments to the formatting and organization of the *Smart Grid Reports* made over the past couple years, in particular the *2016 Smart Grid Report*, are succeeding in making the document accessible and navigable considering the abundance of information. Additionally, the Company's responsiveness to previous recommendations and stakeholder comments elevate the Company's efforts pertaining to this year's report. Staff appreciates the Company's hard work.

PGE's response to recommendations adopted in Order No. 15-314

Below Staff addresses each of the requirements from Order No. 15-314, the order resulting from PGE's *2015 Smart Grid Report.*

Requirement #1: Report re: Results of the dynamic pricing stakeholder process

PGE held a workshop on February 11, 2016, that included time devoted to the Company's efforts in responding to this recommendation, which stems from a recommendation in Commission Order No. 15-203.[6] Consulting firm Navigant, who PGE contracted to produce a whitepaper proposing a cost-effectiveness methodology for smart-grid investments with a focus on demand response (DR), presented the draft document. Staff and other stakeholders, including the Citizen's Utility Board (CUB) and the Energy Trust of Oregon (ETO), were also in attendance. Navigant's proposed model "utilizes cash flow analysis to produce benefit-cost test ratios and net present value."[7] This model is based on existing efforts including the California Public Utilities Commission's 2010 Demand Response Cost Effective Protocols and ETO's energy efficiency cost-effectiveness methodology.

[6] *See* Commission Order No. 15-203, at page 14, Docket No. UM 1708, June 23, 2015. This recommendation directed the Company to develop a cost-effectiveness methodology for demand response programs.
[7] PGE's *2016 Smart Grid Report,* at page 66, Docket No. UM 1657, June 1, 2016.

Staff appreciates PGE's and Navigant's work in producing this model and will continue its internal review. In the meantime, Staff would like to see the results of and the work papers supporting PGE's use of this methodology on the Energy Partner pilot.[8]

Staff Recommendation: PGE provide the results and work papers used in the cost-effectiveness evaluation of the Energy Partner Pilot before the next *Smart Grid Report* filing.

Requirement #2: Report re: Preliminary results from the dynamic pricing and DLC pilots

PGE reported that the Nest Rush Hour Rewards had 1,517 total participants and called eight events for an estimated capacity of 0.3 MW.[9] The goal is to enroll 3,500 customers and achieve between 2-3 MW of load reduction at each event. For the Company's Flex Pricing Program pilot, the Company has enrolled over 1,500 customers though no events have been called because of incompatible weather conditions.[10] Staff appreciates PGE's preliminary updates and requests they be included in future *Smart Grid Reports.* Staff captures this request in a recommendation found later in this memo.

Requirement #3: Stakeholder process regarding smart grid metrics

CUB, ETO, and Staff met with PGE on February 9, 2016, to continue discussions on existing and new smart-grid metrics. The additions of new metric categories such as advanced metering infrastructure (AMI) complaints and opt outs, energy storage and electric vehicle penetration and total customer program engagement provide beneficial insight into PGE's smart-grid investment efforts.[11] Staff appreciates PGE's ongoing efforts in improving this section.

Requirement #4: Report re: Project-X status

PGE provided a comprehensive response to Staff's request in Appendix 7 of the *2016 Smart Grid Report.*[12] Staff appreciates PGE's efforts in creating a substantive appendix on the Company's synchrophasor efforts.

[8] Ibid., at page 67.
[9] Ibid., at page 68. The data was up-to-date at the time of filing.
[10] PGE's Reply Comments, at page 9, Docket No. UM 1657, August 26, 2016.
[11] PGE's *2016 Smart Grid Report,* at pages 59-64, Docket No. UM 1657, June 1, 2016.
[12] Ibid., at page 70.

Requirement #5: Improvements to the SSPP reporting process

Staff found that in the *2015 Smart Grid Report* PGE did not fully comply with the Commission's recommendation pertaining to reporting on the status and future plans of the SSPP. After discussions with Staff about expectations, PGE provided an expanded SSPP status section in the *2016 Smart Grid Report.* Staff reviewed this and finds that PGE successfully responded to Staff's requests; the provided information is very helpful and a significant improvement. Staff looks forward to PGE continuing to update the SSPP section when new information is made available, particularly pertaining to updated use cases, the partnership with the Pacific Northwest National Laboratory (PNNL), and the stacked benefit/cost analyses.

Requirement #6: Stakeholder process for future pricing program design and implementation

Because no new pricing programs were implemented in the past year, no meetings were held pertaining to this recommendation. However, Staff anticipates meeting with PGE as the ongoing Flex Pricing pilot is evaluated for full deployment.

Requirement #7: Ongoing reporting re: smart inverters

PGE responded to this recommendation in Appendix 9 of the *2016 Smart Grid Report.*[13] Staff looks forward to updates on PGE's smart inverter developments in future *Smart Grid Reports.*

Requirement #8: Stakeholder meeting re: customer education, outreach, marketing, and related strategies

PGE also responded to this recommendation at the February 9, 2016, meeting. PGE staff discussed the strategies, materials and outreach channels the Company is utilizing to engage customers in the Nest Rewards and Flex Pricing pilot programs. Staff will work with PGE and stakeholders to schedule at least one meeting this year to continue discussions on these topics per the original recommendation. Meanwhile, Staff would like to see "demand-side management" (DSM) and "distributed energy resource" (DER) program marketing material, both physical and digital, as attachments in future *Smart Grid Reports.*

Staff Recommendation: In future *Smart Grid Reports,* PGE include copies of new or updated DSM and DER marketing material as an appendix.

[13] Ibid., at page 90.

Requirement #9: Status of non-wire alternative distribution upgrade research and pilot projects

PGE responded to this recommendation in Appendix 11 of the *2016 Smart Grid Report.*[14] Staff looks forward to updates on PGE's non-wire alternative solution developments in future *Smart Grid Reports.*

Requirement #10: Inclusion of summarizing table

Given the diverse set of smart grid technologies that utilities are exploring, Staff has found summarizing tables that highlight key details, such as estimated costs and benefits, to be helpful in analyzing a particular utility's smart grid strategy. PGE provided a summary table of research, development and pilot projects in Appendix 12 of the *2016 Smart Grid Report*[15]. Staff appreciates PGE's effort in producing this table.

Requirement #11: Interim update on vision and road map before the Commission

PGE presented an interim update on its vision and road map in front of the Commission and Staff on March 15, 2016.

Additional Comments

Below, Staff first identifies comments unique to each stakeholder followed by a more detailed discussion on two topics found in all three stakeholders' comments.

NWEC Comments

NWEC commended PGE for continued development of new and flexible rate structures. NWEC stressed that as the Company approaches a full-scale rollout of pilots such as the Flex Peak Pricing, it consider "clean energy resource development, improved customer choice, equity in aces sot programs and in bill impacts, and a balanced approach to the impact on the Company's balance sheet."[16]

NWEC, in praising the Company on its current smart water heater project, encouraged the Company to further coordinate with Bonneville Power Administration (BPA) and other regional entities in order to leverage existing experience and gain additional reliability benefits for the Company. This coordinated effort is further supported by the

[14] Ibid., at page 99.
[15] Ibid., at page 100.
[16] NWEC's Comments, at page 2, Docket No. UM 1657, July 15, 2016.

Northwest Power and Conservation Council's 7th regional plan's recommendation for "700 to 1300 MW of new demand response resource by 2021 to address overall regional capacity needs."[17]

PGE concurred with NWEC and discussed its ongoing relationships with BPA, the Northwest Energy Efficiency Alliance and PNNL to advance smart water heaters.

Finally, NWEC thanked PGE for its continued focus on full inclusion low-income/hard-to-reach customers in developing smart-grid strategies and emphasized ongoing exploration of all opportunities to benefit low-income customers.

ODOE Comments

ODOE commended PGE on its decision to use the Smart Grid Maturity Model in developing its smart-grid strategies and its increasing smart-grid metric reports. Pertaining to the latter, ODOE requested PGE incorporate industry best practices in reporting future metrics.

In response, PGE referenced the three stakeholder workshops pertaining to smart-grid metrics the Company has held and also listed a number of industry sources the Company referenced in shaping its development of smart grid metrics.

ODOE requested PGE provide a more detailed assessment of the Company's AMI, particularly "a quantification of both the direct benefits associated with AMI deployment...and any associated indirect benefits."[18]

PGE provided previous analyses on operational savings and a scoping plan as attachments to the Company's comments as response to ODOE's request regarding AMI. PGE stated it has not since performance an overall analysis of the benefits derived from AMI. Instead, the Company has focused on individual programs' and pilots' costs and benefits.

Staff Comments

Beyond a detailed discussion of recent legislative impacts on the electric industry, smart-grid strategy, and the role of the *Smart Grid Reports*, in its comments Staff asked a number of clarifying questions on specific Company responses to recommendations in Order No. 15-314 as well as on topics such as customer engagement, grid and customer services, and cyber security. Staff finds that PGE responded sufficiently to

[17] Ibid., at page 3.
[18] ODOE's Comments, at page 2, Docket No. UM 1657, July 15, 2016.

these numerous questions and encourages those concerned to review PGE's Reply Comments for the Company's responses.

Distributed Resource Planning

All three stakeholders' comments included sections pertaining to PGE's analysis of and approach to implementing DERs on the Company's system; Staff and NWEC made direction mention of California's Distributed Energy Resource Plans (DERP).[19] Staff summarizes the comments below as well as PGE's response followed by Staff's analysis of the topic.

ODOE
Highlighting smart grid's ability to facilitate deployment of DERs, ODOE requested PGE provide both a "comprehensive description" of how the Company utilizes its existing smart-grid investments to deploy DERs as well as a "description of how it evaluates the potential for DER solutions to meet system needs compared to centralized generation or transmission and distribution network upgrades."[20] ODOE asserts that the latter is needed in order to assure stakeholders that all benefits of DERs are properly evaluated.

NWEC
NWEC states that the time is ripe for PGE to commence an "initial effort for distributed resource planning."[21] NWEC recommends PGE mirror a separate process, similar to California's DERPs, then later merge that process into the integrated resource plans (IRP). Though the legal and regulatory processes that led to distribution resource planning in California are different than the circumstances in Oregon, NWEC believes Oregon will ultimately take its own course in developing distribution resource planning, particularly in synchronizing smart-grid development with DER integration.

Staff
In regard to PGE's planned strategic deployment of DERs future initiative described on page 52 of PGE's *2016 Smart Grid Report*, Staff asked two questions: 1) will this effort lead to a more comprehensive planning document similar to the DERPs, and 2) what resources would the Company need to develop a similar process and report?

[19] Staff's Comments, at page 7, Docket No. UM 1657, July 15, 2016; NWEC's Comments, at pages 1-2, Docket No. UM 1657, July 15, 2016; ODOE's Comments, at page 2-3, Docket No. UM 1657, July 15, 2016.
[20] ODOE's Comments, at page 2-3, Docket No. UM 1657, July 15, 2016.
[21] NWEC's Comments, at page 1, Docket No. UM 1657, July 15, 2016.

PGE's Response
From a broader view, and partially informed by Staff's major question about possible revisions to the smart-grid reporting process, PGE states that the "*Smart Grid Report* is the appropriate vehicle for holistically discussing the development of additional DERs in PGE's service territory."[22] The Company explains that not only does it believe the *Smart Grid Report* should be the continued document in which current DER efforts are presented, but that any future DER analysis, piloting and deployment should be in the domain of *Smart Grid Reports* as well.[23] PGE underscores its assertion that a comprehensive analysis of DERs' contributions to the grid would be a "complicated undertaking" by identifying the methodologies the Company would need to develop in order to value DERs':

1. Function as a generation resource
2. Ability to defer or avoid transmission and distribution investments
3. Individual customer benefits, such increased reliability[24]

These efforts in determining *benefits* are additional to the ongoing work in determining the challenges posed by further integration of DERs into PGE's grid; ongoing and planned pilots will provide valuable insight into PGE's assumptions regarding benefits and challenges.[25] These pilots include the three current DR pilots as well as planned transportation electrification and additional DR pilots that will arise from the Company's 2016 IRP. Because of the insight afforded by these DR pilots, PGE believes they are essential in determining the DERs' "actual value," such as a particular program's cost-effectiveness, which can only be ascertained with pilot data.[26]

In regard to temporal aspects of DER planning, PGE contends that the status quo should continue: short-term/mid-term analysis over five-year periods should remain in the *Smart Grid Reports*, while long-term analysis belongs in the IRPs. As presented in the *2016 Smart Grid Report,* a roadmap is the most appropriate manner in which to plan and analyze DER pilots and programs in the short-term and mid-term, in part because they enable "a nimble and flexible approach for developing DERs" due to the constantly evolving smart-grid technologies market.[27]

Finally, in response to stakeholders' comments regarding the locational value of DERs, PGE states that "a significantly more complex undertaking" would be required in order

[22] PGE's Reply Comments, at page 2, Docket No. UM 1657, August 26, 2016.
[23] Ibid.
[24] Ibid.
[25] PGE's 2016 Smart Grid Report., at page 45, Docket No. UM 1657, June 1, 2016.
[26] PGE's Reply Comments, at page 3-4, Docket No. UM 1657, August 26, 2016.
[27] Ibid., at page 4.

to determine the respective values for various DERs. Tools, such as specialized data analyses and modeling, are needed to properly evaluate DERs' location value as well enhanced system infrastructure in order to capture the necessary data, both of which are still in relatively new stages. PGE argues that the Company should wait and utilize the outcomes of more pioneering states currently investing in advanced DER integration, such as California and New York, ultimately because of the cutting-edge nature of distribution resource planning coupled with Oregon's low electric prices and levels of DER penetration. Therefore, PGE does not believe that the *Smart Grid Reports* should become a Distributed Resource Plan at this time, nor should a comprehensive DER planning process begin. Rather, the Company believes "the more prudent path is to monitor activity in other parts of the country, and consider installing data gathering and monitoring equipment in our pilot projects as appropriate."[28]

Staff Analysis
PGE's helpful response is appreciated and Staff concurs with PGE's high-level approach in assessing local, regional and national efforts regarding distributed energy planning. Staff largely concurs because smart-grid technologies constantly are improving and new ones are appearing while optimal policies are still being evaluated and implemented. Distribution planning indeed is a novel effort that few states have pursued. PGE is correct in claiming that Oregon is "not California" because Oregon does not face similar circumstances at this time, including high electricity prices and penetrations of DERs.[29]

However, Staff notes that the electricity industry in Oregon is evolving due to a number of dynamics fueled by advances in technology, increasing customer sophistication, and developing environmental policies. The penetration of distributed energy resources, particularly solar photovoltaics (PV) systems, is likely to increase relatively soon. From decreasing capital and installation costs, greater public awareness, to an impending community solar program, the conditions are increasingly ripe for not only just an increase, but likely a significant one in distributed PV penetration in PGE's territory.[30] A "resource value of solar" (RVOS) that provides a value proposition to customers would also likely facilitate a substantial increase in penetration. In addition, the legislature has mandated that PGE procure at least 5MWh of battery storage, which will likely require a methodology that will be enhanced by locational value analysis.[31] Implementation of HB 2193 will result in increasing penetration of additional distributed energy storage;

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[28] Ibid., at page 5.
[29] Ibid. at page 5.
[30] Docket No. AR 603; Solar Energy Industries Association, "Solar Spotlight: Oregon," www.seia.org, June 15, 2016; accessed October 5, 2016.
[31] *See* https://olis.leg.state.or.us/liz/2015R1/Downloads/MeasureDocument/HB2193, HB 2193 requires that utilities procure at least five MWh energy capacity of battery storage by 2020.

additional energy storage penetration is likely as costs to implement continue to fall, customer awareness grows, and new technologies are introduced.[32] However, these two types of DERs are only part of the picture – electric vehicles, energy efficiency, DR, and conservation voltage reduction technologies are other DERs and DSM programs that are likely to increase in penetration as well, all of which are more effective when enhanced by locational values.

Current and impending DER developments will likely soon result in Oregon facing a need to properly evaluate the optimal integration of DERs at the distribution level. With continuing smart-grid enhancements, DER innovations and the subsequent increase in customer demand for those technologies, proper planning should begin as soon as possible in order to maximize benefits to customers. Oregon is certainly not California in a number of ways, but the state may soon face similar DER challenges that require solutions.

PGE noted that long-term planning is the domain of the IRP while the *Smart Grid Reports* should contain short-term and mid-term evaluations. Staff notes that though the ultimate goal in an IRP is an optimized portfolio of supply and demand-side resources that meets forecasted load over a 20-year horizon, a result of this long-term resource plan is a short-term action plan over a four-year period. A Commission-approved preferred portfolio may contain the acquisition or integration of DERs. Therefore, the simple bifurcation of respective DER-planning roles is not as straightforward as presented. With the rapidly changing landscape of DER capabilities and cost effectiveness, Staff believes that PGE should be taking steps now towards performing distribution level planning. The first steps down this path should include an analysis by the Company to discover deficiencies in its data collection and communication systems at the distribution level, and to create a short/mid-term plan to correct these deficiencies. With a robust data and communication network, PGE will have a firm foundation for future planning and implementation of DER, DSM, DR and other smart grid initiatives. Staff captures this request in a recommendation found below.

Changes to Smart Grid Process and Report

As the *Smart Grid Reports* process approaches its fifth year, Staff and the Company have held high-level conversations regarding possible changes to both the reporting process and the reports themselves. In its comments, Staff noted that recent legislation, namely SB 1547 and HB 2193, have significantly altered some key aspects of Oregon's electricity sector. Smart-grid technologies impacted by these legislative changes include

[32] HB 2193; GTM Research, *U.S. Energy Storage Monitor: Q3 2016 Executive Summary*, pages 13-16, September 2016; Bloomberg New Energy Finance, "New Energy Outlook 2016: Executive Summary," June, 2016.

distributed solar PV system integration and optimization, electric vehicle proliferation and DSM mandates. Due to this policy and operational shift, Staff asked what changes could be made to the *Smart Grid Reports* that could create a document and process that better captures the changing smart-grid dynamics.

PGE response
In addition to PGE's discussion about the short-term/mid-term role of the *Smart Grid Reports* and DER pilot evaluation, PGE discussed the role *Smart Grid Reports* could have in comparing the multiple cost-effectiveness methodologies that are currently being evaluated across a number of dockets. Doing so would enable consistency across all DER technologies and would be additional to the cost-effectiveness methodology Energy Trust of Oregon (ETO) utilizes for energy efficiency. PGE's recommendations for future *Smart Grid Reports* were summarized as follows:

1. Consolidation and coordination of cost-effectiveness analyses for DERs;
2. Five-year roadmaps for DER pilots and programs;
3. Collective reporting on existing DER pilot and program outcomes;
4. Discussion of the development of tools and methodologies for assessing the values DERs may bring to PGE's system; and,
5. An adjusted reporting cadence to make the Report every other year, aligning with the draft rulemaking for the Transportation Electrification Plans.[33]

Staff Analysis
Staff appreciates PGE's effort in developing ideas for future *Smart Grid Reports* and looks forward to ongoing discussions. Below are Staff's responses to the individual recommendations PGE provided:

1. Consolidation and coordination of cost-effectiveness analyses for DERs : Staff finds merit in the Company's suggestion that DER cost-effectiveness methodologies be compared in the *Smart Grid Reports.* PGE identified six separate dockets that involve DERs and potential cost-effectiveness evaluations.[34] However, Staff emphasizes that such a reporting element simply reflect the ongoing efforts in the respective dockets and that any findings that arise from a comparative analysis will still flow to the respective DER or DSM docket. Given that some of these methodologies are still under development at the time of this writing and multiple stakeholders are involved, Staff believes that

[33] PGE's Reply Comments, at page 6, Docket No. UM 1657, August 26, 2016.
[34] AR 599 (EV program application); AR 603 (Community Solar Rulemaking): UM 1514 and UM 1708 (Deferrals for DR Pilots); UM 1716 (RVOS); and UM 1751 (Energy Storage Program Guidelines).

a stakeholder workshop process similar to the smart grid metrics' one is appropriate.

Staff Recommendation: PGE conduct a stakeholder process to develop metrics in which to compare cost-effectiveness methodologies across all current and future DER and DSM efforts.

2. Five-year roadmaps for DER pilots and programs: Staff finds PGE's initial five-year roadmap visual to be instructive and commends the Company on its effort. Staff looks forward future roadmap inclusion.

3. Collective reporting on existing DER pilot and program outcomes: Staff agrees that the *Smart Grid Reports* are an optimal place for centralized reporting on ongoing DER pilot implementations; PGE already does this to an extent and a more robust reporting element would be logical considering the DER cost-effectiveness methodology recommended above. Staff has found PGE's updates on the various DER pilots in the *Smart Grid Reports* to be helpful, but believes room for improvement exists. In particular, Staff would like to see PGE provide additional reporting on its Energy Partner, Flex: Pricing Research Peak Time Rebate and Next Rush Hour Rewards pilots. Specifically, Staff requests PGE provide a spreadsheet containing the following information: participant performance per event called, customer comments (including complaints), attrition data, total versus expected load drop per event, and the "trigger" for each event. PGE has provided some of this information for its Nest Rewards and Flex Pricing pilot programs, which Staff appreciates.

Staff Recommendation: PGE provide data on its Energy Partner, Flex: Pricing Research - Peak Time Rebate and Next Rush Hour Rewards pilot programs.

4. Discussion of development of tools: Staff believes this recommendation to be necessary given the reasons described in this memo's preceding topic. Staff does not want to limit the extent to which the Company addresses the growing need for DER planning and evaluation, however. Rather, Staff believes awaiting the results of the PUC's analysis of the Company's 2016 IRP will better lend to a more informed recommendation regarding DER planning.

Staff Recommendation: PGE identify and discuss the system and Company resources necessary to begin evaluation of DER value to customers and the additional resources needed to commence distribution resource planning.

5. Timing of reports: Staff appreciates the open dialogue the Company has maintained with Staff regarding the timing of the *Smart Grid Report* process. Opportunities exist for changes to the smart grid reports, process and guidelines found in Commission Order No. 12-158, especially considering how much the industry and energy polices have changed in four years. However, Staff hesitates to make foundational changes to the process without detailed input from PacifiCorp and Idaho Power. Furthermore, Staff is skeptical that a two-year reporting timeline will ultimately be better. Regular stakeholder smart-grid meetings, which PGE offers to host if a two-year reporting schedule were adopted, can and already do happen on a regular one-year cycle. Staff acknowledges that a two-year cycle would optimize resources used in *Smart Grid Report* development, but Staff is concerned about the trade-off in the loss of transparency and analysis that comes with formal report filings, especially considering how all stakeholders have acknowledged how quickly smart-grid technologies, customer interests and policies are changing. Since each utility faces different and sometimes unique challenges in its respective smart-grid program, Staff believes that any discussion of changes to the process must include all the utilities.

Staff Recommendation: PGE participate in a Staff-led stakeholder workshop process with all utilities and stakeholders to determine if and what changes should be made to the smart-grid reporting process.

Recommendations

Staff recommends the Commission accept PGE's *2016 Smart Grid Report* as meeting the requirements of Order No. 12-158. Additionally, Staff also recommends that:

1. PGE provide the results and work papers used in the cost-effectiveness evaluation of the Energy Partner Pilot before the next *Smart Grid Report* filing.

2. In future *Smart Grid Reports*, PGE include copies of new or updated DSM and DER marketing material as an appendix.

3. PGE conduct a stakeholder process to develop metrics in which to compare cost-effectiveness methodologies across all current and future DER and DSM efforts.

4. PGE provide data on its Energy Partner, Flex: Pricing Research – Peak Time Rebate and Next Rush Hour Rewards pilot programs.

5. PGE identify and discuss the system and Company resources necessary to begin evaluation of DER value to customers and the additional resources needed to commence distribution resource planning.

6. PGE participate in a staff-led stakeholder workshop process to determine if and what changes should be made to the smart-grid reporting process.

PROPOSED COMMISSION MOTION:

Accept Portland General Electric's *2016 Smart Grid Report* along with Staff's recommendations set forth immediately above in the "Recommendations" part of this memorandum.

2016 PGE Smart Grid Report