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December 16th, 2022

Adam J. Teitzman
Commission Clerk
Florida Public Service Commission
2540 Shumard Oak Boulevard
Tallahassee, Florida 32399

Via Electronic Mail Only

Re: *Proposed Amendment of Rule 25-17.0021, F.A.C., Goals for Electric Utilities*
Response to November 30, 2022 Workshop

Mr. Teitzman:

Please find attached Google Nest's Response to the Florida Public Service Commission's November 30, 2022 Workshop and Commission Staff's corresponding Draft Rule Language, filed in Docket No. 20200181-EU.

Sincerely,

/s/ Aaron Berndt

Aaron Berndt

Google Nest

Head of Energy Industry Partnerships
for the Americas

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**BEFORE THE
FLORIDA PUBLIC SERVICE COMMISSION**

Proposed Amendment for Rule 25-17.0021,
F.A.C., Goals for Electric Utilities

Docket No. 20200181-EU

Filed: December 16, 2022

Comments of Google Nest on Workshop and Draft Rule Language

Introduction

Google Nest appreciates the opportunity to provide comments on the Florida Public Service Commission (“Commission”) Staff’s November 30, 2022 Rule Development Workshop and Staff’s corresponding Draft Rule Language. Google Nest is encouraged that Staff and the other stakeholders are considering changes to the evaluation of energy efficiency and other demand-side management programs, as well as the goals driving the development of these programs.

Florida has the potential to become a leader in demand-side management. According to the Department of Energy, Florida has the most electricity savings potential of any state, and the second-most residential energy efficiency potential of any state (17.9 million MWh by 2042).¹ However, a recent report found that Florida collectively saves just 0.09% of electricity annually, one-eighth of the US average of 0.72%.²

As participants in the Workshop discussed, adopting changes to the way demand-side management programs are evaluated would provide a foundational first step towards matching the energy efficiency potential with reality. This, in turn, will achieve a core objective of reducing electricity costs for all Florida customers.

Based on Google Nest’s experience deploying energy efficiency and demand response programs across the United States, and building off the statements made in the Workshop, we strongly recommend that the Commission adopt the following changes to Rule 25-17.0021:

1. **The Commission should allow utilities to file programs for approval that pass the Participant Test and modified Total Resource Cost (TRC) Test.** The Commission should also replace the Rate Impact Measure (RIM) Test with the Program Administrator Cost (aka the Utility Cost) Test.
2. **The Commission should remove the two-year payback screen.** Other pathways and methods should be used to help protect against free ridership.

¹ See “U.S. Energy Efficiency Potential Maps”, available at <https://www.energy.gov/eere/slsc/us-energy-efficiency-potential-maps>.

² See February 2022 “Energy Efficiency in the Southeast, Fourth Annual Report”, available at <https://cleanenergy.org/wp-content/uploads/Energy-Efficiency-in-the-Southeast-Fourth-Annual-Report.pdf>

Background

Google Nest, a business unit of Google, strives to make the smart home less complicated and more helpful, where products work together to provide customers with safety, security, comfort and connection with their friends and family. Nest energy devices help customers consume less energy and also shift customer HVAC usage to help reduce peaks, adapt to TOU rates, and prioritize using clean energy.

For over a decade, Nest thermostats have helped automate energy savings and guided consumers toward more informed and efficient energy use. Google Nest has also launched its “Nest Renew” program nationwide which will enable customers to utilize their Nest thermostats to automatically shift household load to periods of lower cost in response to price signals or lower carbon emissions in response to marginal emissions signals.

Nest thermostats have supported utility energy efficiency programs for over a decade. Nest thermostats have helped automate energy savings and guided consumers toward more informed and efficient energy use – leading to a cumulative savings of over 100 billion kWh. Studies have shown that, on average, the Nest Learning Thermostat saves 10% to 12% on heating and 15% on cooling.³

Smart thermostats like the Nest are also effective tools for utilities to manage peak demand. Google Nest works with over 80 partners across the country to run residential thermostat demand response (DR) programs. Third-party evaluations have repeatedly found between 0.5 kW and - 1.2 kW in energy reduction per household during thermostat DR events. Below, Google Nest has provided a list of several recent third-party thermostat DR evaluations as examples of these programs.

State	Utility	Year	Summer Savings	Evaluator and Link
Indiana	AES Indiana	2020	1.25 kW	Cadmus
Massachusetts	Eversource	2019	0.60 kW	Navigant
Massachusetts	National Grid	2019	0.59 kW	Navigant
Michigan	Consumers Energy	2020	0.85 kW	Cadmus , Page 207
Missouri	Ameren	2020	1.19 kW	Opinion Dynamics
Oregon	Portland General Electric	2020	0.83 kW	Cadmus

³ For more information, see <https://nest.com/thermostats/real-savings/>.

Google Nest Recommendations:

- 1. The Commission should allow utilities to file programs for approval that pass the Participant Test and modified Total Resource Cost (TRC) Test.** The Commission should also replace the Rate Impact Measure (RIM) Test with the Program Administrator Cost (aka the Utility Cost) Test.

Google Nest is extremely supportive of efforts to accurately evaluate and measure the costs and impacts of programs. This desire for accuracy is why Google Nest respectfully asks the Commission to remove the requirement for programs to pass the RIM Test. The RIM Test often relies on forecasts of both future supply costs (including transmission, distribution, generation, and capacity) and future rates. These forecasts can be highly variable, especially when they are unable to take into account the long-term impacts of the proposed program. Another complication of using the RIM Test is that it typically measures the costs incurred by non-participating ratepayers, and does not consider the savings for customers that do participate in the programs. Given that energy efficiency programs often have a fixed cost, and result in lower energy demand, there is naturally a period where rates might need to increase to cover that revenue shortfall. Over time, the benefit of the energy efficiency program should outpace the cost. However, the RIM Test usually does not account for this.

In support of removing the RIM Test, there are a number of alternatives that are used in states across the country. In fact, Florida is unique as the only state which requires exclusive use of the RIM Test. Staff's proposal is to use the Participant Test and TRC as screens, both of which are used widely in a number of different states. Nest supports the use of the Participant Test and TRC because these tests are better equipped to accurately reflect both the costs of the programs and the benefits accrued. However, to ensure that *all* benefits are measured under the TRC, we strongly recommend that the Commission specifically adopt a modified TRC test that incorporates a societal adder (i.e. non-energy benefits). This adder is standard industry practice across many states⁴ and would account for non-energy benefits such as improved indoor air quality and health for participants, fewer shutoffs and reconnections, and lower operating and maintenance costs.⁵

In addition, Google Nest supports the suggestion made by Advanced Energy Economy (AEE) at the November 30 workshop to alternatively permit the use of the Program Administrator Cost Test (aka the Utility Cost Test). We strongly encourage the Commission to reference the latest "National Standard Practice Manual" as it develops definitions and guidance for the application of any benefit-cost analysis test in order to align with current industry standards.⁶

⁴ States that incorporate an adder include California, Colorado, Connecticut, Idaho, Illinois, Iowa, New Hampshire, New York, Utah, Washington, and Wyoming. Source: https://www.mwalliance.org/sites/default/files/media/NEBs-Factsheet_0.pdf

⁵ A full list is available at https://www.mwalliance.org/sites/default/files/media/NEBs-Factsheet_0.pdf.

⁶ See August 2020 "National Standard Practice Manual: For Benefit-Cost Analysis of Distributed Energy Resources", available at https://www.nationalenergyscreeningproject.org/wp-content/uploads/2020/08/NSPM-DEBs_08-24-2020.pdf.

2. **The Commission should remove the two-year payback screen.** Other pathways and methods should be used to help protect against free ridership.

The use of a two-year payback screen prevents affordable interventions, such as smart thermostats, from providing customers with energy efficiency measures that would have a meaningful impact on their electricity bill. We understand the intent of the screen, which is to prevent free ridership, but have significant concerns that to meet this intent, it has effectively prevented statewide program participation.

As AEE described in its February 15, 2021 comments, there are many alternative benefit-cost analysis (BCA) best practices that the Commission could adopt instead to provide a more comprehensive evaluation framework supported by best practices in evaluation, measurement and verification, while also ensuring there is no free ridership.⁷

With rising energy costs, it is more critical than ever that the Commission consider programs that are designed to lower energy bills, and not just forgo programs because customers benefit too quickly.

Conclusion

Google Nest is extremely optimistic about the future of demand-side management in Florida. By adopting the changes we propose above, we believe that Florida could see an influx of cost-effective programs that lower bills for customers and positively contribute to reliability. We look forward to working with the Commission and other stakeholders in helping Florida reach its full potential.

Sincerely,



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⁷ See February 15, 2021 “Comments of Advanced Energy Economy”, available at <http://www.floridapsc.com/library/filings/2021/10088-2021/10088-2021.pdf>.

25-17.0021 Goals for Electric Utilities.

(1) The Commission ~~will shall~~ initiate a proceeding at least once every five years to establish numerical goals for each affected electric utility, as defined by Section 366.82(1)(a), F.S., to reduce the growth rates of weather-sensitive peak demand, to reduce and control the growth rates of electric consumption, and to increase the conservation of expensive resources, such as petroleum fuels. The Commission will set annual Overall Residential kilowatt (KW) and kilowatt-hour (KWH) goals and annual overall Commercial/Industrial KW and KWH goals shall be set by the Commission for each year over a ten-year period. The goals will shall be based on:

(a) An assessment of the technical potential of available measures; and

(b) aAn estimate of the total cost-effective KW kilowatt and KWH kilowatt-hour savings reasonably achievable through demand-side management programs in each utility's service area over a ten-year period.

(2) Pursuant to the schedule in an order establishing procedure in the proceeding to establish demand-side management goals, each utility must file a technical potential study. The Commission shall set goals for each utility at least once every five years. The technical potential study must be used to develop the proposed demand-side management goals, and it must assess the full technical potential of all available demand-side conservation and efficiency measures, including demand-side renewable energy systems, associated with each of the following market segments and major end-use categories.

Residential Market Segment:

(Existing Homes and New Construction should be separately evaluated) Major End-Use

Category

- (a) Building Envelope Efficiencies.
- (b) Cooling and Heating Efficiencies.
- (c) Water Heating Systems.
- (d) Lighting Efficiencies.
- (e) Appliance Efficiencies.
- (f) Peak Load Shaving.
- (g) Solar Energy and Renewable Energy Sources.
- (h) Natural Gas Substitutes for Electricity.

Commercial/Industrial Market Segment:

(Existing Facilities and New Construction should be separately evaluated) Major End-Use

Category

- (i) Building Envelope Efficiencies.
- (j) Cooling and Heating Efficiencies.
- (k) Lighting Efficiencies.
- (l) Appliance Efficiencies.
- (m) Power Equipment/Motor Efficiency.
- (n) Peak Load Shaving.
- (o) Water Heating Systems.
- (p) Refrigeration/Freezing Equipment.
- (q) Solar Energy and Renewable Energy Sources.
- (r) Natural Gas Substitutes for Electricity.
- (s) High Thermal Efficient Self Service Cogeneration.

Each utility's filing must describe how the technical potential study was used to develop the

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~~goals filed pursuant to subsection (3) below, including identification of measures that were analyzed but excluded from consideration. The Commission on its own motion or petition by a substantially affected person or a utility may initiate a proceeding to review and, if appropriate, modify the goals. All modifications of the approved goals, plans and programs shall only be on a prospective basis.~~

(3) ~~Pursuant to the schedule in an order establishing procedure in the proceeding to establish demand-side management goals, each utility must file its proposed demand-side management goals. In a proceeding to establish or modify goals, each utility shall propose numerical goals for the ten year period and provide ten year projections, based upon the utility's most recent planning process, of the total, cost-effective, winter and summer peak demand (KW) and annual energy (KWH) savings reasonably achievable in the residential and commercial/industrial classes through demand-side management. Each utility must also file demand-side management goals developed under two scenarios: one scenario that includes potential demand-side management programs that pass the Participant and Rate Impact Measure Tests, and one scenario that includes potential demand-side management programs that pass the Participant and Total Resource Cost Tests which incorporate a societal adder, and one scenario that includes potential demand-side management programs that pass the Participant and the Program Administrator (also known as Utility) Cost Test, , as these terms are used in Rule 25-17.008, F.A.C. Each utility's goal projections must be based on the utility's most recent planning process and must ~~shall~~ reflect the annual KW and KWH savings, over a ten-year period, from potential demand-side management programs with consideration of overlapping measures, rebound effects, free riders, interactions with building codes and appliance efficiency standards, and the utility's latest monitoring and evaluation of~~

Proposed Redlines

conservation programs and measures. ~~Each utility's projections shall be based upon an assessment of, at a minimum, the following market segments and major end-use categories.~~

~~Residential Market Segment:~~

~~(Existing Homes and New Construction should be separately evaluated) Major End-Use~~

~~Category~~

- ~~(a) Building Envelope Efficiencies.~~
- ~~(b) Cooling and Heating Efficiencies.~~
- ~~(c) Water Heating Systems.~~
- ~~(d) Appliance Efficiencies.~~
- ~~(e) Peakload Shaving.~~
- ~~(f) Solar Energy and Renewable Energy Sources.~~
- ~~(g) Renewable/Natural gas substitutes for electricity.~~
- ~~(h) Other.~~

~~Commercial/Industrial Market Segment:~~

~~(Existing Facilities and New Construction should be separately evaluated) Major End-Use~~

~~Category~~

- ~~(i) Building Envelope Efficiencies.~~
- ~~(j) HVAC Systems.~~
- ~~(k) Lighting Efficiencies.~~
- ~~(l) Appliance Efficiencies.~~
- ~~(m) Power Equipment/Motor Efficiency.~~
- ~~(n) Peak Load Shaving.~~
- ~~(o) Water Heating.~~

- ~~(p) Refrigeration Equipment.~~
- ~~(q) Freezing Equipment.~~
- ~~(r) Solar Energy and Renewable Energy Sources.~~
- ~~(s) Renewable/Natural Gas substitutes for electricity.~~
- ~~(t) High Thermal Efficient Self Service Cogeneration.~~
- ~~(u) Other.~~

(4) Within 90 days of a final order establishing or modifying goals, each utility must file its demand-side management plan that includes the programs to meet the approved goals, along with program administrative standards that include a statement of the policies and procedures detailing the operation and administration of each program. ~~or such longer period as approved by the Commission, each utility shall submit for Commission approval a demand side management plan designed to meet the utility's approved goals.~~ The following information ~~must~~ shall be filed submitted for each demand-side management program included in the utility's demand-side management plan for a ten-year projected horizon period:

- (a) The program name;
- (b) The program start date;
- ~~(e) A statement of the policies and procedures detailing the operation and administration of the program;~~
- ~~(c) (d)~~ The total number of customers₂, or other appropriate unit of measure₂, in each class of customer (i.e. residential, commercial, industrial, etc.) for each calendar year in the planning horizon;
- ~~(d) (e)~~ The total number of eligible customers₂, or other appropriate unit of measure₂, in

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each class of customers (i.e., residential, commercial, industrial, etc.) for each calendar year in the planning horizon;

(e) ~~(f)~~ An estimate of the annual number of customers, or other appropriate unit of measure, in each class of customers projected to participate in the program for each calendar year of the planning horizon, including a description of how the estimate was derived;

(f) ~~(g)~~ The cumulative penetration levels of the program by calendar year calculated as the percentage of projected cumulative participating customers, or appropriate unit of measure, by year to the total customers eligible to participate in the program;

(g) ~~(h)~~ Estimates on an appropriate unit of measure basis of the per customer and program total annual KWH reduction, winter KW reduction, and summer KW reduction, both at the customer meter and the generation level, attributable to the program. A summary of all assumptions used in the estimates, and a list of measures within the program must ~~will~~ be included;

(h) ~~(i)~~ A methodology for measuring actual KW kilowatt and KWH kilowatt-hour savings achieved from each program, including a description of research design, instrumentation, use of control groups, and other details sufficient to ensure that results are valid;

(i) ~~(j)~~ An estimate of the cost-effectiveness of the program using the cost-effectiveness tests required pursuant to Rule 25-17.008, F.A.C. ~~If the Commission finds that a utility's conservation plan has not met or will not meet its goals, the Commission may require the utility to modify its proposed programs or adopt additional programs and submit its plans for approval.~~

(j) An estimate of the annual amount to be recovered through the energy conservation

cost recovery clause for each calendar year in the planning horizon.

(5) The Commission may, on its own motion or on a petition by a substantially affected person or a utility, initiate a proceeding to review and, if appropriate, modify the goals. All modifications of the approved goals, plans, and programs will be on a prospective basis.

(6) (5) Each utility must shall submit an annual report no later than March 1 ~~of each year~~ summarizing its demand-side management plan and the total actual achieved results for its approved demand-side management plan in the preceding calendar year. The report must shall contain, ~~at a minimum,~~ a comparison of the achieved KW and KWH reductions with the established Residential and Commercial/Industrial goals, and the following information for each approved program:

(a) The name of the utility;

(b) The name of the program and program start date;

(c) The calendar year the report covers;

(d) The ~~The~~ total number of customers, or other appropriate unit of measure, by customer class for each calendar year of the planning horizon;

(e) The ~~The~~ total number of customers, or other appropriate unit of measure, eligible to participate in the program for each calendar year of the planning horizon;

(f) The ~~The~~ total number of customers, or other appropriate unit of measure, projected to participate in the program for each calendar year of the planning horizon;

(g) The potential cumulative penetration level of the program to date calculated as the percentage of projected participating customers to date to the total eligible customers in the class;

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(h) The actual number of program participants and the current cumulative number of program participants;

(i) The actual cumulative penetration level of the program calculated as the percentage of actual cumulative participating customers to the number of eligible customers in the class;

(j) A comparison of the actual cumulative penetration level of the program to the potential cumulative penetration level of the program;

(k) A justification for any variances greater ~~larger~~ than 15% from ~~for~~ the annual goals established by the Commission;

(l) Using on-going measurement and evaluation results the annual KWH reduction, the winter KW reduction, and the summer KW reduction, both at the meter and the generation level, per installation and program total, based on the utility's approved measurement/evaluation plan;

(m) The per installation cost and the total program cost of the utility;

(n) The net benefits for measures installed during the reporting period, annualized over the life of the program, as calculated by the following formula:

$$\text{annual benefits} = B_{\text{npv}} \times d / [1 - (1+d)^{-n}]$$

where

B_{npv} = cumulative present value of the net benefits over the life of the program for measures installed during the reporting period.

d = discount rate (utility's after tax cost of capital).

n = life of the program.

*Rulemaking Authority 350.127(2), 366.05(1), ~~366.82(1)-(4)~~ FS. Law Implemented 366.82(1)-
(4) FS. History—New 4-30-93, Amended_____.*