

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Petition for determination of need for
Okeechobee Clean Energy Center Unit 1, by
Florida Power & Light Company.

DOCKET NO. 150196-EI
ORDER NO. PSC-16-0032-FOF-EI
ISSUED: January 19, 2016

The following Commissioners participated in the disposition of this matter:

JULIE I. BROWN, Chairman
LISA POLAK EDGAR
ART GRAHAM
RONALD A. BRISÉ
JIMMY PATRONIS

FINAL ORDER GRANTING FLORIDA POWER & LIGHT COMPANY'S
PETITION FOR DETERMINATION OF NEED FOR
ELECTRICAL POWER PLANT IN OKEECHOBEE COUNTY

APPEARANCES:

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BY THE COMMISSION:

I. BACKGROUND

On September 3, 2015, Florida Power & Light (FPL or Company) filed a Petition and supporting testimony to determine need for the construction of a combined cycle generating unit in Okeechobee County. Construction would also include associated facilities, including transmission lines and substation facilities. The Petition was filed pursuant to Sections 366.04 and 403.519, Florida Statutes (F.S.), and Rules 25-22.080, 25-22.081, 25-22.082, and 28-106.201, Florida Administrative Code (F.A.C.). The proposed Okeechobee Clean Energy Unit 1 (OCEC Unit 1) will be a natural gas, combined cycle power plant, with an expected summer peak rating of about 1,622¹ megawatts (MW). OCEC Unit 1 will be built at a greenfield site in northeast Okeechobee County owned by FPL. FPL asserts the OCEC Unit 1 will enable the Company to meet a projected need for additional generation resources that begins in 2019, continues into 2020, and increases each year thereafter.

On September 11, 2015, we issued a Notice of Commencement of Proceedings pursuant to Rule 25-22.080(3), F.A.C. An Order Establishing Procedure, including a list of tentative issues, was issued on September 16, 2015.² FIPUG, OPC, SACE, and ECOSWF were granted intervention in this proceeding.³

¹ Filings subsequent to FPL's Petition indicate that the total capacity of the proposed OCEC Unit 1 has been increased to 1,633 MW.

² Order No. PSC-15-0394-PCO-EI, issued September 16, 2015.

³ Orders Granting Intervention: Order No. PSC-15-0408-PCO-EI, issued September 25, 2015, (OPC); Order No. PSC-15-0411-PCO-EI, issued September 28, 2015, (FIPUG); Order No. PSC-15-0424-PCO-EI, issued October 8, 2015, (SACE); Order No. PSC-15-0494-PSC0EI, issued October 22, 2015, (ECOSWF).

On November 17, 2015, a prehearing conference was held. At the prehearing conference, SACE, ECOSWF, and FPL proposed additional issues for inclusion in this proceeding, which were denied by the Prehearing Officer.⁴ On November 30, 2015, ECOSWF filed a Motion for Reconsideration and Clarification of Order No. PSC-15-0540-PCO-EI, which denied the additional issues proposed by SACE and FPL. On December 1, 2015, FPL filed a response in opposition to ECOSWF's Motion for Reconsideration and Clarification.

A formal hearing was held December 1-2, 2015. At the start of the hearing, ECOSWF and FPL were given an opportunity to present oral arguments on the Motion for Reconsideration and Clarification. After consideration of the arguments, we denied ECOSWF's Motion for Reconsideration and Clarification, finding no mistake of fact or law in Order No. PSC-15-0540-PCO-EI.

We have jurisdiction over the subject matter of this proceeding, pursuant to Sections 366.04 and 403.519, F.S. After consideration of the evidence and the arguments of the parties, we hereby grant FPL's Petition for Determination of Need for the OCEC Unit 1 for the reasons discussed in greater detail below. This Order constitutes our final agency action and report to the Florida Department of Environmental Protection (DEP), pursuant to Sections 403.507(4) and 403.519(3), F.S.

II. DETERMINATION OF NEED PURSUANT TO SECTION 403.519, F.S.

This Commission is the sole forum for the determination of need for major new power plants, pursuant to Section 403.519(3), F.S. In making a determination of need, we must consider several factors: (1) the need for electric system reliability and integrity; (2) whether renewable generation or conservation measures taken by, or reasonably available to, the utility might mitigate the need for the proposed plant; (3) the need for adequate electricity at a reasonable cost; (4) the need for fuel diversity and supply reliability; and (5) whether the proposed plant is the most cost-effective alternative available.

While we must take into account all of the criteria set out above, we may base our determination of need for an electrical power plant on a single criterion or any combination of the criteria. Our underlying policy in deciding need determination petitions is to ensure a safe, reliable grid, while protecting electric utility ratepayers from unnecessary expenditures. Upon review, we find that there is sufficient record evidence before us to determine that the OCEC Unit 1 project is the most cost-effective alternative available to meet FPL's need. Having determined that we have sufficient information to assess the need for the proposed power plant under the criteria set forth in Section 403.519, F.S., we shall address each of the statutory criteria below.

⁴ Order No. PSC-15-0540-PCO-EI, issued November 20, 2015 (Order denying additional issues proposed by SACE and FPL); and Order No. PSC-15-0547-PHO-E, issued November 24, 2015, (Prehearing Order denying issues proposed by ECOSWF).

A. Need for Electric System Reliability and Integrity

We find that FPL demonstrates a need for additional generation, beginning in 2019, in order to maintain electric system reliability and integrity based on a reasonable load forecast and a 20% reserve margin criterion as discussed below.

FPL

FPL argues a need for the OCEC Unit 1, taking into account the need for electric system reliability and integrity. FPL employs three reliability criteria to maintain its system reliability and integrity: (1) a 0.1 Loss of Load Probability (LOLP); (2) a 20% Reserve Margin; and (3) a 10% Generation-Only Reserve Margin. FPL asserts that the Company understands what is required to maintain reliable service based on its experience with significant weather and other unforeseen events over the years. FPL further asserts that its 10% generation-only reserve margin is designed to complement, not replace, FPL's other criteria and that it provides guidance regarding what mix of demand-side management (DSM) and generation resources should be added to maintain system reliability. The Company argues that in order to maintain adequate reliability to serve its customers through such events, it must maintain its three reliability criteria. After accounting for all reasonably achievable, cost-effective conservation and renewable resources available, FPL contends it has a need for generation capacity beginning in 2019 under two of its three reliability criteria (20% reserve margin and 10% generation-only reserve margin), and the OCEC Unit 1 is the most cost-effective option available to meet all of its reliability criteria.

Intervenors

OPC, SACE, ECOSWF, and FIPUG argue that there is no need for FPL's proposed OCEC Unit 1 based electric system reliability and integrity. All the intervenors assert the 20% reserve margin used by FPL is unnecessary, excessive, and will result in overbuilding of generation and increase rates.

OPC argues that, using the 15% minimum reserve margin outlined in Rule 25-6.035, F.A.C., the proposed OCEC Unit 1 is not needed for the proposed in-service date of June 1, 2019. In addition, OPC argues FPL's proposed 10% generation-only reserve margin criterion is unnecessary for our determination on reliability and integrity and should not be adopted or approved by us in this proceeding. Finally, OPC asserts that the 20% reserve margin used by FPL is excessively high, and should be re-visited by this Commission in a generic proceeding.

SACE argues that FPL relies on two unsubstantiated reliability criterion in order to create an appearance of need for the proposed OCEC Unit 1: (1) a 20% reserve margin criterion that is outdated, unsubstantiated, and inapplicable to this proceeding as a matter of law; and (2) a contrived 10% generation-only reserve margin criterion that is unnecessary, skewed towards generation, and not a generally accepted utility planning criterion. SACE contends that we

cannot properly rely on a 20% reserve margin because the stipulation⁵ that the 20% reserve margin was based on is inapplicable to need determinations. Further, SACE asserts that the 1999 stipulation's 20% reserve margin is significantly outdated and based on conditions that no longer reflect reality, including the improved reliability of FPL's power plants. As a result, SACE contends the proposed OCEC Unit 1 would result in a system with excess capacity that exceeds the need for electrical system reliability and integrity. Because FPL's 20% reserve margin and 10% generation-only reserve margin criteria are unsubstantiated, SACE argues they should be rejected.

ECOSWF argues FPL's system would meet appropriate reliability and integrity standards without the proposed OCEC Unit 1 because the LOLP criterion projections prove that the proposed unit is not needed to maintain system reliability. ECOSWF asserts FPL has a history of over-stating its load projections five years out and that, even if FPL's projections are true, FPL would maintain a more than 15% reserve margin in 2019, which would maintain sufficient reliability. ECOSWF contends that the electricity industry has made improvements in load management, load control, and demand response, along with improvements in distributed generation and storage since we last examined the 20% reserve margin. Because of the reliability FPL has achieved for its system, ECOSWF asserts there is no need for FPL to maintain a 20% total reserve margin. ECOSWF additionally argues that we should reject FPL's request to add the 10% generation-only reserve criterion, because it is unnecessary and does not assist in determining whether FPL has additional reliability needs.

Analysis

FPL provided testimony and exhibits concerning its projected reliability need, including its load forecast, for the proposed OCEC Unit 1. The record shows that FPL utilized three reliability criteria to project the timing and magnitude of its future resource needs: (1) a 20% reserve margin; (2) a 10% generation-only reserve margin; and (3) an LOLP criterion. FPL testified that if one or more of these criteria is projected to not be met in a given future year, then additional resources are needed in that year.

FPL's 10% generation-only reserve margin criterion and 20% reserve margin criterion provide an indication of the adequacy of capacity resources compared to load during peak periods. FPL's reserve margin criteria are discussed in greater detail below. The LOLP criterion looks at the daily peak demands while taking into consideration events such as the unavailability of individual resources due to maintenance or outages.

FPL testified that, after accounting for demand-side management (DSM), its projections show that neither the 20% reserve margin, nor the 10% generation-only reserve margin, would be met in 2019 based on total capacity and projected summer peak load. Consequently, FPL argues that it has a need for generation capacity in 2019 based on its reserve margin criteria. FPL's projected LOLP criterion shows that the Company does not have a need until 2022.

⁵ The Stipulation referred to by SACE is a Stipulation approved by the Commission by Order No. PSC-99-2507-S-EU, issued December 22, 1999, in Docket No. 981890-EU, In Re: Generic investigation into the aggregate electric utility reserve margins planned for Peninsular Florida.

Our analysis of FPL's projected reliability need is discussed as follows: (1) a review of FPL's load forecast; (2) a review of the 20% reserve margin; and (3) a review of the 10% generation-only reserve margin reliability criteria.

1. FPL's Load Forecast

FPL's load forecasts in this proceeding are the same forecasts FPL presented in its 2015 Ten-Year Site Plan (TYSP). These forecasts are generated using econometric models,⁶ including customer models, summer and winter peak demand per customer models, and a net energy for load (NEL) per customer model. FPL asserts that we have consistently relied on these models for various forecasting purposes, and the modeling results have been reviewed and accepted by us in past proceedings.⁷

Customer growth is a primary driver of the growth of peak demand and net energy for load. To forecast its customer base, FPL's customer model includes statewide population growth as the most influential variable. FPL used July 2014 population estimates and projections from the Bureau of Business and Economic Research of the University of Florida (BEBR) and the Office of Economic and Demographic Research (EDR). We inquired as to the rationale for FPL relying upon projections of statewide population growth, rather than projections of growth in the 35 counties in FPL's service area, which could more accurately reflect growth in FPL's customer base. The Company stated that it had not considered the use of historical county population data in favor of statewide population data, because: there is high historical customer forecast accuracy using statewide population data; statewide EDR population forecasts are more current than county forecasts; and, in some of the counties in its service territory, FPL serves only a small portion of the population. FPL further supported its use of statewide population forecasts based upon good statistical results in its customer model.

Concerning the accuracy of its customer model, the Company's one year out customer forecast error rates were generally within a couple of tenths of a percent. However, there was a large variance in its 2008 TYSP forecast of 2012 total customers of 6.65 percent due to the unusual set of conditions posed by the recession of 2007-2009. FPL's most recent customer forecast error rates were below the four-year error rate of its 2011 TYSP's forecast of 2014, which was 0.72 percent. FPL reported that, since the recession, modeling adjustments and improvements have led to smaller forecast errors.

⁶ An econometric model is a numerical representation, obtained through statistical estimation techniques, of the degree of relationship between a dependent variable (e.g. summer peak per customer) and the independent, or explanatory, variables (e.g. heating degree days and energy price). A change in any of the independent variables will result in a corresponding change in the dependent variable.

⁷ Docket No. 130198-EI, In Re: Petition for prudence determination regarding new pipeline system; and Docket No. 110309-EI, In Re: Petition to determine need for modernization of Port Everglades Plant.

In reviewing FPL's forecasts, we initially had reservations regarding FPL's customer-growth forecasts due to potential forecast errors attributable to disparities between statewide and service area population growth rates. If those two growth rates diverge, systematic forecast errors may result. However, the population growth rate at the county level is similar to the population growth rate at the state level over a ten year horizon, about 1.3 percent. FPL's customer forecasts indicate that the Company expects continued growth in its customer base with an annual average increase in total customers of 1.3 percent from 2014-2024. Upon review, we find FPL's customer forecast is reasonable for purposes of this proceeding.

FPL's long-term summer peak demand forecasts include a base case forecast and a risk-adjusted forecast. The base case forecast presents the most likely forecast in that there is an equal probability of over-forecasting as under-forecasting. The risk-adjusted forecast is designed to reflect the higher values of peak demand that could occur in the future given past differences between actual and forecasted values of demand. FPL's risk-adjusted forecast, thus, reflects a reduction in the risk of under-forecasting future load growth. The capacity need addressed in this proceeding is based on the base case forecasts and not on the risk-adjusted forecasts.

FPL presented both a summer peak demand base case forecast, which is 25,045 MW by 2019, and a winter peak demand forecast, which is 21,792 MW by 2019. Our analysis focused on FPL's summer peak demand forecast as it is the key driver for the need in this proceeding. The preliminary forecast of summer peak demand is derived by using the output from summer peak per customer model multiplied by the forecasted number of customers discussed above. We reviewed the model specification, inputs, assumptions, and statistical analysis and find the summer peak demand model is reasonable.

The output of the summer peak per customer model is multiplied by the number of customers to derive a preliminary estimate of the forecasted summer peak. FPL then made adjustments to the forecasted summer peak to reflect the impacts from various incremental and new loads resulting from wholesale contracts, plug-in vehicles, Economic Development and Existing Facility Economic Riders, and distributed solar generation. These adjustments, except the one related to distributed solar generation, have been incorporated into FPL's forecasts presented in prior petitions before this Commission. We reviewed the out-of-model adjustments and find the adjustments appropriate for use in this proceeding.

ECOSWF questioned FPL's summer peak demand, asserting that FPL has a history of over-projecting load five-years into the future (i.e. "five years out"). ECOSWF argued that FPL consistently over-forecasts its summer peak demand five years into the future, based upon FPL's over-forecast of summer peak demand for the years following the recession. ECOSWF's testimony, however, did not address this issue.

We reviewed FPL's historic forecasting accuracy of past summer peak demand forecasts. Our review methodology involved comparing actual summer peak for a given year to summer peak forecasts made one, two, three, four, and five years prior. We used this methodology to review the Florida utilities' historic forecasting accuracy of past retail energy sales forecasts presented in recent years' TYSPs. These differences, expressed as an average percentage error

rate, were used to determine FPL's historic forecast accuracy. An average (AVG) error with a negative value indicates an under-forecast, while a positive value represents an over-forecast. An absolute (ABS) average error provides an indication of the total magnitude of error, regardless of the tendency to under or over forecast. The results are presented in Table 1 below.

Table 1: Accuracy of FPL's Summer Peak Demand and Forecasts

Actuals Year	Forecast Error Rate (%)					Years 1-5	Years 1-5	
	Years Prior to the Forecast Produced Year					AVG	ABS AVG	
	Forecasts presented in:*	5	4	3	2	1	Error	Error
2005	2001-2005 TYSPs	-9.44%	-2.91%	-0.83%	-2.22%	-3.33%	-3.74%	3.74%
2006	2002-2006 TYSPs	-2.99%	-7.93%	-1.58%	0.49%	-0.46%	-2.49%	2.69%
2007	2003-2007 TYSPs	-0.51%	-2.29%	-7.51%	-1.22%	0.53%	-2.20%	2.41%
2008	2004-2008 TYSPs	5.51%	-0.51%	-2.29%	-7.51%	-1.22%	-1.20%	3.41%
2009	2005-2009 TYSPs	2.33%	5.59%	-0.89%	-3.03%	-8.47%	-0.89%	4.06%
2010	2006-2010 TYSPs	8.69%	6.02%	9.14%	2.58%	0.44%	5.37%	5.37%
2011	2007-2011 TYSPs	12.16%	7.28%	4.63%	7.51%	1.33%	6.58%	6.58%
2012	2008-2012 TYSPs	13.68%	10.63%	5.51%	1.93%	5.80%	7.51%	7.51%
2013	2009-2013 TYSPs	3.02%	2.25%	-1.17%	-5.24%	-5.81%	-1.39%	3.50%
2014**	2010-2014 TYSPs	2.71%	3.39%	3.16%	0.78%	-1.52%	1.70%	2.31%
2015***	2011-2015 TYSPs	-	-	-	-	-	-	-
2016	2012-2016 TYSPs	-	-	-	-	-	-	-
2017	2013-2017 TYSPs	-	-	-	-	-	-	-
2018	2014-2018 TYSPs	-	-	-	-	-	-	-
2019****	2015-2019 TYSPs	-	-	-	-	-	-	-
AVG Error		3.52%	2.15%	0.82%	-0.59%	-1.27%		
ABS AVG Error		6.10%	4.88%	3.67%	3.25%	2.89%		
Under-forecasting cases		3	4	6	5	6	6	
Over-forecasting cases		7	6	4	5	4	4	
Note:								
* Source data: EXH 36, page 201, EXH 37, page 45; EXH 38, page 45; EXH 39, page 44; EXH 40, page 45; EXH 41, page 48; EXH 42, page 46, EXH 43, page 50; EXH 44, page 55; EXH 45, page 54; EXH 46, page 59; EXH 47, page 52; EXH 48, page 53; EXH 49, page 48; and EXH 50, page 48.								
** 2014 5-Year Prior Error Rate is based on 2010 TYSP Forecast of 2014 Summer Peak Demand.								
*** Actual data is not available starting from this year.								
**** 2019 5-Year Prior Error Rate will be based on 2015 TYSP Forecast of 2019 Summer Peak Demand.								

As shown in Table 1 above, beginning with planning year 2009, FPL's forecasting error was significantly reduced, and the variance between the projected and actual summer peak demand started to show both over- and under- forecasting. Three out of ten of the "five years out" forecasts, for the period of 2005 through 2014, were under-forecasts (shown at the bottom of Table 1), which demonstrate that FPL's "five years out" forecasts are not consistently over-forecasts, as ECOSWF asserted. The cumulative number of over- and under- forecasts for one to five years out (shown at the bottom of Table 1) also indicate that FPL's overall summer peak demand forecasts show almost an equal chance of an over-forecast or an under-forecast, which demonstrates that no systematic over-forecasting or under-forecasting is taking place. Therefore, we find that FPL's summer peak demand forecast is appropriate for use in the instant proceeding.

To develop the econometric model to forecast net energy for load, FPL considered the principal influencing factors including the customer base, weather, the economy, and codes and standards. Accordingly, FPL's net energy per customer model has been developed incorporating these variables. The output of the model is multiplied by the number of customers to derive a preliminary net energy for load forecast. FPL then made adjustments to the preliminary estimate

similar to those made to its summer peak demand model. The final forecast shows that FPL is projecting a 1.2 percent annual growth rate in net energy for load, resulting in a cumulative increase of 13,563 GWh by 2024. We find that the variables used by FPL in developing the model and the adjustments made to the forecast are appropriate.

In summary, we analyzed FPL's load forecasting models and found the models to be appropriate for forecasting purposes in the instant proceeding. We also reviewed the forecast assumptions of anticipated economic and demographic conditions, as well as the adjustments FPL made to its estimates produced by the forecasting models, and found the assumptions and adjustments used by FPL appropriate. Finally, we note that none of the intervenors in this proceeding proffered any forecasting model or forecasts of FPL's customers, summer peak demand, and net energy for load. No intervenor challenged FPL's methodology, input data, assumptions, or out-of-model adjustments used to project load. Therefore, based on the record, we find FPL's load forecasts appropriate for consideration in this proceeding.

2. Twenty Percent Reserve Margin

We find that, based on a 20% reserve margin and FPL's load forecast, FPL demonstrates a need for new generation in order to maintain electric system reliability and integrity. Table 2 below summarizes FPL's projected need, assuming no new capacity additions through 2020.

Table 2: Summer Reserve Margin Calculations⁸

	Reserve Margin	MW Shortage
2016	21.2%	(259)
2017	20.4%	(91)
2018	20.0%	(1)
2019	16.4%	826
2020	15.0%	1,144

FPL's 20% reserve margin criterion is based on the relationship between firm peak load and total capacity available to serve that load. FPL's reserve margin criterion accounts for projected DSM capability (energy efficiency and load management), which reduces the Company's projected peak load. As discussed below in Section II, C, we find FPL has accounted for all reasonably available DSM measures in its projection of resource needs.

Both SACE and ECOSWF expressed trepidation regarding the cost associated with adhering to a 20% reserve margin. SACE testified that, if FPL's 20% reserve margin is excessive, then FPL's proposed OCEC Unit 1 does not come at a reasonable cost. Similarly, ECOSWF testified that adherence to the 20% reserve margin has resulted in costly overbuilding.

⁸ Hearing Exhibit No. 3 (as updated on 11/18/2015).

FPL provided an economic evaluation assuming the in-service date of OCEC Unit 1, and all subsequent capacity additions were delayed by one-year. The scenario demonstrated that, while FPL's projected reserve margin fell below 20% a number of years, there may be a potential savings of approximately \$235 million in delaying capacity additions by one-year. The Company noted, however, that it did not account for short-term capacity purchases in the scenario, thus, the projected decrease in the cumulative present value revenue requirement (CPVRR) is likely overstated. While we recognize the potential savings associated with reducing FPL's 20% reserve margin criterion as discussed in detail below, we are concerned that a reduced reserve margin would impact system reliability.

FPL testified that the starting point for its use of a 20% reserve margin, as approved by this Commission in 1999,⁹ has been employed by FPL in numerous proceedings. In addition, FPL testified that it has reviewed its use of the 20% reserve margin and continues to believe it should be applied in its reliability analyses to ensure system reliability. The intervenors disagree with FPL's reliance on a 20% reserve margin and argue that FPL's Petition should be evaluated using a 15% reserve margin criterion. The intervenors assert that circumstances, such as generation outage rates, have changed since 1999 and continued reliance upon a 20% reserve margin will lead to overbuilding. In addition, the intervenors asserted that low LOLP assessments suggest a need for this Commission to reexamine the 20% reserve margin.

OPC argued that FPL should adhere to a 15% reserve margin criterion, as outlined in Rule 25-6.035, F.A.C., which requires peninsular Florida utilities to maintain a minimum 15% planned reserve margin in order to maintain an equitable sharing of energy reserves. The language of Rule 25-6.035(1), F.A.C., however, clearly provides that it is not intended to set a prudent level of reserves for long-term planning or reliability purposes. Rule 25-6.035(1), F.A.C., states in part:

The planned and operating reserve margin standards established herein are intended to maintain an equitable sharing of energy reserves, not to set a prudent level of reserves for long-term planning or reliability purposes.

(emphasis added).

FPL testified that it did not include justification for its continued use of a 20% reserve margin in its initial filing because the Company did not believe such a justification was required in a need determination filing. Citing Order No., PSC-03-0175-FOF-EI,¹⁰ FPL stated that this Commission has previously held that it will not revisit the 20% reserve margin criterion in an individual utility's determination of need proceeding. In that Order, we stated that "[t]he proper

⁹ Stipulation approved by this Commission by Order No. PSC-99-2507-S-EU, issued December 22, 1999, in Docket No. 981890-EU, In Re: Generic investigation into the aggregate electric utility reserve margins planned for Peninsular Florida.

¹⁰ Order No. PSC-03-0175-FOF-EI, p. 4, issued February 4, 2003, In re: Petition to determine need for Hines Unit 3 in Polk County by Florida Power Corporation; and Order No. PSC-01-0029-FOF-EI issued January 5, 2001, in Docket No. 001064-EI, In re: Petition for determination of need for Hines Unit 2 Power Plant by Florida Power Corporation.

forum to address what minimum reserves are necessary should be in a generic docket, as was previously done, and not in a particular utility's power plant need determination docket." Since the 1999 Stipulation, 13 need determination proceedings have been evaluated by this Commission based on a 20% reserve margin.¹¹

We agree that a need determination proceeding is not the appropriate forum to address what a utility's minimum reserves should be. The 20% reserve margin was established in a docket that involved multiple utilities as well as the Florida Reliability Coordinating Council, in which the planned reserve margins of peninsular Florida were considered. Furthermore, we have concerns that reducing the reserve margin for a single utility may have unintended adverse consequences not only on the reliability of the individual utility, but on peninsular Florida as well. The high load event experienced by FPL and other peninsular utilities that occurred on January 11, 2010, highlights this concern. During that event, FPL sold more than 500 MW of emergency power to Duke Energy Florida, LLC, another peninsular investor-owned electric utility that also utilizes a 20% reserve margin.

FPL testified that, on January 11, 2010, load was higher than expected, and a higher-than-normal amount of FPL generation was either out-of-service or operating at less than full capacity. FPL testified that, on that day, other utility systems in Florida were also experiencing difficulties, and FPL provided support by implementing a significant portion of its load management capability to assist at least one other utility. SACE, however, argued that FPL would have had sufficient resources under a 15% reserve margin to meet its load during the high load event.

FPL provided an analysis evaluating the potential impacts a 15% reserve margin planning criterion would have had on system reliability during the January 11, 2010, high load event. In order to reflect a 15% reserve margin planning criterion, FPL reduced its total capacity by approximately 1,200 MW.¹² Based on FPL's analysis and assumptions, which considered more than 1,700 MW of load management that was available during the event, FPL would have been 68 MW short of meeting firm load while providing assistance to another utility. Our review of the January 11, 2010 high load event demonstrates that, if FPL had been planning to a 15% reserve margin criterion, FPL would have had sufficient capacity to serve its customers during the high load event, provided it did not sell emergency power to Duke Energy Florida, LLC. FPL testified, however, that if it had recalled its emergency power, Duke Energy Florida, LLC, customers would have faced blackouts.

As previously discussed, we are concerned that reducing the reserve margin for a single utility may have unintended adverse consequences not only on the reliability of the individual utility, but on peninsular Florida as well. The high load event experienced by FPL and other peninsular utilities that occurred in January 2010, during which FPL sold more than 500 MW of emergency power to Duke Energy Florida, LLC, another peninsular investor-owned electric utility utilizing a 20% reserve margin criterion, highlights this concern. A utility's minimum

¹¹ Hearing Exhibit No. 66, pgs. 1-14.

¹² We find FPL's reduction reasonably reflects a resource plan based on 15% reserve margin criterion.

planning reserves should not be addressed in the vacuum of an individual utility's need determination proceeding, but rather, in a generic proceeding that allows input from other peninsular Florida utilities and the FRCC. To clarify, we are not suggesting that FPL should ensure the reliability of other utilities. Rather, we find that the 20% reserve margin criterion utilized by FPL was established giving consideration to peninsular Florida and, thus, should not be changed absent similar consideration. Therefore, we find the 20% reserve margin remains appropriate for identifying the timing of resource needs, which is consistent with our prior decisions.

3. Ten Percent Generation-Only Reserve Margin

Similar to its 20% reserve margin, FPL's 10% generation-only reserve margin is based on the relationship between peak load and total capacity available to serve that load. Unlike its 20% reserve margin, FPL's 10% generation-only reserve margin does not account for projected DSM capability. FPL first incorporated the 10% generation-only reserve margin in its resource planning in 2014. FPL testified that two occurrences caused FPL to take another look at its reliability planning criteria. One of those occurrences was our 2009 DSM goals order and the other occurrence was the January 11, 2010, high load event discussed above.

With respect to our 2009 DSM goals order, FPL testified that the order indicated a potential for FPL to be more heavily dependent upon DSM. The Company acknowledged that the 2009 goals were never implemented and that goals set by this Commission in 2014 were quite a bit lower than those in 2009, which has reduced the impact of the generation-only reserve margin in this case.

FPL evaluated the January 11, 2010, high load event assuming a 10% generation-only reserve margin and a 5% generation-only reserve margin. For this analysis, FPL contemplated scenarios with and without Turkey Point Unit 4, which tripped hours after the high load event. Assuming a 5% generation-only reserve margin without Turkey Point Unit 4, FPL would have had to shed firm load after implementing available load management. However, assuming FPL's actual generation-only reserve margin on that day (8.4 percent), FPL would not have had to shed firm load even without Turkey Point Unit 4. Therefore, a 10% generation-only reserve margin would not have been necessary in order to allow FPL to reliably serve its customers during that event.

While SACE and ECOSWF provided testimony to dispute FPL's need for a 10% generation-only reserve margin criterion, FPL's analyses reflect that a generation-only reserve margin is not the primary driver for its projected need in 2019. FPL acknowledged that the 10% generation-only reserve margin is not a significant factor in this case. We find that there is value in evaluating reliability from different perspectives. For example, a 10% generation-only reserve margin can provide useful information for planning and analysis with regard to assuring that FPL's 20% reserve margin will be achieved.

Conclusion

Based on a reasonable load forecast and a 20% reserve margin criterion, FPL demonstrates a need for additional generation beginning in 2019.

B. Renewable Energy Sources or Conservation Measures Reasonably Available Which Might Mitigate Need for the Proposed Unit

We find that FPL's forecast of resource needs takes into account all projected DSM from cost-effective programs approved by this Commission and that no additional cost-effective DSM has been identified that could mitigate the need for the proposed unit.

FPL

FPL argues that, in making its decisions, it has relied upon our determination in the Company's 2014 DSM Goals proceeding. In determining its customers' resource needs, the Company accounted for all FPL and Commission-identified cost-effective and reasonably achievable renewable energy and conservation measures reasonably available that might mitigate the need for the OCEC Unit 1. After accounting for over 200 MW of additional solar photovoltaic (PV) scheduled to be on FPL's system by 2016 and the level of FPL DSM we previously determined is reasonably achievable and cost-effective, FPL asserts it still has a resource need of over 900 MW in 2019 that grows in subsequent years, and the OCEC Unit 1 is the best alternative available to meet that need. FPL contends that none of the intervenors have shown additional cost-effective DSM reasonably available to FPL and that lowering FPL's reserve margin as advocated by the intervenors would make the approved 2014 DSM amounts less cost-effective. As a result, FPL argues that there are no additional cost-effective renewable generation resources available that would mitigate the need for the OCEC Unit 1 in 2019.

Intervenors

OPC, SACE, ECOSWF, and FIPUG argue there is no need for FPL's proposed OCEC Unit 1 because there are renewable energy sources or conservation measures reasonably available to FPL that might mitigate the need for the proposed OCEC Unit 1. The intervenors contend that FPL did not conduct significant analysis to evaluate if renewable energy sources were reasonably available to FPL to meet the need. FIPUG asserts FPL did not meet its burden of proof to show that the proposed OCEC Unit 1 is needed and, thus, its petition should be denied or deferred.

OPC argues that: (1) there may be renewable energy sources and technologies or conservation measures that could have been taken by or reasonably available to FPL, which might mitigate the need for the proposed OCEC Unit 1; (2) FPL's DSM and PV solar evaluations were insufficient to determine whether there were ways to increase DSM and PV solar to meet a portion of any need; and (3) the introduction of a 10% generation-only reserve margin criterion creates an unlawful bias against finding ways to increase DSM and PV solar to meet a portion of any need.

SACE argues that FPL failed to utilize renewable energy sources and technologies (in particular solar PV resources) and conservation measures (namely energy efficiency) reasonably available to it, which might mitigate the need for the proposed OCEC Unit 1. SACE asserts that FPL did nothing more than pay lip service to solar PV as an alternative to the proposed OCEC Unit 1, and failed to capitalize on countless opportunities to pursue much higher levels of energy efficiency. SACE contends that, since FPL had pre-filed testimony citing gas fired units as “most likely” candidates to meet the 2019 need and eliminated solar PV in the first stage of the need analysis, renewable energy sources never received real consideration. Finally, SACE contends that FPL did not complete the analysis in a way that satisfactorily met the required burden of proof.

ECOSWF argues FPL should be expanding its demand response program in order to maintain reliability during freak weather events. ECOSWF contends that FPL has not incentivized its customers with cost-effective load management programs that would eliminate the need for the OCEC Unit 1. By reducing payments, ECOSWF asserts that FPL artificially reduced the number of customers who volunteer to participate in demand response programs. Rather than investing well over a billion dollars of ratepayer money in a new power plant, ECOSWF argues FPL should be increasing payments to participants in its demand response programs, and that such participation would obviate any capacity need in FPL’s system for the foreseeable future. Finally, ECOSWF argues that FPL provides incomplete information relating to additional analyses that could be performed for PV that would meet need.

Analysis

FPL considered multiple options when considering what types of generating facilities and technologies would be viable for 2019 self-build options. With regard to renewable energy sources, FPL considered and evaluated solar energy as a potential source for meeting all or a portion of its 2019 resource need. FPL testified that the evaluation of its forecast of resource needs takes into account all projected DSM from cost-effective programs approved by this Commission.

ECOSWF argued that FPL did not properly incentivize cost-effective load management programs that would eliminate the need for the new OCEC Unit 1; however, ECOSWF did not provide an analysis to support its claim. FPL asserted that, by solely following the 20% total reserve margin criterion, an additional 823 MW of cost-effective DSM would be needed in less than four years, which would equate to 206 MW per year of additional cost-effective DSM. FPL testified that it would have to enroll more than 70 percent of its total residential customers in its load management program in order to obtain this level of savings.

We note that raising incentives for DSM lowers cost-effectiveness for non participants. By Order No. PSC-14-0696-FOF-EU, we found that the total amount of achievable, cost-effective DSM for FPL over a 10-year period was about 53 MW per year on average.¹³ By Order No. PSC-15-0331-PAA-EG, we approved FPL's most recent DSM plan, which included cost-effective load management.¹⁴ Neither Order was appealed by any party to the proceedings, which included SACE, FIPUG and OPC. Furthermore, no evidence was presented in this proceeding to suggest that FPL is not meeting the DSM goals we set. Upon review, we find no additional cost-effective DSM that could mitigate FPL's need for new generation in this proceeding.

In addition, all existing firm generating capacity from renewable resources and qualifying facilities through 2024 is already reflected in FPL's 2015 TYSP. In evaluating its future need, FPL focused on several concerns PV presented for the amount of capacity needed in 2019, namely timely and reasonably affordable acquisition of land, PV costs, and the ability to deliver firm capacity. Specifically, FPL would need to acquire approximately 21,000 acres of land, with only a relatively small percentage of that land being currently owned by FPL, to accommodate a solar PV generating solution. We note that this is the first time FPL included existing and planned solar as a firm resource in a need determination filing despite its aforementioned concerns.

Conclusion

We find that no additional cost-effective DSM has been identified in this proceeding that could mitigate the need for new generation. FPL's forecast of resource needs takes into account all projected DSM from cost-effective programs approved by this Commission. Similarly, all existing firm generating capacity from renewable resources and qualifying facilities through 2024 is already reflected in FPL's forecast of resource needs.

C. Need for Adequate Electricity at a Reasonable Cost

We find that the assumptions and forecasts used by FPL in its analysis of the proposed OCEC Unit 1 are reasonable and that FPL demonstrated that the proposed OCEC Unit 1 would provide adequate electricity at a reasonable cost.

FPL

FPL projects that the total cost of the proposed 1,633 MW OCEC Unit 1, including funds used during construction and transmission costs is \$1,231,700,000 or \$754/kW. FPL contends that the OCEC Unit 1 has outstanding projected operational parameters, including an Equivalent Availability Factor of 95.5 percent, a Planned Outage Factor 3.5 percent, and a Forced Outage Factor of 1.0 percent. In addition, FPL asserts the proposed unit is projected to have an

¹³ Order No. PSC-14-0696-FOF-EU, issued December 16, 2014, in Docket No. 130199-EI, In re: Commission review of numeric conservation goals (Florida Power & Light Company).

¹⁴ Order No. PSC-15-0331-PAA-EG, issued August 19, 2015, in Docket No. 150085-EG, In re: Petition for approval of Florida Power & Light Company's demand-side management plan and request to cancel closed on call tariff sheets.

exceptionally low heat rate of 6,249 BTU/kWh at 75°F, which will make OCEC Unit 1 the most fuel-efficient combined-cycle unit on FPL's already highly efficient system. FPL asserts that having this highly efficient generating unit available to serve customers over 95% of the time will yield significant fuel savings for FPL's customers. Finally, FPL asserts that the proposed OCEC Unit 1 is projected to save FPL's customers between \$72 million to \$153 million CPVRR.

Intervenors

OPC, SACE, ECOSWF, and FIPUG argue FPL's proposed OCEC Unit 1 is not needed and is an unreasonable cost. All of the intervenors argue that a 20% margin reserve is excessive and a 10% generation-only reserve margin is unnecessary. The intervenors contend that reliance on either reserve margin criteria will lead to uneconomic and unnecessary overbuilding of generation and result in unreasonable rate increases for FPL's ratepayers. In addition, OPC asserts that FPL did not consider the risks and impact of overbuilding and that FPL's proposal fails to properly address the requirement for adequate and affordable service.

ECOSWF argues that FPL already provides a more than adequate amount of electricity and adding this unit will simply make the cost of providing electricity less reasonable. ECOSWF contends FPL's own calculations show that, under current conditions, only one rolling blackout would be expected to occur from lack of generating resources in the next 3,000 years. In addition, ECOSWF contends that adding this unit will simply add an unnecessary cost to FPL customers, adding over \$17 to each residential customer's bills each year. ECOSWF asks that we closely examine FPL's reliability on natural gas, asserting FPL has moved to vertically integrate its entire natural gas structure and should be viewed with skepticism.

Analysis

FPL's OCEC Unit 1 is a proposed 1,633 MW power plant located on 2,842 acres of land that FPL acquired in 2011 in northeast Okeechobee County. As proposed, the OCEC Unit 1 will include three combustion turbines, three heat recovery steam generators, and one single-reheat steam turbine. Once operational, OCEC Unit 1 will comprise approximately 250 acres of the 2,842 acres site and will be interconnected to the FPL transmission grid through an existing transmission line. FPL attests that the transmission lines will not adversely impact the reliability of the FRCC transmission system.

FPL testified on its experience with building combined-cycle units on time and under budget. Cost estimates of the proposed OCEC Unit 1 are based off of previous project experience with adjustments for project scheduling, specific site conditions and anticipated market conditions during period of project execution. FPL's projects that the proposed OCEC Unit 1 will save customers between \$72 million and \$153 million CPVRR compared to other available self-build alternatives.

Our analysis of the assumptions used by FPL to evaluate the proposed OCEC Unit 1 is discussed as follows: (1) a review of FPL's financial assumptions; (2) a review of FPL's generation cost estimates and projected performance assumptions; (3) a review of FPL's fuel cost assumptions; and (4) a review of FPL's environmental cost assumptions.

1. Financial Assumptions

FPL used a capital structure consisting of 59.62 percent equity at a cost rate of 10.50 percent and 40.38 percent debt at a cost rate of 5.14 percent. FPL applied an after-tax discount rate of 7.54 percent based on the effective income tax rate of 38.58 percent. Upon review, we find that the financial assumptions used by FPL for its evaluation are reasonable.

2. Generation Cost Estimates and Projected Performance

The installed cost of the proposed OCEC Unit 1 is projected to be approximately \$1.232 billion. FPL presented testimony and exhibits regarding cost estimates and performance projections of the proposed plant. OCEC Unit 1 is projected to have a heat rate of 6,249 Btu/kWh at full capacity and is expected to have an availability factor of 95.5 percent. The cost estimates, heat rate, and equivalent availability parameters for OCEC Unit 1 are comparable with similar projects we have approved. Upon review, we find that the generation cost estimates and projected performance assumptions used by FPL for its evaluation are reasonable.

3. Fuel Costs

FPL relies upon leading industry fuel forecasting experts for its fuel price forecasts used in its evaluation of OCEC Unit 1. FPL used its November 3, 2014, and October 7, 2013, long-term fuel price forecasts in its evaluation. FPL testified that its fuel price forecasts reflect the projected commodity and transportation costs for fuel oil, natural gas, and coal.

FPL's methodology for developing its natural gas and fuel oil forecasts is structured according to the time period of the forecast. For years 1 and 2, the methodology is based on the Henry Hub forward curve. Years 3 and 4 are based on a 50/50 blend of the forward curve and the most current projections from the PIRA Energy Group. Years 5 through 20 are based on the annual projections of the PIRA Energy Group. Years 21 through 35 are based on the real rate of escalation from the U.S. Energy Information Administration (EIA). FPL's fuel oil forecast is based on the same methodology, except years 1 and 2 are based on the New York Harbor 0.7 percent sulfur heavy oil and ultra low diesel fuel oil. Natural gas and fuel oil transportation forecasts are added to these commodity forecasts to arrive at delivered fuel forecasts. Coal prices are based on cost information provided by JD Energy, Inc., for both commodity and transportation. FPL testified that this basic fuel forecasting methodology has not changed since at least 2008.

We compared FPL's natural gas price forecast (commodity only) to the EIA's 2015 Reference Case obtained from the EIA's Annual Energy Outlook 2015 for the period 2015 through 2024. Each natural gas forecast (i.e. FPL's, EIA's) was developed independently. Upon review, we find that the forecasts are reasonably comparable for all years based on both unit and percent differences for the years 2015 through 2024.

FPL testified that Sabal Trail, Florida Southeastern Connection (FSC) and the OCEC Unit 1 gas lateral pipeline transportation costs have been included in the evaluation of the OCEC Unit 1 project. The Company explained that the pipelines' capacity costs are included in the gas transportation demand charge collected via the fuel clause.

FPL provided its July 27, 2015, update to its natural gas fuel price forecast for the years of the planned in-service period of OCEC Unit 1. A comparison of the current FPL natural gas price forecast to FPL's November 3, 2014, natural gas price forecast reveals that FPL's more current forecast is relatively lower in 2019; nearly the same from 2020 to 2035, then trends higher at a constant rate from 2036 to 2049. The timing of these comparative changes in the forecast can be understood by considering the methodology FPL uses to construct its natural gas price forecasts, including the impact of the EIA escalation factor for years 21-35, or 2036 to 2049.

We reviewed FPL's fuel price forecasts and the methodologies FPL used to prepare the forecasts and find them price forecasts are reasonable for purposes of evaluating OCEC Unit 1.

4. Environmental Costs

FPL relied on ICF's International National Emission Price forecasts for the projected environmental compliance cost for SO₂, NO_x, and CO₂ in its analyses of its self-build options. In FPL's first stage of analyses, CO₂ costs were projected to start in 2023, for the second stage costs started in 2020. The change in start dates reflect the projected start year in the draft rules for the EPA's Clean Power Plan. Changes in SO₂ and NO_x values from the first to second stage were due to the United States Supreme Court's 2014 ruling to stay the EPA's Cross-State Air Pollution Rule which resulted in changes for compliance costs projections for both SO₂ and NO_x.

FPL's use of ICF's international National Emission Price forecasts is consistent with past analyses performed by the Company and reviewed by this Commission. We find that the changes made by FPL, from its first stage of analyses to its second stage of analyses, are reasonable based on current events. Upon review, we find that FPL's emission price forecast is reasonable for evaluating OCEC Unit 1. No party challenged FPL's environmental cost assumptions in this proceeding.

Conclusion

Upon review, we find that the assumptions and forecasts used by FPL in its analysis of the proposed OCEC Unit 1 are reasonable for evaluation purposes in this proceeding and that FPL demonstrated that the proposed OCEC Unit 1 would provide adequate electricity at a reasonable cost.

D. Need for Fuel Diversity

We find that FPL's addition of the proposed OCEC Unit 1 will increase the Company's dependence on natural gas and will not improve its overall fuel diversity. Although OCEC Unit 1 will not improve FPL's overall fuel diversity, the fuel-efficiency of the proposed OCEC Unit 1 will increase the overall fuel-efficiency of the Company's system. We also find that the FPL's overall fuel supply reliability will be enhanced because the proposed OCEC Unit 1 will use light oil as a back-up fuel.

FPL

FPL asserts that, while the OCEC Unit 1 will not improve its fuel diversity, the proposed unit it will not significantly increase FPL's reliance on natural gas, given other capacity additions and retirements, and the high level of fuel efficiency of this new unit. FPL contends that: (1) a large part of its fuel diversity efforts consist of improving system efficiency; (2) the OCEC Unit 1 will be one of the most fuel-efficient combined-cycle units built; and (3) the OCEC Unit 1 will improve FPL's overall system fuel efficiency. FPL asserts that OCEC Unit 1's ability to burn light oil as a back-up fuel further enhances the Company's reliability in the event of disruption in the supply or delivery of natural gas. FPL contends this project will improve fuel supply reliability with its use of the new Sabal Trail/Florida Southeast Connection natural gas pipeline. Finally, in terms of utilizing other energy sources for its generation portfolio, FPL asserts that it is actively pursuing additional solar and nuclear energy.

Intervenors

OPC, FIPUG, SACE and ECOSWF argue that FPL's proposed OCEC Unit 1 is a natural gas unit, which will needlessly increase FPL's reliance on natural gas. All of the intervenors assert that the OCEC Unit 1 will only exacerbate FPL's already precarious overreliance on natural gas and that such a dependence on natural gas will be at a significant risk for FPL's customers.

In addition, ECOSWF argues that FPL should be investing in clean energy to diversify its fuel portfolio, instead of proposing to continue its natural gas vertical integration. ECOSWF asserts that, while investing in the production of natural gas, FPL's parent company has also invested in pipelines to transport that gas. ECOSWF contends that, with natural gas prices inherently uncertain, by increasing its reliance on natural gas to nearly 70% of FPL's fuel-mix, the construction of OCEC Unit 1 leaves FPL's customers more vulnerable to future price-swings in natural gas prices.

Analysis

FPL's proposed OCEC Unit 1 will be fueled by natural gas, and will use light oil as a back-up fuel to enhance fuel supply reliability. FPL has contracted firm gas transportation on the Sabal Trail pipeline beginning by 2018. With the Sabal Trail pipeline in place, FPL will have sufficient natural gas transportation rights to meet the requirements of OCEC Unit 1. In addition, light fuel oil will be stored in sufficient quantities to allow OCEC Unit 1 to operate at full capacity for seventy-two (72) hours of continuous operation and can be resupplied with truck deliveries.

While it is true that the addition of the OCEC Unit 1 will increase FPL's dependence on natural gas, adding OCEC Unit 1 will improve FPL's overall heat rate. The efficiency of OCEC Unit 1 will allow FPL to reduce the total amount of natural gas needed to serve the needs of its customers. For example, when comparing actual gas usage and generation in 2014 to projected usage and generation in 2020 (the first full year of operation for the OCEC Unit 1), FPL projects that its gas usage, in millions of cubic feet will increase approximately 14.6 percent. However, generation from natural gas in gigawatt-hours is projected to increase 16.8 percent.

Conclusion

FPL's addition of the proposed OCEC Unit 1 will increase its dependence on natural gas and will not improve its overall fuel diversity. Although OCEC Unit 1 will not improve FPL's overall fuel diversity, we find the fuel-efficiency of the proposed OCEC Unit 1 will increase the overall fuel-efficiency of its system and that FPL's overall fuel supply reliability will be enhanced because the proposed OCEC Unit 1 will use light oil as a back-up fuel. We note that, while we must take into account all of the criteria listed in Section 403.519, F.S., in evaluating a utility's need determination petition, our determination may be based on a single criterion or any combination of the above statutory criteria. Fuel diversity is just one factor we must consider, and we find FPL has demonstrated a need based on the other criteria outlined in Section, 403.519, F.S.

E. Okeechobee Clean Energy Center Unit 1 Most Cost-Effective Alternative

We find that the OCEC Unit 1 is projected to save customers approximately \$72 million on a net present value basis when compared to the next best alternative. Therefore, we find that the OCEC Unit 1 is the most cost-effective option to meet FPL's projected needs starting in 2019.

FPL

FPL asserts the proposed OCEC Unit 1 is the most cost-effective alternative to meet FPL's customers' reliability needs. FPL's analyses accounted for all cost-effective, reasonably achievable DSM and renewable energy. FPL contends that it examined feasible self-build generation options, including combined-cycle units, combustion-turbine units, and solar PV facilities in order to meet its projected 2019 resource need. FPL removed coal-fired technologies

and new nuclear capacity from consideration due to environmental and timing concerns. FPL asserts the proposed OCEC Unit 1 is projected to save FPL's customers \$72 million CPVRR in electricity costs (current base case fuel forecast) over the next best self-build alternative analyzed. FPL contends the proposed unit is more cost-effective than any solar PV alternative analyzed. A market assessment was done under our Bid Rule, and no market alternatives were available to FPL. There is no option that is projected to result in lower electric rates for FPL's customers.

Intervenors

OPC, SACE, ECOSWF, and FIPUG argue that, because there is no need for FPL's proposed OCEC Unit 1 in 2019, the most cost-effective alternative is not to self-build any new generation. OPC asserts that a one year delay of the proposed OCEC Unit 1, as well as future capacity additions, would result in significant CPVRR savings of \$237 million. FIPUG argues that deferral of the proposed plant would be more advantageous to consumers and that the process for providing consumers with the most cost-effective option to meet FPL's needs was harmed by having only one party offer a competing bid to OCEC Unit 1.

SACE argues that FPL has had countless opportunities to pursue much higher levels of energy efficiency at a much lower cost than building new power plants but has failed to take advantage of these opportunities. SACE contends that, if FPL properly conducted its analyses, the results would have demonstrated that the utilization of solar PV and/or more energy efficiency, whether alone or in conjunction with a smaller version of the proposed OCEC Unit 1, would be a more cost-effective alternative. SACE asserts that FPL continues to underutilize renewable energy sources and technologies, in particular solar PV resources, which are more cost-effective than the proposed OCEC Unit 1.

ECOSWF argues that, to the extent there is any need, energy efficiency, clean energy, demand response and load management are more cost-effective alternatives. ECOSWF contends that FPL's proposed plant should be subject to the RIM test, which is the same cost-effectiveness tests we impose on energy efficiency measures and demand response programs. ECOSWF argues that, under the RIM test, the OCEC Unit 1 would be far from cost-effective.

Analysis

FPL's evaluation of self-build options to meet its projected need in 2019 was a multi-stage process, which resulted in the OCEC Unit 1, a 1,622 MW combined-cycle power plant located in Okeechobee County, being identified as the most economic self-build option to meet its future resource need. FPL testified that it initially considered gas-fired combined-cycles, simple cycle combustion-turbines, and PV facilities as generation options. As discussed in Section II, B above, FPL did not consider additional solar PV capacity as a replacement for the OCEC Unit 1 based on land requirements and cost constraints. As a result, FPL testified it continued its economic analyses, giving additional consideration to combined-cycle and combustion-turbine options.

FPL testified that its first stage analyses were performed during 2014, and used then current forecasts (such as load and fuel cost forecasts). The first stage of FPL's analyses identified the best site and generation type (combined-cycle or combustion-turbine). FPL evaluated sites located in Okeechobee, Putnam, and Hendry counties. The results of FPL's first stage of analyses identified the Okeechobee County site as the most economic site for new generation. The first stage of analyses additionally indicated that resource plans with combined-cycle units, placed in-service in 2019, were more cost-effective than resource plans with combustion-turbine units placed in-service that same year. FPL's original filing showed the OCEC Unit 1 as the most cost-effective option followed by six different combined-cycle combinations. The additional costs of the alternatives ranged from \$33 million to \$322 million net present value. At the hearing, the Company described how it evaluated other alternatives as follows:

Exhibit SRS-4 then presents the results of the first stage of FPL's analyses of these generating options. From these results, two conclusions were drawn. First, the best resource plan with a CC unit at the Okeechobee site was projected to be \$65 million CPVRR more economic than the best resource plan with a CC unit sited at Putnam. Therefore, the Putnam site was then removed from further consideration. Second, the best resource plan containing only simple cycle CT units was projected to be \$124 million CPVRR more expensive than the best CC resource plan. At that point, simple cycle CT-only generation options were removed from further consideration.¹⁵

Thereafter, FPL's on-going analyses focused on refining the specific characteristics of its combined-cycle options.

FPL's second stage analyses, performed in the second half of 2014 and in early 2015, incorporated updated assumptions and forecasts. FPL also received refreshed cost and performance values from the three vendors that were candidates to supply the combustion-turbine component of its combined-cycle power plant options. In its second stage analyses, FPL identified a combined-cycle based on GE technology as the most economic option. Additional refinements, including changes in the capacity and heat rate resulted in a 1,622 MW combined-cycle, with peak firing and wet compression, being identified as the most economic self-build option to meet FPL's future resource need.

On March, 16, 2015, FPL issued a Request for Proposals (RFP) to solicit non-FPL generation options that could be evaluated as an alternative to OCEC Unit 1. FPL testified that a total of 46 parties registered for the RFP. FPL testified that one registrant objected to aspects of the RFP in a filing to this Commission. By Order No. PSC-15-0171-PCO-EI,¹⁶ we determined that no changes to the RFP were needed.

¹⁵ Hearing Transcript, p. 42.

¹⁶ Order No. PSC-15-0171-PCO-EI, issued May 5, 2015, in Docket No. 150100-EI, In re: DeSoto County Generating Company, LLC's objections to Florida Power & Light Company's 2015 request for proposals.

Of the 46 bid registrants, FPL received one proposal in response to the RFP. The proposal was a power purchase agreement based on an existing combined-cycle unit located in Alabama. The Company also testified that the proposal failed to meet numerous minimum requirements, including that the proposal did not guarantee the availability and reliability values contained in the RFP. As such, FPL could not analyze purchased power options compared to the OCEC Unit 1 in this proceeding.

In response to a discovery request, provided on November 10, 2015, FPL provided updated analyses of OCEC Unit 1 and other self-build options. FPL's updated analyses incorporated updated load and fuel cost forecasts and its most current planning assumptions, such as a delayed in-service date for Turkey Point Units 6 and 7. The updated analyses reflect an enhanced version of OCEC Unit 1 (1,633 MW versus 1,622 MW) as well as enhanced combustion-turbine designs for combustion-turbine resource plans. Based on FPL's updated analyses, a resource plan that includes the OCEC Unit 1 in 2019 continues to remain the lowest cost option on a CPVRR basis. However, the addition of six combustion-turbine units are now the next best alternative, projected to cost an additional \$72 million CPVRR when compared to the proposed OCEC Unit 1 addition.

In FPL's original need filing, the option of six combustion-turbine units was projected to cost an additional \$259 million CPVRR when compared to the OCEC Unit 1 addition. The updated analyses project the overall customer savings of the proposed OCEC Unit 1 increasing from \$33 million to approximately \$72 million on a CPVRR basis. However, the updated analyses also has a different capital risk profile from a customer's perspective due to the lower capital costs associated with combustion-turbine units, \$672 million for the combustion-turbines versus \$1.2 billion for the OCEC Unit 1. In contrast with FPL's original filing, in which the next best alternative was another combined-cycle unit, the updated analyses suggest that the lower fuel costs associated with the OCEC Unit 1 may take several years to offset the initial capital cost difference when compared to combustion-turbine units. Such results are not surprising when comparing technologies with different capital to fuel cost ratios.

The intervenors argue that we should deny FPL's need determination based on changing FPL's planning reserve margin criterion from 20% to 15%. The intervenors allege that the reduced need for additional capacity will maintain reliability and improve the cost-effectiveness to customers. As previously discussed, the 20% reserve margin was established in a docket that involved multiple utilities as well as the FRCC and gave consideration to planned reserve margins in peninsular Florida. We have concerns that reducing the reserve margin for a single utility may have unintended adverse consequences on the reliability of the individual utility as well as peninsular Florida.

If we were to deny FPL's requested need, FPL testified that the Company would likely build combustion-turbine units. FPL acknowledged that both combustion-turbine models being considered are "capable of operating in simple cycle mode as a stand-alone combustion-turbine or as part of a combined cycle." Therefore, it appears FPL could first construct combustion-turbine units and later convert them to combined-cycle units to improve fuel efficiency. Such a phased-in approach would allow capacity to be added in smaller increments and preserve the

option of converting to a more fuel efficient generating unit at a later date. The reliability of the system would remain virtually identical and the initial capital cost to customers should be reduced compared to adding the proposed OCEC Unit 1 in 2019. However, this phased-in approach was not presented at the hearing.

We find that FPL's input assumptions are reasonable and that FPL performed the CPVRR analyses in a consistent manner.

Conclusion

The analyses in the record demonstrate that the OCEC Unit 1 is projected to save customers approximately \$72 million on a net present value basis when compared to the next best alternative. Therefore, we find the OCEC Unit 1 is the most cost-effective option to meet FPL's projected needs starting in 2019.

III. CONCLUSION

Pursuant to Section 403.519, F.S., this Commission is the sole forum for the determination of need for major new power plants. In making a determination of need, we must consider several factors: (1) the need for electric system reliability and integrity; (2) whether renewable generation or conservation measures taken by, or reasonably available to, the utility might mitigate the need for the proposed plant; (3) the need for adequate electricity at a reasonable cost; (4) the need for fuel diversity and supply reliability; and (5) whether the proposed plant is the most cost-effective alternative available. Our decision on a need determination petition must be based on the facts as they exist at the time of the filing with the underlying assumptions tested for reasonableness.

Our analyses and findings on the foregoing factors support the need for OCEC Unit 1 in 2019. The following summarizes our findings:

1. FPL's load forecast and use of a 20% reserve margin in this proceeding is reasonable.
2. No cost-effective DSM or renewable resources have been identified that could mitigate the need for OCEC Unit 1.
3. OCEC Unit 1 is expected to provide adequate electricity at a reasonable cost to FPL's customers.
4. Although OCEC Unit 1 will not enhance fuel diversity, FPL has taken steps to ensure supply reliability.
5. OCEC Unit 1 is the most cost-effective alternative compared to other self-build alternatives.

Based on the above findings, we grant FPL's requested determination of need. We add that it is prudent for a utility to continue to evaluate whether it is in the best interests of its ratepayers for a utility to participate in a proposed power plant before, during, and after construction of a generating unit. If conditions change from what was presented at the need determination proceeding, then a prudent utility would be expected to respond appropriately. In addition, we have an ongoing authority and obligation to ensure fair, just, and reasonable rates for Florida's utilities and ratepayers. Pursuant to Rule 25-22.082(15), F.A.C., if the public utility selects a self-build option, costs in addition to those identified in the need determination proceeding shall not be recoverable unless the utility can demonstrate that such costs were prudently incurred and due to extraordinary circumstances. FPL shall file an annual report regarding the status of the OCEC Unit 1, including any enhancements made to the unit, to this Commission's Director of the Division of Accounting and Finance.

Based on the foregoing, it is

ORDERED by the Florida Public Service Commission that the Environmental Confederation of Southwest Florida's Motion for Reconsideration and Clarification of Order No. PSC-15-0540-PCO-EI is denied. It is further

ORDERED that Florida Power & Light Company's Petition for Determination of Need for Okeechobee Clean Energy Center Unit 1, is hereby granted as set forth in the body of this Order. It is further

ORDERED that pursuant to Rule 25-22.082(15), F.A.C., if Florida Power & Light Company selects a self-build option, costs in addition to those identified in this need determination proceeding shall not be recoverable unless Florida Power & Light Company can demonstrate that such costs were prudently incurred and due to extraordinary circumstances. It is further

ORDERED that Florida Power & Light Company shall file an annual report regarding the status of the OCEC Unit 1, including any enhancements made to the unit, to this Commission's Director of the Division of Accounting and Finance. It is further

ORDERED that this docket shall be closed after the time for filing an appeal has run.

By ORDER of the Florida Public Service Commission this 19th day of January, 2016.

Carlotta S Stauffer

CARLOTTA S. STAUFFER

Commission Clerk

Florida Public Service Commission

2540 Shumard Oak Boulevard

Tallahassee, Florida 32399

(850) 413-6770

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Copies furnished: A copy of this document is provided to the parties of record at the time of issuance and, if applicable, interested persons.

KFC-LAA

NOTICE OF FURTHER PROCEEDINGS OR JUDICIAL REVIEW

The Florida Public Service Commission is required by Section 120.569(1), Florida Statutes, to notify parties of any administrative hearing or judicial review of Commission orders that is available under Sections 120.57 or 120.68, Florida Statutes, as well as the procedures and time limits that apply. This notice should not be construed to mean all requests for an administrative hearing or judicial review will be granted or result in the relief sought.

Any party adversely affected by the Commission's final action in this matter may request: 1) reconsideration of the decision by filing a motion for reconsideration with the Office of Commission Clerk, 2540 Shumard Oak Boulevard, Tallahassee, Florida 32399-0850, within fifteen (15) days of the issuance of this order in the form prescribed by Rule 25-22.060, Florida Administrative Code; or 2) judicial review by the Florida Supreme Court in the case of an electric, gas or telephone utility or the First District Court of Appeal in the case of a water and/or wastewater utility by filing a notice of appeal with the Office of Commission Clerk, and filing a copy of the notice of appeal and the filing fee with the appropriate court. This filing must be completed within thirty (30) days after the issuance of this order, pursuant to Rule 9.110, Florida Rules of Appellate Procedure. The notice of appeal must be in the form specified in Rule 9.900(a), Florida Rules of Appellate Procedure.