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2015 RFP FOR SOUTH FORK RESOURCES
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M E M O R A N D U M

TO: James Iwaneczko, New York State Office of the State Comptroller
FROM: Maria Gomes, Long Island Power Authority
RE: LIPA's 2015 Request for Proposals for South Fork Resources
DATE: January 27, 2017

I. EXECUTIVE SUMMARY:

The Long Island Power Authority ("LIPA") submits for review and approval the procurement process used to evaluate proposals submitted in response to the June 24, 2015 Request for Proposals for South Fork Resources ("2015 SF RFP") issued by PSEG Long Island LLC through its operating subsidiary, Long Island Electric Utility Servco LLC ("Servco"), as agent of and acting on behalf of Long Island Lighting Company d/b/a LIPA. Servco solicited proposals through the 2015 SF RFP to purchase generation, storage, synchronous condenser, and load reduction resources for a portfolio of projects.

The 2015 SF RFP, Section 1.2, stated the basic objective of the RFP was "to acquire sufficient local resources to meet expected peak load requirements until at least 2022 in the South Fork, and 2030 in the east of Buell area." This was further described in the RFP through the following interrelated objectives:

1. Meet the requirements of Reforming the Energy Vision¹ ("REV") via the PSEG Long Island Utility 2.0 East End Infrastructure Deferment² program.
2. Acquire additional local Power Production and/or Load Reduction resources in the South Fork to meet projected load growth and thereby defer the need for new transmission.
3. Support load demand in the South Fork to the degree necessary to avoid overload of existing transmission assets during transmission outages that limit transmission capacity to the South Fork load area.
4. Support system voltage in the South Fork to avoid voltage collapse during a transmission outage.

Using the criteria set forth in the 2015 SF RFP, this procurement process resulted in the selection of four projects:

- LI Energy Storage System, LLC's proposal for Montauk Energy Storage System (LIE100) (5 megawatt ["MW"]) in Montauk, NY,
- LI Energy Storage System, LLC's proposal for East Hampton Energy Storage System (LIE400) (5 MW) in East Hampton, NY,
- Deepwater Wind, LLC's proposal for Deepwater ONE South Fork³ (DWW100) (90 MW) offshore wind interconnecting in East Hampton, NY, and

¹ Reforming the Energy Vision (REV). <http://rev.ny.gov/>

² Utility 2.0 Long Range Plan Update Document dated October 6, 2014. <https://www.psegliny.com/files.cfm/Utility20-Documents-100614.pdf>

³ The official project name is now South Fork Wind Farm.

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- Applied Energy Group’s proposal for Load Reduction Resources (AEG100) (8.3 MW) located across the South Fork region.

The evaluation concluded that the selected portfolio best meets the objectives of the RFP and provides the Best Value⁴ to LIPA customers.

As explained in Section 1.1 of the 2015 SF RFP, load reduction services fall within Servco’s scope of services under the Amended and Restated Operation Services Agreement. Accordingly, the Energy Service Agreement (“ESA”) for the Applied Energy Group proposal is a service provider contract that will be executed by Servco, and is not subject to New York State Office of the State Comptroller (“OSC”) review. Nonetheless, the description of the procurement process for the Applied Energy Group project that resulted in the execution of the ESA is included with this submission to demonstrate the reasonableness and thoroughness of the procurement process.

II. BACKGROUND

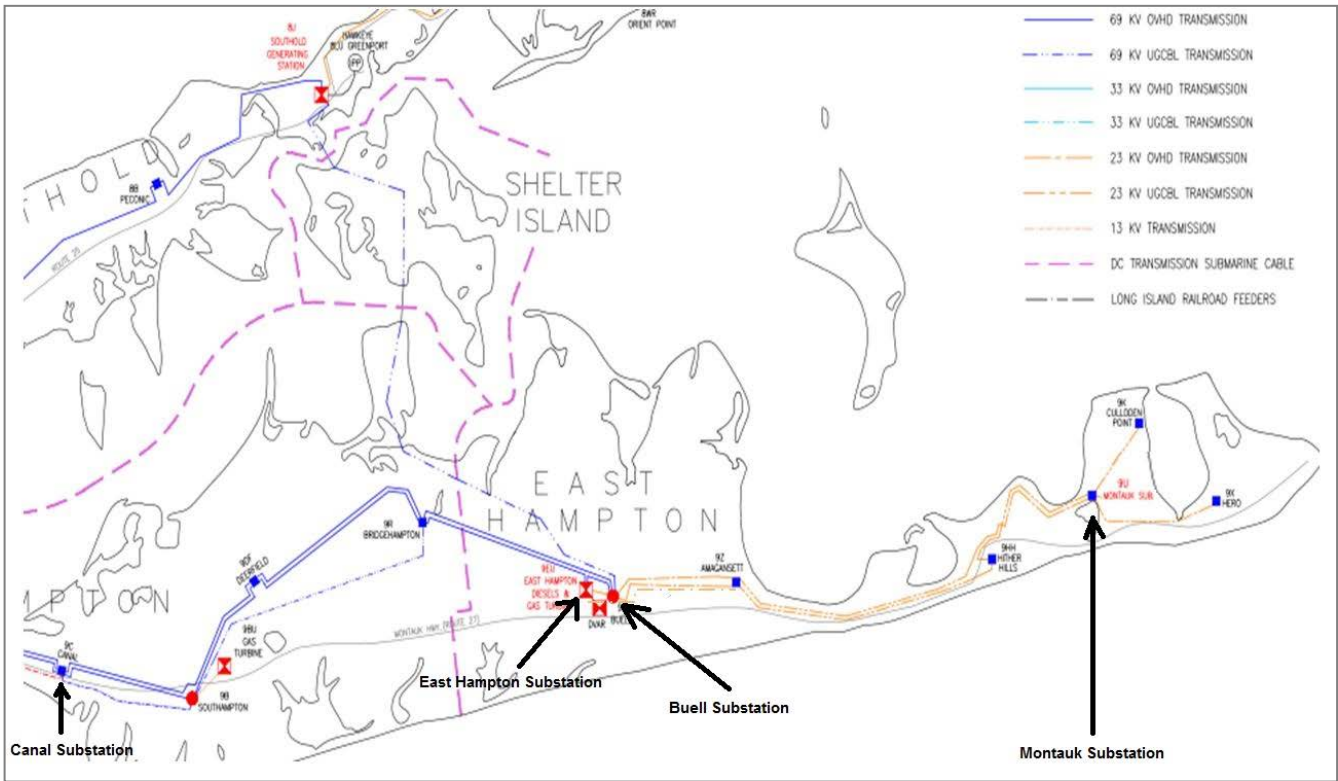
The portion of the transmission and distribution (“T&D”) system on the South Fork of Long Island is a peninsular load pocket with highly constrained transmission capabilities connecting this load pocket with the remainder of the LIPA transmission system. At the time the 2015 SF RFP was written, the peak load on the South Fork was projected to be 310 MW by 2019, and increase at a 2.5% average annual growth rate to 336 MW in 2022. The peak load of the far eastern area of the load pocket (i.e., east of the Buell substation in East Hampton) was projected to be 41 MW in 2019, and grow to 53 MW in 2030. There is insufficient time remaining to permit, construct and commission the transmission enhancements necessary to deliver power from the rest of Long Island to meet this load while maintaining system reliability; therefore, additional resources are needed to help meet the local need until transmission enhancements can be built. As an alternative to adding new transmission enhancements, the 2015 SF RFP sought to acquire sufficient local resources to meet expected peak load requirements until at least 2022 on the South Fork, and 2030 in the subarea east of Buell substation.

Section 1.2 and A6 of the 2015 SF RFP split the South Fork into three subareas (Area 1, Area 2, and Area 3). Throughout the evaluation process, and in this document, Area 1 refers to the subarea comprised of loads east of Amagansett, that are served by the Culloden Point, Hero, Hither Hills, and Montauk substations; Area 2 refers to the subarea comprised of loads served by the substations east of Buell, including the East Hampton, Buell and Amagansett substations; and Area 3 refers to the area comprised of loads served East of the Canal substation. Figure 1 shows the transmission map of the South Fork with substations identified.

⁴ Capitalized terms in this procurement memo have the meaning as set forth in the Evaluation Guide (*Attachment 7*) or the 2015 SF RFP (*Attachment 1*).

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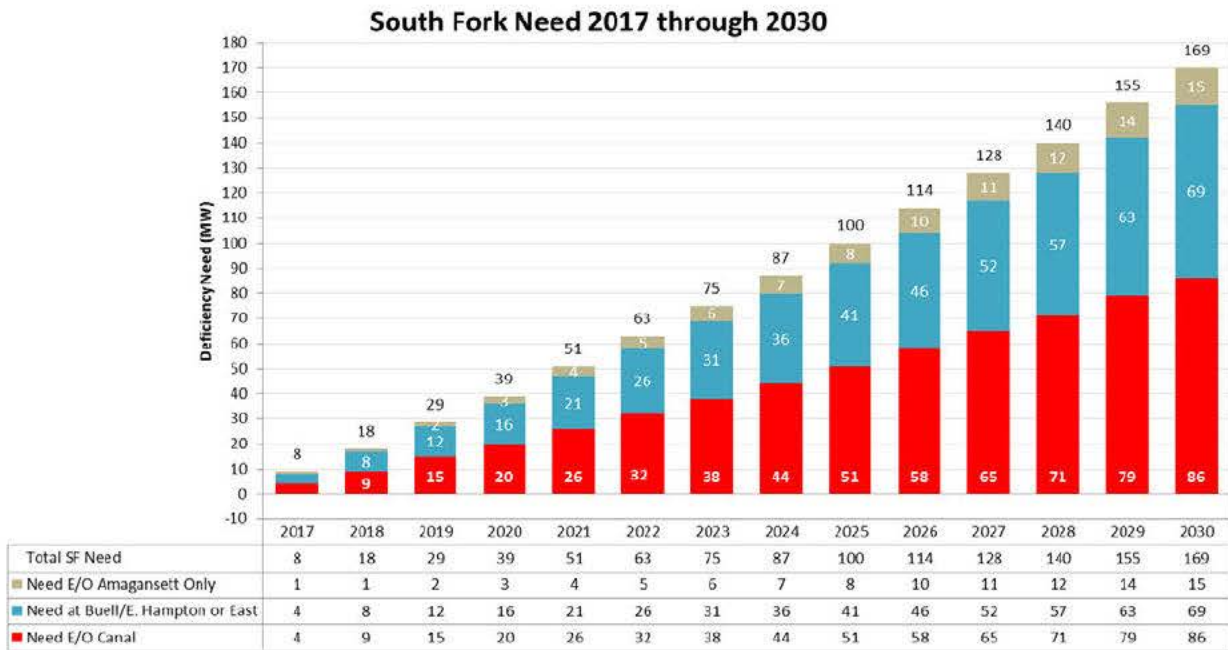
Figure 1 – Transmission Map of the South Fork



The 2015 SF RFP stated that as much as 169 MW of Load Reduction and/or Power Production resources may be selected in the portfolio of projects, which represented the total projected need on the South Fork in 2030. Depending on the combinations of proposals, Servco retained the option to select a reduced portfolio amount. As such, various transmission deferment schedules were considered depending on the ability of combinations of proposals to meet load requirements. As illustrated in the 2015 SF RFP and in Figure 2 below, the South Fork power resource (MW) deficiency need for the years 2017 through 2030 was forecasted to be a maximum of 169 MW.

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Figure 2 – South Fork Need (2017-2030)



The location and original schedule for the required transmission enhancements is shown in Table 1 below. (Note that the original schedule reflects in-service dates that were developed prior to the issuance of the 2015 SF RFP.)

Table 1 - Original Schedule for Transmission Enhancements

In-Service Year	Transmission Enhancement
2017	New Canal - Southampton 69 kV underground cable
2017	Upgrade Wildwood - Riverhead 69-955 overhead circuit to 138 kV
2017	Bridgehampton - Buell New 69 kV underground cable
2017	Amagansett 23 kV to 33 kV Conversion
2017	East Hampton 23 kV to 33 kV Conversion
2017	Buell 23 kV to 33 kV Conversion
2018	Hither Hills 23 kV to 33 kV Conversion
2019	Culloden Pt 23 kV to 33 kV Conversion
2020	2nd Riverhead - Canal 138 kV cable w/ Step-down Bank at Canal
2022	Canal - Wainscott New 138 kV underground Cable

At the July 25, 2013 LIPA Board of Trustees meeting the Trustees authorized LIPA to add, among other things, up to an additional 400 MW of renewable energy generation to LIPA’s resource portfolio through a variety of measures, including the 280 MW Renewable RFP issued in 2013 and the 2015 Renewable RFP, both of which remain in progress.

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Accordingly, proposals received in the 2015 SF RFP for renewable resources would be credited in the evaluation with avoiding costs associated with reaching this goal.

III. ISSUANCE OF THE RFP

On June 24, 2015, in accordance with the LIPA Guidelines Regarding the Use, Awarding, Monitoring and Reporting of Procurement Contracts (“LIPA Procurement Guidelines”), Servco issued the 2015 SF RFP along with a cover letter. The 2015 SF RFP was amended (*Attachment 1—Final 2015 SF RFP*) several times, as indicated below, to update the 2015 SF RFP, including but not limited to correcting references and updating submittal requirements. The posting of the 2015 SF RFP was also indicated in the New York State Contract Reporter on June 24, 2015 (*Attachment 2—Contract Reporter Posting*).

The 2015 SF RFP was posted on Servco’s website (www.psegliny.com) on June 24, 2015. Servco established the dedicated 2015 SF RFP website in order to facilitate communications between PSEG Long Island and potential respondents and to provide that all potential respondents had access to the same information throughout the 2015 SF RFP process. In addition to the designated contacts prescribed in Section 4.5 of the 2015 SF RFP, an administrative e-mail account (PSEGLI_SFRFP@Sargentlundy.com) was established and used for 2015 SF RFP correspondence between Servco and potential respondents to memorialize the communication process.

Servco held a webinar conference on July 14, 2015. Attendance at the webinar was not mandatory for proposal submittal. The webinar was attended by 60 registered attendees representing 56 potential respondents, as well as Servco’s staff and consultants (*Attachment 3—Respondent’s Webinar Attendance List*). During the webinar, Servco staff summarized the contents of the 2015 SF RFP, the form of agreements (Power Purchase Agreements and Energy Service Agreement), and the 2015 SF RFP evaluation process (*Attachment 4—Respondent’s Webinar Presentation*). The webinar included a question and answer session in which participants could ask questions related to the 2015 SF RFP. The presentation materials were posted on the dedicated 2015 SF RFP website.

Respondents had the opportunity to submit questions to Servco via the dedicated 2015 SF RFP website from June 24, 2015 through November 2, 2015. Servco received 124 questions, nine of which were considered confidential due to the nature of the question. Servco posted all non-confidential questions and answers on the website, which was accessible to all potential respondents. To provide anonymity, the name of the inquiring potential respondent was not included with the question. Servco answered the nine confidential questions by direct response through the 2015 SF RFP’s dedicated email. (*Attachment 5—Respondent Questions and Answers during Proposal Preparation*).

The 2015 SF RFP was amended four times as shown in Table 2 and posted on the 2015 SF RFP website (*Attachment 6—2015 SF RFP and Amendments 1-4*)

Table 2 – 2015 SF RFP Amendments

2015 SF RFP version	Date	Reason for Amendment
Original Issue	June 24, 2015	
Amendment 1	October 1, 2015	Amended to revise proposal submittal requirements, data submittal requirements, and firm pricing clarification.
Amendment 2	October 9, 2015	Amended to change question and proposal submittal deadlines.
Amendment 3	November 6, 2015	Amended to include a reference for voltage ride-through

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		capabilities.
Amendment 4	November 10, 2015	Amended to correct the environmental condition for minimum ambient air temperature.

IV. PROPOSAL EVALUATION PROCESS

The 2015 SF RFP procurement and evaluation process was similar to the process used in prior LIPA RFPs involving power purchases from proposed generation projects and followed LIPA’s Procurement Guidelines. Prior to receiving and opening the proposals, Servco established a Selection Committee (“SC”) and developed a comprehensive multi-phase evaluation process (“Evaluation Guide”) dated December 1, 2015 (*Attachment 7—2015 SF RFP Evaluation Guide*) that set forth among other things: the detailed evaluation process, a proposal completion checklist, benchmarks for scoring each qualitative evaluation criterion, a PPA scoring worksheet, and a description of the quantitative evaluation process. The SC was comprised of voting members and non-voting members. Voting members included Servco staff who were responsible for conducting the evaluation process and for recommending selection(s) to LIPA. The SC also included participation from non-voting Servco advisors and other consultants, as well as LIPA staff who participated in SC meetings and acted in an oversight role during the SC evaluation process. Servco also established an Executive Committee (“EC”), comprised of Servco senior management, intended to provide oversight and guidance to the SC on issues raised during the procurement process. Additionally, the SC informed and consulted with members of LIPA’s management throughout the evaluation process.

The purpose of the Evaluation Guide was to set forth the process and criteria for the SC to use in conducting the evaluation of the submitted Proposals to ensure that each member of the SC evaluated the proposals on a consistent basis. In accordance with Section 5.5 of the 2015 SF RFP, the Evaluation Guide was divided into four sections as follows:

- Receipt of Proposals
- Phase I – Categorize, Summarize, and Check Proposal Contents against 2015 SF RFP Requirements;
- Phase II – Initial Qualitative & Quantitative Proposal Screening Evaluation; and
- Phase III – Proposal(s) Selection Based on Detailed Qualitative & Quantitative Portfolio Evaluation.

Each proposal was evaluated individually by the SC through the end of Phase II. In accordance with the 2015 SF RFP Section 5.4 “Evaluation Criteria” and detailed in the Evaluation Guide, the Proposals were evaluated on both a quantitative and qualitative basis.

The Phase II Initial Quantitative Evaluation estimated the levelized costs of each of the Proposals. This evaluation included an assessment of the Net Present Value (“NPV”) and annual costs that the proposed project would impose on LIPA customers taking into consideration factors such as energy and capacity charges (i.e., proposal implementation costs), T&D reinforcements, avoided T&D costs (i.e., T&D system deferrals), and benefits of renewable energy credits. The quantitative evaluation process is detailed in Appendix 4 of the Evaluation Guide.

The qualitative evaluation covered the overall completeness, clarity, and quality of the Proposal, taking into consideration factors including, but not limited to, conformance with technical requirements, development and schedule risk, community impacts, environmental impacts, financing plan risk, and proposer’s experience and creditworthiness. In accordance with the Phase II Section of the Evaluation Guide, some criteria were assigned more importance and other criteria less importance.

In Phase II, the SC reviewed and rated each Proposal as to whether it “exceeds expectations” (i.e., green rating), “meets expectations” (i.e., yellow rating), or fell “below expectations” (i.e., red rating) in each of the relevant

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factors as fully defined in Appendix 2 of the Evaluation Guide. After all criteria were rated individually, the SC determined an overall Consensus Phase II Qualitative Evaluation rating for each Proposal using the same rating scheme (i.e., green, yellow, or red) as described in the Phase II section of the Evaluation Guide. The Evaluation Guide defines a Consensus rating as the rating agreed to by a majority of the SC with no member unwilling to support such rating. Phase II results determined which proposals would advance to Phase III of the evaluation as “Semi-Finalists.” The designation of proposals as Semi-Finalists was also agreed by the SC Consensus and was based on a combination of overall qualitative ratings and all-in levelized costs, but the SC also ensured that enough capacity was being advanced into Phase III (to the extent available) among the three subareas to meet the RFP objective of supporting the load demand in the subareas.

In Phase III, Proposals were evaluated both individually and in the context of portfolios whose aggregate load shapes provided adequate coverage of the service delivery hours, as defined in Section 1.2.1 of the 2015 SF RFP. The Phase III Detailed Quantitative Evaluation refined the Phase II Levelized Cost for each Semi-Finalist’s Proposal through additional detailed market dispatch simulation and determined the Levelized Cost of each portfolio. In Phase III, the SC supplemented its Phase II Qualitative Evaluation for Semi-Finalists, as necessary, through additional information the SC received from Semi-Finalists through the clarifying question process described in Section VI. Phase I Evaluation, provided that the information served to clarify the proposal and did not constitute a material change to the proposal. Additionally, a Phase III Detailed Qualitative Evaluation rating was developed by SC Consensus for each portfolio.

From the list of Semi-Finalist Proposals, the SC recommended Finalist Proposals based on establishing a portfolio of Proposals that represented the Best Value defined in the Evaluation Guide as proposal(s) which best achieves the criteria specified by Servco including, without limitation, quality, cost, and efficiency. Quality was evaluated through the Phase III Detailed Qualitative Evaluation where “exceeds expectations” ratings of the portfolios were valued highest. Cost effectiveness was evaluated through the Phase III Detailed Quantitative Evaluation where the lower combined levelized costs of the portfolios were valued highest. Efficiency was considered through both the qualitative and quantitative evaluations as how well the portfolio meets some or all of the 2015 SF RFP objectives described in Section 1.2 of the 2015 SF RFP.

V. RECEIPT OF PROPOSALS

The initial phase of the evaluation process included logging and reviewing each proposal to confirm that it met the mandatory submission requirements set forth in the 2015 SF RFP (e.g., received on-time with proper payment and in the proper form as specified in the 2015 SF RFP) to determine proposal responsiveness as required by LIPA Procurement Guidelines Section II.B.c.(x). The Evaluation Guide⁵ details the proposal receipt process. In accordance with Section 4.3 of the 2015 SF RFP, each proposal required receipt of a Proposal Submittal Fee of \$1.5 per kW of load reduction or power production offered. The purposes of the Proposal Submittal Fee are to ensure that only serious bids are received and to offset Servco’s costs for proposal evaluation and reduce costs to the LIPA ratepayer. Such Proposal Submittal Fees are common practice for utility RFPs and have been employed consistently by LIPA in prior power procurements. By December 2, 2015, Servco received proposals from the following 16 entities (listed in alphabetical order), consisting of a total of 21 proposals (*Attachment 8—2015 SF RFP Proposal Receipt Log* and *Attachment 9—Summary of Proposals Received*):

- Applied Energy Group (AEG100)
- AES Generation Development (AES100)
- Anbaric Microgrid II (ANB100)
- Baseload Power (BPC100)

⁵ The Evaluation Guide was finalized December 1, 2015, prior to the proposal submittal deadline of December 2, 2015.

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Convergent Energy + Power (CON100)
Deepwater Wind (One) (DWW100)
Deepwater Wind (Wainscott) (DWW200)
Deepwater Wind (Montauk) (DWW300)
EnergyHub (ENH100)
FuelCell Energy (FCE100)
Green Charge Networks (GCN100)
Halmar International (HAL100)
Landis+Gyr (LAN100)
LI Energy Storage System (Montauk) (LIE100)
LI Energy Storage System (Deerfield) (LIE200)
LI Energy Storage System (Southampton) (LIE300)
LI Energy Storage System (East Hampton) (LIE400)
NextEra Energy (NEX100)
RES America Developments (RES100)
SolarCity (SOL100)
Stem (STM100)

On December 9, 2015, the SC determined and the EC agreed that the proposal submitted by SolarCity Corporation (“SolarCity”) (SOL100) was non-responsive because it did not submit its Proposal Submittal Fee on or before the Proposal Submittal Deadline in accordance with Sections 3.1 and 4.3 of the 2015 SF RFP and did not submit a “red-line” mark-up of the Form of Agreement in accordance with Sections 3.2.24 and 2.3 of the 2015 SF RFP. As a result, the SC removed the proposal from further evaluation and, in accordance with 2015 SF RFP Section 5.5 and Phase I Section of the Evaluation Guide, sent a notification letter to SolarCity that their proposal was non-responsive (*Attachment 10— SolarCity Non-Responsive Determination Letter*).

The SC determined and the EC agreed that the remaining 20 proposals met the initial submission requirements (e.g., each was received on time with proper submission fee) and that each proposal would proceed to Phase I of the evaluation process.

VI. PHASE I EVALUATION

The purpose of the Phase I evaluation was to determine the completeness of each Proposal relative to the 2015 SF RFP requirements, and to ensure that the Respondents had provided all of the information required to fully evaluate each proposal. During this phase, the SC also sought to clarify and verify information provided through the issuance of clarifying questions, consistent with the 2015 SF RFP Section 5.1 and LIPA Procurement Guidelines clause B.1.c.iv. Prior to initiating the Phase I review, the SC developed a Proposal Completeness Checklist (Appendix 1 to the Evaluation Guide), which identified the content requested in each proposal. The detailed results of the review are documented in the Proposal Completeness Checklist (*Attachment 11—Phase I Proposal Completeness Checklist*).

On February 24, 2016, the SC determined and the EC agreed that the proposal submitted by Landis+Gyr (LAN100) was non-responsive because it did not satisfy the 2015 SF RFP requirements with respect to providing firm pricing and an implementation plan. Specifically, Section 2.5 of the 2015 SF RFP required that pricing be firm through September 30, 2017. Landis+Gyr, however, stated that its pricing was considered an estimate for the purposes of the 2015 SF RFP and was subject to revisions based on mutual development of the final product configuration, supply timelines, and scope of work. In addition, Appendix A3.2 of the 2015 SF RFP stated that it is the Respondent’s responsibility to manage, operate, and maintain the proposed Load Control solution with oversight from the SC. Landis+Gyr’s proposal, though, did not provide ongoing, day-to-

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day delivery and implementation of its proposed load reduction program. As a result of these two non-compliant conditions, the SC removed Landis+Gyr’s proposal from further evaluation and, in accordance with 2015 SF RFP Section 5.5 and Phase I Section of the Evaluation Guide, sent a notification letter on March 3, 2016, to Landis+Gyr that their proposal was non-responsive (*Attachment 12— Landis+Gyr Non-responsive Determination Letter*).

On February 10, 2016, the SC sought to clarify its understanding of Halmar International’s proposal (HAL 100). In response to SC clarifying questions, on January 20, 2016, Halmar International submitted what the SC viewed as a change to their proposed fuel pricing mechanism (i.e. fuel cost pass through using a fuel price formula indexed to a well-known commodity market index). The SC could not accept this new information due to 2015 SF RFP Section 4.9, which states that Respondents may not alter their proposals after the proposal due date. Also, the Evaluation Guide definition of Mandatory Criteria states that if certain proposal information (e.g. proposal pricing) is not provided at the Proposal Submittal Deadline, the proposal would be eliminated from consideration. The SC sent a notification letter on February 18, 2016 to Halmar International that their proposal was non-responsive. On February 22, 2016, Halmar International submitted a response explaining that their clarifications did not represent an alteration of their proposal and that their clarified fuel pricing mechanism remained the same as originally proposed. After reviewing Halmar International’s proposal, clarifications, and the contents of this letter, on February 24, 2016, the SC determined that HAL100 was responsive since their proposal provided a fuel cost pass through using a fuel price formula indexed to a well-known commodity market index and stated Halmar International would be responsible for fuel-related delivery and storage infrastructure. On March 4, 2016, the SC sent a letter to Halmar International notifying them that their proposal was responsive and would remain under evaluation (*Attachment 13— Halmar International Non-responsive Determination and Reinstatement*).

The SC determined that the remaining 19 proposals met the requirements necessary to fully evaluate the Proposals and that each proposal would proceed to Phase II of the evaluation process. Below is a list of the proposals and their disposition at the end of Phase I.

Applied Energy Group (AEG100)	– Proceed to Phase II
AES Generation Development (AES100)	– Proceed to Phase II
Anbaric Microgrid II (ANB100)	– Proceed to Phase II
Baseload Power (BPC100)	– Proceed to Phase II
Convergent Energy + Power (CON100)	– Proceed to Phase II
Deepwater Wind (One) (DWW100)	– Proceed to Phase II
Deepwater Wind (Wainscott) (DWW200)	– Proceed to Phase II
Deepwater Wind (Montauk) (DWW300)	– Proceed to Phase II
EnergyHub (ENH100)	– Proceed to Phase II
FuelCell Energy (FCE100)	– Proceed to Phase II
Green Charge Networks (GCN100)	– Proceed to Phase II
Halmar International (HAL100)	– Proceed to Phase II
Landis+Gyr (LAN100)	– Non-responsive in Phase I
LI Energy Storage System (Montauk) (LIE100)	– Proceed to Phase II
LI Energy Storage System (Deerfield) (LIE200)	– Proceed to Phase II
LI Energy Storage System (Southampton) (LIE300)	– Proceed to Phase II
LI Energy Storage System (East Hampton) (LIE400)	– Proceed to Phase II
NextEra Energy (NEX100)	– Proceed to Phase II
RES America Developments (RES100)	– Proceed to Phase II
Stem (STM100)	– Proceed to Phase II

VII. PHASE II EVALUATION

The purpose of Phase II was to perform an initial evaluation of individual Proposals (i.e., Proposals were not evaluated as part of a portfolio of projects in Phase II) that advanced to this phase for the purpose of determining which Proposals would advance to Phase III of the evaluation as “Semi-Finalists.” The 19 Phase II Proposals were quantitatively and qualitatively evaluated by the SC in accordance with the Phase II Section of the Evaluation Guide, which sets forth the process and the criteria used in this phase of the evaluation.

Consistent with the 2015 SF RFP Section 5.1 and LIPA Procurement Guidelines B.1.c.iv., the SC sent clarifying questions, to the remaining Respondents in order to further clarify the details of each Proposal as needed.

Phase II Qualitative Evaluations

As discussed in Section IV, the qualitative evaluation of proposals during Phase II involved reviewing and rating each proposal on 27 qualitative factors identified in the 2015 SF RFP Table 5-2 and as further defined in the Evaluation Guide Appendix 2. Of the 27 qualitative criteria, the SC considered that seven criteria would have the greatest impact to successful completion of the proposed solution. As stated in Phase II of the Evaluation Guide, not all criteria considered would be assigned the same level of importance. Based on Servco’s prior procurement experience, risks related to a Proposal’s schedule, site control, environmental and permitting, and community impact were considered critical to success of a project because these are characteristic risks that carry the possibility to significantly delay or prevent a project from being implemented. Therefore, the seven qualitative criteria related to schedule risk (i.e., criteria F1 and D), site control risk (i.e., criterion G2), environmental and permitting risk (i.e., criteria H and S), and community impact risk (i.e., criteria Q and R) were considered critical factors in determining the overall Consensus Phase II Qualitative Evaluation rating. During the development of the overall Consensus Phase II Qualitative Evaluation ratings for proposals, ratings in these seven qualitative criteria were considered when the SC was deciding a “tie-breaker” between assigning an overall qualitative rating (described below).

The qualitative criterion A, “Conformance to Technical Requirements” was evaluated, but considered to be less critical during the Phase II evaluation because the evaluation of technical requirements would be addressed in more detail during the Phase III evaluation. Similarly, the qualitative criteria for minority-owned, women-owned, and service-disabled veteran owned businesses (i.e., criteria T and U) were evaluated, but considered to be less critical during Phase II because the documentation for the MWBE and SDVOB plans would be addressed in more detail during the Phase III evaluation. During the development of the overall Consensus Phase II Qualitative Evaluation ratings for proposals, these three qualitative criteria were not considered when the SC was deciding a “tie-breaker” between two Consensus ratings.

Based on a review of the qualitative evaluation ratings for each Qualitative Evaluation Criterion, the SC assigned an overall Consensus Phase II Qualitative Evaluation rating for each proposal in accordance with the Phase II Section of the Evaluation Guide. The overall Consensus Phase II Qualitative Evaluation rating was developed independently for each proposal (i.e., qualitative criteria ratings from one Proposal did not impact another Proposal when developing the Consensus). Using the Qualitative Evaluation Rating Sheet in Appendix 5 of the Evaluation Guide showing all the qualitative criteria, the SC discussed the overall quality of the Proposal in terms of the represented green, yellow, or red ratings given to the Proposal and the importance of those criteria. As mentioned above, seven of the 27 criteria were considered to be critical during SC consensus discussions. When the SC was undecided between two qualitative ratings (i.e., between green or yellow, or between yellow or red) on an overall Consensus Phase II Qualitative Evaluation rating after considering all the 27 qualitative criteria, the SC then focused on the ratings of the seven critical criteria to reach a consensus on the final rating determination. No final rating was decided without all SC members being willing to support such rating. The detailed results of the evaluation are documented in the Phase II Qualitative workbook (*Attachment*

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14—Phase II Qualitative Workbook). The overall Consensus Phase II Qualitative Evaluation ratings for each Proposal are listed in Table 3 below.

Phase II Quantitative Evaluation

Based on the methodology described in Appendix 4 of the Evaluation Guide, the quantitative evaluation included a review of the prices to be paid by LIPA. An All-in Levelized Cost was estimated for each proposal that accounted for the costs, avoided costs, and credits including each proposal’s contribution to deferring transmission enhancements. The table below summarizes Phase II quantitative evaluation results. The detailed results of the evaluation are documented in the Phase II Quantitative workbook (*Attachment 15—Phase II Quantitative Workbook*).

Table 3 – Phase II Quantitative and Qualitative Evaluation Results

Proposal / Technology	Phase II Overall Qualitative Rating	Phase II All-in Levelized Cost ⁶ (2015\$/MWh)	Proposed Location (Subarea)
<i>Load Control Program</i>			
EnergyHub (ENH100)	Exceeds Expectations	(██████)	All Areas
Applied Energy Group (AEG100)	Exceeds Expectations	(██████)	All Areas
<i>Battery Storage</i>			
LI Energy Storage System (East Hampton) (LIE400)	Exceeds Expectations	██████	Area 2
LI Energy Storage System (Southampton) (LIE300)	Exceeds Expectations	██████	Area 3
LI Energy Storage System (Deerfield) (LIE200)	Exceeds Expectations	██████	Area 2
LI Energy Storage System (Montauk) (LIE100)	Exceeds Expectations	██████	Area 1
AES Generation Development (AES100)	Exceeds Expectations	██████	All Areas
Green Charge Networks (GCN100)	Exceeds Expectations	██████	Area 3
Deepwater Wind (Wainscott) (DWW200)	Meets Expectations	██████	Area 2
Deepwater Wind (Montauk) (DWW300)	Meets Expectations	██████	Area 1
Baseload Power (BPC100)	Meets Expectations	██████	Area 1
Convergent Energy + Power (CON100)	Below Expectations	██████	Area 1 and 3
Stem (STM100)	Below Expectations	██████	All Areas

⁶ All-in Levelized Cost equals present value of costs paid to proposer plus transmission interconnection costs, less avoided costs for energy, capacity, transmission enhancements, and renewable energy credits divided by the present value of the projected annual energy output. Some estimates of all-in levelized proposal cost resulted in negative values (or a “net benefit”), which represented a proposal that was less expensive than the least cost transmission enhancement alternative.

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Proposal / Technology	Phase II Overall Qualitative Rating	Phase II All-in Levelized Cost⁶ (2015\$/MWh)	Proposed Location (Subarea)
RES America Developments (RES100)	Below Expectations	■	Area 1
<i>Thermal Energy Storage</i>			
NextEra Energy (NEX100)	Exceeds Expectations	■	All Areas
<i>Fuel Cell</i>			
FuelCell Energy (FCE100)	Below Expectations	■	Area 3
<i>Off-shore Wind</i>			
Deepwater Wind (One) (DWW100)	Meets Expectations	■	Area 2
<i>Combustion Turbine</i>			
Halmar International (HAL100)	Below Expectations	■	Area 1
<i>Multiple Technologies</i>			
Anbaric Microgrid II (ANB100)	Meets Expectations	■	All Areas

Designation of Semi-Finalists Proposals

In general, the designation of Semi-Finalists, i.e., those proposals that would be advanced to Phase III, was based on a combination of overall qualitative ratings and all-in levelized costs, including an assessment that sufficient capacity was being advanced into Phase III among the three South Fork subareas to meet the 2015 SF RFP objective of supporting the specific customer load demand in the subareas (and contributing to the “efficiency” portion of Best Value discussed in Section IV). In accordance with the Phase II Section of the Evaluation Guide, proposals were grouped and evaluated by proposed technology. In some instances, proposals were advanced if they were the only proposal offering a particular technology to acknowledge the possibility during Phase III evaluation that such proposals might, through synergies with other resources, prove more valuable to a portfolio than on a stand-alone basis. In instances of SC designation to Semi-Finalist where the all-in levelized costs of proposals were similar, the overall qualitative rating was considered a deciding factor as a determination of Best Value.

Of the 19 proposals evaluated in Phase II, 13 were designated as Semi-Finalists for evaluation in Phase III. The Semi-Finalists consisted of the following Proposals:

- All three proposals (i.e., Energy Hub [ENH100], Applied Energy Group [“AEG”] [AEG100], and Anbaric Microgrid II [“Anbaric”] [ANB100]) offering load control technology were selected. The all-in levelized cost of each of the AEG and Energy Hub proposals was a net benefit and the overall qualitative rating of each proposal was “exceeds expectations”. Although the Anbaric proposal was a net cost and the overall qualitative rating was lower (i.e., “meets expectations”) than that of Energy Hub and AEG, it was designated as a Semi-Finalist because it was the only proposal with multiple technologies that could be integrated into a microgrid (i.e., it proposed storage, solar PV, IC engines as well as load control) and was offered separately or in combinations.

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- Two other proposals (i.e., Deepwater Wind [One] [DWW100] and Fuel Cell Energy [FCE100]) were designated as Semi-Finalists because their all-in levelized costs were a net benefit and they were the only proposals offering a particular technology. The Deepwater Wind proposal had a proposed Commercial Operation Date (“COD”) of December 31, 2022 (now advanced to December 1, 2022 in the power purchase agreement negotiations), which, while not meeting the preferred commercial operating dates stated in Section 2.1 of the 2015 SF RFP, did fall within the allowable time limit in the RFP. Additionally, Deepwater Wind was the only proposal offering offshore wind technology. The overall qualitative rating of the Fuel Cell Energy proposal was “below expectations,” but it was designated because it was the only proposal with fuel cell technology.
- Two proposals (i.e., NextEra Energy [NEX100] and Halmar International [HAL100]) were designated because they were the only proposals offering a particular technology. NextEra Energy’s proposal had a high all-in levelized cost but was the only proposal offering behind the meter thermal storage technology. The overall qualitative rating of the Halmar International proposal was “below expectations,” but it was the only proposal with bio-fuels or combustion turbine technology.

The remaining 12 of the 19 Proposals evaluated in Phase II utilized battery storage technology connected at the transmission or distribution level or a portfolio of customers’ locations behind their meters.

- Five of those proposals were designated as Semi-Finalists because each of their overall qualitative rating was “exceeds expectations” and their all-in levelized cost was lower than other battery proposals. These included one proposal from AES Generation Development (“AES”) (AES100) and four proposals from LI Energy Storage System (LIE100, LIE200, LIE300, and LIE400). One of the LI Energy Storage System proposal options, the 33 MW option in LIE400 at East Hampton, must be paired with the offshore wind proposal for the battery project to meet the 2015 SF RFP requirements⁷.
- A sixth proposal, by Green Charge Networks (GCN100), was designated because its overall qualitative rating was “exceeds expectations” and Green Charge Networks was applying for Minority Business Enterprise certification in New York.

The following six proposals were not designated Semi-Finalists:

- Three proposals (i.e., two battery storage proposals by Deepwater Wind [DWW200 and DWW300] and one by Baseload Power [BPC100]) had higher all-in levelized costs than the other remaining battery storage proposals, and sufficient MW from higher qualitatively rated battery storage proposals already had been designated in their proposed subareas.
- Two others (i.e., Convergent Energy + Power [CON100] and Stem [STM100]) were not designated because their overall qualitative rating was “below expectations” and sufficient MW from higher qualitatively rated battery storage proposals already had been designated in their proposed subareas.
- The proposal from RES America Developments (RES100) was not designated because the all-in levelized cost was high, the overall qualitative rating was “below expectations,” and sufficient MW from higher qualitatively rated battery storage proposals already had been designated in its proposed subarea.

A summary of the justification for designation of Semi-Finalists is documented in the Phase II Evaluation Summary (*Attachment 16—Phase II Evaluation Summary*).

⁷ The 2015 SF RFP section B7.1 requires that a proposed power production resource interconnected at the East Hampton Substation must be between 33 MW and 48 MW and have a continuous rated power capacity for 60 hours without recharging or contain a recharging source. The LIE400 33 MW proposal option does not meet this requirement unless coupled with a recharging source. This requirement does not apply to the other LIE400 proposal options with lower rated capacities (e.g. 5 MW option) because these other options are load reduction resources, not power production resources, as defined in sections A2 and B1, and B7.1 of the 2015 SF RFP.

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Phase II Results

Of the 19 proposals evaluated in Phase II, 13 were designated as Semi-Finalists by the SC and approved by the EC for evaluation in Phase III. In accordance with 2015 SF RFP Section 5.5, Servco sent notification letters to Respondents who proceeded to Phase III as Semi-Finalists on April 28, 2016 (*Attachment 17—Proposal Semi-Finalist Letters*) and to Respondents who were not advanced to Phase III on June 7, 2016 (*Attachment 18—Proposal Non-Selection Letters*).

Applied Energy Group (AEG100)	– Proceed to Phase III
AES Generation Development (AES100)	– Proceed to Phase III
Anbaric Microgrid II (ANB100)	– Proceed to Phase III
Baseload Power (BPC100)	– Not advanced to Phase III
Convergent Energy + Power (CON100)	– Not advanced to Phase III
Deepwater Wind (One) (DWW100)	– Proceed to Phase III
Deepwater Wind (Wainscott) (DWW200)	– Not advanced to Phase III
Deepwater Wind (Montauk) (DWW300)	– Not advanced to Phase III
EnergyHub (ENH100)	– Proceed to Phase III
FuelCell Energy (FCE100)	– Proceed to Phase III
Green Charge Networks (GCN100)	– Proceed to Phase III
Halmar International (HAL100)	– Proceed to Phase III
LI Energy Storage System (Montauk) (LIE100)	– Proceed to Phase III
LI Energy Storage System (Deerfield) (LIE200)	– Proceed to Phase III
LI Energy Storage System (Southampton) (LIE300)	– Proceed to Phase III
LI Energy Storage System (East Hampton) (LIE400)	– Proceed to Phase III
NextEra Energy (NEX100)	– Proceed to Phase III
RES America Developments (RES100)	– Not advanced to Phase III
Stem (STM100)	– Not advanced to Phase III

VIII. PHASE III EVALUATION

The purpose of Phase III was to establish a portfolio of Semi-Finalists' Proposals that together provided a Best Value solution for meeting the objectives of the 2015 SF RFP. The Best Value evaluation methodology, which conforms to LIPA Procurement Guidelines, is discussed in Section IV of this memorandum. The Evaluation Guide sets forth the process and the criteria used in this phase of the evaluation. Consistent with the Evaluation Guide, the SC sent additional clarifying questions, as needed, to the 13 remaining respondents during Phase III in order to further clarify the details of each proposal. As part of the Phase III evaluation process, the qualitative and quantitative analyses performed during Phase II for each Semi-Finalist's Proposal was reviewed and revised, if appropriate, based on the SC's due diligence in accordance with the Evaluation Guide as described below. Through information received from clarifying questions to Respondents, the SC further refined the qualitative evaluation ratings of specific qualitative criteria for each proposal. Although the Qualitative Evaluation Criteria ratings for some proposals changed, there were no changes to the overall qualitative ratings of proposals between Phase II and Phase III. Additionally, the SC evaluated portfolios and provided qualitative and quantitative ratings for them.

On July 6, 2016, at the conclusion of Phase III and in accordance with South Fork Evaluation Guide Selection of Finalist Proposals Option 2A, the SC recommended a portfolio of proposals to LIPA for Power Purchase Agreement negotiations as Finalists in the 2015 SF RFP.

Phase III Evaluation of Load Control Proposals:

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Based on the Phase II evaluation, the SC determined that the load control proposals were highly cost effective and received a “meets expectations” overall qualitative rating or higher. Also, the SC determined that none of the proposals for generation resources could reasonably achieve a May 2017 COD. To implement a program in time to meet the forecasted load in 2017, the three load control proposals were evaluated for implementation risk and cost effectiveness so that at least one of them could be selected for ESA negotiations as soon as possible. (2015 SF RFP Section 1.2.1 states that only one load reduction resource award will be made per technology class per customer segment). Therefore, the selected load control Proposal with the Best Value could be used as the load control component in the portfolios evaluated in the Phase III analysis. The proposals from AEG (AEG100), Anbaric (ANB100) (note that load control was only a portion of Anbaric’s proposal, but could be separately selected and was evaluated separately), and EnergyHub (ENH100) target the same customer base of residential and small businesses with the same load reduction technology (e.g., mainly controlling of customers’ HVAC systems and other large appliances such as pool pumps). While it might have been possible to split the award among more than one proposal, the amount of available load reduction on the South Fork, as well as program efficacy considerations regarding bidders potentially targeting the same customer base, were such that only one of the three proposals would be selected as a Finalist (in accordance with 2015 SF RFP Section 1.2.1).

AEG’s proposal provided a detailed marketing plan backed by its partner’s, CLEAResult, extensive experience on Long Island, had a schedule considered reasonably achievable, and included detailed annual load control technology targets. The AEG proposal has 8.3 MW of load reduction capacity across all three sub-areas of the South Fork. There was some uncertainty as to the actual MW achievable due to the potential for overstated estimates of load reduction in AEG’s measurement and verification plan, but the SC determined that the claimed amount of MW reduction was achievable.

EnergyHub’s development and marketing plan was evaluated as less effective than AEG’s in that EnergyHub did not present alternatives to leverage other types of load reduction technologies and market segments. In addition, EnergyHub did not fully describe how they would utilize existing and new energy efficiency programs and commercial business programs to better meet and exceed the MW targets. Therefore, EnergyHub’s development and marketing plan was considered a higher risk. While EnergyHub only proposed 4.1 MW of load reduction across all three areas, the SC determined that EnergyHub had a less effective marketing plan than AEG and might not achieve the claimed amount of MW reduction, Energy Hub did not provide load reduction estimates by area, and did not fully exploit the amount of available load reduction in the South Fork area.

Anbaric proposed 18.8 MW of load reduction across all three areas. However, the Anbaric proposal did not commit to providing load reduction until 2019 (i.e., well past the 2017 need date). Additionally, based on an independent load reduction study commissioned by LIPA⁸ two years prior to the RFP, the SC believed that the Anbaric proposal overstated the total availability of load reduction in the South Fork area. Furthermore, the all-in levelized costs of both the AEG and Energy Hub proposals are a net benefit while the all-in levelized energy cost of the load reduction portion of the Anbaric proposal is a net cost (see Table 4 below).

Since AEG provides a greater amount of load reduction with a more effective marketing plan compared to EnergyHub, and an overall net benefit compared to Anbaric, the SC selected AEG as a Finalist in Phase III. The AEG proposal was subsequently used as the load reduction component in each of the portfolios created for Phase III. Servo notified AEG during the week of August 12 that their proposal was selected as a Finalist in the 2015 SF RFP and began Energy Service Agreement negotiations on September 1, 2016. AEG was formally notified of the Finalist determination by letter on October 3, 2016 (*Attachment 19— Proposal Finalist Letters*).

⁸ Applied Energy Group. “Long Island – East End Energy Efficiency Initiative.” July 2013. Servco is not aware of another study that provides load reduction availability data in the South Fork region.

Table 4 – Phase III Load Reduction Quantitative Summary

	AEG	Anbaric*	EnergyHub
All-In Levelized Price (\$/MWh)	██████	████	██████)
Capacity Levelized Price (\$/kW-yr)	████	████	████
Total Net Cost (\$/yr)	████████	████████	████████
Area 1 Load Reduction (MW)	0.99***	3.76	0**
Area 2 Load Reduction (MW)	0***	7.51	0**
Area 3 Load Reduction (MW)	7.28***	7.51	4.10**
Total Load Reduction (MW)	8.27	18.78	4.10

* Anbaric’s proposal consists of multiple technologies; the data shown here reflects only the load reduction portion.
 ** Energy Hub did not provide an estimated breakdown of load reduction by area so the amount is assigned to Area 3.
 *** Although AEG proposed load reduction across all areas, AEG only quantified the breakdown of the total load reduction between Area 1 and the remaining two areas. That remainder amount is assigned to Area 3 in the quantitative analysis.

Phase III Portfolio Evaluation

Based on the process outlined in the *Development of Portfolios of Semi-Finalist Proposals* Section of the Evaluation Guide and to address the South Fork resource need, the SC assembled nine portfolios of three to eight Semi-Finalist proposals each, such that each Semi-Finalist proposal was included in at least one of the portfolios. The portfolios took into consideration potential interferences of proposals where the proposals utilized the same interconnection point or the amount of charging capacity for the battery storage proposals was limited by the system.

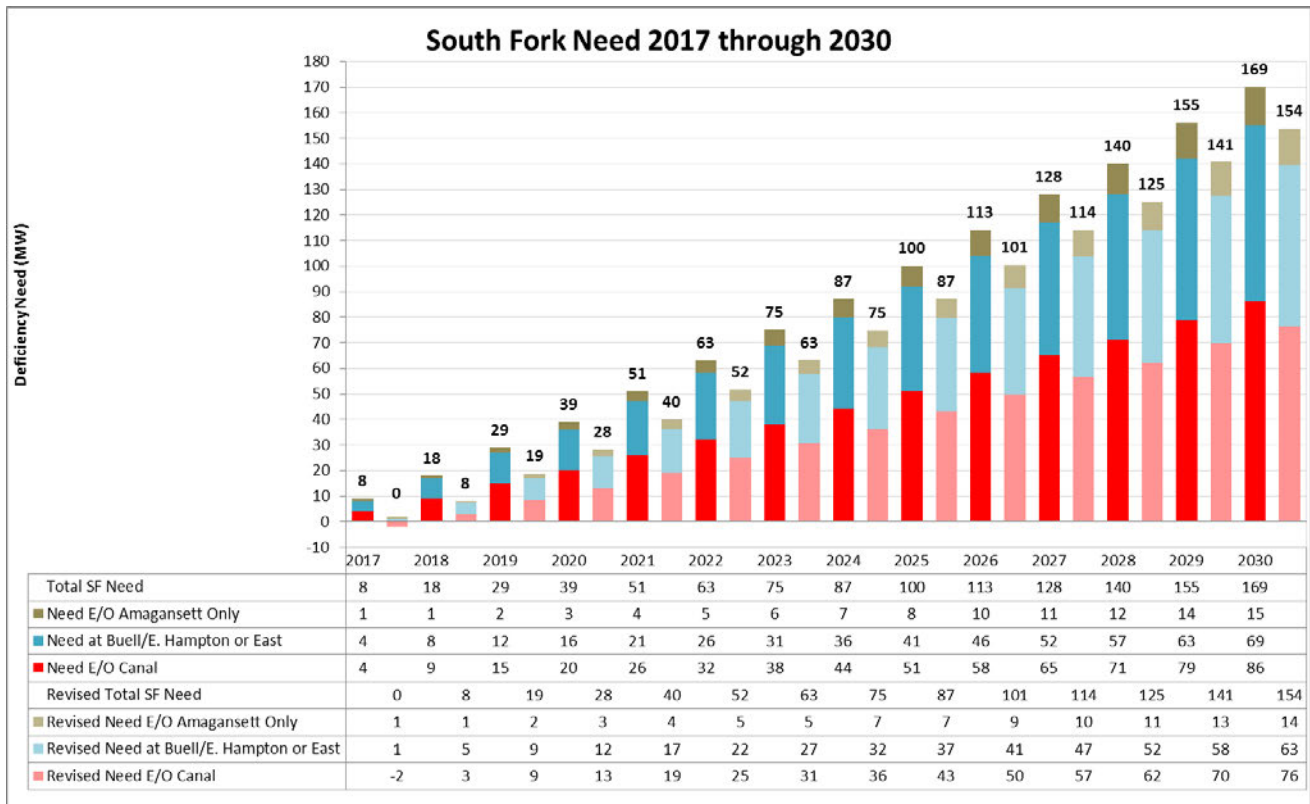
The total South Fork resource need to be addressed by the selected portfolio is shown in Figure 1-2 of the 2015 SF RFP. Prior to commencing the Phase III portfolio evaluation process, however, the SC updated the South Fork forecast, which resulted in a slightly reduced total resource need. These updates included:

- An updated load forecast showing a 5 MW reduction by 2020,
- Recognition of the capability to transfer load between neighboring substations by switching the connection of certain distribution feeders, which had the effect of a 6.3 MW reduction in total South Fork need.

Based on the above updates, the revised South Fork deficiency need is shown in Figure 3 below.

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Figure 3 – South Fork Original and Revised Need (2017-2030)



Furthermore, in evaluating the Semi-Finalist proposals for non-load control resources, the SC incorporated the implementation of the proposal from AEG for load control on the South Fork. The load control resources will be a combination of HVAC and pool pump controls for residential and small business customers. The decision to implement a load reduction proposal was made when it became apparent that a transmission solution or permanent generation would not be available in 2017 (or 2019 in the case of transmission) and some amount of load relief was required to mitigate overall demand. AEG, rather than Anbaric or Energy Hub, was considered to have the best proposal. AEG’s commitments are as follows:

- 3.1 MW in 2017
- An additional 2.5 MW in 2018 (i.e., total of 5.6 MW)
- An additional 2.7 MW in 2019 (i.e., total of 8.3 MW)

With the incorporation of the above changes to the South Fork deficiency need and the AEG Load Control Proposal (AEG100), the overall capacity need for additional resources in 2022 was established at 43.4 MW (5 MW reduction from the revised forecast, 6.3 MW reduction from the load transfers, and 8.3 MW reduction from AEG’s 2019 commitment). In addition, since none of the portfolios achieved all of the desired load reduction in 2017, each of the nine portfolios included an allowance for temporary generation for 2017 to meet transmission contingencies before 2018, consisting of:

- 4 MW at Montauk
- 4 MW at East Hampton

Each of the nine portfolios (i.e., Portfolios 1 through 9) analyzed during Phase III incorporated all the above noted changes to the total resource need for the South Fork. Descriptions of the nine portfolios developed for

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Phase III evaluation are described below and documented in the South Fork Portfolio Options (*Attachment 20—South Fork Portfolio Options*).

Portfolio 1 - Transmission Only with Delay to 2019 (Portfolio A)⁹

LIPA and Servco would implement the ten transmission enhancements (shown in Table 1 in Section II) with in-service dates deferred from the original schedule. The transmission projects' proposed revised in-service dates are shown in Table 3, below. The changes to resource need discussed previously in this section would allow for the delayed 2019 start of these enhancements while still meeting the reliability needs of the South Fork. The first set of these transmission enhancements would be placed into service in 2019 in the highest priority areas. This portfolio would require and includes additional temporary generation of 18 MW in 2018 (4 MW at Montauk; 14 MW at East Hampton) and 4 MW in 2019 at Montauk to meet transmission contingencies.

[Note that the transmission enhancement in-service dates by portfolio are documented in *Attachment 21—Transmission Enhancement In-service Dates by Portfolio.*]

Table 5 shows the expected in-service dates of the ten transmission enhancements under this portfolio.

Table 5 - Schedule for Transmission Projects Included in Portfolio 1

In-Service Year	Transmission Enhancement	Years of Deferral
2019	New Canal - Southampton 69 kV underground cable	2
2019	Upgrade Wildwood - Riverhead 69-955 overhead circuit to 138 kV	2
2019	Bridgehampton - Buell New 69 kV underground cable	2
2020	Amagansett 23 kV to 33 kV Conversion	3
2020	East Hampton 23 kV to 33 kV Conversion	3
2020	Buell 23 kV to 33 kV Conversion	3
2021	Hither Hills 23 kV to 33 kV Conversion	3
2022	Culloden Pt 23 kV to 33 kV Conversion	3
2022	2nd Riverhead - Canal 138 kV cable w/ Step-down Bank at Canal	2
2025	Canal - Wainscott New 138 kV underground Cable	3

This portfolio meets the forecasted load requirements at least through 2030.

Portfolio 2 - Renewables, Storage and Traditional Generation (Portfolio F)

LIPA and Servco would implement a combination of 2015 SF RFP proposals to meet the peak load forecast and defers all ten transmission enhancements beyond 2022 as intended in the 2015 SF RFP objective. The offshore wind proposal (DWW100) is included in part to support LIPA's renewable policy goals as indicated in the 2015 SF RFP REV objective. In addition to the changes to resource need discussed at the beginning of the "Phase III Portfolio Evaluation" section, this portfolio includes:

- A 5.1 MW battery storage installation connected at the Montauk substation. (LIE101)
- A 33 MW battery storage project connected at the East Hampton substation. (LIE401)
- A 90 MW offshore wind project (33 MW Unforced Capacity ["UCAP"], as defined in the New York Independent System Operator ["NYISO"] Installed Capacity Manual) also connected at the East

⁹ Letter designations for portfolios were used for presentation purposes when only the portfolios with satisfactory qualitative ratings were being discussed.

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Hampton substation. The project would be installed by 2023, and would be available to charge the 33 MW battery storage project at the East Hampton substation. (DWW101)

- A 9.3 MW fuel cell technology project connected at the Southampton substation. (FCE101) Although the overall qualitative rating of the Fuel Cell Energy proposal was “below expectations,” it was included in the portfolio because it was the only proposal with fuel cell technology.
- An 11 MW combustion turbine fueled with biofuel connected at the East Hampton substation that will provide backup to the offshore wind project. (HAL101) Although the overall qualitative rating of the Halmar proposal was “below expectations,” it was included in the portfolio because it was the only proposal with biofuels or combustion turbine technology.
- A 4.5 MW combustion turbine fueled with biofuel connected at the Montauk substation that will charge the 5.1 MW battery project during the off-peak hours and help meet the load during the peak hours. (HAL101)

This portfolio meets the forecasted load requirements through 2023 with the above resources. After 2023, either transmission enhancements would need to be implemented or additional resources would need to be procured to meet the reliability needs (or a combination of transmission and additional resources). The quantitative evaluation of this portfolio included the impact of the deferred transmission enhancements according to the in-service dates shown in Table 6.

Table 6 - Implementation Dates for Transmission Projects Deferred by Portfolio 2

In-Service Year	Transmission Enhancement	Years of Deferral
2024	New Canal - Southampton 69 kV underground cable	7
2024	Upgrade Wildwood - Riverhead 69-955 overhead circuit to 138 kV	7
2024	Bridgehampton - Buell New 69 kV underground cable	7
2025	Amagansett 23 kV to 33 kV Conversion	8
2025	East Hampton 23 kV to 33 kV Conversion	8
2025	Buell 23 kV to 33 kV Conversion	8
2026	Hither Hills 23 kV to 33 kV Conversion	8
2027	Culloden Pt 23 kV to 33 kV Conversion	8
2027	2nd Riverhead - Canal 138 kV cable w/ Step-down Bank at Canal	7
2029	Canal - Wainscott New 138 kV underground Cable	7

Portfolio 3 - Transmission and Storage Plus Offshore Wind and Paired Battery (Portfolio E)

LIPA and Servco would implement a combination of 2015 SF RFP proposals, some additional temporary generation to meet transmission contingencies, and implementation of the ten transmission enhancements but deferred from their original schedule. The offshore wind proposal (DWW100) is included in part to support LIPA’s renewable policy goals as indicated in the 2015 SF RFP REV objective. In addition to the changes to resource need discussed at the beginning of the “Phase III Portfolio Evaluation” section, this portfolio includes:

- A 5.1 MW battery storage installation connected at the Montauk substation. (LIE101)
- A 33 MW battery storage project connected at the East Hampton substation. (LIE401)

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- A 90 MW offshore wind project (33 MW UCAP, as defined in the NYISO Installed Capacity Manual) also connected at the East Hampton substation. The project would be installed by 2023, and would be available to charge the 33 MW battery storage project at the East Hampton substation. (DWW101)
- Additional temporary generation at Montauk of 4 MW in 2018 and in 2019.

Table 7 shows the expected in-service dates of the ten transmission enhancements under this portfolio.

Table 7 – Schedule for Transmission Projects Included in Portfolio 3

In-Service Year	Transmission Enhancement	Years of Deferral
2020	New Canal - Southampton 69 kV underground cable	3
2020	Upgrade Wildwood - Riverhead 69-955 overhead circuit to 138 kV	3
2020	Bridgehampton - Buell New 69 kV underground cable	3
2020	Amagansett 23 kV to 33 kV Conversion	3
2020	East Hampton 23 kV to 33 kV Conversion	3
2020	Buell 23 kV to 33 kV Conversion	3
2021	Hither Hills 23 kV to 33 kV Conversion	3
2022	Culloden Pt 23 kV to 33 kV Conversion	3
2026	2nd Riverhead - Canal 138 kV cable w/ Step-down Bank at Canal	6
2028	Canal - Wainscott New 138 kV underground Cable	6

This option meets the forecasted load requirements at least through 2030 with the above resources and transmission enhancements schedule.

Portfolio 4 - Renewables, Storage, and Enhanced Local Resources (Portfolio G)

This portfolio was developed as a variation of Portfolio 3. LIPA and Servco would implement a combination of 2015 SF RFP proposals as well as enhanced enrollment of existing customer-based energy efficiency, direct load control, and solar PV programs facilitated through joint efforts between Servco and local community groups such as the Southampton Town Sustainability Committee. The offshore wind proposal (DWW100) is included in part to support LIPA’s renewable policy goals as indicated in the 2015 SF RFP REV objective. In addition to the changes to resource need discussed at the beginning of the “Phase III Portfolio Evaluation” section, the portfolio includes:

- A 5.1 MW battery storage installation connected at the Montauk substation. (LIE101)
- A 33 MW battery storage project connected at the East Hampton substation. (LIE401)
- A 90 MW offshore wind project (33 MW UCAP, as defined in the NYISO Installed Capacity Manual) also connected at the East Hampton substation. The project would be installed by 2023, and would be available to charge the 33 MW battery storage project at the East Hampton (DWW101).
- 26 MW of enhanced enrollment in existing customer-based solutions, including energy efficiency, direct load control, and solar photovoltaic resources to meet portfolio requirements by 2022.

This portfolio meets the forecasted load requirements through 2022 with the above resources. After 2022, either transmission enhancements would need to be implemented or additional resources would need to be procured to meet the reliability needs, or a combination of transmission and additional resources. The quantitative evaluation of this portfolio included the impact of the deferred transmission enhancements according to the in-service dates shown in Table 8.

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Table 8 – Implementation Dates for Transmission Projects Deferred by Portfolio 4

In-Service Year	Transmission Enhancement	Years of Deferral
2023	New Canal - Southampton 69 kV underground cable	6
2023	Upgrade Wildwood - Riverhead 69-955 overhead circuit to 138 kV	6
2023	Bridgehampton - Buell New 69 kV underground cable	6
2023	Amagansett 23 kV to 33 kV Conversion	6
2023	East Hampton 23 kV to 33 kV Conversion	6
2023	Buell 23 kV to 33 kV Conversion	6
2024	Hither Hills 23 kV to 33 kV Conversion	6
2024	Culloden Pt 23 kV to 33 kV Conversion	5
2026	2nd Riverhead - Canal 138 kV cable w/ Step-down Bank at Canal	6
2028	Canal - Wainscott New 138 kV underground Cable	6

After some consideration, this portfolio was removed from further assessment because it did not appear feasible to obtain 26 MW of local load control and enhanced local resources over and above the existing Servco customer programs and the AEG proposal (AEG100) already earmarked to meet peak load needs as indicated at the beginning of the “Phase III Portfolio Evaluation” section.

Portfolio 5 - Renewables, Storage and Traditional Generation (no offshore wind) (Portfolio H)

LIPA and Servco would implement a combination of 2015 SF RFP proposals to meet the peak load forecast and defer the ten transmission enhancements beyond their original in-service dates. In addition to the changes to resource need discussed at the beginning of the “Phase III Portfolio Evaluation” section, the portfolio includes:

- Three 5.1 MW battery storage installations from a single vendor; one connected at each of the following substations: Montauk, East Hampton, and Southampton. (AES101)
- A fourth 5.1 MW battery storage project from a second vendor connected at the Deerfield substation. (LIE202)
- A fifth 5.1 MW battery storage project from the second vendor connected at the Southampton substation. (LIE302)
- An 11 MW combustion turbine fueled with biofuel connected at the East Hampton substation. (HAL101) Although the overall qualitative rating of the Halmar proposal was “below expectations,” it was included in the portfolio because it was the only proposal with biofuels or combustion turbine technology.
- A 4.5 MW combustion turbine fueled with biofuel connected at the Montauk substation that will charge the 5.1 MW battery project during the off-peak hours and help meet the load during the peak hours. (HAL101) Although the overall qualitative rating of the Halmar proposal was “below expectations,” it was included in the portfolio because it was the only proposal with biofuels or combustion turbine technology.
- A 5.1 MW microgrid project (consisting of demand response and batteries backed up by 5 MW of IC engines fueled with diesel) connected at the Montauk substation. (ANB109)
- A 10.3 MW microgrid project (consisting of solar PV, demand response, and batteries backed up by 10 MW of IC engines fueled with diesel) connected at the East Hampton substation. (ANB109)
- 5.3 MW of thermal energy storage projects at customer locations (behind-the meter)—0.7 MW in Area 1; 1.2 MW in Area 2; and 3.5 MW in Area 3. (NEX101)

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- 0.5 MW of batteries projects at customer locations (behind-the-meter)—assumed in Area 3, but would probably be spread in all areas. (GCN101)

This portfolio meets the forecasted load requirements through 2022 with the above resources. After 2022, either transmission enhancements would need to be implemented or additional resources would need to be procured to meet the reliability needs (or a combination of transmission and additional resources). The quantitative evaluation of this portfolio included the impact of the deferred transmission enhancements according to the in-service dates shown in Table 9.

Table 9 – Implementation Dates for Transmission Projects Deferred by Portfolio 5

In-Service Year	Transmission Enhancement	Years of Deferral
2023	New Canal - Southampton 69 kV underground cable	6
2023	Upgrade Wildwood - Riverhead 69-955 overhead circuit to 138 kV	6
2023	Bridgehampton - Buell New 69 kV underground cable	6
2026	Amagansett 23 kV to 33 kV Conversion	9
2026	East Hampton 23 kV to 33 kV Conversion	9
2026	Buell 23 kV to 33 kV Conversion	9
2027	Hither Hills 23 kV to 33 kV Conversion	9
2028	Cullogen Pt 23 kV to 33 kV Conversion	9
2027	2nd Riverhead - Canal 138 kV cable w/ Step-down Bank at Canal	7
2029	Canal - Wainscott New 138 kV underground Cable	7

Portfolio 6 - Renewables and Traditional Generation (limited battery storage) (Portfolio B)

LIPA and Servco would implement a combination of 2015 SF RFP proposals, some additional temporary generation to meet the peak load forecast and transmission contingencies, and defer the ten transmission enhancements beyond their original in-service dates. The offshore wind proposal (DWW100) is included in part to support LIPA’s renewable policy goals as indicated in the 2015 SF RFP REV objective. In addition to the changes to resource need discussed at the beginning of the “Phase III Portfolio Evaluation” section, the projects include:

- 25.6 MW of reciprocating internal combustion engines fired by ultra-low sulfur diesel fuel (5.1 MW in Area 1; 10.3 MW in Area 2; and 10.3 MW in Area 3). (ANB108)
- A 33 MW battery storage project connected at the East Hampton substation. (LIE401)
- A 90 MW offshore wind project (33 MW UCAP, as defined in the NYISO Installed Capacity Manual) also connected at the East Hampton substation. The project would be installed by 2023, and would be available to charge the 33 MW battery storage project at the East Hampton substation. (DWW101)
- Additional temporary generation of 4 MW at Montauk in 2018 to meet transmission contingencies.

This portfolio meets the forecasted load requirements through 2023 with the above resources. After 2023, either transmission enhancements would need to be implemented or additional resources would need to be procured to meet the reliability needs (or a combination of transmission and additional resources). The quantitative evaluation of this portfolio included the impact of the deferred transmission enhancements according to the in-service dates shown in Table 10.

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Table 10 – Implementation Dates for Transmission Projects Deferred by Portfolio 6

In-Service Year	Transmission Enhancement	Years of Deferral
2024	New Canal - Southampton 69 kV underground cable	7
2024	Upgrade Wildwood - Riverhead 69-955 overhead circuit to 138 kV	7
2024	Bridgehampton - Buell New 69 kV underground cable	7
2025	Amagansett 23 kV to 33 kV Conversion	8
2025	East Hampton 23 kV to 33 kV Conversion	8
2025	Buell 23 kV to 33 kV Conversion	8
2026	Hither Hills 23 kV to 33 kV Conversion	8
2027	Culoden Pt 23 kV to 33 kV Conversion	8
2027	2nd Riverhead - Canal 138 kV cable w/ Step-down Bank at Canal	7
2029	Canal - Wainscott New 138 kV underground Cable	7

Portfolio 7 - Delayed Transmission (first projects by summer 2021) and Storage Plus Offshore Wind (Portfolio I)

This portfolio was developed as a variation of Portfolio 8 whereby the transmission enhancements are delayed by two years compared to Portfolio 8. By the summer of 2021, LIPA and Servco would implement the first three of ten transmission enhancements that were originally to be deferred. A selected number 2015 SF RFP storage projects are implemented to meet peak load capacity needs in 2017 through 2020, and the offshore wind proposal (DWW100) is included in part to support LIPA’s renewable policy goals as indicated in the 2015 SF RFP REV objective. In addition to the changes to resource need discussed at the beginning of the “Phase III Portfolio Evaluation” section, the projects include:

- A 9.2 MW battery storage installation connected at the East Hampton substation.
- A 5.1 MW battery storage installation connected at the Montauk substation.
- A 5.1 MW battery storage project connected at the East Hampton substation.
- A 90 MW offshore wind project (33 MW UCAP, as defined in the NYISO Installed Capacity Manual) also connected at the East Hampton substation. The project would be installed by 2023, and would be available to charge the 5.1 MW and 9.2 MW battery storage projects at the East Hampton substation.
- Additional temporary generation of 25 MW across the South Fork to meet transmission contingencies in 2020.

Table 11 shows the expected in-service dates of the ten transmission enhancements under this portfolio. The quantitative evaluation of this portfolio included the impact of the deferred transmission enhancements according to these in-service dates.

Table 11 – Schedule for Transmission Projects Included in Portfolio 7

In-Service Year	Transmission Enhancement	Years of Deferral
2021	New Canal - Southampton 69 kV underground cable	4
2021	Upgrade Wildwood - Riverhead 69-955 overhead circuit to 138 kV	4
2021	Bridgehampton - Buell New 69 kV underground cable	4
2022	Amagansett 23 kV to 33 kV Conversion	5
2022	East Hampton 23 kV to 33 kV Conversion	5
2022	Buell 23 kV to 33 kV Conversion	5

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In-Service Year	Transmission Enhancement	Years of Deferral
2023	Hither Hills 23 kV to 33 kV Conversion	5
2024	Culloden Pt 23 kV to 33 kV Conversion	5
2024	2nd Riverhead - Canal 138 kV cable w/ Step-down Bank at Canal	4
2028	Canal - Wainscott New 138 kV underground Cable	6

This option meets the forecasted load requirements at least through 2030 with the above resources and transmission enhancements schedule.

Nevertheless, this portfolio is not considered feasible because it was considered that the approximately 25 MW of temporary generation needed to meet peak load needs in the summer of 2020 would be unacceptable to the community. Consequently, this option was removed from further assessment.

Portfolio 8 - Transmission and Storage Plus Offshore Wind (Portfolio C)

LIPA and Servco would begin implementation of some of the transmission enhancements identified in Table 1 in the summer of 2019. A selected number of 2015 SF RFP storage projects are implemented to meet peak load capacity needs from 2017 through 2019, and the offshore wind proposal is installed in part to support LIPA’s renewable policy goals as indicated in the 2015 SF RFP REV objective. In addition to the changes to resource need discussed at the beginning of the “Phase III Portfolio Evaluation” section, the projects include:

- A 5.1 MW battery storage installation connected at the Montauk substation. (LIE101)
- A 5.1 MW battery storage project connected at the East Hampton substation. (LIE403)
- A 90 MW offshore wind project (33 MW UCAP, as defined in the NYISO Installed Capacity Manual) also connected at the East Hampton substation. The project would be installed by 2023, and would be available to charge the 5.1 MW battery storage project at the East Hampton substation. (DWW101)
- Additional temporary generation of 8 MW in 2018 to meet transmission contingencies (4 MW at Montauk 2017; 4 MW at East Hampton) and continuation of 4 MW in 2019 at Montauk.

Table 12 shows the expected in-service dates of the ten transmission enhancements under this portfolio. Nine of the ten transmission enhancements are implemented on the same schedule as Portfolio 1. The implementation date of the Canal – Wainscott New UG 138 kV Cable is delayed until 2026. The quantitative evaluation of this portfolio included the impact of the deferred transmission enhancements according to these in-service dates.

Table 12 - Schedule for Transmission Projects Included in Portfolio 8

In-Service Year	Transmission Enhancement	Years of Deferral
2019	New Canal - Southampton 69 kV underground cable	2
2019	Upgrade Wildwood - Riverhead 69-955 overhead circuit to 138 kV	2
2019	Bridgewaterhampton - Buell New 69 kV underground cable	2
2020	Amagansett 23 kV to 33 kV Conversion	3
2020	East Hampton 23 kV to 33 kV Conversion	3
2020	Buell 23 kV to 33 kV Conversion	3
2021	Hither Hills 23 kV to 33 kV Conversion	3
2022	Culloden Pt 23 kV to 33 kV Conversion	3
2022	2nd Riverhead - Canal 138 kV cable w/ Step-down Bank at Canal	2
2026	Canal - Wainscott New 138 kV underground Cable	4

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This option meets the forecasted load requirements at least through 2030 with the above resources and transmission enhancements schedule.

Portfolio 9 - Transmission and Storage (Portfolio D)

LIPA and Servco would begin implementation of the ten transmission enhancements in the summer of 2019. A selected number 2015 SF RFP storage projects are implemented to meet peak load capacity needs in 2017 through 2019; and some additional temporary generation is procured to meet transmission contingencies. The offshore wind proposal is not selected—this is the only difference between Portfolio 9 and Portfolio 8. In addition to the changes to resource need discussed at the beginning of the “Phase III Portfolio Evaluation” section, the projects include:

- A 5.1 MW battery storage installation connected at the Montauk substation. (LIE101)
- A 5.1 MW battery storage project connected at the East Hampton substation. (LIE403)
- Additional temporary generation of 8 MW in 2018 to meet transmission contingencies (4 MW at Montauk and 4 MW at East Hampton) and continuation of 4 MW in 2019 at Montauk.

Table 13 shows the expected in-service dates of the ten transmission enhancements under this portfolio.

Table 13 - Schedule for Transmission Projects Included in Portfolio 9

In-Service Year	Transmission Enhancement	Years of Deferral
2019	New Canal - Southampton 69 kV underground cable	2
2019	Upgrade Wildwood - Riverhead 69-955 overhead circuit to 138 kV	2
2019	Bridgethampden - Buell New 69 kV underground cable	2
2020	Amagansett 23 kV to 33 kV Conversion	3
2020	East Hampton 23 kV to 33 kV Conversion	3
2020	Buell 23 kV to 33 kV Conversion	3
2021	Hither Hills 23 kV to 33 kV Conversion	3
2022	Culloden Pt 23 kV to 33 kV Conversion	3
2022	2nd Riverhead - Canal 138 kV cable w/ Step-down Bank at Canal	2
2025	Canal - Wainscott New 138 kV underground Cable	3

This option meets the forecasted load requirements at least through 2030 with the above resources and transmission enhancements schedule.

Phase III Qualitative Evaluation:

The overall portfolio qualitative rating reflects the SC’s assessment of a portfolio’s overall adherence to the requirements in the 2015 SF RFP, including detailed transmission and distribution system requirements. The portfolio’s qualitative rating is based on two key factors: the qualitative ratings of each proposal that comprises each portfolio and any significant adjustments based on the complementary or competing impacts of the proposals, such as combining storage proposals with the offshore wind proposal.

As detailed quantitative and qualitative analyses were conducted, representatives of the SC and the EC also met with South Fork community representatives on May 31, June 23 and July 11, 2016 to assess community support for the portfolios that at the time held the most promise of providing a cost-effective solution to meet the requirements of the 2015 SF RFP (i.e., Portfolios 1, 2, 3, 4, and 8). Feedback from these meetings was factored into revising the qualitative analysis of these portfolios including the community acceptance and community impacts qualitative criteria.

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Table 14 summarizes Phase III portfolio qualitative evaluations. The detailed results of the evaluations are documented in the Phase III Qualitative workbooks (*Attachment 22—Phase III Qualitative Workbook*).

Table 14 - Phase III Overall Qualitative Rating by Portfolio

Portfolio	Phase III Overall Qualitative Portfolio Rating	Phase III Overall Qualitative Justification
Portfolio 1 – Transmission Only with Delay to 2019 (Portfolio A)	Meets Expectations	Overall, this portfolio meets expectations. It is based on the original ten transmission enhancements, but with delayed implementation of the first enhancement until 2019 along with implementing temporary generation and the AEG Load Control Proposal (AEG100). Portfolio 1 is similar to the baseline scenario of implementing the original transmission enhancement schedule and, therefore, has been assigned a “Meets Expectations” (i.e., Yellow) qualitative rating
Portfolio 2 – Offshore Wind, 38 MW Storage, Trad. Gen., Fuel Cell (Portfolio F)	Does Not Meet Expectations	Overall, this portfolio does not meet expectations. Portfolio rating is driven by Halmar’s project (HAL100) siting issues and lack of community acceptance, and by Fuel Cell Energy’s (FCE100) environmental impacts. Schedule risks have been mitigated by changes in the need for new resources that was originally outlined in 2015 SF RFP.
Portfolio 3 – Offshore Wind, 38 MW Storage, Transmission (Portfolio E)	Meets Expectations	Overall, this portfolio meets expectations. Issues raised during Phase II evaluation with Deepwater Wind’s (DWW100) site control and operation were resolved by the combination with LIE400. Schedule risks have been mitigated by changes in the need for new resources that was originally outlined in 2015 SF RFP. Contract terms for Deepwater Wind are a concern for this portfolio.
Portfolio 4 – Offshore Wind, 38 MW Storage, Load Reduction (Portfolio G)	Does Not Meet Expectations	Overall, this portfolio does not meet expectations. Based on internal analysis, the amount of load control resources (part of the enhanced local resources) is too optimistic to be obtained from the existing customer base. While some schedule risks have been mitigated by changes in the need for new resources that was originally outlined in 2015 SF RFP, the required amount of load control resources cannot be feasibly implemented by the required in-service dates 2017-2022. Issues raised during Phase II evaluation with Deepwater Wind’s (DWW100) site control and operation were resolved by the combination with LIE400. Contract terms for Deepwater Wind are a concern for this portfolio.
Portfolio 5 – Solar PV, 31 MW Storage, Trad. Gen., Load Reduction (Portfolio H)	Does Not Meet Expectations	Overall, this portfolio does not meet expectations. Portfolio rating is driven by Halmar’s (HAL100) project siting issues and lack of community acceptance, competing load control resources from AEG (AEG100) and Anbaric (ANB100), some risk of overstated load control resources, and lack of documented community support from AES (AES100), Anbaric, and Halmar. Schedule risks have been mitigated by changes in the need for new resources that was originally outlined in 2015 SF RFP.
Portfolio 6 – Offshore Wind, 33 MW Storage, Trad. Generation (Portfolio B)	Meets Expectations	Overall, this portfolio meets expectations. Issues raised during Phase II with Deepwater Wind’s (DWW100) site control and operation were resolved by the combination with LIE400. Schedule risks have been mitigated by changes in the need for new resources that was originally outlined in 2015 SF RFP. Some of the challenges to this portfolio include contract terms for Anbaric (ANB100), and Deepwater Wind, and potential negative community support and environmental impacts due to Anbaric's conventional generators.

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Portfolio	Phase III Overall Qualitative Portfolio Rating	Phase III Overall Qualitative Justification
Portfolio 7 – Transmission (first projects by 2020), Storage plus Offshore Wind (Portfolio I)	Does Not Meet Expectations	Overall, this portfolio does not meet expectations. While some schedule risks have been mitigated by changes in the need for new resources that was originally outlined in 2015 SF RFP, the substantial amount of temporary generation creates the potential for significant schedule and permitting risk. Additional challenges to this portfolio include contract terms for AES (AES100) and Deepwater Wind (DWW100), and a lack of documented community support from AES. The substantial amount of temporary generation will also likely encounter significant community opposition.
Portfolio 8 – Offshore Wind, 10 MW Storage, Transmission (Portfolio C)	Meets Expectations	Overall, this portfolio meets expectations. Projects within the portfolio meet or exceed expectations for management and Long Island experience, community impacts, and community acceptance. Schedule risks have been mitigated by changes in the need for new resources that was originally outlined in 2015 SF RFP. Contract terms for Deepwater Wind (DWW100) is a concern for this portfolio. The portfolio had numerous criteria that “exceeded expectations,” but the SC determined that Deepwater Wind's contracting and implementation risk offset those criteria ratings and so lowered the portfolio rating to “meets expectations.”
Portfolio 9 – No Offshore Wind, 10 MW Storage, Transmission (Portfolio D)	Exceeds Expectations	Overall, this portfolio exceeds expectations. Projects within the portfolio exceed expectations for management and Long Island experience, community impacts, and community acceptance. Schedule risks have been mitigated by changes in the need for new resources that were originally outlined in 2015 SF RFP. The SC determined that the number of criteria that exceed expectations in this portfolio outweighed any contracting risk or other project implementation risk and gave the portfolio an “exceeds expectations” rating.

Phase III Quantitative Evaluation:

The baseline for the comparative cost analysis of each of the nine portfolios assumed that the ten transmission enhancements were implemented under a baseline implementation schedule as shown in Table 15. The total capital cost of the transmission enhancements is \$513.3 million (2015 \$). The analysis also accounted for cost escalation to the respective transmission enhancement installation dates, annual capital carrying charges, and O&M costs. The NPV, discounted with respect to January 1, 2016, including all capital and O&M costs for the ten transmission enhancements under the baseline implementation schedule (i.e., no deferrals) is \$840.6 million and represents the least cost transmission alternative referred to in Section 1.2 of the 2015 SF RFP.

The location, capital cost, and original schedule for the ten transmission enhancements is shown in Table 15 below.

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Table 15 – Original Schedule and Cost for the Ten Transmission Enhancements

In-Service Year	Transmission Enhancement	Area	Capital Cost (2015\$M)
2017	New Canal - Southampton 69 kV underground cable	3	\$37.6
2017	Upgrade Wildwood - Riverhead 69-955 overhead circuit to 138 kV	3	\$7.7
2017	Bridgewater - Buell New 69 kV underground cable	2	\$33.2
2017	Amagansett 23 kV to 33 kV Conversion	1	\$8.0
2017	East Hampton 23 kV to 33 kV Conversion	1	\$3.2
2017	Buell 23 kV to 33 kV Conversion	1	\$3.7
2018	Hither Hills 23 kV to 33 kV Conversion	1	\$4.8
2019	Culloden Pt 23 kV to 33 kV Conversion	1	\$2.8
2020	2nd Riverhead - Canal 138 kV cable w/ Step-down Bank at Canal	3	\$136.8
2022	Canal - Wainscott New 138 kV underground Cable	3	\$275.5
		Total	\$513.3

The NPVs of portfolio costs were developed in accordance with the Evaluation Guide Appendix 4 and are shown in Table 16. “Proposal Implementation Costs” are the estimated costs paid to proposers for projects included in the portfolio, plus production costs and avoided energy costs. “Avoided Transmission Costs” are savings from deferring transmission investment accounting for the time value of money of the deferral. “Avoided Capacity Costs” are the avoided cost of procuring capacity resources. “Renewable Energy Credit” is the avoided cost of procuring renewable resources toward meeting LIPA’s 400 MW goal for renewable resources. “Net Cost” is the proposal implementation costs less the avoided costs and renewable energy credits. All costs are on an NPV basis discounted with respect to January 1, 2016.

During the Phase III quantitative analysis of each portfolio, GE MAPS modeling was performed to simulate the operation of the portfolio in LIPA’s transmission & distribution system to further refine production costs and avoided capacity and energy costs. The results of the GE MAPS evaluations are documented in the Phase III GE MAPS workbook (*Attachment 23—Phase III GE MAPS Results Workbook*).

The net portfolio costs are summarized in Table 16. The detailed results of the evaluations are documented in the Phase III Quantitative workbook (*Attachment 24—Phase III Quantitative Workbook*). The net cost is shown instead of the per MWh cost or the per kW-year cost because all portfolios serve the same load.

Table 16 - Phase III Quantitative Results by Portfolio (2016 \$ Millions, NPV)

Portfolio	(1) Proposal Implementation Costs	(2) Avoided Transmission Costs	(3) Avoided Capacity Costs	(4) Renewable Energy Credit	(1+2+3+4) Net Cost ¹⁰
Portfolio 1 –Transmission Only with Delay to 2019 (Portfolio A)	\$ 48.0	-\$ 49.7	-\$ 43.6	\$ 0.0	-\$ 45.4

¹⁰ Net Cost is the proposal implementation costs less the avoided costs and renewable energy credits. Negative values (or a “net benefit”) represented a proposal that was less expensive than the baseline transmission cost, which is common to all portfolios.

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Portfolio	(1) Proposal Implementation Costs	(2) Avoided Transmission Costs	(3) Avoided Capacity Costs	(4) Renewable Energy Credit	(1+2+3+4) Net Cost¹⁰
Portfolio 2 – Offshore Wind, 38 MW Storage, Trad. Gen., Fuel Cell (Portfolio F)	\$ 726.6	-\$ 130.7	-\$ 107.3	-\$ 574.9	-\$ 86.3
Portfolio 3 – Offshore Wind, 38 MW Storage, Transmission (Portfolio E)	\$ 576.6	-\$ 91.0	-\$ 87.9	-\$ 469.3	-\$ 71.6
Portfolio 4 – Offshore Wind, 38 MW Storage, Load Reduction (Portfolio G)	\$ 570.9	-\$ 112.6	-\$ 92.6	-\$ 469.3	-\$ 103.6
Portfolio 5 – Solar PV, 31 MW Storage, Trad. Gen., Load Reduction (Portfolio H)	\$ 427.0	-\$ 117.4	-\$ 78.4	-\$ 6.4	\$ 224.9
Portfolio 6 – Offshore Wind, 33 MW Storage, Trad. Generation (Portfolio B)	\$ 688.6	-\$ 130.7	-\$ 109.3	-\$ 469.3	-\$ 20.6
Portfolio 7 –Transmission (first projects by 2020), Storage plus Offshore Wind (Portfolio I)	\$ 694.8	-\$ 15.0	-\$ 256.1	-\$ 469.3	-\$ 45.5
Portfolio 8 – Offshore Wind, 10 MW Storage, Transmission (Portfolio C)	\$ 446.7	-\$ 59.3	-\$ 62.2	-\$ 469.3	-\$ 144.1
Portfolio 9 – No Offshore Wind, 10 MW Storage, Transmission (Portfolio D)	\$ 90.8	-\$ 49.7	-\$ 28.2	\$ 0.0	\$ 12.9

Phase III Consensus Portfolio Rankings

In accordance with the Evaluation Guide, following the Phase III Qualitative and Quantitative Evaluations, the SC determined the Consensus ratings of each portfolio that was identified and evaluated before deciding which Semi-Finalist Proposal(s) should be recommended for selection as Finalists. In general, the ranking resulted from extensive discussions among SC members, informed by a combination of Net Portfolio Cost, shown above in Table 16, and Phase III Qualitative rating, shown in Table 14. Portfolios were initially ranked lowest to highest net cost (i.e., best to worst) with adjustments made for qualitative assessments of the portfolios. For example, while Portfolio 9 has a higher Net Cost than the baseline transmission cost, it is the only portfolio that “Exceeds Expectations,” hence it has a relatively high Consensus ranking. Conversely, the four portfolios with the Qualitative rating “Does Not Meet Expectations” are ranked lowest, with the two infeasible portfolios (Portfolio 4 and 7) ranked at the bottom.

Table 17 shows the consensus portfolio rankings:

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Table 17 - Phase III Portfolio Consensus Rankings

Portfolio	Net Cost (2016 \$ Millions, NPV)	Price Rank	Phase III Qualitative Rating	Final Consensus Ranking
Portfolio 8 – Offshore Wind, 10 MW Storage, Transmission (Portfolio C)	-\$ 144.1	1	Meets Expectations	1
Portfolio 3 – Offshore Wind, 38 MW Storage, Transmission (Portfolio E)	-\$ 71.6	4	Meets Expectations	2
Portfolio 9 – No Offshore Wind, 10 MW Storage, Transmission (Portfolio D)	\$ 12.9	8	Exceeds Expectations	3
Portfolio 1 – Transmission Only - delay to 2019 (Portfolio A)	-\$ 45.4	6	Meets Expectations	4
Portfolio 6 – Offshore Wind, 33 MW Storage, Trad. Generation (Portfolio B)	-\$ 20.6	7	Meets Expectations	5
Portfolio 2 – Offshore Wind, 38 MW Storage, Trad. Gen., Fuel Cell (Portfolio F)	-\$ 86.3	3	Does Not Meet Expectations	6
Portfolio 5 – Solar PV, 31 MW Storage, Trad. Gen., Load Reduction (Portfolio H)	\$ 224.9	9	Does Not Meet Expectations	7
Portfolio 4 – Offshore Wind, 38 MW Storage, Load Reduction (Portfolio G)	-\$ 103.6	2	Does Not Meet Expectations	8
Portfolio 7 –Transmission (first projects by 2020), Storage plus Offshore Wind (Portfolio I)	-\$ 45.5	5	Does Not Meet Expectations	9

In accordance with the South Fork Evaluation Guide Selection of Finalist Proposals Option 2A, the SC voted to select the top ranked portfolio, Portfolio 8, as the recommended portfolio for proceeding with Power Purchase Agreement negotiations.

Note that in addition to the above evaluation of the 2015 SF RFP, the SC considered an alternative evaluation assumption for the Unforced Capacity (“UCAP”) of the 90 MW Deepwater Wind offshore wind project (DWW100). This alternative evaluation assumption affected the Proposal Implementation Costs of the DWW100 proposal. The Proposal Implementation Costs for the portfolios that include DWW100 are based on a 33.3 MW UCAP, as derived according to the NYISO Installed Capacity Manual, for the term of the PPA. The NYISO Installed Capacity Manual prescribes a UCAP for the first year of operation of offshore wind projects interconnecting with Zone K (Long Island) based on an Unforced Capacity Percentage of 38% in the first year of operation and the Unforced Capacity Percentage based on actual operation of the project in subsequent years. For the DWW100 installed capacity (“ICAP”) of 90 MW, adjusted for the electrical system losses of 2.5%, the UCAP value would thus be $90 \text{ MW} \times (1 - 0.025) \times 0.38$, or 33.3 MW.

The DWW100 proposal contained an estimate of UCAP by AWS Truepower according to the four-hour (2 pm to 6 pm) capability periods during June, July, August (Summer) and four-hour (4 pm to 8 pm) capability periods during January, February, and March (Winter). AWS Truepower estimated a Summer UCAP of 38.6 MW and a Winter UCAP of 52.3 MW. Assuming that DWW100 would realize the UCAP values estimated by AWS Truepower via testing of the Dependable Maximum Net Capability (“DMNC”) after operation through at least

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three capability periods (in accordance with the NYISO Installed Capacity Manual), the DWW100 capacity payments would increase and the Proposal Implementation Cost would increase for all the portfolios that include DWW100. After incorporating this alternative UCAP evaluation assumption, Portfolio 8 remained the least cost portfolio and, therefore, the recommendation of Portfolio 8 is not impacted. The Proposal Implementation Costs of all portfolios that incorporate this alternative UCAP assumption for DWW100 is shown in the Net Portfolio Costs with Alternative DWW100 UCAP Assumption (*Attachment 25—Net Portfolio Costs with Alternative DWW100 UCAP Assumption*).

IX. RECOMMENDED PORTFOLIO

Through the Evaluation Guide Selection of Finalist Proposals Option 2A, the SC (with agreement from the EC) recommended selection of Portfolio 8, “Offshore Wind, 10 MW Storage, Transmission,” in the 2015 SF RFP to the LIPA Board of Trustees. The proposals in the recommended portfolio were considered Finalists and the SC recommended proceeding with Agreement negotiations.

The selection of the recommended portfolio was based on an evaluation of a combination of portfolio qualitative ratings, total costs of implementing the portfolio, and adherence to 2015 SF RFP objectives. Portfolio 8 was determined to be the most cost effective solution, with the least Net Cost of all portfolios. Additionally, Portfolio 8 also met the qualitative expectations defined in the Evaluation Guide. Finally, Portfolio 8 best meets the 2015 SF RFP objectives: (1) by supporting REV with a renewable energy project, energy storage project, and direct load control; (2) by deferring the need of the ten new transmission enhancements; (3) by adding additional local resources; and (4) by providing reactive capabilities through the wind and energy storage projects. Consequently, the SC selected Portfolio 8 as the portfolio with the Best Value.

In addition to the AEG proposal (AEG100), which, as noted previously, was considered part of all portfolios evaluated and which requires negotiation of an Energy Services Agreement, Portfolio 8 includes the following three projects requiring negotiation of Power Purchase Agreements:

1. LI Energy Storage System, LLC - Montauk Energy Storage System (5 MW) (LIE100)

LI Energy System, LLC (jointly owned by indirect, wholly-owned subsidiaries of NextEra Energy Resources, LLC and National Grid USA) proposes to develop, operate, and own a new lithium ion battery storage facility located in Montauk on two interconnected sites on Second House Road: one site adjacent to the new Navy Road substation and the other site across the road from the substation. The project was proposed to be available during the May through September period as requested in the RFP. The project will provide 5 MW of continuous power for 8 hours via a 100 ft. 13 kV dedicated feeder into the Navy Road substation or an 1800 ft. underground cable into the Montauk substation. The Navy Road substation is currently planned to be in service in time for connection to the LI Energy System project. LI Energy System, LLC proposes to achieve a May 1, 2018 COD for this project.

2. LI Energy Storage System, LLC – East Hampton Energy Storage System (5 MW) (LIE400)

LI Energy System, LLC proposes to develop, operate, and own a new lithium ion battery storage facility located at the existing National Grid-owned power generation site west of Cove Hollow Road in the town of East Hampton. The project was proposed to be available during the May through September period as requested in the RFP. The project will provide 5 MW of continuous power for 8 hours via a 300 ft. 13 kV dedicated feeder into the East Hampton substation. LI Energy System, LLC proposes to achieve a May 1, 2018 COD for this project.

3. Deepwater Wind, LLC – Deepwater ONE South Fork (90 MW) (DWW100)

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Deepwater Wind, LLC (privately held by management and a group of investors, including entities of the D. E. Shaw group) proposes to develop, operate, and own a new offshore wind project having a nominal rating of approximately 90 MW. The project consists of wind turbine generators having a cumulative nameplate capacity of 90 MW located over 30 miles southeast of Montauk and more than 19 miles from the nearest inhabited land (Block Island). The project will interconnect via undersea and underground cables with the existing 69 kV bus at the East Hampton substation. Due to limitations on the size of injection into the East Hampton substation, only 75 MW (subject to change) can be delivered to Long Island and counted towards the Board of Trustees 400 MW renewable energy goal. Deepwater Wind, LLC proposes to achieve a December 31, 2022¹¹ COD for this project.

Servco sent notification letters to Respondents who were recommended as Finalist Proposals on October 3, 2016 (*Attachment 19—Proposal Finalist Letters*).

The four projects selected in this RFP provided Best Value toward meeting the RFP objectives. None of the portfolios of Finalist proposals would have completely avoided construction of transmission nor the temporary installation of emergency generators to meet small deficiencies in 2017. .

X. DEBRIEFINGS

In accordance with 2015 SF RFP Section 5.5, Servco sent letters to the sponsors of all other proposals indicating that after detailed evaluation of proposals that the Respondent's proposal was not selected on October 3, 2016 (*Attachment 26—Final Proposal Non-Selection Letters*). Section 5.6 of the 2015 SF RFP provides the opportunity for a debriefing for Respondents whose proposals were not selected if they submitted a request for such a debriefing to Servco at Edmund.Petrocelli@PSEG.COM by October 24, 2016. The following 11 Respondents requested debriefings:

- AES Generation Development (AES100)
- Anbaric Microgrid II (ANB100)
- Baseload Power (BPC100)
- Convergent Energy + Power (CON100)
- EnergyHub (ENH100)
- FuelCell Energy (FCE100)
- Green Charge Networks (GCN100)
- Halmar International (HAL100)
- NextEra Energy (NEX100)
- RES America Developments (RES100)
- Stem (STM100)

The debriefings were held from November 1, 2016 through December 6, 2016 at the LIPA offices in Uniondale or via conference call.

¹¹ During PPA discussions with Deepwater Wind, Servco was able to move the COD to December 1, 2022.

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XI. RECOMMENDATION

LIPA requests OSC approval of the 2015 SF RFP procurement process for the reasons described herein. Servco has concluded PPA negotiations for the Deepwater Wind offshore wind project (DWW100) and the LIPA Board of Trustees approved the PPA for Deepwater Wind offshore wind at its January 25, 2017 meeting. Accordingly, , the Deepwater Wind PPA is being transmitted to the OSC under a separate memorandum supporting a request for approval of that document.

Negotiations for PPAs for LI Storage System LLC, Montauk Energy Storage Systems (LIE100) and East Hampton Energy Storage Systems (LIE400) are still underway. Once satisfactory PPAs have been negotiated and each project has completed the State Environmental Quality Review (“SEQR”) process which is anticipated in the second quarter of 2017, each PPA will be submitted to the LIPA Board of Trustees for approval. Following such approval, these PPAs will be transmitted to the OSC with a separate memorandum supporting a request for approval.

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XII. LIST OF ATTACHMENTS

- Attachment 1 — Final 2015 SF RFP*
- Attachment 2 — Contract Reporter Posting*
- Attachment 3 — Respondent’s Webinar Attendance List*
- Attachment 4 — Respondent’s Webinar Presentation*
- Attachment 5 — Respondent Questions and Answers during Proposal Preparation*
- Attachment 6 — 2015 SF RFP and Amendments 1-4*
- Attachment 7 — 2015 SF RFP Evaluation Guide*
- Attachment 8 — 2015 SF RFP Proposal Receipt Log*
- Attachment 9 — Summary of Proposals Received*
- Attachment 10 — Solar City Non-responsive Determination Letter*
- Attachment 11 — Phase I Proposal Completeness Checklist*
- Attachment 12 — Landis+Gyr Non-responsive Determination Letter*
- Attachment 13 — Halmar International Non-responsive Determination and Reinstatement*
- Attachment 14 — Phase II Qualitative Workbook*
- Attachment 15 — Phase II Quantitative Workbook*
- Attachment 16 — Phase II Evaluation Summary*
- Attachment 17 — Proposal Semi-Finalist Letters*
- Attachment 18 — Proposal Non-Selection Letters*
- Attachment 19 — Proposal Finalist Letters*
- Attachment 20 — South Fork Portfolio Options*
- Attachment 21 — Transmission Enhancement In-service Dates by Portfolio*
- Attachment 22 — Phase III Qualitative Workbook*
- Attachment 23 — Phase III GE MAPS Results Workbook*
- Attachment 24 — Phase III Quantitative Workbook*
- Attachment 25 — Net Portfolio Costs with Alternative DWW100 UCAP Assumption*
- Attachment 26 — Final Proposal Non-Selection Letters*