Agenda

♦ Welcome & Introductions
  ♦ WG Ground Rules
♦ Review Integrated Grid Planning Process
♦ Solution Evaluation Approaches
  ♦ Consolidated Edison
  ♦ Avangrid
  ♦ National Grid
  ♦ Southern California Edison
  ♦ Pacific Gas and Electric Company
♦ Review Solution Evaluation & Optimization Working Group (SEOWG) Role & Objectives
♦ IGP Planning and Procurement Process Update
♦ Next Steps
Ground Rules

♦ Chatham House Rule will apply – no personal or organizational attribution will be made to any comments/feedback provided during the meeting by any participant nor in written documentation.

♦ Working group meetings, and other information exchanges are intended solely to provide an open forum or means for the expression of various points of view in compliance with antitrust laws.

♦ Under no circumstances shall engagement activities be used as a means for competing companies to reach any understanding, expressed or implied, which tends to restrict competition, or in any way, to impair the ability of participating organizations to exercise independent business judgment regarding matters affecting competition or regulatory positions.

♦ Proprietary information shall not be disclosed by any participant during any industry engagement meeting or information exchange. In addition, no information of a secret or proprietary nature shall be made available to industry engagement participants.

♦ All proprietary information which may nonetheless be publicly disclosed by any participant during any industry engagement meeting or information exchange shall be deemed to have been disclosed on a non-confidential basis, without any restrictions on use by anyone, except that no valid copyright or patent right shall be deemed to have been waived by such disclosure.
Integrated Planning Process
Integrated Grid Planning Process

1. Forecast & Planning Inputs
2. Identify & Quantify System Needs
3. Sourcing Solutions
4. Solution Evaluation & Optimization
5. IGP Long-Term Plan & Flexibility

Customer Needs
- Policy Goals (e.g., renewables, resilience, etc.)
- Forecasts (Assumptions, Sensitivities & Scenarios)
- Other Planning Inputs

Customer Needs
- Generation, Transmission, and Distribution Planning

2045 Long Term Planning
- Resource and T&D Needs & Long term Considerations

5-year Resource Solution Sourcing
- Resource Procurement (Grid Scale, Aggregated DER/DR)
- DER and DR Programs
- Tariffs
- Utility Resource Development

T&D Solution Sourcing
- Targeted DER Programs
- Grid Modernization
- Traditional Grid Solution estimate

T&D Needs Planning
- (Resource)
- (Non Resource)

T&D Needs Planning:

5yr IGP Plan
- Grid Resources
- Grid Services
- NWA

Solution/Bid Evaluation & 5yr IGP Plan

Regulatory Approval
- Seek PUC approval of IGP 5yr plan & related applications

Stakeholder Engagement
IGP – Integrated Grid Planning

IGP is a planning process that will:

✓ appraise the total needs of the system
✓ consider all alternatives from customers, independent providers and the utility
✓ integrate market-based solutions
✓ determine the best resource and grid options for customers
✓ be inclusive through stakeholder review and input
✓ synchronize and unify resource, transmission, and distribution planning processes
✓ streamline processes that will optimize energy portfolio
Solution Evaluation & Optimization Work Group (SEOWG) Role

The SEOWG will work to develop an evaluation and optimization process to address five key elements:

- Evaluate the technical fit of proposed program and procurement solutions to the identified resource/grid needs on a technology neutral basis;
- Assess the cost-effectiveness of various alternatives to ensure reasonable portfolio cost;
- Analyze the comparative values of the proposed solutions on an apples-to-apples basis;
- Evaluate combinations of solutions to satisfy an identified need, including if partial solutions are allowed; and
- Assess the synergistic value of solution(s) to address multiple needs identified.

We want to gain insight and leverage the experiences others have had in identifying and evaluating DER solutions that meet grid needs.
Distributed Energy Resources for Distribution Deferral Solicitation & Evaluation Approaches
Non-Wires Solutions Update
Damei Jack
August 1, 2019
About Consolidated Edison

Features of NY regulation:

• Focus on Transmission and Distribution
• Collaborative process
• Reforming the Energy Vision proceeding is at the forefront of the evolving industry

CECONY
3.4 million electric customers
1.1 million gas customers
1,700 steam customers

O&R
• 0.3 million electric customers
• 0.1 million gas customers
Non-Wires Solutions Background

- Traditional approach: build capacity based on forecast
Non-Wires Solutions Background

- Non-wires solution approach: lower forecast through EE/DM to defer upgrade
### Distributed Energy Resources: Customer Choice and a Utility Tool

#### Traditional Solutions

<table>
<thead>
<tr>
<th>Area Station</th>
<th>Feeder Growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Substation</td>
<td>New Feeder</td>
</tr>
<tr>
<td>Add or Upgrade components (transformers)</td>
<td>De-load feeder</td>
</tr>
<tr>
<td>Increase equipment cooling (water spray)</td>
<td></td>
</tr>
</tbody>
</table>

#### REV/DER Solution Examples

<table>
<thead>
<tr>
<th>Utility Sided Solutions</th>
<th>Customer Sided Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy Storage</td>
<td>Demand Response</td>
</tr>
<tr>
<td>Voltage/VAR Optimization</td>
<td>Energy Efficiency</td>
</tr>
<tr>
<td>Microgrids</td>
<td>Combined Heat and Power</td>
</tr>
<tr>
<td></td>
<td>Solar &amp; Wind</td>
</tr>
<tr>
<td></td>
<td>Energy Storage</td>
</tr>
</tbody>
</table>
NWS Process Overview

NWA suitability criteria lays foundation for the success of NWA solicitation and BCA evaluation.
NWS Project are Viable Under Certain Conditions

Does the NWS meet the operational needs of the system?

System Reliability

Does the NWS portfolio satisfy Reg. requirements?

Market Response

Is the market response sufficient to make a viable NWS portfolio?

NWS Regulatory Framework
Program Development Approach

- Review RFP Responses
- SME Review & Scoring
- Portfolio Development/BCA Analysis
- DPS Staff Engagement
- Program Launch
NWS Requires a Distributed Energy Resources (DER) Portfolio Approach

- Energy Efficiency
- Distributed Generation
- Energy Storage
Portfolio Approach is Key

Key Considerations
✓ Ensure reliability
✓ Customer experience
✓ Diversified portfolio
✓ Integration of diverse technologies
Portfolio Development Learnings

Disqualification reasons
- Insufficient information provided
- Little to no reduction impact to times of need
- High costs compared to other solutions
- Technology proposed not yet proven

Selection reasons
- Complete, clear proposal
- Helps to address overall portfolio needs
- Customer support/ understanding of demographics
- Cost competitive offering
- Proven technology
Current Programs Under Implementation

- ~10 RFPs released
  - Streamlined evaluation process
  - Vendor feedback
- BQDM extended
- 2 additional programs under implementation
- 1 program under evaluation
## NWS Portfolio Incentives

<table>
<thead>
<tr>
<th>Customer Sided Solutions</th>
<th>BQDM</th>
<th>Water St./Plymouth St.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Energy Efficiency</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Residential</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Multi-Family</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Commercial &amp; Industrial</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Combined Heat &amp; Power</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Energy Storage Systems*</td>
<td></td>
<td>✓</td>
</tr>
</tbody>
</table>

*RFP procurement only*
Non-wires solutions have the potential to reduce customers' electric bills, improve reliability, and defer capital infrastructure. We've identified several opportunities to create such change.

**Current Opportunities**

<table>
<thead>
<tr>
<th>Projects</th>
<th>Current Status</th>
<th>Documents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary Feeder Relief - Chelsea</td>
<td>Project deferred due to decrease in the projected load</td>
<td>Project Description</td>
</tr>
<tr>
<td>Parkchester No. 1 Cooling Project</td>
<td>Project deferred due to decrease in the projected load</td>
<td>Project Description</td>
</tr>
<tr>
<td>Newtown Transformer Installation Project</td>
<td>No longer accepting proposals</td>
<td>RFP</td>
</tr>
<tr>
<td>Primary Feeder Relief - Williamsburg</td>
<td>No longer accepting proposals</td>
<td>RFP</td>
</tr>
<tr>
<td>Water Street Cooling Project</td>
<td>No longer accepting proposals</td>
<td>RFP</td>
</tr>
<tr>
<td>Plymouth Street Cooling Project</td>
<td>No longer accepting proposals</td>
<td>RFP</td>
</tr>
</tbody>
</table>
www.coned.com/nonwires
NWA Process Overview

Planning → Request for Proposal → Proposal Review → Solution Delivery

System Needs Identified

NWA Screening Criteria

RFP/Bid Solicitation

Meet timing & technical needs, pass BCA

Award Made to Successful Bidder and NWA Solution Implemented

Pursue Wires Solution

Yes

No
NWA Process

Planning

- Develop system need case and screen need against NWA criteria
- Develop NWA technical needs statement
- Evaluate internal EE/DR programs

<table>
<thead>
<tr>
<th>Criteria</th>
<th>New York</th>
<th>New England</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Project Type Suitability</strong></td>
<td>Project types include Load Relief and Reliability. Other types have minimal suitability and will be reviewed as suitability changes due to State policy or technological changes.</td>
<td>The need is not based on Asset Condition.</td>
</tr>
<tr>
<td><strong>Timeline Suitability</strong></td>
<td>Large Project</td>
<td>36-60 months*</td>
</tr>
<tr>
<td></td>
<td>Small Project</td>
<td>18-24 months*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Start of construction is at least 36 months in the future*</td>
</tr>
<tr>
<td><strong>Cost Suitability (Value of Wired Solution)</strong></td>
<td>Large Project</td>
<td>Greater than or equal to $1M</td>
</tr>
<tr>
<td></td>
<td>Small Project</td>
<td>Greater than or equal to $500K</td>
</tr>
<tr>
<td><strong>Load Suitability</strong></td>
<td>-</td>
<td>Greater than $1M</td>
</tr>
</tbody>
</table>

*Solution can be in-service by the need date which is within the noted window of time.*
NWA Process

Planning

• Develop system need case and screen need against NWA criteria
• Develop NWA technical needs statement
• Evaluate internal EE/DR programs

Request for Proposal

• Develop and release RFP with supporting details
• Solicit solutions from third-party providers
Request for Proposal

The NWA RFP includes:

- Problem statement of electrical system need
- System data
  - Loading data
  - General description of the system need
  - Timing, duration of the need, and time of day the need occurs
  - Aggregated customer load profiles (no individual customers are identified)
- Area and electrical system description
  - Equipment listings, voltages, and mapping
- **Approximate value** of NWA solution
NWA Process

Planning
- Develop system need case and screen need against NWA criteria
- Develop NWA technical needs statement
- Evaluate internal EE/DR programs

Request for Proposal
- Develop and release RFP with supporting details
- Solicit solutions from third-party providers

Proposal Review
- Proposal review
- Technical
- Economic (BCA)
- Bidder Interviews

Criteria
Solution Approach
- Bidder References
- Community Impact
- Environmental Impact

Schedule
- Permitting
- Timeline

Engineering
- M&V
- Project Implementation
- Availability
- Load Reduction

Control, Comms, & Ops
- Safety
- Comms & Controls
- Operability

Economics
- Pricing Structure
- Financial Stability
- Cost
Benefit-Cost Analysis

- Determine if NWA proposals are cost effective via BCA tool
- Monetize every benefit provided to society by the asset
- In order to move forward, a solution must score >1 on:
  - NY: The Societal Cost Test (SCT)
  - RI: The Rhode Island Benefit Cost Model Test
NWA Process

Planning
- Develop system need case and screen need against NWA criteria
- Develop NWA technical needs statement
- Evaluate internal EE/DR programs

Request for Proposal
- Develop and release RFP with supporting details
- Solicit solutions from third-party providers

Proposal Review
- Proposal review
- Technical
- Economic (BCA)
- Bidder Interviews

Solution Delivery
- Internal approval process
- Review with regulators
- Finalize and execute agreement with successful bidder(s)
- Solution implemented
Process Improvements and Opportunities

Recent RFP Improvements

• Consistent format
• More descriptive problem statement
• Technical details expanded
• Approximate value of NWA
• Collection of market interest to participate in a specific RFP

Portfolio Solutions

• Working with internal DR and EE programs to find opportunities to reduce a load relief need
• Exploring software that will help National Grid optimize DER locations on the grid to develop more focused RFPs
Process Improvements and Opportunities (continued)

Market Interactions

• More comprehensive vendor and stakeholder contacts
• Monthly stakeholder engagement sessions
• 1:1 Meetings with vendors to gather market intelligence
  • What do vendors want to see in an RFP?
  • What determines whether they bid or pass on an RFP?
  • How much time do they need to develop a strong proposal?
  • Where have they had NWA success elsewhere and what contributed to it?
• New shared e-mail box for vendor communication
System Data Portals

- System Data Portals have been developed to provide information to solution providers about National Grid’s electric distribution system.

- New York:
  
  https://www.nationalgridus.com/Business-Partners/NY-System-Portal

- Rhode Island:
  
  https://www.nationalgridus.com/Business-Partners/RI-System-Portal

- Email: Non-WiresAlternativeSolutions@nationalgrid.com
nationalgrid
August 1, 2019

NWA to Grid Investments

Integrating Non-Wires Alternatives into the Planning Process
AVANGRID

Avangrid Networks
- 8 regulated electric and gas utilities in the Northeast including NYSEG, RG&E, CMP, UI and others
- 3.2 million customers
- ≈ 1 million smart meters with 1.8 million pending

Avangrid Renewables
- 2nd largest wind energy generator in U.S.
- 53 operating wind farms
- 22 states in U.S.

Utility industry leader in customer engagement and satisfaction
States are increasingly expanding mandate of NWAs

**New York**
- 2015 REV Order est. NWA requirements for Distribution Planning
- Further expanded to include Electric Transmission and Gas (Non-Pipes)
- Market to develop solution; technology agnostic
- Earnings mechanism for utility NWA payments / incr. costs

**Maine**
- Existing NTA process for siting transmission projects
- 2019 Legislation establishing 3rd party NWA/NTA Coordinator
  - Processes currently being developed
- Includes all transmission and distribution investments
- Collaborate with EMT on BTM solutions
- Utility ownership and operation of NWAs allowed if efficient solution; no requirement to be technology agnostic

**Connecticut**
- Currently no NWA process requirements; though it is emerging
- Part of the scope of 2018 PURA’s proceeding
  “PURA Investigation into Distribution System Planning of the Electric Distribution Companies”
Targeting NWAs to Types of System Needs

Capital investments are driven by many types of needs. NWAs are potentially viable solutions for several types of needs, but not all.

<table>
<thead>
<tr>
<th>Type of Need</th>
<th>NWA Solution Potential?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dist or Trans Load Serving Capacity</td>
<td><strong>Yes.</strong> Depends on T / D sol. cost &amp; urgency</td>
</tr>
<tr>
<td>Transmission Reliability Criteria</td>
<td><strong>Yes.</strong> Depends on T / D sol. cost &amp; characteristic of need</td>
</tr>
<tr>
<td>Dist. Reliability / Voltage Regulation</td>
<td><strong>Yes.</strong> Depends on T / D sol. cost &amp; characteristic of need</td>
</tr>
<tr>
<td>Asset Condition/ Resiliency Hardening</td>
<td><strong>No.</strong> NWA will not displace need for asset replacement</td>
</tr>
<tr>
<td>Non-Steady State Performance</td>
<td><strong>No.</strong> e.g., stability, PQ, protection/short-circuit, other</td>
</tr>
<tr>
<td>New Customer Connections/ Load</td>
<td><strong>No.</strong> Though NWA may address any capacity impact</td>
</tr>
</tbody>
</table>
## NYSEG / RG&E’s NWA Suitability Criteria

Filed with the NY PSC in 2017. Must be applied to all electric T&D projects included in the companies’ capital plan

| Project Type Suitability | • Load Relief projects that do not involve a customer contribution or have a specific customer in-service date that is sooner than the timeline suitability of 36 months  
• Reliability projects and/or a combination of reliability and load relief projects |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Timeline Suitability</td>
<td>• Minimum of 36 months to time of need</td>
</tr>
<tr>
<td>Cost Suitability</td>
<td>• Projects with construction cost greater than $1,000,000</td>
</tr>
</tbody>
</table>
NWAs are becoming an integral part of our Planning Process

<table>
<thead>
<tr>
<th>NWA Screening</th>
<th>Generalized NWA Scoping</th>
<th>DER Sourcing Strategy/Plan</th>
<th>DER Sourcing Execution</th>
<th>Construct and Operate NWA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Need type identified that NWA may solve</td>
<td>Identify targeted years of need for NWA</td>
<td>Evaluate applicability of DER tech / programs</td>
<td>Run RFI/ RFP Process</td>
<td>Additional Engineering, Procurement and Permitting</td>
</tr>
<tr>
<td>Identify conceptual T / D solution</td>
<td>Determine suitable &amp; optimal NWA locations</td>
<td>Id solicitation approach (singl. v. portfolio; demo v. proven)</td>
<td>Qualify/ evaluate NWA proposals and BCA</td>
<td>Construction</td>
</tr>
<tr>
<td>Determine if other asset needs exist</td>
<td>Determine req'd NWA performance attributes</td>
<td>Develop RFI / RFP / Utility NWA</td>
<td>Decision to proceed with T /D or NWA solution¹</td>
<td>Testing and Commissioning</td>
</tr>
<tr>
<td>Apply NWA Suitability Criteria (SC)</td>
<td></td>
<td></td>
<td>Interconnect and contract awarding process</td>
<td>NWA Operation, Administration, M&amp;V</td>
</tr>
</tbody>
</table>

1. Time will be extended if regulatory approval is needed
NWA Solution Approaches

- Targeting existing or add new EE/DR Programs
- Piloting new innovative technologies and market approaches
- Open (solution agnostic) or closed (solution specific) market solicitations
Forecast NWA efforts to increase > 3X recent levels

Expected NWA efforts will be increased by > 3X throughout the NWA process lifecycle; from screening, scoping, procurement, through to operation.

Stacking effect on resource needs; Average 3 year NWA process lifecycle; plus contract management throughout NWAs ~7-10 year operational life.
High organizational impact; Preparedness & coordination critical

- **SME resources** are embedded throughout Networks organization; resource needs will increase and evolve
- **Engaging State stakeholders and market providers** will become the norm in NWA processes
- **Performance uncertainty** of NWAs
- **Longer Planning cycle** adds study costs and delays in project identification/initiation
- **Introduces investment uncertainty** for projects under NWA assessments
Lessons Learned / Keys to the Success of the NWA Process

<table>
<thead>
<tr>
<th>Determination of when NWAs are suitable</th>
<th>Information provided to 3rd Parties</th>
<th>Contracts</th>
<th>Involve Operations and other key Business Areas early</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Consider needs beyond the primary need driving the NWA process</td>
<td>- Advanced/prior communications of planned NWA opportunities</td>
<td>- NWAs will be performing a reliability service and must be held to a different level of accountability than DERs are used to</td>
<td>- Alignment of planned NWA resource operation/use</td>
</tr>
<tr>
<td>- I.e., A comprehensive assessment of “wires” solution facilities may be warranted to assure accuracy of potential T&amp;D cost deferrals</td>
<td>- NWA RFP information is clear and complete</td>
<td>- Negotiations can be time consuming</td>
<td>- Need for added grid visibility, automation and procedures</td>
</tr>
<tr>
<td></td>
<td>- Explain benefits/costs methodology (e.g., BCA Handbook)</td>
<td>- Performance provisions</td>
<td>- Deep cross-functional technical review integrating NWA into grid operations</td>
</tr>
<tr>
<td></td>
<td>- Awareness of interconnection process requirements</td>
<td>- Liability and risk</td>
<td></td>
</tr>
</tbody>
</table>
Southern California Edison
Distribution Deferral

HECO IGP Stakeholder Meeting
8/1/2019

Gene Lee
Michael Freeman
Objective of Today’s Presentation

♦ Review SCE’s experiences with procurement of Distributed Energy Resources (DERs) for Distribution Deferral
♦ Structure of Solicitations
♦ Valuation and Selection Methodology
♦ Lessons Learned
### Prior Solicitations

SCE has run two recent procurement activities focused on deferring specific distribution upgrades with DERs

<table>
<thead>
<tr>
<th>Solicitation Year</th>
<th>Needs</th>
<th>Result</th>
</tr>
</thead>
</table>
| 2018              | • Eisenhower 115/12 kV Substation  
                    • Newbury 66/16 kV Substation  
                    • Belpac, Hooligan and Intrepid circuits out of Newbury            | Strategically placed In Front of the Meter Energy Storage               |
| 2019              | • Sun City 115/12 kV Substation  
                    • Multiple circuits out of Sun City  
                    • Mira Loma 66/12 kV Substation  
                    • Brewer and Matterhorn circuits out of Mira Loma                | No DER procurement (not cost effective)                                 |
Solicitation Structure

• SCE provided specific need details
  • HE1 – HE24 hourly need by year
  • Expected frequency of need occurrence (monthly, annually)

• “All-Source” procurement, open to any technology type
  • Demand Response
  • Renewable In Front of the Meter (IFOM) and Behind the Meter (BTM)
  • Energy Storage IFOM and BTM
  • Renewable/Storage Hybrid IFOM and BTM
  • Permanent Load Shift
  • Energy Efficiency

• Detailed pro forma contracts provided at launch specifies terms and conditions

• Potential Bidders could provide offers to meet all or part of the need
  • SCE was willing to create a portfolio, but preferred offers that met entire need

• SCE was willing to purchase more than deferral dispatches in case additional benefits help cost effectiveness
Evaluating and Selecting DERs for Distribution Investment Deferral

When solving for a distribution need with DERs, SCE examines each offer’s contribution to the distribution need and seeks to find the optimal resource mix:

- SCE values and ranks each offer by a NPV/deferral-MWh metric.
- SCE then creates multiple portfolios to evaluate their deferral feasibility, qualitative values and quantitative values.
- The DER portfolio NPVs are then benchmarked against the traditional project’s cost or deferral value.
Lessons Learned

- Fast RFO can work, however unable to solve complex policy issues during solicitation
- Location can matter for IFOM projects
- Energy Storage charging complications
- DERs that can meet the need more precisely fared better
- Distribution needs may change mid solicitation process
- Multi-Use Applications – procuring multiple reliability products from same resource
- Incrementality – would projects have shown up naturally without targeted procurement
Introduction to Distribution Investment Deferral Framework (DIDF)
Distribution Resource Plan (DRP) Proceeding

Modernize distribution system
Facilitate cost-effective customer choice of new technologies
Enable DER-based grid services

Identify Optimal Locations for deployment of DERs

Distributed Energy Resources (DER)
- Distributed Renewable Generation
- Energy Storage
- Energy Efficiency
- Demand Response
- Electric Vehicles

DRP
- Integration Capacity Analysis (ICA)
- Locational Net Benefit Analysis (LNBA)
- Distribution Investment Deferral Framework (DIDF)
An annual process to identify opportunities for DERs to defer or avoid traditional distribution infrastructure projects (i.e., Non-Wires Alternatives)

1. Develop Assumptions & Scenarios
2. Distribution Grid Needs Assessment (GNA) Report
3. Distribution Deferral Opportunities Report (DDOR)
4. Distribution Planning Advisory Group (DPAG) Meetings
5. Seek Commission Approval Distribution Deferral Opportunities
6. Competitive RFOs for DERs
7. Implement DER Solution

- For locations where DERs don’t meet RFO deferral screens, proceed with traditional solution.
Distribution Deferral Investment Framework (DIDF) - 2018 Cycle

6/1 GNA Filing

Grid Needs Assessment (GNA) Report
316 Needs Identified

Load Transfers Applied
Multiple Grid Needs Per Project

9/1 DDOR Filing

Planned Investments
46 Projects

Technical and Timing Screens

GRC

12/1 Advice Letter Filing

Candidate Deferrals
21 Projects

Prioritization Metrics
DPAG Feedback and IPE DPAG Report

Final Candidate Deferrals
3 Projects
Candidate Deferral Opportunity Locations

2018 DIDF Cycle

<table>
<thead>
<tr>
<th>Deferral Project</th>
<th>In-Service Date</th>
<th>Deficiency (MW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Lammers Feeder</td>
<td>6/1/2021</td>
<td>1.5</td>
</tr>
<tr>
<td>Huron Bank 1</td>
<td>4/1/2021</td>
<td>3.7</td>
</tr>
<tr>
<td>Santa Nella Bank 1 and New Feeder</td>
<td>5/1/2022</td>
<td>5.4</td>
</tr>
</tbody>
</table>

Subtotal: 10.6

IDER Incentive Pilot

<table>
<thead>
<tr>
<th>Deferral Project</th>
<th>In-Service Date</th>
<th>Deficiency (MW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gonzales Bank 3</td>
<td>5/1/2021</td>
<td>2.3</td>
</tr>
</tbody>
</table>
Integrated Distributed Energy Resources (IDER)

Determine framework to analyze cost versus benefit

Determine framework for soliciting third party resources targeted for needs determined in the DRP

Pilot an incentive mechanism to deploy cost-effective DERs that displace or defer a utility expenditure

Identify OptimalDeployment Mechanisms for DER

IDER

Cost Effectiveness

Competitive Solicitation Framework

Regulatory Incentives (IDER Pilot)
Alternative Sourcing Mechanisms

• California Public Utilities Commission (CPUC) requested that parties propose alternative sourcing mechanisms of DERs in the IDER proceeding

• Parties filed proposals in Feb 2019 for DER tariffs for distribution deferral
  – Followed by workshops in early March for stakeholders to discuss seven of the proposals from SEIA, CalSSA, CESA/Vote Solar, SunRun, SCE (2) and PG&E

• In April, the ALJ issued a ruling requesting responses to several post-workshop questions related to the DER tariffs, including whether to pilot and/or adopt any of the proposals
Stakeholder Engagement & SEOWG Role and Responsibilities
IGP Stakeholder Engagement

- Builds on the engagement model adopted for the 2016 PSIP and the 2017 GMS
- Creates transparency and greater understanding of IGP
- Objective is to enable stakeholders to share input and feedback and provide a balanced, respectful discussion among interested parties throughout the IGP process
The role and responsibilities of the SEOWG are to provide input and feedback on grid services identification and the solution evaluation and optimization process and methodology to support IGP sourcing.

Participants are expected to provide expertise in the discussion topics as well as potentially relevant examples for consideration and/or lessons learned from other states.

The SEOWG is not a decision-making body. However, the expectation is that the working group will work collaboratively and provide constructive input and feedback to the Companies on topics within the scope of this working group.

Discussion of any active procurement and evaluation is outside the scope of this WG.
Our primary objective is to develop a solution evaluation methodology that can be reasonably achieved and implemented in support of the IGP Soft Launch and implemented for the first IGP cycle considering we need to:

- Develop evaluation methodology for Soft Launch
- Identify and define additional capacity, ancillary and T&D non-wires alternative services (collectively “Grid Services”) that support of IGP Solution Sourcing for the 1st IGP cycle
- Evaluate solutions that have non-uniform contract term lengths and in-service dates
- Evaluate solutions that may meet only a portion of the defined grid needs
- Assess the synergistic benefits provided by a combination of solutions that would otherwise not be provided by an individual solution
- Consider RPS contributions and reduction in GHG emissions in the solution evaluation

The challenge will be defining processes and methodologies that are “good enough” for the first IGP cycle (*i.e.* can we achieve good v. perfect*)
### SEOWG Objective

Evaluate solutions that have non-uniform contract term lengths and in-service dates

<table>
<thead>
<tr>
<th>Illustrative Example</th>
<th>Front of the Meter PV + Storage</th>
<th>DER Aggregator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contract Term Length</td>
<td>20 Years</td>
<td>5 Years</td>
</tr>
<tr>
<td>In-Service Dates</td>
<td>2025</td>
<td>2022</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Evaluation Options</th>
<th>Pros</th>
<th>Cons</th>
</tr>
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</table>
| Match term lengths (align to longest or shortest term) | • Only benefits provided when project is in-service are considered.  
• Shorter term project may be more cost effective when considered against a similar portion of the longer term contract. | • When aligning to the longest term, assumes same pricing to extend contract.  
• When aligning to the shortest term, benefits from the longer term project in the outer years are ignored. |
| Shift in-service date | • Avoids any cost difference due to the time value of money. Any calculated benefits would come directly from the projects. | • Ignores benefits of projects which will come online sooner than others. |
SEOWG Objective

Evaluate solutions that may meet only a portion of the defined grid needs

- For NWA and other aggregator projects, may receive proposals that fulfill portions of the defined grid need.
  - Decompose the need to allow for a variety of potential solution sizes
  - Consider NWA solutions to reduce the size of the wires solution.
Soft Launch NWA Needs Example

![2022 Hourly capacity need summary](image)

<table>
<thead>
<tr>
<th>Proposal Delivery Option</th>
<th>Offer Size (MW)</th>
<th>Duration</th>
<th>January</th>
<th>December</th>
</tr>
</thead>
<tbody>
<tr>
<td>1a</td>
<td>1MW</td>
<td>4PM - 9PM</td>
<td>Everyday</td>
<td></td>
</tr>
<tr>
<td>1b</td>
<td>1.5MW</td>
<td>4PM - 9PM</td>
<td>Everyday</td>
<td></td>
</tr>
<tr>
<td>1c</td>
<td>2.5MW</td>
<td>4PM - 9PM</td>
<td>Everyday</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>0.5MW (100kW Increments)</td>
<td>6PM - 8PM</td>
<td>Everyday</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>0.5MW (100kW Increments)</td>
<td>9PM - 10PM</td>
<td>Everyday</td>
<td></td>
</tr>
</tbody>
</table>
SEOWG Objective

Assess the synergistic benefits provided by a combination of solutions that would otherwise not be provided by an individual solution

- Standalone PV may not fully meet energy and capacity needs for all hours of the day. Pairing this resource with storage will allow for flexibility needed to meet needs at different times of the day.
  - Could achieve similar results by pairing the PV with another resource with a different profile such as wind

- A portfolio of solutions can be built across resource, transmission, and distribution levels to leverage synergistic “twofer” value potential.
  - Shift to an iterative, bottoms-up integrated evaluation which accounts for the annual T&D NWA potential to provide energy, capacity, and other ancillary services when evaluating system resource needs
IGP - Identifying and Quantifying System Needs and Evaluation Process
Revised IGP Sourcing with 3P’s Approach Integrated
(Annual Distribution Planning & NWA Qualification Evaluation w/Bi-annual NWA RFP for Lg. Projects)
Revised IGP Sourcing with 3P’s Approach Integrated
(Annual Distribution Planning & NWA Qualification Evaluation w/Bi-annual NWA RFP for Lg. Projects)
SEOWG Proposed Meeting Topics and Schedule

Meeting 1 – May 9:
Kick-off Meeting & Overview of IGP, SEOWG challenges and key issues, prioritization of topics

Meeting 2 – August 1:
Survey of other state’s relevant efforts; identify and prioritize methods to support soft launch

Meeting(s) – September-December (TBD- as required):
Resource Needs Assessment and Value of Service

Proposed evaluation and optimization method in support of soft launch and review proposed list of grid services needed for the first IGP cycle

Development of evaluation methods for multiple sourcing solutions

Review lessons learned from Soft Launch; discuss and capture feedback; incorporate into draft evaluation methods

Meeting # – January 2020 (or March 2020):
Final review of new evaluation and optimization methods for 1st IGP cycle
Next Steps

Meeting notes and the slide deck will be posted on the IGP website

Next meeting: TBD

Topics:
- Examine and discuss relevant feedback and learning from other Working Groups
- Provide an overview of proposed Soft Launch T&D NWA evaluation process and methodology
- Stakeholder Feedback on the solution evaluation and IGP Procurement Process
  - Stakeholder presentations welcome and open discussion
- Please send any additional comments on today’s discussion to:
  - IGP@hawaiianelectric.com and Christopher Lau (christopher.lau@hawaiianelectric.com)
Mahalo!