

WORKSHOP: GRID SERVICES PURCHASE AGREEMENT

Kickoff and Discussion

DECEMBER 12, 2018



NAVIGANT

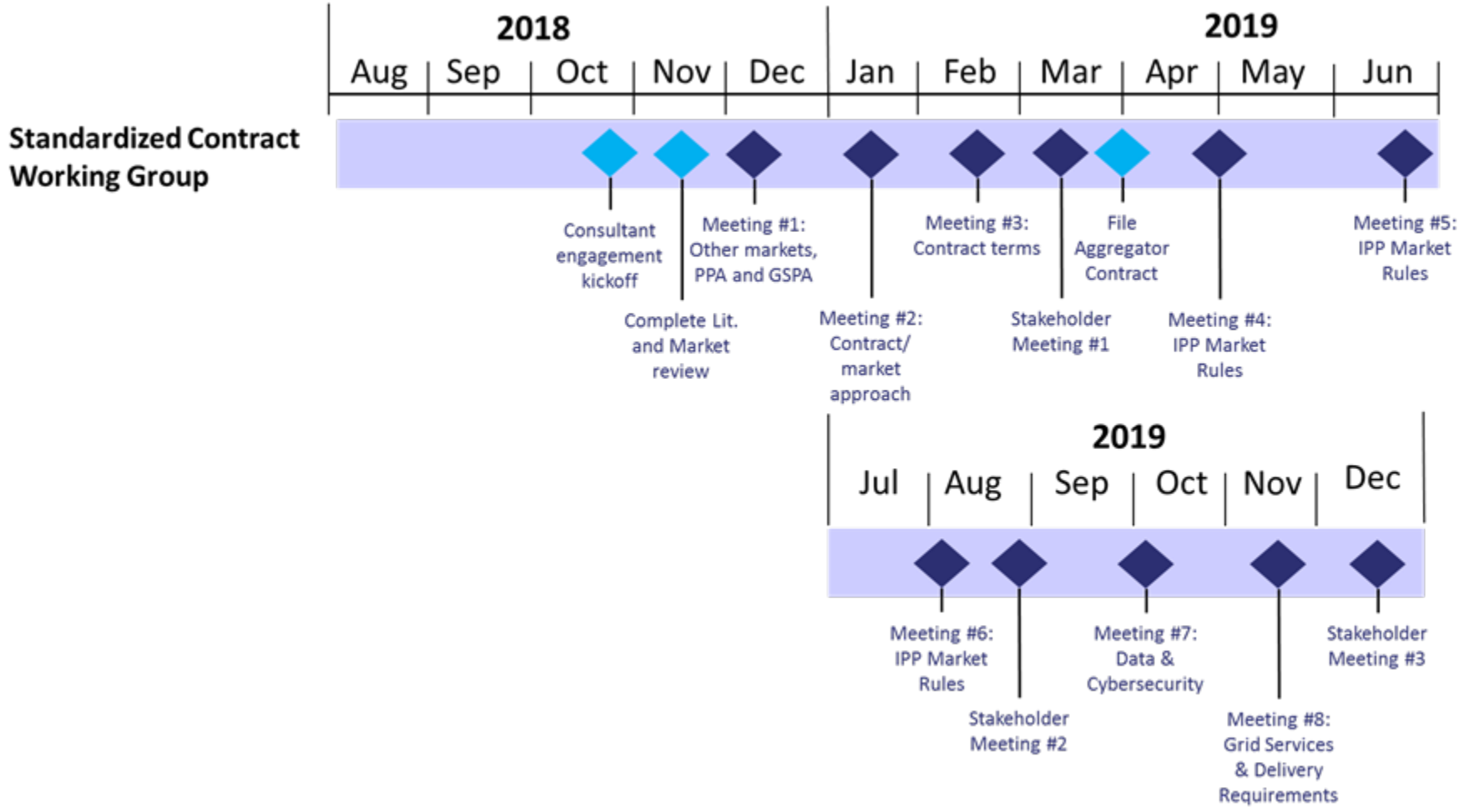
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AGENDA: DECEMBER 12, 2018

- Introductions
- Discuss objectives of Working Group – Hawaiian Electric
- Include procedural history of GSPA and formulation of IGP
 - Display IGP structure that explains the roles and responsibilities of other WG
 - Define role and responsibility of Standard Contract WG
 - Discuss timeline of discussions, drafts, and deliverables
- Working Group Exercise – discuss Charter and Principles
- Discuss structure / mechanism / terms of contracts – standardized vs. customized
- Q&A session
- Further discussion of next steps

OVERALL PROJECT TIMELINE



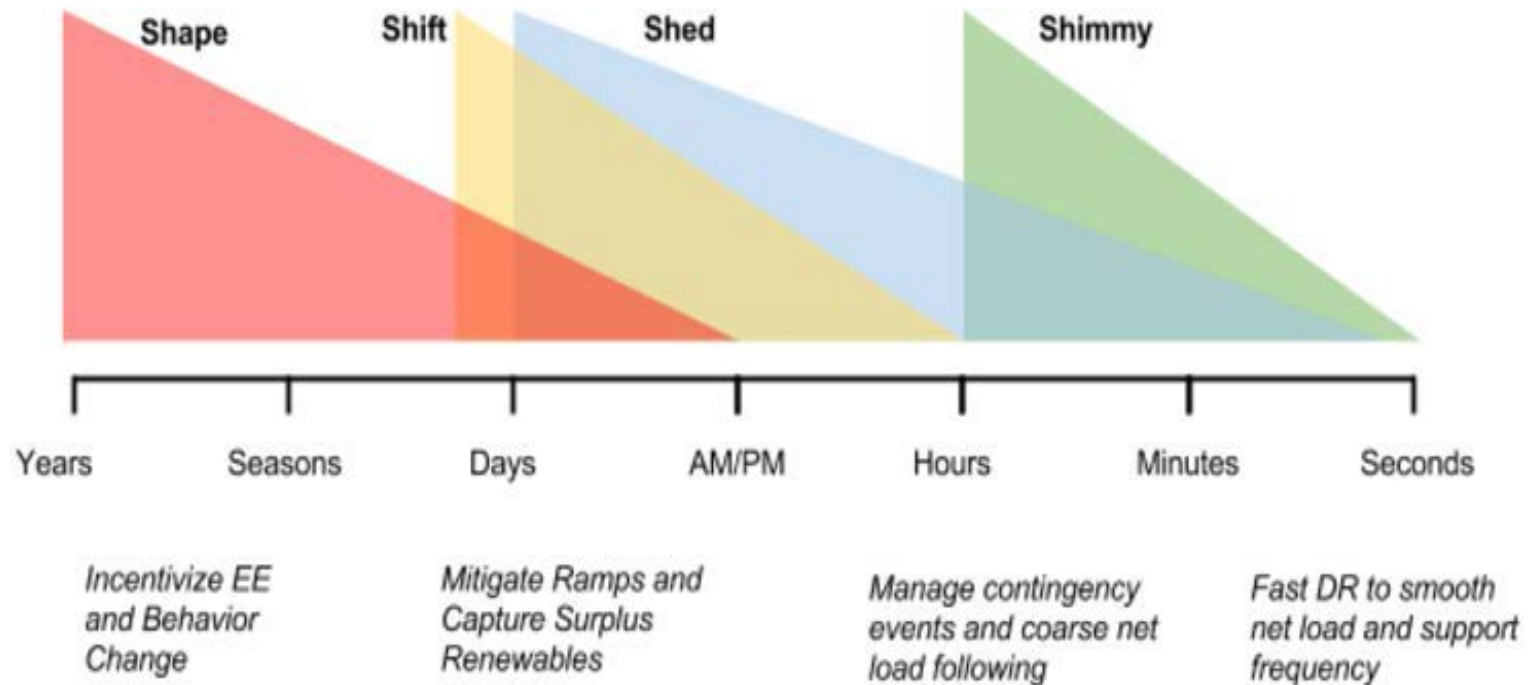
BACKGROUND AND OBJECTIVES

- Understand the reliability and policy framework that underlies the goal of developing contracts for grid services
- Discuss Workshop Objectives
- Prepare for Stakeholder meetings to receive input on grid services
 - Catalog comments received
 - Develop risk assessment for recommendations
- Refine contract considering industry benchmarked best practices
 - Understand common contracts used in the industry
 - Discuss structural options for Hawaiian Electric
- Lay the groundwork for a structure that can play across counterparties in the future

A CALIFORNIA VIEW OF DEMAND RESPONSE SERVICES

In recent DR potential studies in California, DR was broken into four service types

- **Shape:** Load-modifying DR—with advance notice of months to days
- **Shift:** DR that encourages the movement of energy consumption from times of high demand to times of day when there is surplus of renewable generation; Smooths the daily patterns of net load
- **Shed:** Can be curtailed to provide peak capacity and support the system in emergency or contingency events—at the statewide level, in local areas of high load, and on the distribution system, with a range in dispatch advance notice times.
- **Shimmy:** Loads to dynamically adjust demand on the system to alleviate short-run ramps and disturbances at timescales ranging from seconds up to an hour



CHARTER – DRAFT FOR DISCUSSION

The Working Group provides a forum for open exchange of knowledge and ideas surrounding the procurement of services through a contracting mechanism between Hawaiian Electric (utility) market operators and third party providers of grid and other ancillary services. The initial focus will be on contract options including:

- **Structure – standard language combined with specific enabling agreements**
- **Mechanisms – components and pieces**
- **Terms – details**

Subject Matter Experts advised that the common standard contracts used by the industry are those from EEI and WSPP

CONTRACT STRUCTURE

- **Structure – standard language combined with participation agreements**
 - Two pronged approach – Ts and Cs with different participation agreements
 - Clarify legal obligations and market operations
 - “Moderately customized” – general PPA with sections that applied with standardized options (choice A vs. B)
 - Delineate what goes into the reference documents vs. the contract
- **Preferences and features:**
 - Multi year commitment to deliver multiple services across multiple islands
 - 3-4 services for 3-5 years
 - Minimize micro contracts, but no specific minimum, bigger contracts preferred
 - Perhaps specific targets for sectors, such as distributed resources
- **Considerations:**
 - Growth potential as market capabilities and participation are grown
 - Possible incentive mechanisms in the future

CONTRACT MECHANISMS

- **Mechanisms – components and pieces**
 - Common requirements
 - Customized sections
- **Preferences and features:**
 - Benchmark standard features
 - Credit
 - Liquidated Damages
 - Etc.
- **Considerations:**
 - Understand risk and risk mitigation based on benchmarking other areas
 - Understand any issues with the existing PPA form

CONTRACT TERMS

- **Terms – details**

DRAFT – GUIDING PRINCIPLES

Principles

1. Competition yields lower electricity rates.
2. Stable and transparent rules and regulations promote private investment.
3. Private investors, rather than utilities, will spend money on new power plants and transmission facilities if they can earn a return that is balanced with the risks.
4. Markets work best when there are many buyers and sellers.
5. At-risk money will be put to work and attract new investment where markets exist that are legitimate and yield credible prices.

Navigant team will present summary of benchmarking of similar grid services purchasing mechanisms

NEXT STEPS

- Strawman of “structure”
- Populate with “mechanisms”
- Establish a matrix – 2 “big buckets”
 - standard contracts, such as EEI and WSPP
 - other contracts, such as PPAs
- Discuss what are organizations doing in terms of procurement structure

FRAMEWORK TO RECEIVE STAKEHOLDER INPUT

Grid Service Category	Stakeholder	Comments	Combine with Row #	Sent to risk evaluation?

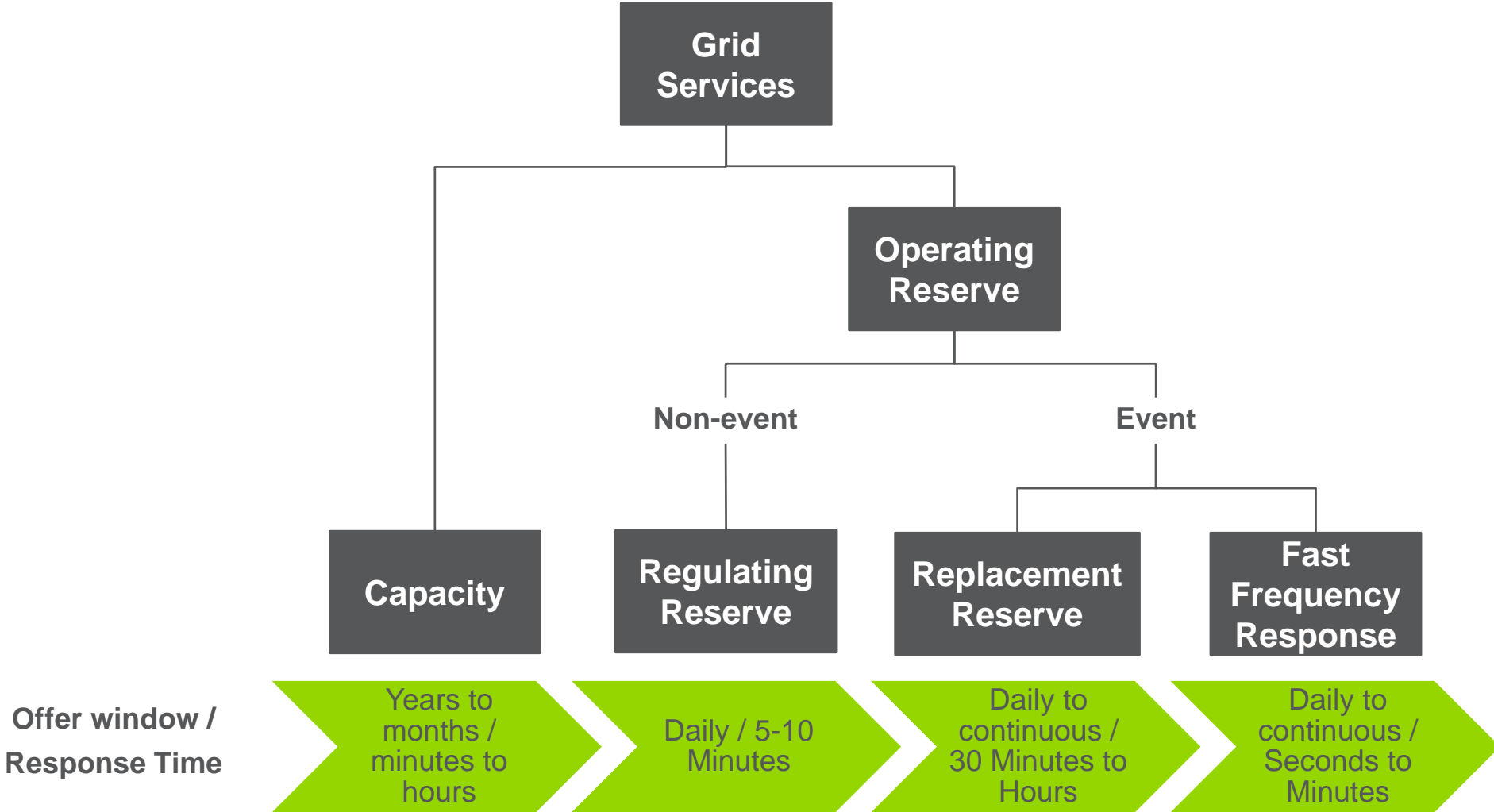
RISK ASSESSMENT FRAMEWORK FOR STAKEHOLDER COMMENTS

Risk Item	Risk Assessment	Mitigation
Credit		
Pace of change in the Market Price		
Ability to renegotiate		Buy out clause
Access to new products / services		
Economic viability		Mutually agreeable index
Bankruptcy and mergers		Standard credit limits
Complexity of aggregator portfolio		

APPENDIX

Placeholder for additional information

GRID SERVICES



GRID SERVICES DEFINITIONS

- **Capacity program:** Capacity programs represents a commitment of demand response to deliver when needed, particularly in case of a grid emergency. Demand response services are normally compensated by real time pricing, time of use rates and day ahead load shifting programs.
- **Fast Frequency Response (“FFR”):** A response from a resource that is automatically self-deployed and provides a full response within 30 cycles after frequency meets or drops below a preset threshold
- **Regulating Reserve programs:** Demand Response available during normal conditions for assistance in active power balance to correct the current imbalance that occurs, is faster than economic dispatch optimization, is random, and requires automatic centralized response.
- **Replacement Reserve programs:** Generation that is capable of starting up if not already operating, synchronized with the grid and ramping to a specified load within one hour, and running for at least two hours.

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