

WORKSHOP: GRID SERVICES PURCHASE AGREEMENT

WORKING GROUP 2

JANUARY 18, 2019



NAVIGANT

GROUND RULES

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OUTCOMES WORKING GROUP #2

- Working Group 2
 - Develop majority opinion / consensus on Structure
 - Sufficient discussion and information to lead to developing majority opinion / consensus on Mechanisms
 - Begin developing what belongs in/out of the GSPA standard contract

AGENDA: JANUARY 18, 2018

- Introductions (10 min)
- Discuss Objectives of Working Group Meeting #2 – Hawaiian Electric (10 min)
- Review and Ratify Charter and Guiding Principles (15 mins)
- **Discussion: Structure (35 mins)**

- Break

- **Discussion: Categories / Matrix of Mechanisms (75 mins)**
- Next steps (10 mins)

Standardized Contract Working Group

- The Standard Contract 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 is around contract options including:
 - Structure – standard language combined with specific service language
 - Mechanisms – components and features
 - Terms – details of mechanisms
- The benefits of a standardized contract approach should lay the foundation for equal participation across resource types:
 - Volume - The ability to quickly negotiate with service providers based on standardized terms, conditions, and qualification requirements
 - Risk - The ability to include risk-averting language through the inclusion of indices, such as fuel adjusters that may occasionally need to be negotiated without redoing the entire agreement
 - Customization - The ability to contract across multiple services as needed



RATIFY – CHARTER 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**

RATIFY – GUIDING PRINCIPLES DRAFT FOR DISCUSSION

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.

CONTRACT STRUCTURE REVIEW

Subject Matter Experts advised that the common standard contracts used by the industry are those from EEI and WSPP. WSPP third-party structure is not workable for this application.

- Structure – standard language combined with participation agreements
 - Two pronged approach – Ts and Cs with different participation rules
 - Clarify legal obligations and market obligations
 - “Moderately customized” – general PPA with sections that applied with standardized options (choice A vs. B)
- Preferences and features:
 - Multi year commitment to deliver multiple services, perhaps across multiple islands
 - 3-4 services for 3-5 years
 - Minimize micro contracts, but no specific minimum, bigger contracts preferred
- Considerations:
 - Growth potential as market capabilities and participation are grown
 - Creates horizontal and vertical expansion opportunities

CONTRACT STRUCTURE

- **Impressions and Takeaways**
- **Preferences and features:**
- **Considerations:**

CONTRACT MECHANISMS

- Review common and uncommon mechanisms
- Impressions and Takeaways from mechanism review
- Discuss components and pieces comparison
- Preferences and features:
- Considerations:
 - Understand risk and risk mitigation based

BENCHMARKING AND STRUCTURE COMPARE

Entity	CONTRACT DESCRIPTION	STUCTURE
EEI	Developed by utility industry self administered through standardized document	All the legal and commercial requirements are in one agreement and intersects with first part of PSCO agreement. Note – PG&E uses the EEI agreement with some annexures or changes.
XCEL Energy Colorado (PSCO)	Developed by Xcel Colorado for Power Purchase Agreement between wind/solar developer and PSCO	Both Legal and Market Requirements are included into one agreement. Each type of generation has a separate RFP and agreement document tailored to the resource.
ERCOT	ERCOT agreement for Single Generator and Emergency Grid Service	ERCOT has standard legal terms in Single Generator agreement. For Market or Commercial requirements for new renewable resources or demand response a separate manual includes the requirements
NYISO	NYISO agreement for Single Generator and Emergency Demand Response	Similar to ERCOT, NYISO has standard legal terms in an agreement. For Market or Commercial requirements for new renewable resources or demand response a separate manual includes the requirements
GSPA	Hawaiian Electric Proposed Grid Services Purchase Agreement for Demand Side Resources	Separate agreements for each type of generation. Legal and market requirements are two different article
PPA RDG Solar	Hawaiin Electric developed PPA for Solar RDG	One agreement reviewed

LEGAL MECHANISMS

FEATURE	Description	Xcel Energy (PSCO)	ERCOT	NYISO	GSPA	RDG PPA	Key Takeaways
Terms And Conditions/Termination	Effective date of contract, conditions of Termination	X	X	X	X	X	Commonly observed
Events Of Default; Remedies	Conditions that apply for default and the remedies	X	X	X	X	X	Commonly observed
Indemnity	General and Environmental Indemnification, Limitations and Procedures	X	X	X	X	X	Commonly Observed
Assignment (Title Risk Or Loss)	Transfer of the agreement conditions	X	X	X	X	X	Commonly observed
Governing Law	Laws applicable to the contract	X	X	X	X	X	Commonly observed
Notices	Notice delivery details	X	X	X	X	X	Commonly observed
Confidentiality	Confidentiality of the MSA	X	X	X	X	X	Commonly observed
Forward Contract	Transactions constitute “forward contracts” within the meaning of the United States Bankruptcy Code.	X				X	Not commonly defined some have and others have language on bankruptcy

LEGAL MECHANISMS

FEATURE	Description	Xcel Energy (PSCO)	ERCOT	NYISO	GSPA	RDG PPA	Key Takeaways
Limitation Of Remedies, Liability And Damages	Description of limitations, liability and damages	X	X	X	X	X	Commonly observed
Regulatory Filings And Approvals	Required filings and permits needed	X	X	X	X	X	Commonly observed

COMMERCIAL MECHANISMS

FEATURE	Description	Xcel Energy (PSCO)	ERCOT	NYISO	GSPA	RDG PPA	Key Takeaway
Participant Registration	Registration of the Market Participant which sets conditions for eligibility for participation	X	X	X	X		Commonly Observed
Asset Registration	Requirements for registering the Resource such as expected resource profile , documents needed, parameters to be submitted	X	X	X			Asset Registration is expected behavior of the resource and is commonly observed
Resource Identification	Facility description which provides the details of Point of Interconnection, one line diagram etc and material required to assess the resource eligibility	X	X	X	X	X	Provides the technical details about the resource
Term Of Master Agreement	Details the conditions of the term of the agreement	X	X	X	X	X	Commonly Observed and sets the terms of agreement
Obligations And Deliveries	Resource obligation for deliver of service	X	X	X			Commonly Observed
Payment And Netting	Billing period, timeliness of payments, dispute adjustments, payment obligations	X	X	X	X	X	Commonly Observed

COMMERCIAL MECHANISMS

FEATURE	Description	Xcel Energy (PSCO)	ERCOT	NYISO	GSPA	RDG PPA	Key Takeaway
Credit And Collateral Requirements	Credit rating, securities etc	X	X	X		X	Commonly Observed
Forecasting	Weather based forecasting needed	X	X	X	X	X	Commonly observed
Settlement	Lays out the procedures for billing and invoicing	X	X	X	X	X	Commonly Observed
Payment For Renewable Energy	Energy Payment Rates (%) by Resource Type wind, solar, combined cycle etc	X	Market	Market			Mainly included in PSCO agreement, for ISOs this is taken care by market rules
Excess Energy	Percentage beyond which the energy is considered to be excess and payment conditions that apply	X	<registered MW	<registered MW			This is mainly included in PSCO contract which determines the excess energy of a given resource

OPERATIONAL MECHANISMS

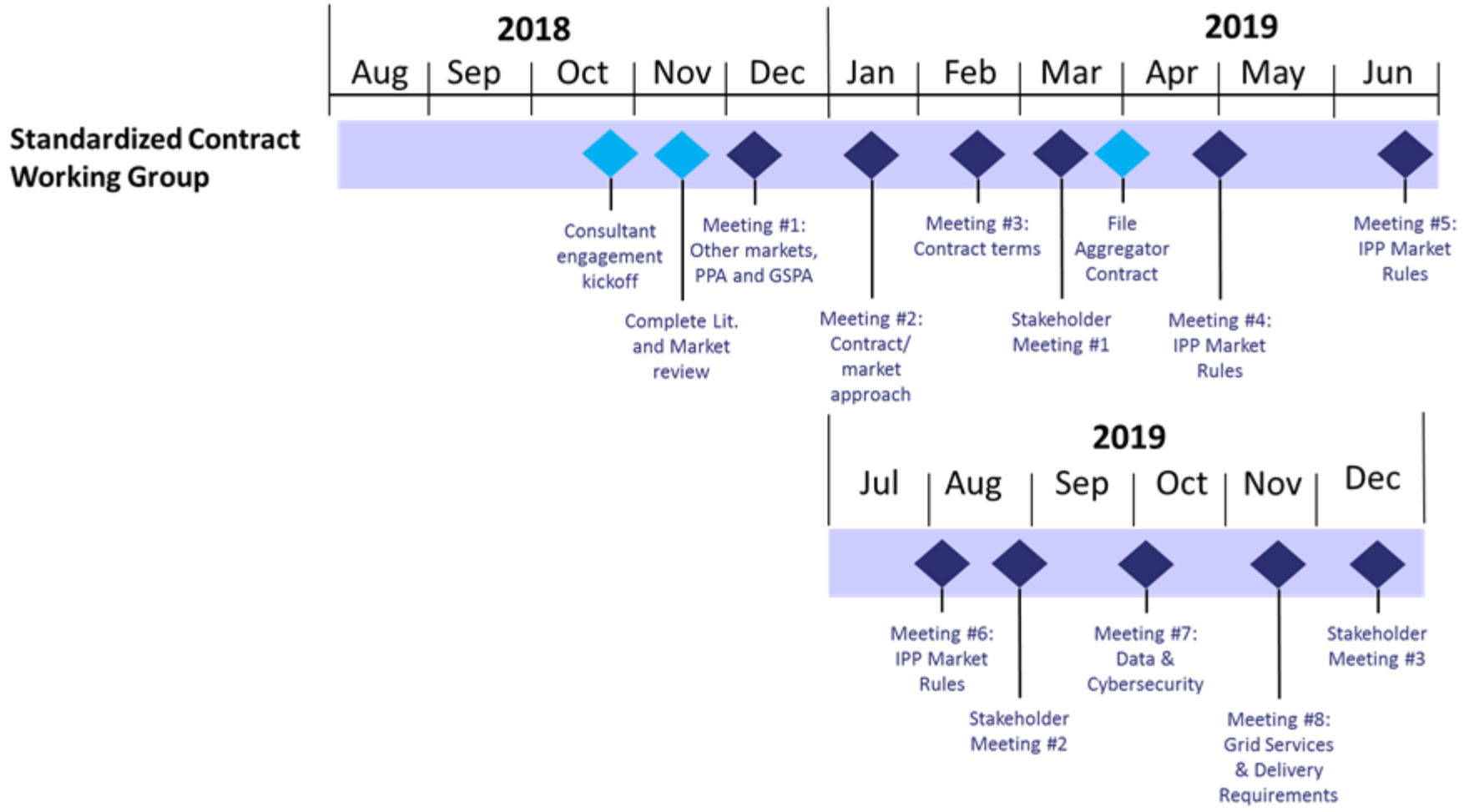
FEATURE	Description	Xcel Energy (PSCO)	ERCOT	NYISO	GSPA	RDG PPA	Key Takeaway
Audit	Audit of resource data as needed and payment of interest			X	X	X	Language is embedded into the contract
Field Services	Field device installation, protection, testing and maintenance	X			X		PSCO is another entity which included this requirement as utility, ISOs depend on their stakeholder for such activities
Measurement & Verification	M&V requirements		X	X	X	X	ISOs have similar requirements for demand response resources
Metering Requirements	Metering device requirements	X	X	X	X	X	Commonly Observed
Event Management	Dispatch participation in the events and informing about foreseeable events	X	X	X	X	X	Commonly Observed
Technology	Standards of the technology used by resource (UL, IEEE standards)				X		Normally this is specified in manuals or business practices
Testing	Testing of equipment before installation	X	X	X	X	X	Commonly Observed
Offer Submission	Market Offer Submission (applied to ISOs)		X	X			Common to ISOs only

OPERATIONAL MECHANISMS

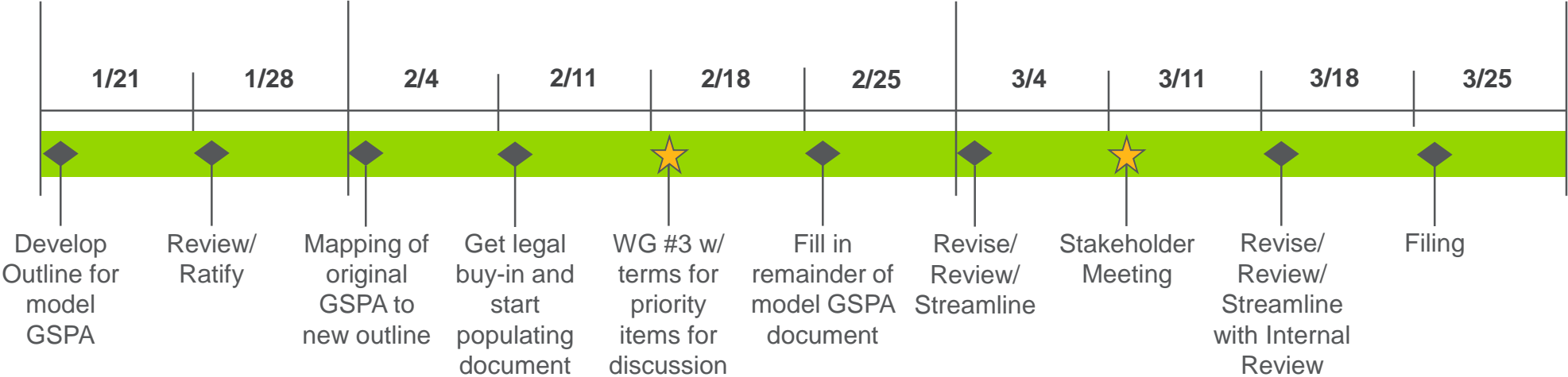
FEATURE	Description	Xcel Energy (PSCO)	ERCOT	NYISO	GSPA	RDG PPA	Key Takeaway
Project Implementation - Development, Permits, Installation	Requirements of permits, construction, installation and inspection	X	X	X	X	X	Commonly Observed
Operational Data Requirements	Description of operational data required	X	X	X			Commonly Observed
Performance Based Payment Reductions	Performance measurement to determine continued engagement or suspension, reduction in payments	X	X	X	X	X	Commonly observed and sets the terms for payment changes or suspension of resource based on performance
Program Management	Performance Criteria especially for Demand Response resources	X	X	X	X	X	Commonly Observed



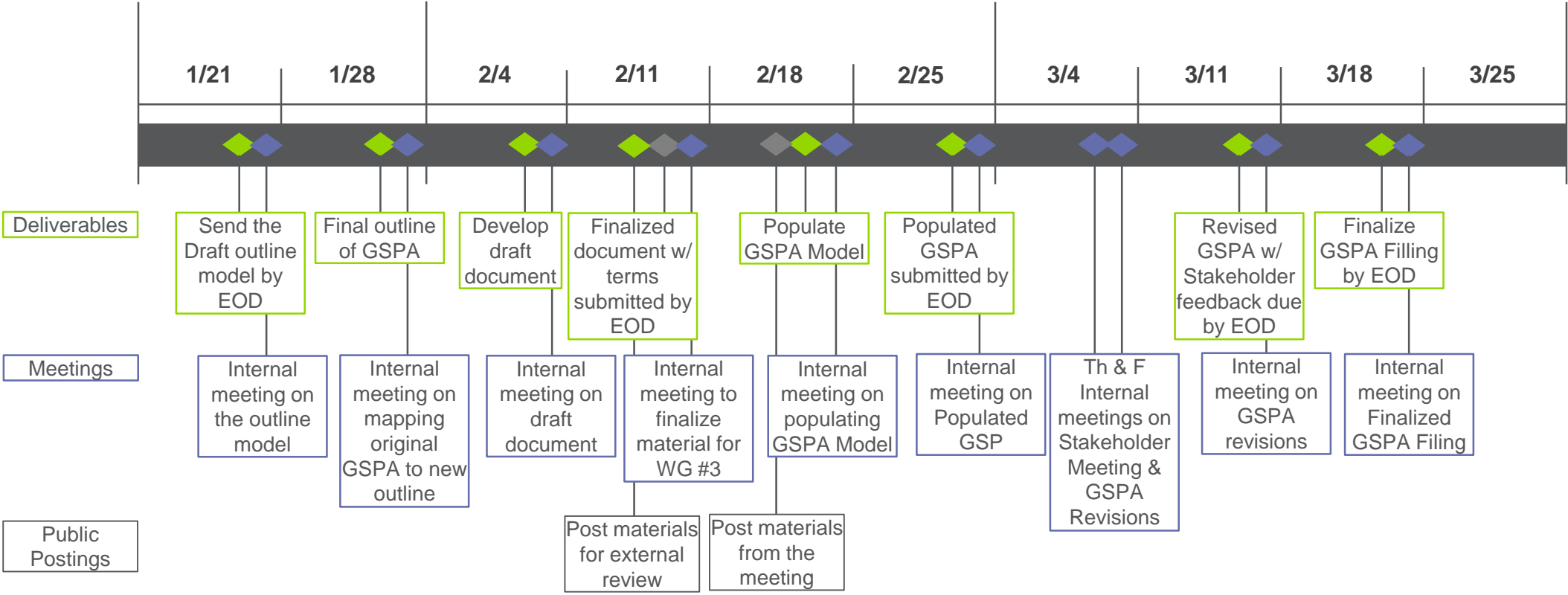
OVERALL PROJECT TIMELINE



EXTERNAL DELIVERABLES



INTERNAL DELIVERABLES



NEXT STEPS

- Finalize “mechanisms” per working group
- Develop “terms” per contract and tariff review
- Develop prototype for Working Group review
- Discuss approach to receive Stakeholder input
- Discuss filing expectations and timeline

OUTCOMES: WORKING GROUP #3

- Working Group 3 (proposed)
 - Ratify Structure
 - Ratify high-priority Mechanisms and identify gaps
 - Discuss terms for high-priority mechanisms
 - Develop

OUTCOMES: STAKEHOLDER MEETING (PROPOSED)

- Stakeholder Meeting PowerPoint to discuss
 - Structure
 - What's in/out
 - Rationale
 - Feedback
 - Receive Feedback – Legal and Commercial
 - What's in/out
 - Rationale
 - Feedback
 - Synthesize input to finalize best efforts that can continue to be expanded

APPENDIX

FRAMEWORK TO RECEIVE STAKEHOLDER INPUT

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

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

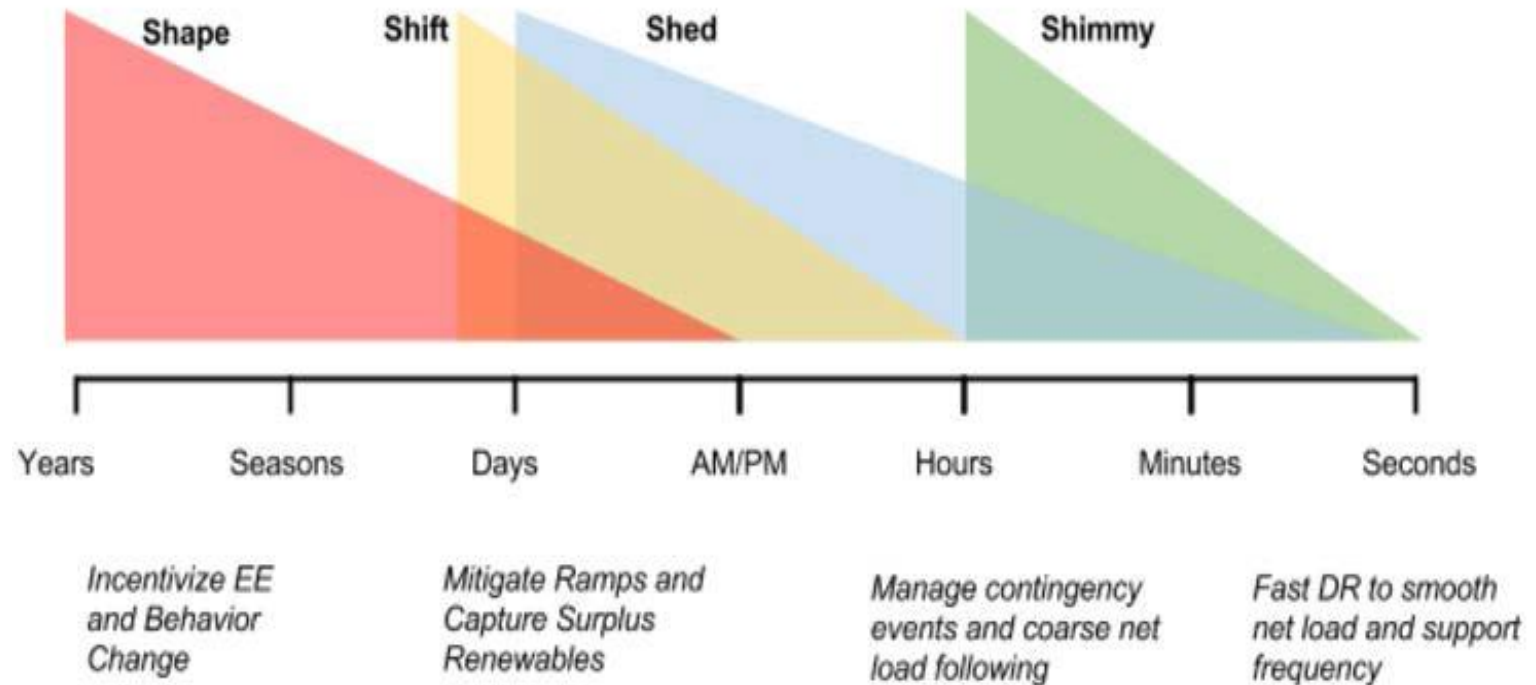
AGENDA: DECEMBER 12, 2018

- 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

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



DISCUSSION OF CONTRACT MECHANISMS

- Navigant will discuss contracts reviewed including
 - Edison Electric Institute (EEI)
 - Western Systems Power Pool (WSPP)
 - Public Service of Colorado Purchase Power Agreement (PPA)
 - GSPA as-filed
 - ISOs/RTOs
 - Other PPA

- Navigant will facilitate a discussion of contract mechanisms
 - Legal
 - Commercial
 - Other

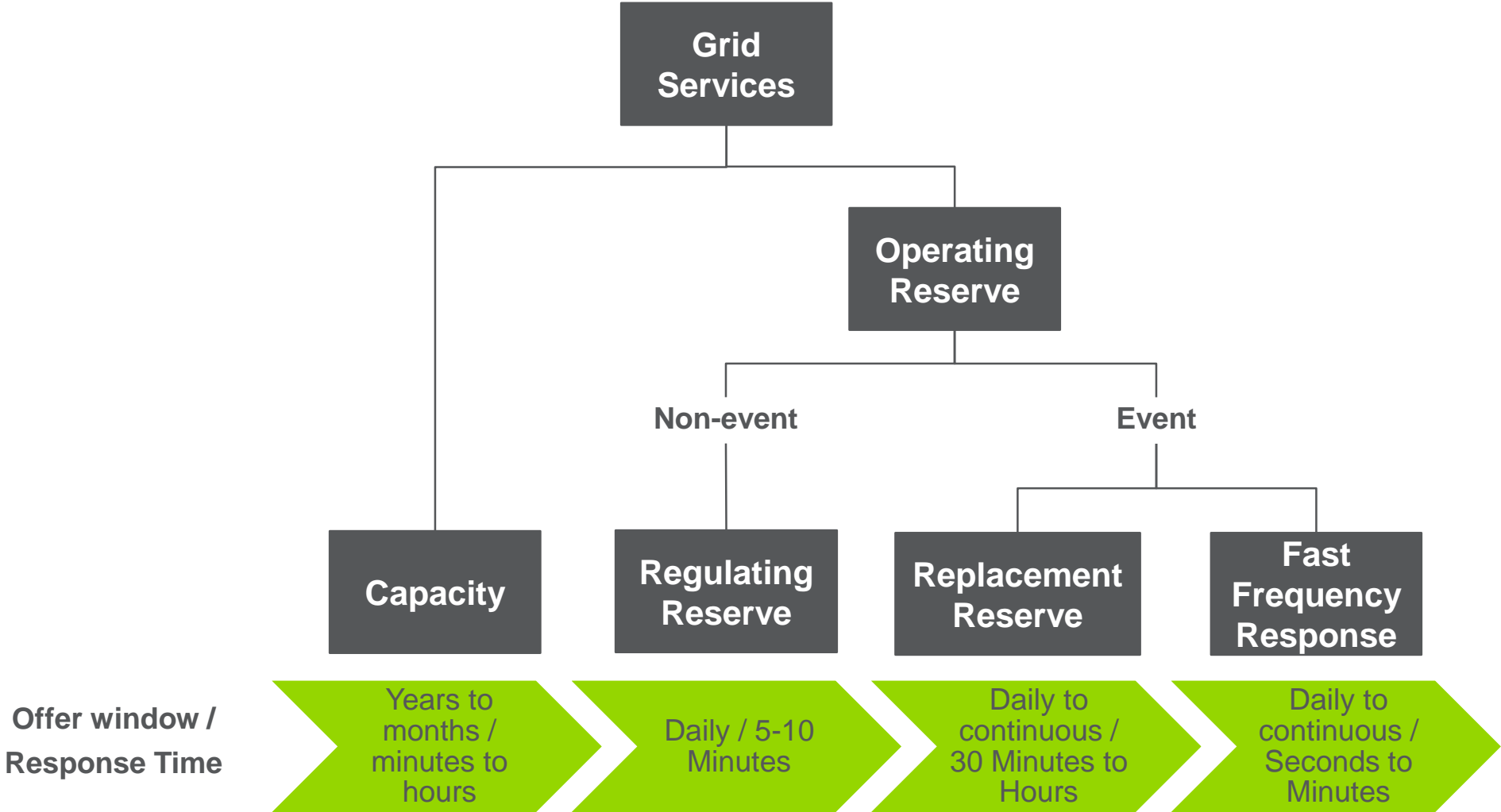
NEXT STEPS

- 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

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		

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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