

WORKING GROUP 3: GRID SERVICES PURCHASE AGREEMENT

FEBRUARY 22, 2019



NAVIGANT

GROUND RULES

- All Working Group and Stakeholder Group meetings, webinars and information exchange are designed 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 Working Group and Stakeholder Group 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 members to exercise independent business judgment regarding matters affecting competition or regulatory positions.
- Proprietary information shall not be disclosed by any participant during any group meetings. In addition, no information of a secret or proprietary nature shall be made available to Working Group or Stakeholder Group members.
- All proprietary information which may nonetheless be publicly disclosed by any participant during any group meeting 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.

AGENDA: FEBRUARY 22, 2018

- Introductions (10 minutes)
- Discuss Objectives of Working Group Meeting #3 – Hawaiian Electric (10 minutes)
- Review Mechanisms and Outline (30 minutes)
 - Updated Mechanism Outline
- Discuss Progress on Terms (15 minutes)
 - Prioritization

- Break (15 minutes)

- Discussion: Terms (60 mins)
- Stakeholder Meeting Aspirations, Outcomes, Logistics (15 minutes)
- Next steps (10 mins)

OUTCOMES: WORKING GROUP #3

- Working Group 3 (proposed)
 - Review and Approve Mechanisms and Categories
 - Address Terms for High-Priority Mechanisms
 - Define Working Group follow-up activity
 - Review Stakeholder Meeting Objectives



MODEL GSPA OUTLINE

PRIORITIZATION - MECHANISMS AND TERMS

Current GSPA Mechanisms have been assigned a color to help direct discussion:

- **Green** – High priority for discussion
- **Yellow** – For discussion
- **Blue** - High priority passed through negotiations and will be carried into the New GSPA
- **Gray** - Not identified as high priority

HIGH PRIORITY MECHANISM & TERMS FOR DISCUSSION - GREEN

Mechanism	TYPE	Description	GSPA Location and Title	Notes
Data Ownership	Legal	Description of data ownership	3.5 Ownership of Company Data	
			3.14 Source Code	DERC – <i>Source code escrow</i>
Obligations And Deliveries	Commercial	Resource obligation for deliver of service	Article 3 Specific Rights and Obligations (of Participants)	DERC comment over subcontractor status
			Recreation of GSDS	HE – Term Addition
			3.12 Standards of Conduct for Supplier	
Credit And Collateral Requirements	Commercial	Credit rating, securities etc.	Article 5 Security	
			5.3. Letter of Credit	HE – Term Addition; DERC comment over “first lien”

DERC Comments

- ~~Integration date clarification / 90 days?~~

- LDs - Yellow
- ~~Appendix 1 / null and void clause~~

HIGH PRIORITY MECHANISM & TERMS FOR DISCUSSION - GREEN

Mechanism	TYPE	Description	GSPA Location and Title	Notes
Terms And Conditions/Termination	LEGAL	Effective date of contract, conditions of Termination	Article 2 Scope of Agreement	DERC comment: Contract term and lack of extension; <i>Term of the agreement (60 months)</i>
			No Waiver	HE – Term Addition
Participant Registration	Commercial	Registration of the Market Participant which sets conditions for eligibility for participation	3.10 Participant Service Agreement	DERC comment over subcontractor status. HE Comment - add Standard of Conduct for Supplier
			Exhibit N – Participant Service Agreement	
			Exhibit I – Service Level Agreements	DERC comment over uptime requirement

MECHANISM & TERMS FOR DISCUSSION - YELLOW

Mechanism	TYPE	Description	GSPA Location and Title	Notes
Events Of Default; Remedies	LEGAL	Conditions that apply for default and the remedies	Article 6 Default	Includes terms on “Termination by Company” which may be moved
			Article 7 Remedies: Liquid Damages	
Limitation of Remedies, Liability and Damages	LEGAL	Description of limitations, liability and damages	Article 9 Representations, Warranties and Covenants	
Indemnity	LEGAL	General and Environmental Indemnification, Limitations and Procedures	Article 10 Indemnification	
Confidentiality	LEGAL	Confidentiality of the MSA	Article 14 Confidentiality and Non-Disclosure	Mainly Standard
			14.4 Exceptions & 14.7 Prohibited Activities	

MECHANISM & TERMS FOR DISCUSSION - YELLOW

Mechanism	TYPE	Description	GSPA Location and Title	Notes
Dispute Resolution	LEGAL	Directions for resolving disputes over the contract requirements	Article 13 Dispute Resolution	
Force Majeure	LEGAL	Details exemptions to contractual obligations for causes that can not be anticipated	Article 15 Force Majeure	FM can be reduced and consolidated but risk becomes high given that most of the resources are dependent upon natural forces for generation.
Participant Registration	Commercial	Registration of the Market Participant which sets conditions for eligibility for participation	3.10 Participant Service Agreement	DERC comment over subcontractor status. HE Comment - add Standard of Conduct for Supplier
			Exhibit N – Participant Service Agreement	
			Exhibit I – Service Level Agreements	DERC comment over uptime requirement
Payment And Netting	Commercial	Billing period, timeliness of payments, dispute adjustments, payment obligations	Article 4 Payment and Invoicing	HE - Discuss Taxes, Invoice Disputes, Adjustments
			Exhibit Q – Security Agreement	DERC comment: security interest calculated regardless of Supplier liabilities incurred

MECHANISM & TERMS FOR DISCUSSION

Mechanism	TYPE	Description	GSPA Location and Title	Notes
Audit	Operational	Audit of resource data as needed and payment of interest	Article 8 Audit Rights	
Field Services	Operational	Field device installation, protection, testing and maintenance	Exhibit M – Customer Service Requirements	Rename to Customer Service. DERC comment over subcontractor status cont.
Metering Requirements	Operational	Metering device requirements	3.9 Telemetry Requirements Exhibit E – Advanced Metering Requirements	Move 3.9 to Exhibit and put pointer in body of GSPA

HIGH PRIORITY PASSED THROUGH NEGOTIATIONS

Mechanism	TYPE	GSPA Location and Title	Notes
Limitation of Remedies, Liability and Damages	LEGAL	Article 11 Consequential Damages	
Regulatory Filings and Approvals	LEGAL	17.24 PUC Approval for Use of Model Contract	
Governing Law	LEGAL	17.9 Governing Law, Jurisdiction and Venue	
Notices	LEGAL	17.1 Notices	
Confidentiality	LEGAL	14.5 Return or Destruction of Confidential Information	
		14.6 Company's Disclosure	
		14.3 Non-Disclosure	
Insurance	LEGAL	Article 12 Insurance	Needs Risk Management input

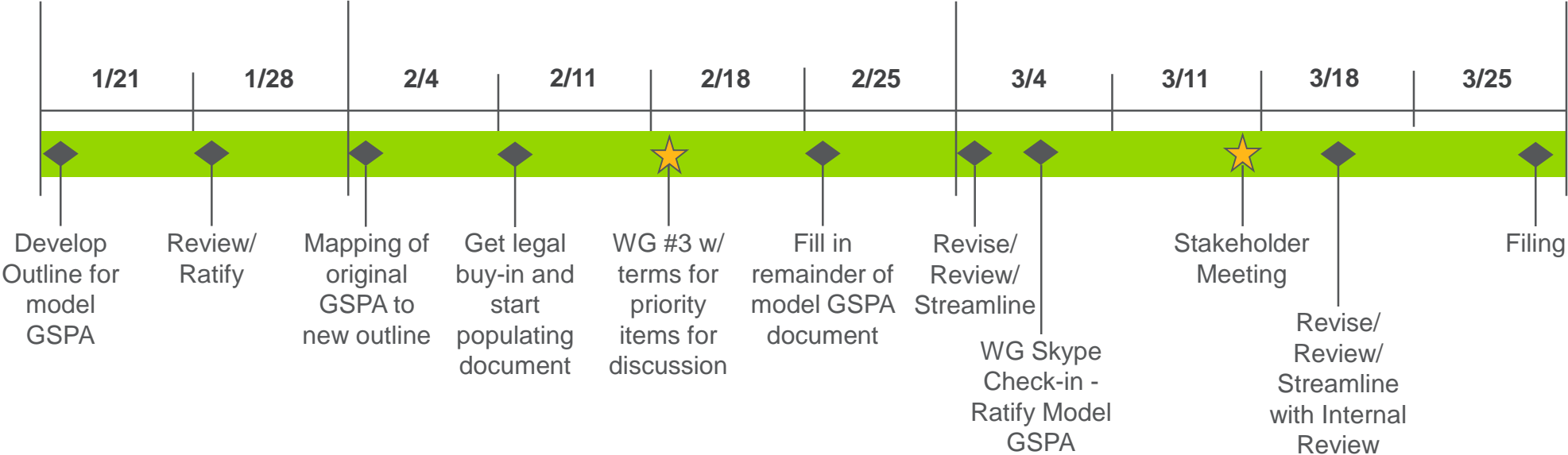
HIGH PRIORITY PASSED THROUGH NEGOTIATIONS

Mechanism	TYPE	GSPA Location and Title	Notes
Forecasting	Commercial	3.6 Operational Forecasting	
Obligations And Deliveries	Commercial	3.4 Information Security Requirements	HE - Term addition
		3.6 Operational Forecast	HE - Term addition
		3.7 Reporting	HE - Term addition
		3.2 Design and Deployment of GSDS	HE - Term addition
		3.16 Customer Service	HE - Term addition
Payment And Netting	Commercial	4.4 Payment	4.4(b) Offset is not standard, but VALUABLE. DERC comment on complex payment process

HIGH PRIORITY PASSED THROUGH NEGOTIATIONS

Mechanism	TYPE	GSPA Location and Title	Notes
Payment And Netting	Commercial	4.1 Pricing: Incentives	
		4.3 Monthly Invoice	
Credit And Collateral Requirements	Commercial	5.6 Release of Security Funds	HE - Term addition
		5.6 Release of Security Funds	
Term Of Master Agreement	Commercial	2.2 Term and Effectiveness of Certain Obligations	
Project Implementation - Development, Permits, Installation	Operational	3.2 Design and Deployment of GSDS	

PROJECT TIMELINE



NEXT STEPS

- Working Group to provide feedback on yellow Terms
- Develop prototype for Stakeholder review
- Discuss approach to receive Stakeholder input
- Discuss feedback and timeline expectations

FRAMEWORK TO RECEIVE STAKEHOLDER INPUT

Structure/Mechanism/Term Category	Stakeholder	Comments	Combine with Row #	Evaluation

FRAMEWORK TO RECEIVE WORKING GROUP INPUT

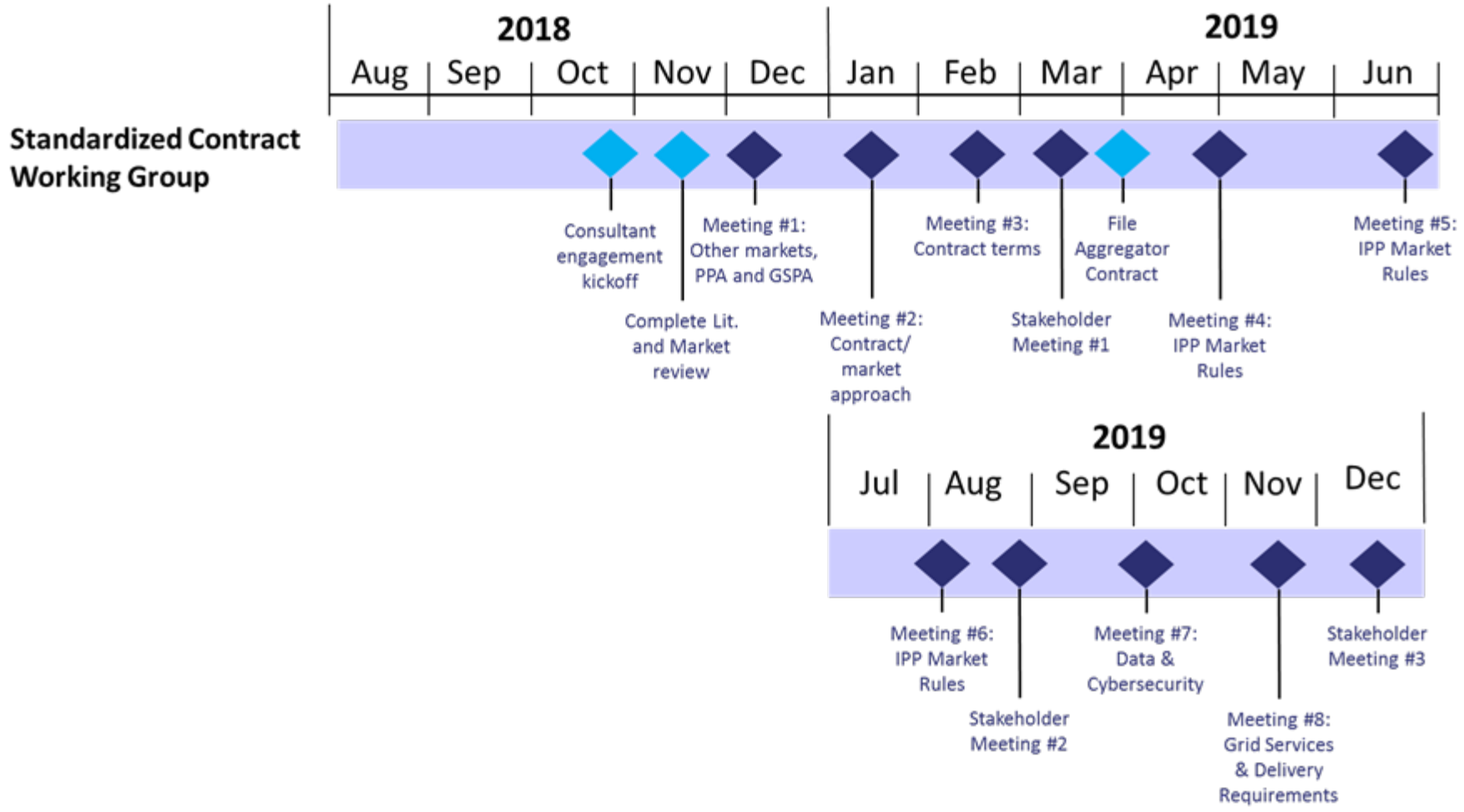
Term Category	Stakeholder	Comments	Combine with Row #	Evaluation

APPENDIX

GSPA MECHANISMS NOT COMMONLY FOUND IN BENCHMARKING

FEATURE	Description	Expert Comments
Branding and Marketing	Requirements for use of Company’s name and marks in conjunction with aggregators for marketing purposes	Commonly observed with aggregators as a way to demonstrate acceptance to participate as a qualified aggregator.
Participant Service Agreement.	Requires that an aggregator enroll participants under a contractual agreement; sets forth specific contractual elements and disclosures an aggregator must include in its PSA	Not commonly observed. Question whether this provision redistributed liability from the aggregator to the utility. Suggest reviewing ERCOT approach.
Standards of Conduct	Establishes a baseline for customer service that aggregator must achieve in the provision of the services	Not commonly observed as required by the utility. Suggest referencing PUC (or state mandates) through updatable reference if needed. Good idea to have these – business conduct, customer privacy, data confidentiality, etc. question around the utility setting these.
Source Code.	Requires the aggregator to place its source code into escrow for the benefit of Company in the event of a default.	Not commonly observed but useful. Protects program viability and overall reputation of aggregation of resources as a workable model.

OVERALL PROJECT TIMELINE



GSPA CHARTER

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**

GUIDING PRINCIPLES GSPA WORKING GROUP

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.

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



BACKGROUND AND OBJECTIVES

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

CONTRACT STRUCTURE DISCUSSION HIGHLIGHTS

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
 - Envisions a “slender” standardized contract with Exhibits

LEGAL MECHANISMS - UPDATED

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
Data Ownership	Description of data ownership	X	X	x	X		
Insurance	Requirements for insurance	X	X	X	X		
Dispute Resolution	Directions for resolving disputes over the contract requirements	X	X	X	X		
Force Majeure	Details exemptions to contractual obligations for causes that can not be anticipated	X	x	X	X	x	

LEGAL MECHANISMS - DRAFT

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 - DRAFT

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 - DRAFT

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 - DRAFT

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 - DRAFT

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



CONTRACT BENCHMARK CANDIDATES

- 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

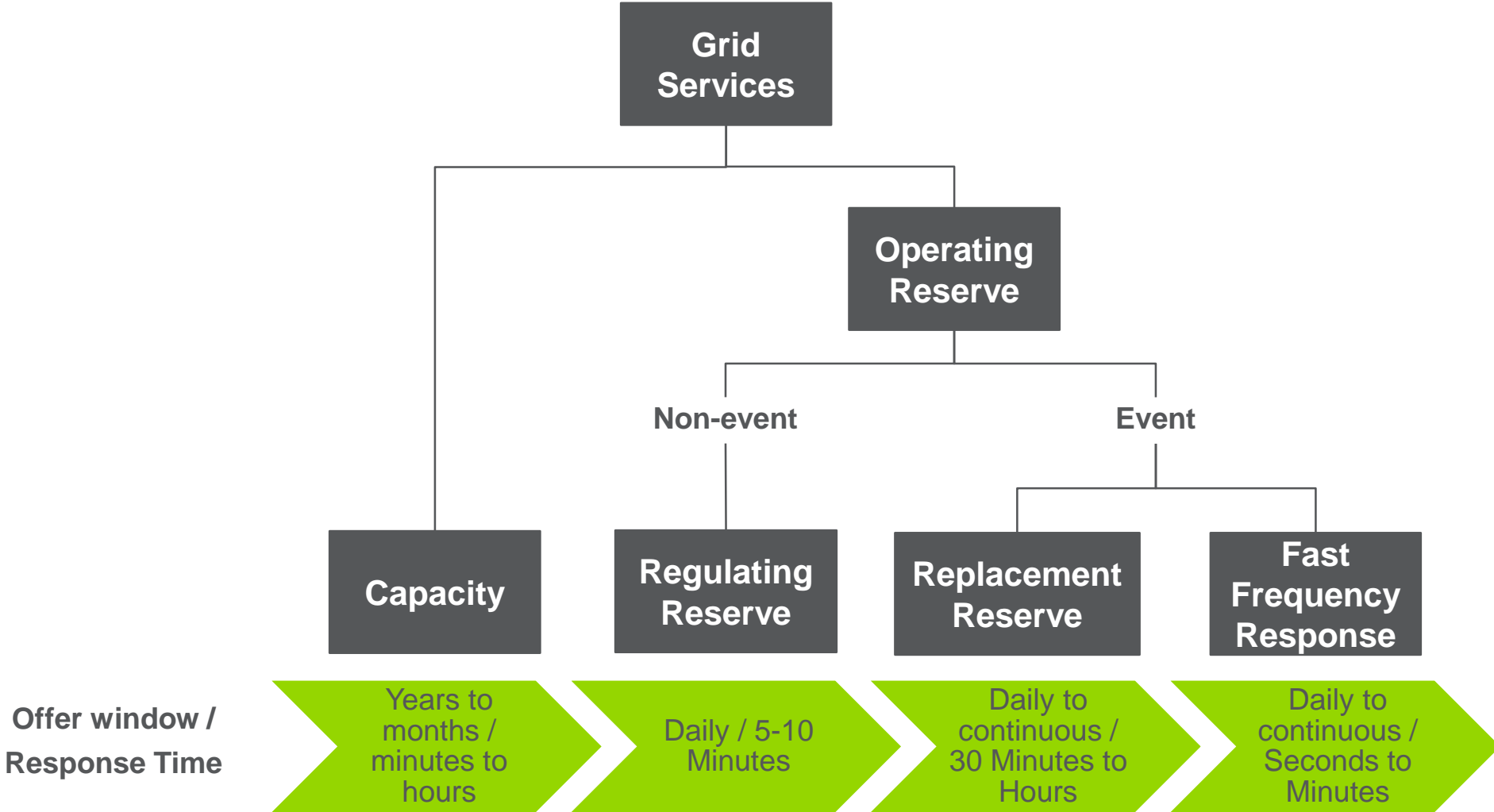
BENCHMARKING AND STRUCTURE COMPARE

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	Hawaiian Electric developed PPA for Solar RDG	One agreement reviewed

GRID SERVICES DEFINITIONS – FOR REFERENCE ONLY

- **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.

GRID SERVICES DIAGRAM – FOR REFERENCE ONLY



DISCLAIMER

Copyright

This information is protected by copyright. Any copying, reproduction, publication, dissemination or transmittal in any form without the express written consent of [Navigant Consulting, Inc. \(Navigant\)](#) is prohibited.

Disclaimer

This report (“report”) was prepared for [Hawaiian Electric](#) on terms specifically limiting the liability of Navigant Consulting, Inc. (Navigant), and is not to be distributed without Navigant’s prior written consent. Navigant’s conclusions are the results of the exercise of its reasonable professional judgment. By the reader’s acceptance of this report, you hereby agree and acknowledge that (a) your use of the report will be limited solely for internal purpose, (b) you will not distribute a copy of this report to any third party without Navigant’s express prior written consent, and (c) you are bound by the disclaimers and/or limitations on liability otherwise set forth in the report. Navigant does not make any representations or warranties of any kind with respect to (i) the accuracy or completeness of the information contained in the report, (ii) the presence or absence of any errors or omissions contained in the report, (iii) any work performed by Navigant in connection with or using the report, or (iv) any conclusions reached by Navigant as a result of the report. Any use of or reliance on the report, or decisions to be made based on it, are the reader’s responsibility. Navigant accepts no duty of care or liability of any kind whatsoever to you, and all parties waive and release Navigant from all claims, liabilities and damages, if any, suffered as a result of decisions made, or not made, or actions taken, or not taken, based on this report.

Confidentiality

This report contains confidential and proprietary information. Any person acquiring this report agrees and understands that the information contained in this report is confidential and, except as required by law, will take all reasonable measures available to it by instruction, agreement or otherwise to maintain the confidentiality of the information. Such person agrees not to release, disclose, publish, copy, or communicate this confidential information or make it available to any third party, including, but not limited to, consultants, financial advisors, or rating agencies, other than employees, agents and contractors of such person and its affiliates and subsidiaries who reasonably need to know it in connection with the exercise or the performance of such person’s business. The terms of the client engagement letter or contract usually provide that the Client is the owner of the copyrighted report, but in some contracts, Navigant retains ownership of the copyright.

CONTACTS

LAURA MANZ

Director
858.354.8333
Laura.Manz@Navigant.com

STUART SCHARE

Managing Director
303.728.2504
stuart.schare@Navigant.com

RADHA SOORYA

Associate Director
317.417.7542
Radha.Soorya@Navigant.com