TC-25 Tariff Proceeding Workshop

April 26 & 27, 2023

Agenda

April 26		
Time	**Topic**	**Presenter**
9:00 – 9:10	Agenda Review	Rebecca
9:10 – 10:50	FR/FS Comprehensive Process Leanings	Team
10:50 – 12:00	Readiness Requirements	Kevlyn
12:00 – 1:00	*Lunch*	
1:00 – 2:10	Readiness Requirements (continued)	Kevlyn
2:10 – 2:40	Study Financials	Rebecca
2:40 – 3:00	*Break*	
3:00 – 3:30	Network Costs	Rebecca
3:30 – 3:50	Study Flexibility	Cherilyn
3:50 – 4:00	Wrap up Day 1	Rebecca
April 27		
9:00 – 9:05	Agenda Review	Rebecca
9:05 – 10:35	Technical Requirements	Christina
10:35 – 11:55	Transition Process	Katie
11:55 – 12:00	Wrap up and Next Steps	Rebecca

Link to topic

Return to agenda

Leanings Index

Topic Area Leanings Index

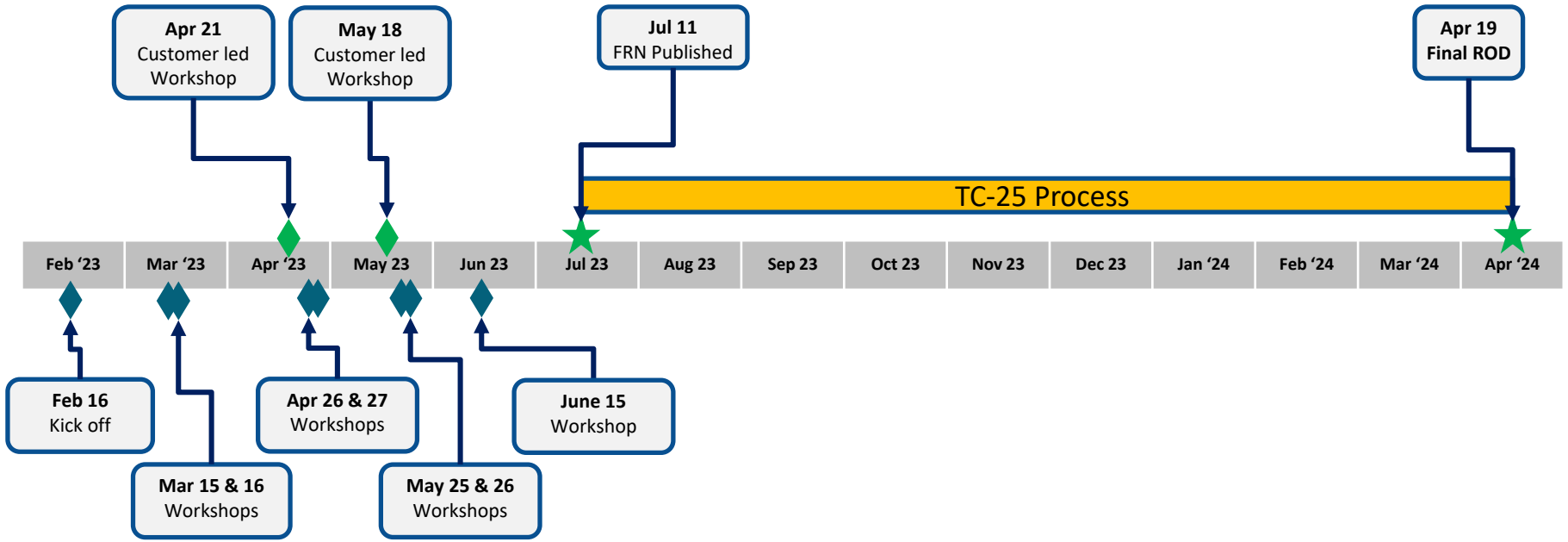
Approach to Customer Engagement

Most identified issues will be presented according to the following process at workshops (multiple steps might be addressed in a single workshop):

Phase One: Approach Development	Phase Two: Evaluation	Phase Three: Proposal Development
Step 1: Introduction & Education **Step 2: Description of the Issue**	**Step 3: Analyze the Issue** **Step 4: Discuss Alternatives**	**Step 5: Discuss Customer Feedback** **Step 6: Staff Proposal**

- Teams will follow the steps that may be covered in one workshop or more based on the complexity of the issue.

TC-25 Timeline



Procedural Schedule dates are draft only
Internal Use Only

Expectations

- Customers will have an opportunity to provide written comments after every workshop
- BPA will post customer comments on the TC-25 Tariff Proceeding website
- All comments received will be reviewed, summarized and addressed at the end of June 2023
- Customer who would like to have a customer led workshop on May 18, would need to submit their notice through tech forum by May 5

Generator Queue Reform (GQR) Road Map

Reforms being analyzed: *All have interdependencies which may be touched upon during certain presentations but discussed more in depth in that specific topic area presentation.*

- First-Ready/First-Served Cluster Study
- Readiness Requirements
- Study Financials
- Network Costs
- Technical Study Requirements
- Study Flexibility
- Transition Process

Analysis Approach:

- Conducted data analyses of BPA's current queue and interconnection process;
- Benchmarked with other Transmission Providers;
- Reviewed FERC's NOPR; and
- Conducting BPA stakeholder impact analyses.

First-Ready/First-Serve (FR/FS) Cluster Study Process

Steps 5-6

Alternatives considered

- Alternative 1: The Federal Energy Regulatory Commission's (FERC) "Improvements to Generator Interconnection Procedures and Agreements" Notice of Proposed Rule (NOPR)
- Alternative 2: FERC NOPR with BPA deviations
- Alternative 3: Another approach with deviations already approved by FERC (Avista, PAC, MISO, PJM, SPP etc.)
  - FR/FS Two-Phase Cluster Study

Step 5: Discuss what we heard

Summary of What We Heard

- The current interconnection process is not sustainable.
- An overly aggressive approach would reduce the availability of new resources and increase their prices.
- Concern about up front costs.
- Consider the context is the entire system of new resource development and procurement, the regional social and legal demands for new renewables MW by dates certain, and how the stakeholders on the demand and supply side operate.
- Any phased process that BPA adopts must ultimately be consistent with and facilitate an interconnection customer's ability to participate in resource procurement processes.
- Support was split between the three alternatives.

Step 6: Staff Leaning

Staff Leaning

- Alternative 3: **FR/FS Two-Phase Cluster Study Approach** w/ FERC Approved Tariff Filings
  - Benefits/Considerations:
    - Provides customers high level information early in the process based on a cluster study prior to customers being required to demonstrate commercial readiness to enter the more in depth cluster study.
    - Provides more useful information to customers early in the process in terms of high level impacts and high level interconnection costs due to being performed in a cluster, rather than being performed on an individual basis as envisioned in the Optional Informational Interconnection Studies.
    - Customers would not be required to provide detailed, validated models until after the Phase 1 Cluster Study is complete.
    - FERC has approved multiple tariff filings that use a multi-phase cluster study approach (PJM, MISO, Avista)

Staff Leaning (cont.)

- Alternative 3: **FR/FS Two-Phase Cluster Study Approach** w/ FERC Approved Tariff Filings
- High Level Overview (similar to Avista with some modification based on PJM, MISO):
  - Phase I: Cluster Study Phase
    - Power-flow and short circuit analysis
    - Non-binding typical estimate of cost
    - Non-binding typical estimated time to construct
  - Phase II: Cluster Study Phase
    - Power-flow, stability, short circuit analysis, EMT if needed
    - Non-binding good faith estimate of cost (estimated network cost of each sub cluster)
    - Non-binding good faith estimated time to construct
  - Facility Study Phase
    - Non-binding estimate of cost (more refined) based on required Interconnection Facilities and Network Upgrades
    - Non-binding estimated time to construct
    - Facility Study reports will be specific to each Interconnection Request
      - Will include Interconnection Facility requirements specific to the individual request as well as Network Upgrade requirements from the cluster

Staff Leaning (cont.)

"Priority" Determination Mechanism for Sub-Cluster Tie Breaker Scenarios

- **Proposal/Leaning:** *Use time stamp of demonstration of readiness requirements as tie breaker (MISO uses something similar)*
  - Within cluster areas, the potential exists to have scalable plans of service that would enable interconnection of generators in that cluster area.
  - Because there would be multiple MW thresholds that would trigger the next step of interconnection requirements, not all generators in the area would be able to interconnect under each step.
  - If the first build could be energized prior to the next build in the scalable plan, it would be prudent to move forward with the first step to enable generators that are ready, to interconnect.

Staff Leaning (cont.)

- Identifying scalable plans, where possible, and using readiness "priority" to fit into builds will enable those projects to move forward instead of holding up the energization of everyone in the cluster based on the last build like BPA is seeing in benchmarking.
- In a tie breaker situation where multiple requestors are equally ready to move forward and have demonstrated all required readiness requirements, but not all of them can "fit" under the applicable step, this mechanism would determine which projects would move forward and who would share the costs for that step.
- This would only come into play during "tie-breaker" scenarios.
- BPA is continuing to analyze the cost allocation approach
- MISO uses something similar

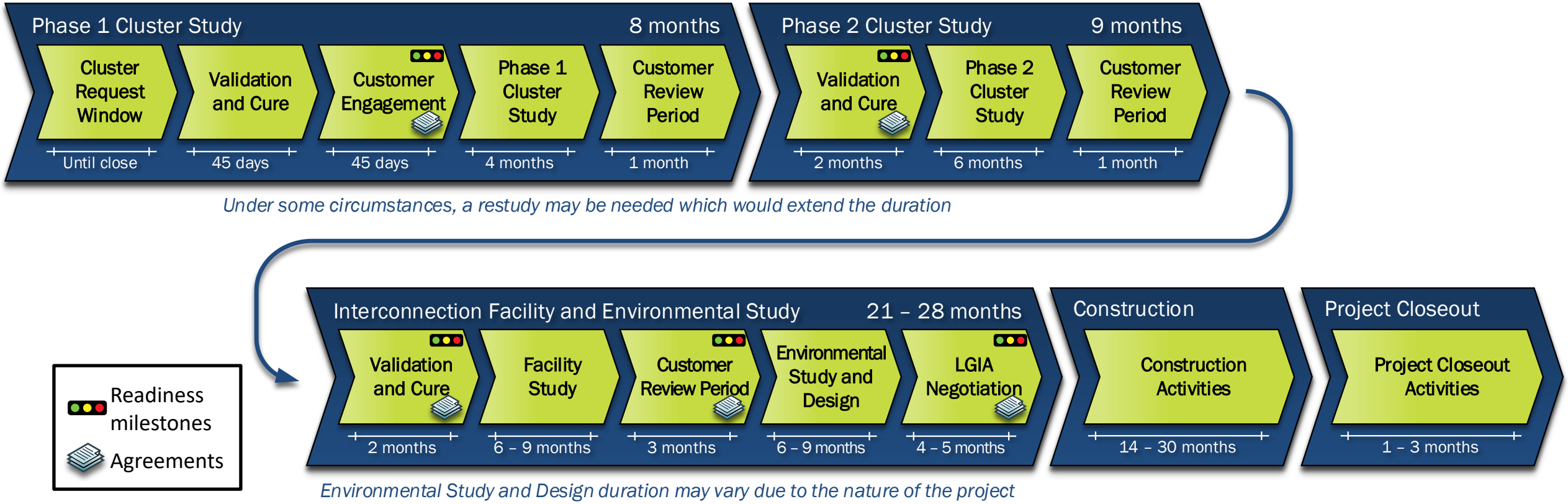
FR/FS Two-Phase Cluster Study Process Walk-thru

- The following slides show the staff leanings in a comprehensive step-by-step process integrating leanings for the reform topics.
  - Covers interconnection request process through construction.
  - Staff leanings are identified.
  - Detail discussion on each of the reform topics will be later in the agenda.
  - The Study Flexibility and Transition process leaning will be discussed later in the agenda.

FR/FS Two-Phase Cluster Study Process

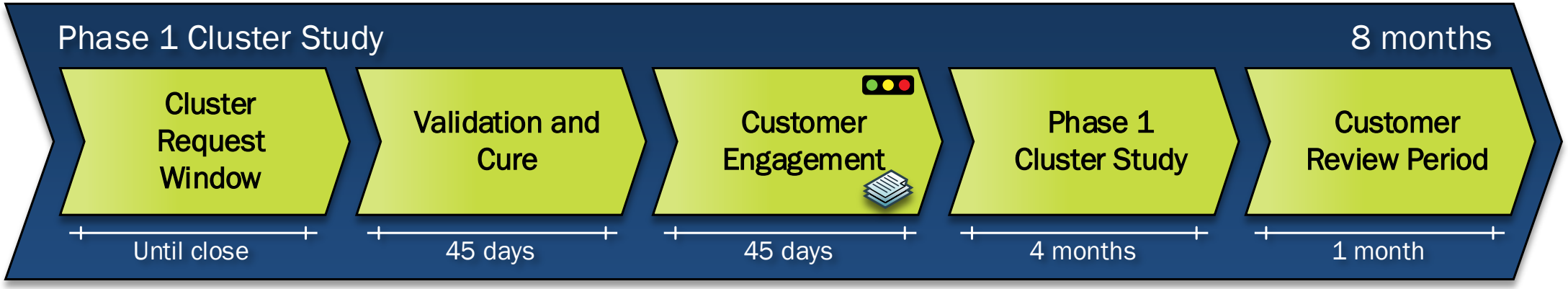
First-Ready/First-Served Two-Phase Cluster Study Process

Requests are clustered. Withdrawals may occur at any time by customer choice or due to an uncured deficiency.



Phase 1 Cluster Study

Requests are clustered, 8.5 months



Cluster Request Window

Closes at least 90 days prior to the start of the Phase 1 Cluster Study

Objective

Receive a complete application prior to the close of the Cluster Request Window

What's Required

- Completed application; LSE must be provided if NRIS is elected
- New customer information
- Non-refundable application fee
- Demonstration of exclusive site control
- Model attestation

What Happens

- BPA processes request
- Queue time is assigned

**This list is not all-inclusive*

Application Fee

- *A non-refundable application fee of $10,000 is required for each request*

Site Control

- *Exclusive site control (no deposit in lieu of site control)*

Modeling Requirements

- *Attestation accepting BPA's use of generic performance models for Phase 1 Cluster Study and acknowledging the following:*
  - *Detailed models required for Phase 2 Cluster Study must meet BPA's Technical Requirements for Interconnection and IEEE 2800 Standard*
  - *Proposed generating facility must be designed to meet the above requirements*

Validation and Cure

45 Days

Objective
Cure deficiencies in the application
What's Required
• Cure deficiencies within 15 days of notification
What Happens
• Validate application • Verify model attestation • Verify exclusive site control • Send deficiency notice when necessary • Requests that do not cure deficiencies are deemed withdrawn

**This list is not all-inclusive*

Customer Engagement

45 Days

Objective
Prepare for the Phase 1 Cluster Study
What's Required
• Phase 1 Cluster Study deposit • Cure deficiencies within 15 days of notification • Execute Phase 1 Cluster Study Agreement
What Happens
• Cluster Study scoping meeting (for all customers with requests) • Requests that do not cure deficiencies are deemed withdrawn

**This list is not all-inclusive*

Study Deposit

- *The study deposit for the Phase 1 Cluster Study consists of a base deposit of $25,000 plus $500 per MW, capped at $100,000*
- *The deposit is applied toward the cost of the Phase 1 Cluster Study and any restudy*

Phase 1 Cluster Study Readiness Milestones

- *Exclusive site control*
- *Study deposit*
- *No commercial readiness requirement*

Phase 1 Cluster Study

4 Months

Objective
Study requests as a cluster and produce the Phase 1 Cluster Study report
What's Required
• Timely response to BPA requests for information
What Happens
• Assign Cluster Areas and POI • Conduct power-flow and short circuit analysis • Provide non-binding typical estimate of cost • Provide non-binding typical estimated time to construct • Allocate study cost • Post Phase I Cluster Study report

**This list is not all-inclusive*

Study Cost Allocation

- *Allocation of study cost is based on the MWs of the request (pro rata)*
- *Allocation may take time after the study to account for costs*

Customer Review Period

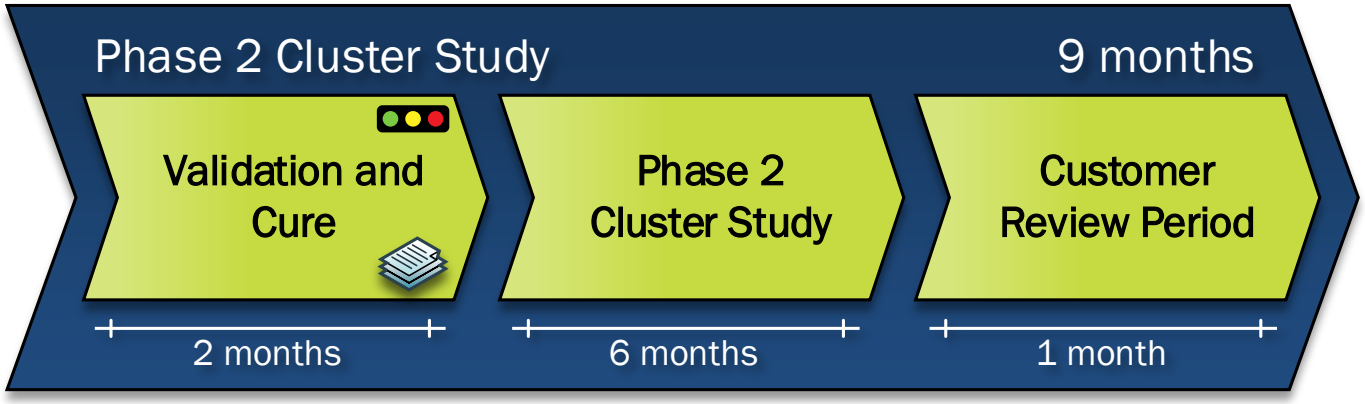
1 Month

Objective
Review Phase 1 Cluster Study results
What's Required
• Raise questions or concerns
What Happens
• Phase 1 Cluster Study review meeting • Phase 1 study cost true up – final accounting only for those that withdraw

**This list is not all-inclusive*

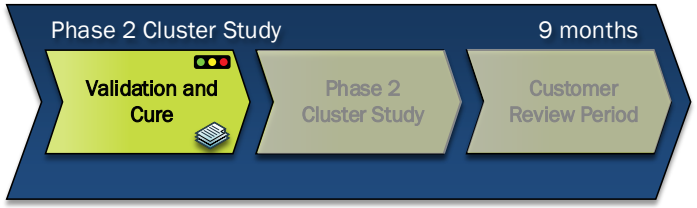
Phase 2 Cluster Study

Requests are clustered, 9 months



Validation and Cure

2 Months



Objective

Meet readiness milestones and prepare for the Phase 2 Cluster Study

What's Required

- Phase 2 Cluster Study deposit
- Commercial readiness
- Model submission
- Execute Phase 2 Cluster Study Agreement
- Cure deficiencies within 10 days of notification

What Happens

- Confirm readiness milestones
- Validate models
- Requests that do not cure deficiencies are deemed withdrawn

**This list is not all-inclusive*

Study Deposit

- *The study deposit for the Phase 2 Cluster Study consists of a base deposit of $50,000 plus $1000 per MW, capped at $250,000*

Modifications

- *BPA is evaluating allowing a decrease to project size*

Commercial Readiness

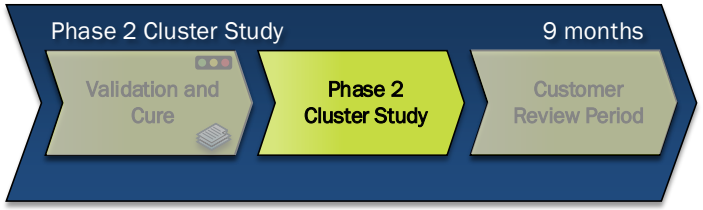
- *Initial commercial readiness is demonstrated with an amount of 2 times the study deposit, capped at $500,000*
- *In the event of a restudy, an additional amount is required equal to 3 times the study deposit, capped at $750,000*

Model Submission

- *Model requirements and validation requirements will be in BPA's Technical Requirements for Generation*
- *It is the customer's responsibility to meet these requirements*
- *BPA Business Practices will be updated with additional modeling requirements*

Phase 2 Cluster Study

6 Months



Objective

Study requests as a cluster and produce the Phase 2 Cluster Study report

What's Required

- Timely response to BPA requests for information

What Happens

- Confirm cluster areas and sub-clusters (if applicable)
- NRIS analysis (if selected in application)
- Power-flow, stability, and short circuit analysis
- EMT screening
- Provide non-binding good faith estimate of cost
- Provide non-binding good faith estimated time to construct
- Allocate study cost based on MW
- Allocate network upgrade costs
- Post Phase 2 Cluster Study report

Network Cost Allocation

- *Station equipment Network Upgrades are per capita*
- *Transmission Network Upgrades are allocated based on proportional capacity*

Study Cost Allocation

- *Allocation of study cost is based on the MWs of the request (pro rata)*
- *Allocation may take time after the study to account for costs*

Electromagnetic Transient Screening (EMT)

- *BPA is currently developing its approach for EMT studies based on recent NERC strategy/guidelines*

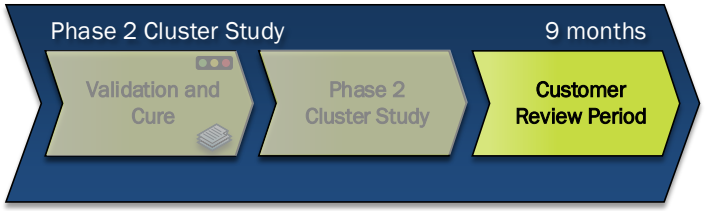
Restudy

- *While BPA is designing flexibility into the study process, a restudy may be necessary*

**This list is not all-inclusive*

Customer Review Period

1 Month

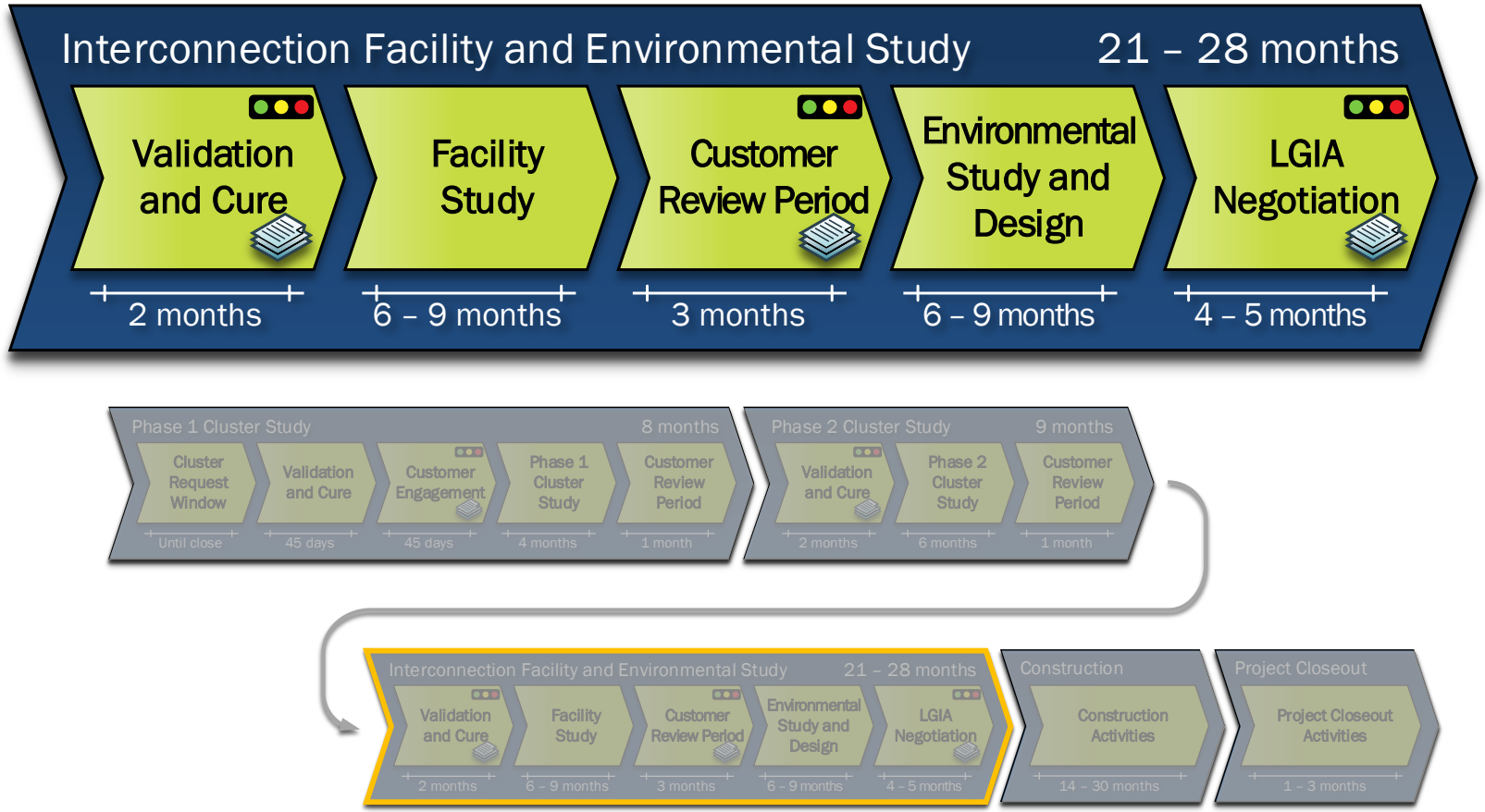


Objective
Review Phase 2 Cluster Study results
What's Required
• Raise questions or concerns
What Happens
• Phase 2 Cluster Study review meeting • Determine if a restudy is needed • Send affected system notifications • Final Phase 2 Cluster Study invoicing

**This list is not all-inclusive*

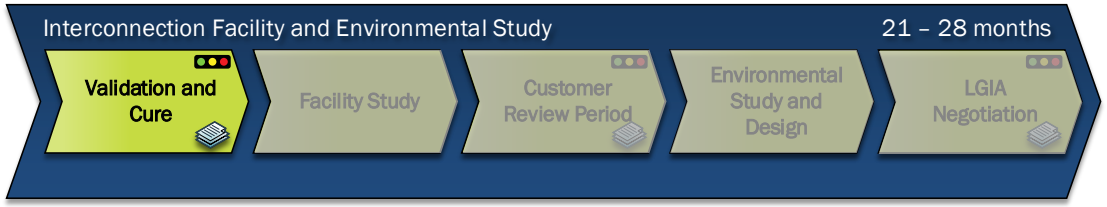
Interconnection Facility and Environmental Study

Requests are non-clustered, but may be grouped based on shared network upgrades, 21 – 28 months



Validation and Cure

2 Months



Objective
Meet readiness milestones and prepare for the Facility Study
What's Required
• Study deposit • Commercial readiness • Cure deficiencies within 10 days of notification • Execute Facility Study Agreement
What Happens
• Confirm readiness milestones • Requests that do not cure deficiencies are deemed withdrawn

**This list is not all-inclusive*

Study Deposit

- *The Facility Study deposit is based on a good faith estimate of the request's allocated share of the cost for BPA to perform the preliminary engineering necessary to complete the FAS report on a non-clustered basis for that Sub-cluster's network plan of service identified in the Phase 2 Study or Restudy.*

Commercial Readiness

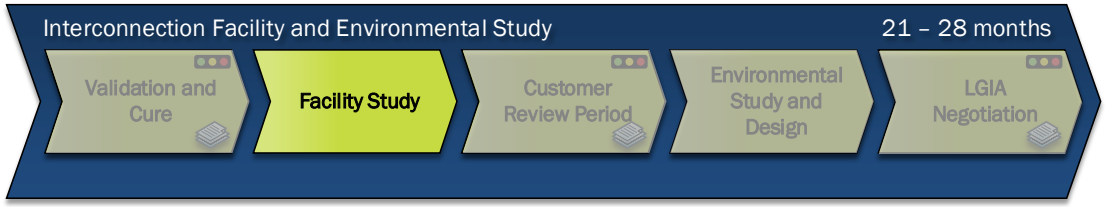
- *Commercial readiness is demonstrated by an amount equal to 20% of the allocated network facility cost*

Modifications

- *BPA is evaluating allowing a decrease to project size*

Facility Study

6 – 9 Months

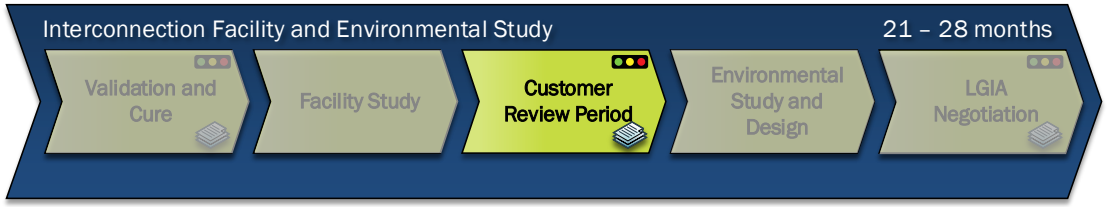


Objective
Study request and produce the Facility Study report
What's Required
• Timely response to BPA requests for information
What Happens
• Final plan of service • Provide non-binding budget level estimate of cost • Provide non-binding bookend schedule • Update network upgrade costs • Post Facility Study report • Schedule customer meeting

**This list is not all-inclusive*

Customer Review Period

3 Months



Objective
Review Facility Study results and prepare for the Environmental Study and Design
What's Required
• Raise questions or concerns • Study deposit • Cure deficiencies within 10 days of notification • Execute Environmental Study Agreement
What Happens
• Facility Study review meeting (grouped by network upgrade) • Final Facility Study invoicing • Engineering & Procurement Agreement for long-lead items

**This list is not all-inclusive*

Study Deposit

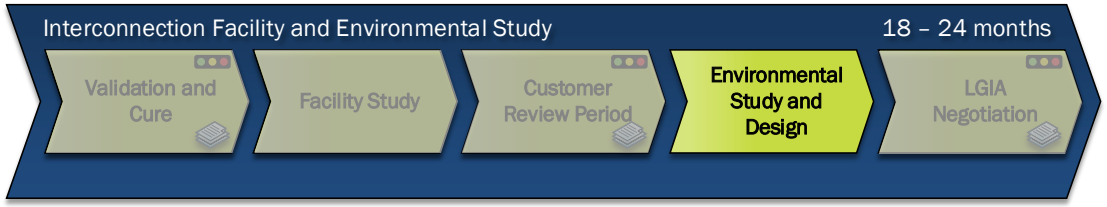
- *TBD: Working through how the Environmental Study Agreement will fit into our new process*

Commercial Readiness

- *No additional amount*
- *Commercial readiness is tied to the project design and permitting milestones*

Environmental Study and Design

6 – 9 Months **Duration may vary due to the nature of the project*



Objective
Perform Environmental Study and complete the design

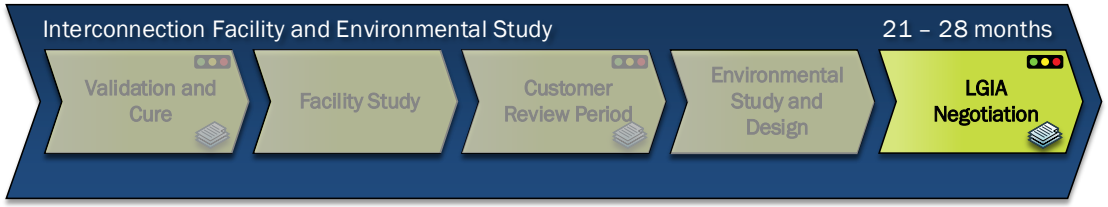
What's Required
• Timely response to BPA requests for information • Customer permitting • Pay for any additional Environmental Study and Design cost

What Happens
• Develop design sufficient to complete environmental • Takeoff estimate (optional) • Environmental study • Post environmental decision • Conduct customer meeting (optional)

**This list is not all-inclusive*

LGIA Negotiation

4 – 5 Months



Objective
Negotiate the LGIA and prepare for construction

What's Required
• Execute the Large Generator Interconnection Agreement • Deposit to cover construction cost

What Happens
• Draft LGIA is shared and the LGIA is negotiated

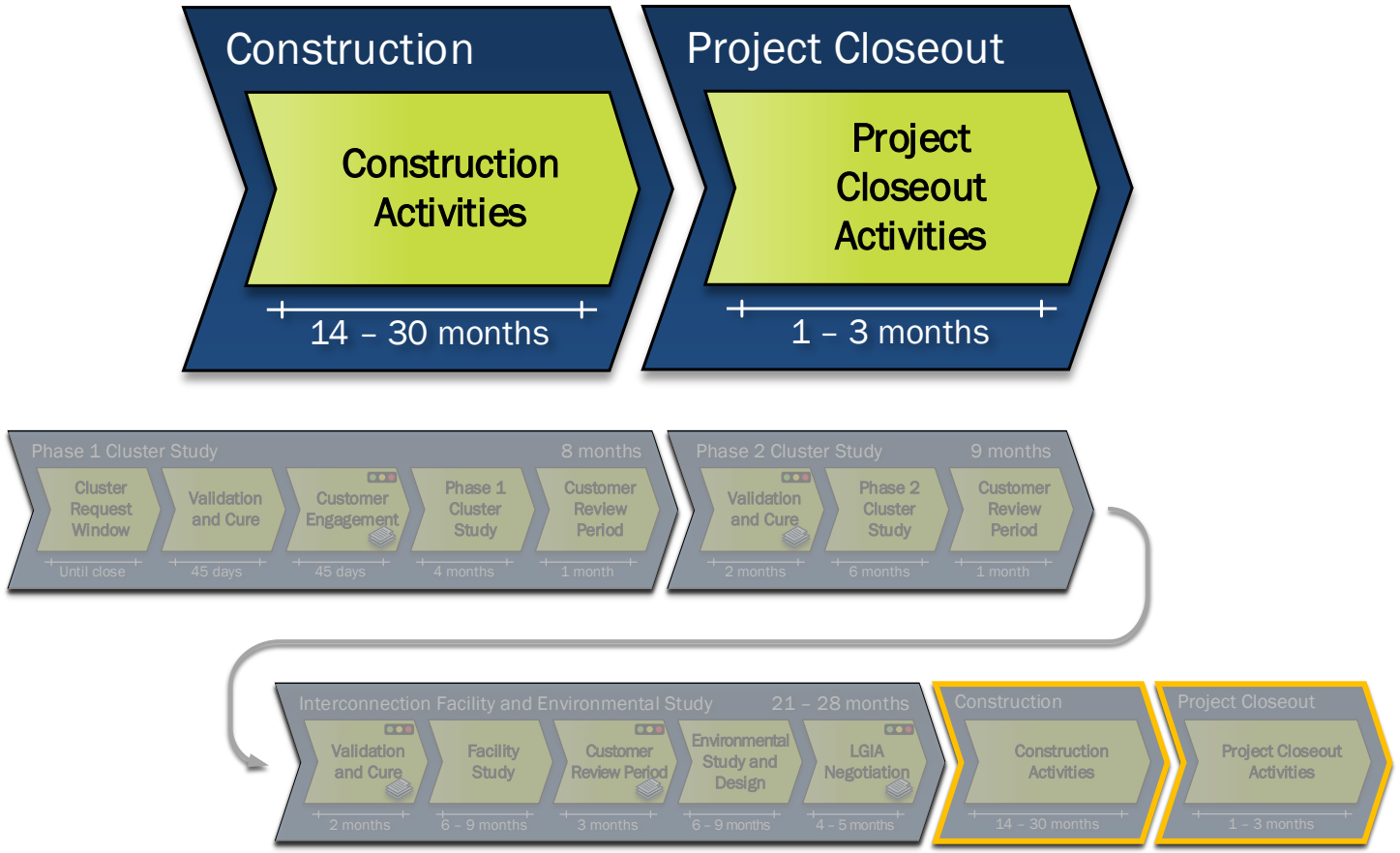
Construction Deposit

- *Estimated cost for construction*

**This list is not all-inclusive*

Construction and Project Closeout

15 – 33 months



Break

Readiness Requirements

Steps 4-6

Study Deposits

Step 4: Discuss additional considerations and possible alternatives to solve issue

Alternatives Considered for Study Deposits

- Alternative 1: Conform to proposed *pro forma*/industry standard.
- Alternative 2: Staff Proposal for formulated tiered deposit, with cap, collected once upfront.
- Alternative 3: Staff Proposal for linear deposits (per MW), with cap.

Step 5: Discuss what we heard

Summary of What We Heard

- General support for increased study deposits, but that they should be commensurate with costs, include a cap, with periodic reporting of study costs for transparency.

Step 6: Staff Leaning

Staff Leaning: Alternative 3

Phase 1 Cluster Study:

- $10,000 non-refundable Application Fee and a base deposit of $25,000 plus $500 per MW, capped at $100,000, collected for Phase 1.
  - An Interconnection Customer shall submit to Transmission Provider, during a Cluster Request Window, an Interconnection Request in the form of Appendix 1 to this LGIP, an application fee of $10,000, and a refundable study deposit of $25,000 plus $500 per MW for each request.
- Transmission Provider shall apply the initial study deposit toward the cost of the Phase 1 Cluster Study and any Phase 1 Cluster restudies.

Phase 2 Cluster Study:

- A base deposit of $50,000 plus $1000 per MW, capped at $250,000, collected for Phase 2.
- Transmission Provider shall apply the study deposit toward the cost of the Phase 2 Cluster Study and any Phase 2 restudies.

Staff Leaning: Alternative 3 (cont.)

Facilities Study (FAS):

The deposit amount at FAS study would be a good faith estimate of that request's allocated share of the cost for BPA to perform the preliminary engineering necessary to complete the FAS report on a non-clustered basis for that Sub-cluster's or project's network plan of service identified in the Phase 2 Study or Restudy.

Environmental Study Agreement (ESA):

BPA is evaluating the deposit amount that will be required under the ESA.

*All deposits (except the application fee) are refundable based on BPA's actual costs.

Study Deposit Leaning: Alternative 3

	2 Phase (Alternative 3)*			FERC NOPR (Alternative 1)		
	Phase 1	Phase 2	Total	Cluster	Restudy	Total
50	$ 50,000	$ 100,000	$ 150,000	$ 85,000	$ 85,000	$ 170,000
75	$ 62,500	$ 125,000	$ 187,500	$ 110,000	$ 110,000	$ 220,000
100	$ 75,000	$ 150,000	$ 225,000	$ 150,000	$ 150,000	$ 300,000
125	$ 87,500	$ 175,000	$ 262,500	$ 150,000	$ 150,000	$ 300,000
150	$ 100,000	$ 200,000	$ 300,000	$ 150,000	$ 150,000	$ 300,000
175	$ 100,000	$ 225,000	$ 325,000	$ 150,000	$ 150,000	$ 300,000
200	$ 100,000	$ 250,000	$ 350,000	$ 250,000	$ 250,000	$ 500,000
225	$ 100,000	$ 250,000	$ 350,000	$ 250,000	$ 250,000	$ 500,000
250	$ 100,000	$ 250,000	$ 350,000	$ 250,000	$ 250,000	$ 500,000

*Restudy cost is covered under Phase 1 or 2 deposit.

Site Control

Step 4: Discuss additional considerations and possible alternatives to solve issue

Alternatives for Demonstration of Site Control

1. Alternative 1: Conform to proposed *pro forma*/industry standard.
   - In the event that regulatory limitations prohibit Interconnection Customer from obtaining Site Control, Interconnection Customer may submit an initial deposit in lieu of Site Control of $10,000 per MW, subject to a floor of $500,000 and a ceiling of $2,000,000.
2. Alternative 2: Site Control is required at application with no deposit in lieu of.
3. Alternative 3: Allow deposit in lieu of site control (for any reason) but it is non-refundable if not provided prior to the execution of the FAS agreement.

Step 5: Discuss what we heard

Summary of What We Heard

- Support was split across BPA proposed alternatives.
- 100% Demonstration at application, adopting the regulatory limitations clause in the NOPR, and BPA accepting a deposit in lieu of for any reason were all mentioned in customer responses.

Step 6: Staff Leaning

Staff Leaning: Alternative 2

- Site Control is required at Application/Entrance to Phase 1 Cluster Study with no deposit in lieu of.
- BPA intends to update the definition of Site Control. The definition may be similar to the definition of Site Control proposed in FERC's NOPR:
  - ***Site Control*** shall mean *the exclusive land right to develop, construct, operate, and maintain the Generating Facility over the term of expected operation of the Generating Facility. Site Control may be demonstrated by documentation establishing:* (1) ownership of, a leasehold interest in, or a right to develop a site *of sufficient size to construct and operate* the Generating Facility *or multiple Generating Facilities on a shared site behind one Point of Interconnection;* (2) an option to purchase or acquire a leasehold for such purpose; (3) *site of sufficient size to construct and operate the Generating Facility;* or (4) *any other documentation that clearly demonstrates the right of* Interconnection Customer to *exclusively* occupy a site *of sufficient size to construct and operate the Generating Facility. Site Control for any Co-Located Resource is demonstrated by a contract or other agreement demonstrating shared land use for all Co-Located Resources that meet the aforementioned provisions of this Site Control definition.*
- Examples of how the demonstration may be met are a .KMZ file, the acreage of the project, and/or attestation of the exclusive right to develop.

Leaning Considerations

- Aligned with FERC approved deviations, during benchmarking those TPs that allowed deposits in lieu of wanted to move away from that.
- Regulatory Limitations: Would be strictly limited to when a federal, state or other regulatory would not grant site control without study results.
  - MISO (who FERC modeled the NOPR after) has only ever granted one instance
  - Not adopting this clause better meets criteria of offering a streamlined, transparent process
- In order to effectively produce a Phase 1 Cluster Study, BPA planning needs to know the location of the interconnection request to provide the most efficient plan of service.

Commercial Readiness

Step 4: Discuss additional considerations and possible alternatives to solve issue

Alternatives for Commercial Readiness

- Alternative 1: Conform to proposed *pro forma*/industry standard.
- Alternative 2: Staff Proposal for Tiered/Linear Readiness Deposit only
- Alternative 3: Staff Proposal for Tiered/Linear Readiness Deposit or the addition of other Commercial Readiness demonstrations

Step 5: Discuss what we heard

Summary of What We Heard

- Most comments recognized that the commercial readiness milestones in the NOPR and alternative 3 were out of alignment with regional and utility procurement processes. Also noting that the milestones in the NOPR would be difficult or impossible to acquire prior to having advanced interconnection studies or an executed LGIA.
- There was a request to consider and pursue additional commercial readiness milestones, including but not limited to site-specific purchase orders and/or TSEP commitment.
- There was split support for the availability of deposits/security vs. readiness milestones as evidence that a project is commercially viable.

Step 6: Staff Leaning

Staff Leaning: Alternative 2

No readiness requirement at the initial request. Demonstration 1 would be prior to entrance to Phase 2.

Commercial readiness provided, in the following amounts:

1. At Phase 2 Cluster Study: 2x Phase 2 Cluster study deposit (max $500,000)
2. At Phase 2 Cluster Re-study: 3x Phase 2 Cluster study deposit (max $750,000)
3. At FAS stage: Contribution of 20% to allocated network facilities identified in the Phase 2 Study or Re-study.
4. At ESA stage: No additional commercial readiness amount required, tied to the permitting milestones of the project.

The commercial readiness amount will be partially or fully non-refundable depending on the study phase/timing and impact of withdrawal.

Leaning Considerations

- BPA's commercial readiness amounts are a blend of the NOPR amount and amounts seen in benchmarking from PJM.
- They are sized to the request (based on study deposit and later the network facilities required)
- BPA staff did not have a strong preference to Alternative 2 (Readiness Deposit Only) or Alternative 3 (Readiness Deposit OR other commercial milestones), but the current leaning is Alternative 2 as Alternative 3 does not currently align with the current regional processes as well as having the additional burden of BPA determining the sufficiency of those demonstrations.

Lunch Break

Study Financials Cost Allocation

Steps 4-6

Step 4: Discuss additional considerations and possible alternatives to solve issue

Alternatives

- **Status Quo:** No allocation for cluster study.
- **Alternative 1:** (NOPR) 90% of the cluster study costs will be allocated on a pro rata MW cost and the remaining 10% of the costs will be allocated by a number of customers participating in the cluster study.
- **Alternative 2:** (PAC, PNM, PsCo, SPP and Tri-state) 50% of the cluster study costs will be allocated on a pro rata MW cost and the remaining 50% of the costs will be allocated by a number of customers participating in the cluster study.
- **Alternative 3:** (PJM) Allocate 100% of the cluster study costs by pro rata of the MW cost.
- **Alternative 4:** Allocate 100% of the cluster study costs by the number of customers participating in the cluster study.

Example of Allocations for Study Costs

Total Study Costs	$ 300,000
Total MW Interconnection	10,000
Total Customers Participating	50

Alternative 1: 90% Cluster Study on Pro Rata/MW 10% Cluster Study on # of customers	
Total Study Costs	$ 300,000
90% of Study Costs	$ 270,000
10% of Study Costs	$ 30,000
Total MW	10,000
Total Customers	50
Cost per MW	**$ 27**
Cost per customer	**$ 1,111**

Alternative 2: 50% Cluster Study on Pro Rata/MW 50% of Cluster Study on # of Customers	
Total Study Costs	$ 300,000
50% of Study Costs	$ 150,000
50% of Study Costs	$ 150,000
Total MW	10,000
Total Customers	50
Cost per MW	**$ 15**
Cost per customer	**$ 3,000**

Alternative 3 100% Cluster Study on Pro Rata/MW	
Total Study Costs	$ 300,000
100% of Study Costs	$ 300,000
N/A	
Total MW	10,000
Total Customers	50
Cost per MW	**$ 30.00**
Cost per customer	**N/A**

Alternative 4 100% of Cluster Study on # of Customers	
Total Study Costs	$ 300,000
N/A	
100% of Study Costs	$ 300,000
Total MW	10,000
Total Customers	50
Cost per MW	**N/A**
Cost per customer	**$ 6,000**

Alt 1 example: One customer with 50MW request	
Cost per MW	$ 27
Total Cost for MW	$ 1,350
Total MW for customer	50
Cost per Customer	$ 1,111
Total for Customer for a 50MW request	**$ 2,461**

Alt 2 example: One customer with 50MW request	
Cost per MW	$ 15
Total Cost for MW	$ 750
Total MW for customer	50
Cost per Customer	$ 3,000
Total for Customer for a 50MW request	**$ 3,750**

Alt 3 example: One customer with 50MW request	
Cost per MW	$ 30.00
Total Cost for MW	$ 1,500
Total MW for customer	50
Cost per Customer	N/A
Total for Customer for a 50MW request	**$ 1,500**

Alt 4 example: One customer with 50MW request	
Cost per MW	N/A
Total Cost for MW	N/A
Total MW for customer	N/A
Cost per Customer	$ 6,000
Total for Customer for a 50MW request	**$ 6,000**

Step 5: Discuss what we heard

Summary of What We Heard

- Seattle City Light, NIPPC and Renewable NW– All recommended FERC approved allocation of study costs assigning 50% of the costs on a pro rata MW cost and 50% of the costs allocated by the number of participants in the FR/FS Cluster Study.

Step 6: Staff Leaning

Staff Leaning

- Staff is leaning towards Alternative 3: cost per MW for the cluster study allocation
  - It is predictable
  - Transparent
  - Consistent with the study deposit methodology
  - Consistent with PJM approved cluster study allocation methodology approved by FERC

Break

Network Costs

Steps 4-6

Network Cost Allocation

Step 4: Discuss additional considerations and possible alternatives to solve issue

Alternatives: Network Cost Allocation Updated

- **Status Quo:** No allocation for Network costs.
- **Alternative 1**: Proportional Capacity (Avista, PAC approach)
- **Alternative 2**: Proportional Impact (FERC NOPR, MISO, Tri-State approach)

Alternative 1 Proportional Capacity Example:

- Station equipment Network Upgrades are allocated based on the number of Generating Facilities interconnecting at an individual station on a per capita basis.
- Transmission and distribution Network Upgrade costs are allocated based on the level of service selected by the Interconnection Customer and the Interconnection Customer's share of the proportional capacity of each individual Generating Facility in the Cluster.
- No Interconnection Customer is responsible for any Network Upgrade costs if it represents one percent or less of the total requested megawatts included in the applicable Cluster Area.

Alternative 1

Total Network Costs			$ 20,000,000

A	B	C	D
Project	MW Output (Nameplate)	Cost Allocation Factor	Cost Allocation
G1	100	0.132	$ 2,649,007
G2	50	0.066	$ 1,324,503
G3	300	0.397	$ 7,947,020
G4	200	0.265	$ 5,298,013
G5	20	0.026	$ 529,801
G6	10	0.013	$ 264,901
G7	75	0.099	$ 1,986,755
Total	755	1.000	$ 20,000,000

Alternative 2 Proportional Impact Example:

- MW impact based on the constraints.
- Allocation based on different factors:
  1. if there are thermal upgrade builds, the costs will be allocated by MW within the cluster
  2. voltage network upgrade costs are allocated by the voltage impact of each generator within the cluster
  3. transient stability network upgrades are allocated on MW in the cluster
  4. short circuit network upgrades are allocated on the impact of the generating facility within the cluster
  5. if there are several constraints, the costs are allocated on a ratio share of the total costs.

Alternative 2								
Total Network Costs					$ 20,000,000			
Thermal Upgrade	BY MW				$ 5,000,000			
Voltage Upgrade	BY Voltage				$ 10,000,000			
Transient Upgrade	BY MW				$ 4,000,000			
Short Circuit	BY Impact				$ 1,000,000			
Several Constraints								
A	B	C	D	E	F	G	H	I
Project	MW Output (Nameplate)	Dfax	MW Impact=B*C	Voltage	Thermal and Transient (B/sum of B)	Voltage (E/sum of E)	Short Circuit	Total Cost Allocation
G1	100	0.3333333	33.33333	50	$ 1,192,053	$ 1,538,462	$ 333,333	$ 3,063,848
G2	50	0.3333333	16.666665	10	$ 596,026	$ 307,692	$ 333,333	$ 1,237,052
G3	300	0.3333333	99.99999	150	$ 3,576,159	$ 4,615,385	$ 333,333	$ 8,524,877
G4	200	-0.5	-100	100	$ 2,384,106	$ 3,076,923	$ -	$ 5,461,029
G5	20	-0.5	-10	0	$ 238,411	$ -	$ -	$ 238,411
G6	10	0	0	0	$ 119,205	$ -	$ -	$ 119,205
G7	75	0	0	15	$ 894,040	$ 461,538	$ -	$ 1,355,578
Total	755	0.9999999		325	$ 9,000,000	$ 10,000,000	$ 1,000,000	$ 20,000,000

Step 5: Discuss what we heard

Summary of What We Heard

- Seattle City Light
  - Allocate costs based on the type of equipment that the customer will need for the interconnection of their generation
- NIPPC, Renewable NW see additional information
  - How TSEP allocates plans of service and take the lessons learned from TSEP
  - More information how BPA would identify and allocate based on equipment
- NRU
  - Cost causation should be the main principle and like a commitment that the most efficient and least cost are considered in the alternatives for plans of service
- Scout
  - Allocate costs by the distribution factor and the proportional impact

Step 6: Staff Leaning

Staff Leaning

- Alternative 1: Allocate Network costs based on those who use station equipment and the transmission and distribution network are allocated on proportionate capacity.
  - Station equipment Network Upgrades are allocated based on the number of Generating Facilities interconnecting at an individual station on a per capita basis.
  - Transmission and distribution Network Upgrade costs are allocated based on the level of service selected by the Interconnection Customer and the Interconnection Customer's share of the proportional capacity of each individual Generating Facility in the Cluster.
- Reasoning:
  - Aligns with cost causation
  - Consistent with industry
  - Easy to implement and repeatable
  - Transparent
  - Consistent with PAC and AVISTA filing approved by FERC

Shared Network Upgrades

Step 4: Discuss additional considerations and possible alternatives to solve issue

Alternatives: Shared Network Upgrades

- **Status Quo:** Do nothing. No mention of latecomer in Tariff or BP.
- **Alternative 1** (PJM Approach): Allocation of the Network costs in the cycle. No additional allocation of costs are allocated after the cycle concludes.
- **Alternative 2** (MISO): Threshold Distribution Factor of 20% (as opposed to the 5% for new upgrades) to determine whether a later request benefits sufficiently enough from an upgrade that has an in-service date within the past 5 years (from the date of the system impact study identifying the benefit). The subsequent Interconnection Customer will contribute funds to cover its share of the upgrade that was funded by the original funding Interconnection Customer. The amount of the contribution will correlate to the level of use by the contributing Interconnection Customer.
- **Alternative 3** (NYISO): If there is Headroom associated with System Upgrade Facilities and a Developer of any subsequent project interconnects and uses the Headroom before the average years LGIA credits are paid back, such subsequent Developer shall pay the Connecting Transmission Owner or the Developer for this Headroom. BPA would determine the depreciated/amortize value of the system upgrade and then reallocate the costs with impact with new generator request up to the average years the LGIA credits are paid back.

Step 5: Discuss what we heard

Summary of What We Heard

- Seattle City Light and NIPPC
  - Supports allocating costs from a previous cluster study
  - Supports 20% threshold; capacity over the 20% would be allocated costs and those funds would be allocated to those who participated over the past five years.
- Renewable NW
  - Not convince should to a look back
  - If BPA would consider a lookback the implementation and the details on how that look back would be important

Step 6: Staff Leaning

Staff Leaning

- Staff leaning is toward Alternative 1: Do not allocate costs after the cycle concludes for the following reasons:
  - Reallocation of costs will based on a study point in time is hard to replicate
  - Reallocation of costs based on depreciation over ten years will be hard to implement
  - The costs to implement is will significant to create systems to track a network upgrade by cluster
  - The cluster study should minimize the head room envisioned and therefore reduce the need to allocate the costs to other in proceeding clusters
  - Consistent with PJM approach that was approved by FERC

Study Flexibility

Steps 4-6

Step 4: Discuss additional considerations and possible alternatives to solve issue

Alternative to Status Quo: Allow New Requests to include Co-Located Resources

- Revise LGIP to align with the current process of allowing co-location of resources at a single site, for a single point of interconnection, in a new request.

Alternative to Status Quo: Add Flexibility to Material Modification

- Allow customers to request an evaluation of whether the addition of a co-located resource to an existing “in study” queue request would be Material.
- Allow increases in Generating Facility Capacity (generating and charging) within the limits of the originally requested Interconnection Service level.

Step 5: Discuss what we heard

Summary of What We Heard

- All commenters were supportive of adding co-located resource definition and flexibility for Material Modification evaluation procedures to include allowance for addition of co-located resources after application

Step 6: Staff Leaning

Staff Leaning

- BPA staff supports the addition of the co-located resource definition and the addition of the extra flexibility in the Material Modification evaluation procedures

Comparison of Current Process and Reform Leanings

Reform	Current	Reform Leaning
FR/FS	Serial processing	**FR/FS Two-phase Cluster Study**
Application Fee	$10k/request, refundable, applied to Feasibility Study costs	$10k/request, non-refundable
Site Control	At System Impact Study: Site control or $10k deposit in lieu of	At request application: ***Exclusive*** site control (new definition), no deposit in lieu of
Study Deposits	Feasibility: $10k	**Phase 1:** $25k base + $500/MW, $100k capped
	System Impact: $50k	**Phase 2:** $50k base + $1K/MW, $250k capped
	Facilities Study: $100k	**Facilities Study:** Based on good faith estimate of request's allocated share of cost for BPA to perform the Preliminary Engineering necessary to complete the FAS report on a non-clustered basis for that Sub-cluster's network plan of service identified in the Phase 2 Cluster Study or Restudy.
Commercial Readiness Requirements	None	**Phase 1:** None **Phase 2:** Two times the study deposit, capped at $500k **Restudy:** Additional amount equal to 3 times the study deposit, capped at $750k **Facilities Study:** Amount equal to 20% of the allocated network facility cost
Network Upgrade Cost Allocation	Serial study process assigns all costs related to transmission upgrade or expansion required to interconnect the generator to the first customer requesting interconnection without allocating any of the costs to any other party that may benefit from the identified upgrades/expansions.	• Station equipment Network Upgrades are allocated based on the number of Generating Facilities interconnecting at an individual station on a per capita basis. • Transmission and distribution Network Upgrade costs are allocated based on the level of service selected by the Interconnection Customer and the Interconnection Customer's share of the proportional capacity of each individual Generating Facility in the Cluster.
Study Cost Allocation	Costs are identified for each serial study. Customers receive an estimate for study and study costs are trued up as costs are incurred.	Based on the MWs of the request (pro rata) for cluster study
Information Access	Feasibility Study: **For each request**, serially provide non-binding preliminary evaluation of system impacts and costs.	Provide a publically available interconnection capacity heat map. **Phase 1 Cluster Study:** Provide a preliminary evaluation of system impact, non-binding *typical* estimate of cost, non-binding *typical* estimated time to construct

Technical Studies Requirements

Steps 4-6

Interconnection Information Access

Step 4: Discuss additional considerations and possible alternatives to solve issue

Possible Alternatives: Interconnection Information Access

- Status Quo:
  - Pre Application Scoping Meeting, if requested
  - Feasibility Study
    - Preliminary evaluation of:
      - System impact (preliminary identification of thermal, steady state voltage, and circuit breaker short circuit capability limits), and
      - Cost (Preliminary description and non-binding estimated cost of facilities required to interconnect the prospective generating facility
    - Processing Time:
      - BPA is required to use Reasonable Efforts to complete the Feasibility Study no later than forty five (45) Calendar Days after BPA receives the fully executed Feasibility Study Agreement.

- Alternative 1: Accept FERC NOPR
  - Optional Informational Interconnection Study
  - Public Interconnection Information

Possible Alternatives: Interconnection Information Access (cont.)

- Alternative 2: Provide sufficient public information to inform customers about interconnection capability on BPA's system, so that the customer can make informed decisions prior to participating in the cluster study (replacement to FES). This would include:
  - Estimated injection capacity in MW at various Points of Interconnection on BPA's System
  - Estimated Interconnection Cost
  - Metrics concerning estimated impact of potential generating facility on BPA's System

- Alternative 3: Perform a multi-phased cluster study approach, with the first phase of the cluster study providing analysis similar to existing Feasibility Study (Avista, MISO, PJM, SPP). This would include a preliminary evaluation of:
  - System impact (preliminary identification of thermal, steady state voltage, and circuit breaker short circuit capability limits),
  - Cost, and
  - Provide public information on estimated injection capacity in MW at various Points of Interconnection on BPA's system.

Step 5: Discuss what we heard

Summary of What We Heard

- Optional Informational Interconnection Study
  - Some support for Alternative 1 to provide informational interconnection studies in order to support customers participating in utility resource procurement processes to secure evidence of commercial readiness
  - Some questioning whether informational interconnection studies would provide customers with the necessary and timely information that would enable decision making. However, there was acknowledgement that perhaps certain long lead time projects could still benefit from an informal study.
  - Some support for a multi-phased cluster study approach (Alternative 3) with the first phase of the cluster study providing analysis similar to the existing Feasibility Study, including typical cost estimates
    - Requests for a shorter time frame for the Phase I Cluster Study than the timeline in BPA's current staff leaning
  - Some proposed providing interconnection costs at multiple MW injection amounts

- Public Interconnection Information
  - Some did not support replacing the existing Feasibility Study with publically posted information, saying that this would unlikely meet the needs of requesting customers or improve the quality of requests
  - Some recommended that BPA provide a heat map of estimate incremental injection capacity
  - Some recommended better public dissemination of useful interconnection information and utilizing FERC's Critical Information protection processes to make most recent study models available to developers

Step 6: Staff Leaning

Staff Leaning

- Alternative 3: Perform a two phased cluster study approach and provide a publically available interconnection capacity heat map
  - The Phase 1 Cluster Study would provide a preliminary evaluation of:
    - System impact (power-flow and short circuit analysis),
    - Non-binding typical estimate of cost,
    - Non-binding typical estimated time to construct
  - Commercial Readiness Requirements would not be required for the Phase 1 Cluster Study. They will be required to enter the Phase 2 Cluster Study
  - The heat map would provide public information on estimated injection capacity in MW at various Points of Interconnection on BPA's system

- Reasoning:
  - Phase 1 Cluster Study would provide more valuable results in terms of high level impacts and high level interconnection costs due to being performed in a cluster, rather than being performed on an individual basis
  - BPA's focus would be on the Cluster Study, so timing of optional informational interconnection studies would be impacted
  - Public information on estimated injection capacity would provide helpful information to potential customers on where interconnection capacity might exist prior to entering Phase I of the cluster study

Affected System Study Process and Modeling

Step 4: Discuss additional considerations and possible alternatives to solve issue

Possible Alternatives: Affected System Study Process & Modeling

- Status Quo: BPA does not have a standardized Affected System Study process in its LGIP or standardized modeling assumptions for Affected Systems Studies (although BPA performs ERIS only studies for Affected System Studies as proposed in the FERC NOPR)
- Alternative 1: accept proposed FERC NOPR language
  - Transmission Provider (TP) will use ERIS modeling for the Affected System Study.
  - TP shall complete the study within 90 days and notify Affected System Interconnection. Customer if unable to meet timeline and provide estimated completion date
  - TP will allocate Affected System Network Upgrade costs identified during the study to Affected System Interconnection Customer using a proportional impact method.
  - If Re-Study is required, Re-Study shall take no longer than 60 calendar days from the date the TP notifies the Affected System Interconnection Customer of need for Re-Study.

Possible Alternatives: Affected System Study Process & Modeling (cont.)

- Alternative 2: Any Affected System notifications received throughout the year would not be analyzed and studied until BPA performs its cluster study. Affected System Interconnection Customers would receive their study results at the conclusion of the cluster study or cluster re-study, when the BPA customers in BPA's interconnection queue receive their study results.
  - As Affected System Study Requests are received, a queue number (distinct from queue numbers in BPA's queue) will be assigned, with time stamp recorded
  - Queue priority of Affected System Requests with respect to queue priority of requests in BPA's queue will be determined as the Affected System Process is further developed
  - BPA would perform ERIS only studies for Affected System Studies as proposed in the FERC NOPR.

Step 5: Discuss what we heard

Summary of What We Heard

- General support for a standardized Affected Systems Study Process and transparency
- Some support for Alternative 1 - proposed FERC NOPR language
- Further recommendations to develop a regional model with neighboring Transmission Providers
- Some support for Alternative 2 - performing Affected System Studies during the cluster study

Step 6: Staff Leaning

Staff Leaning

- BPA staff leaning is to continue with status quo until final FERC issues its final order
  - Today, BPA generally performs Affected System Studies when the Affected System Operator is performing their Facilities Study.
    - Likewise, impacted parties who perform Affected System Studies for Interconnection Requests in BPA's queue generally perform these studies during the BPA Facilities Study.
  - These studies are performed throughout the year as notifications/requests are received.
  - BPA performs ERIS only studies for Affected System Studies

- Reasoning:
  - Until FERC standardizes an Affected System Study process, there will continue to be inconsistency between how utilities perform Affected System Studies. BPA cannot dictate the Affected System Study process for neighboring utilities.
  - BPA would benefit from waiting until the final ruling before continuing to analyze any additional potential alternatives for an Affected System Study process, especially given BPA's staff leaning for a 2 phased cluster study process, and associated timeline.

Modeling Requirements

Step 4: Discuss additional considerations and possible alternatives to solve issue

Possible Alternatives: Modeling Requirements

- Status Quo:
  - Interconnection Customers fill out Attachment A to Appendix 1 of LGIP and submit as part of the Interconnection Request
    - This Attachment does not address/include pertinent modeling information for non-synchronous generating facilities.
  - LGIP specifies that a valid request shall include modeling data in a format acceptable to Transmission Provider.

- Alternative 1: Accept proposed FERC NOPR language
  - Update Attachment A to Appendix 1 of the LGIP to include facility data for non-synchronous generating facilities. This includes:
    1) a validated user-defined root mean squared (RMS) positive sequence dynamics model;
    2) an appropriately parameterized generic library RMS positive sequence dynamics model, including model block diagram of the inverter control and plant control systems, as defined by the selection in Table 1 or a model otherwise approved by the Western Electricity Coordinating Council, that corresponds to Interconnection Customer's Generating Facility; and
    3) an electromagnetic transient model.*
  - Include Table of WECC Approved models in Attachment A to Appendix 1.

**Modeling data will be required to be considered a valid application.*

Possible Alternatives: Modeling Requirements (cont.)

- Alternative 2:
  - Update Attachment A to Appendix 1 of the LGIP to include facility data for non-synchronous generating facilities. This includes:
    1) a validated user-defined root mean squared (RMS) positive sequence dynamics model;
    2) an appropriately parameterized generic library RMS positive sequence dynamics model, including model block diagram of the inverter control and plant control systems, as defined by the selection in Table 1 or a model otherwise approved by the Western Electricity Coordinating Council, that corresponds to Interconnection Customer's Generating Facility; and
    3) an electromagnetic transient model.*
  - This modeling data will be required to be considered a valid application.
  - Specific model requirement details will reside in BPA's Technical Requirements for Interconnection.
  - Do not include FERC NOPR proposed Table 1 in Attachment A to Appendix 1 of LGIP.
  - BPA Business BP's will be updated with additional modeling requirements information as well.

**BPA is still developing its approach for EMT studies based on recent NERC strategy/guidelines*

Step 5: Discuss what we heard

Summary of What We Heard

- General support for interconnection customers to provide models needed for accurate interconnection studies, including models for non-synchronous generating facilities
- Some support for Alternative 2 – updating Attachment A to Appendix 1 of LGIP
- Some preference for modeling standards being included in BPA's LGIP
- Desire for further engagement on EMT modeling
- Proposal to NOT require EMT models and only require them when there is a known or suspected transmission grid issue due to additional cost and time for these studies, when they could be unnecessary in some cases

Step 6: Staff Leaning

Staff Leaning

- Modified Alternative 2:
  - Remove Attachment A to Appendix 1 of BPA's LGIP
  - Require customer to submit signed Model Attestation to be considered a valid application
    - Signed model attestation - customer understands that BPA will use generic performance models for Phase I Cluster Study, the models will meet BPA's Technical Requirements for Interconnection to the BPA Transmission Grid and the IEEE 2800 Standard, and the customer understands that the generating facility must be designed to meet the above requirements
  - Customer must submit detailed models within 30 days of receipt of Phase I Cluster Study, if proceeding to Phase 2.

Staff Leaning (cont.)

- BPA will provide the specific model requirements in BPA's Technical Requirements for Interconnection, including the following for non-synchronous generating facilities:
  1) a validated user-defined root mean squared (RMS) positive sequence dynamics model;
  2) an appropriately parameterized generic library RMS positive sequence dynamics model, including model block diagram of the inverter control and plant control systems, as defined by the selection in Table 1 or a model otherwise approved by the Western Electricity Coordinating Council, that corresponds to Interconnection Customer's Generating Facility; and
  3) an Electromagnetic Transient Model.*
- Model validation requirements will also be included in BPA's Technical Requirements for Interconnection.
  - Customer's responsibility to make sure these requirements are met. There will be one opportunity during the Validation and Cure period for Phase 2 Cluster Study to correct deficiencies
- BPA Business Practices will be updated with additional modeling requirements information as well.

**BPA is currently developing its approach for EMT studies based on recent NERC strategy/guidelines. Current leaning is to perform an EMT screening during the Phase 2 Cluster Study*

Transition Process

Steps 4-6

Objective

If BPA adopts a first-ready, first-served cluster study process, then BPA needs to develop a transition plan that addresses the competing interests of:

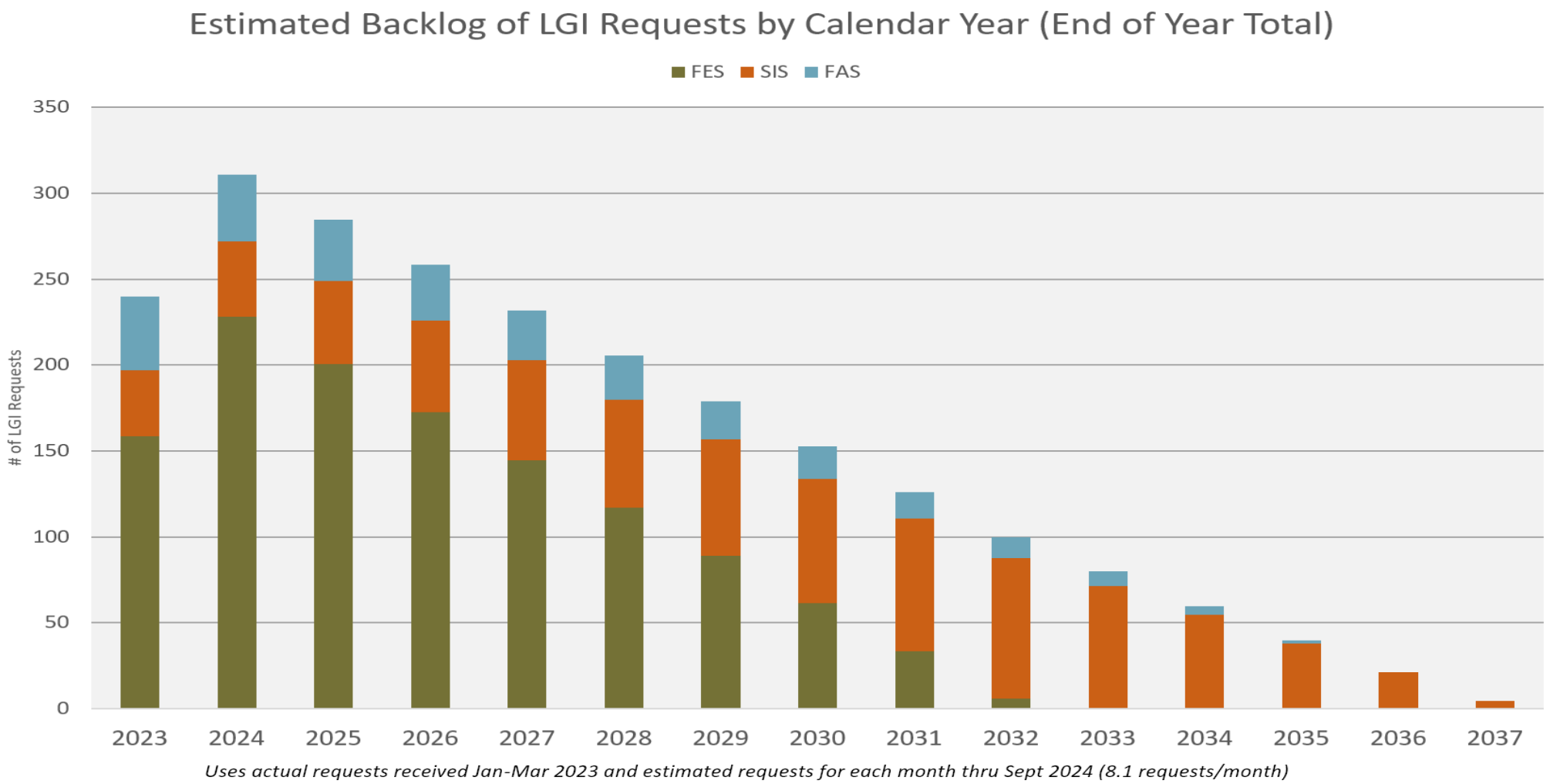
1) Advancing existing requests to connect generation in order to meet customer needs efficiently and responsively, and
2) Moving quickly to new reforms that could make the LGIP more efficient overall.

Step 4: Discuss additional considerations and possible alternatives to solve issue

Alternatives for Transition Process

- Status Quo
- Alternative 1 - FERC NOPR
- Alternative 2 - Staff Proposal

Projection of Status Quo



Assumptions:

- *Estimated new requests from April 2023 – Sept 2024*
- *Average withdrawals and completions based on 2018-2022*
- *Facility studies estimated at 12/year for 2023 and 15/year thereafter*

Step 5: Discuss what we heard

Summary of What We Heard

- Support BPA objective of advancing existing requests to connect generation to meet customer needs efficiently and responsively and transition process moving quickly to not delay new requests
- FERC NOPR set unnecessarily high hurdle for customers to continue in serial queue or participate in the transition cluster – study deposit, readiness demonstrations
- Deposits for transition serial and transition cluster should reflect a percentage of network upgrade costs
- General support for a hybrid approach in Alternative 2 that includes Transition Serial process for late-stage requests and ability for late-stage requests opt-in to a Transition Cluster.
- Request for more specific information and timelines.
- Ability for stakeholders to have input into the Transition Process
- Transition methodology should not simply “clear out” the existing queue

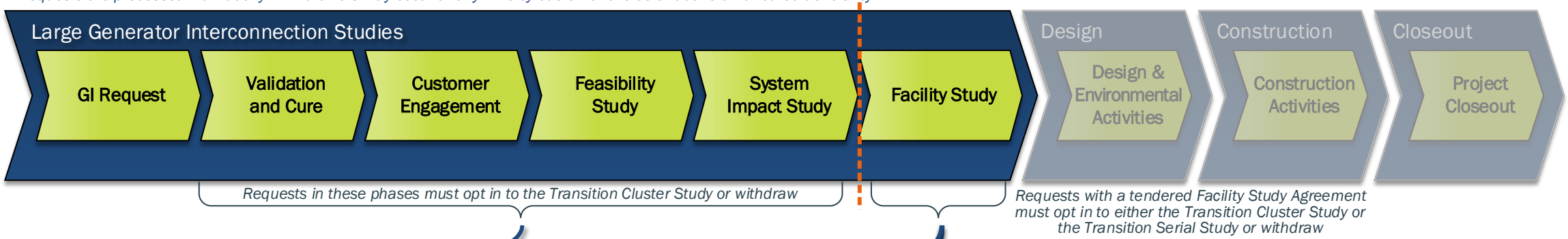
Step 6: Staff Leaning

Staff Leaning

- Alternative 2 – Staff Proposal
  - Best meets objectives of advancing existing requests to connect generation in order to meet customer needs efficiently and responsively, and moving quickly to new reforms that could make the LGIP more efficient overall.
  - Late-Stage requests defined as an Interconnection Customer that has executed a Facilities Study Agreement
  - Transition Cluster aligns with FR/FS Two-Phase Cluster Study (FR/FS CS) alternative methodology, applying all of the benefits of the new process during the transition.
  - Readiness Requirements ensure that interconnection customers are ready to move forward and reduce the likelihood of withdrawals and re-studies that would further delay moving to new reforms
  - Balances the need to move to reforms quickly while not setting unnecessarily high hurdles.

Current Process – Before Transition

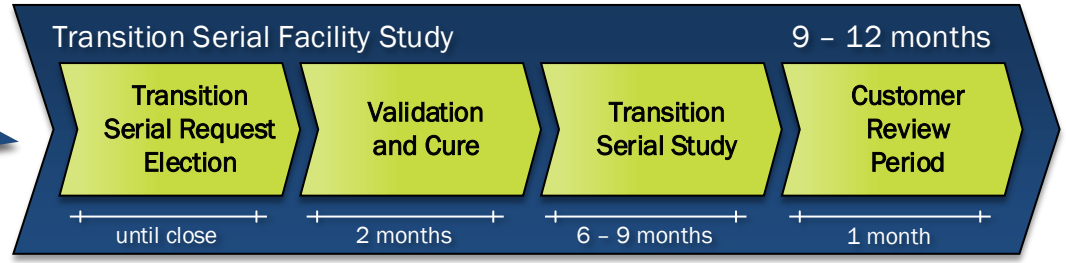
Requests are processed individually. Withdrawals may occur at any time by customer choice or due to an uncured deficiency



Transition Options

Transition Serial Facility Study Process

Requests are processed individually. Withdrawals may occur at any time by customer choice or due to an uncured deficiency.

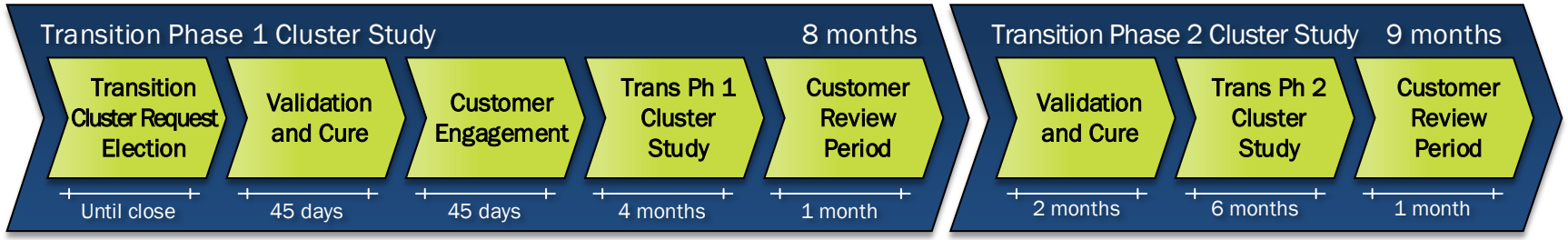


Continues to Design

**Timeline applies to individual request – Estimated completion rate of 15 individual studies/year*

Transition Cluster Study Process

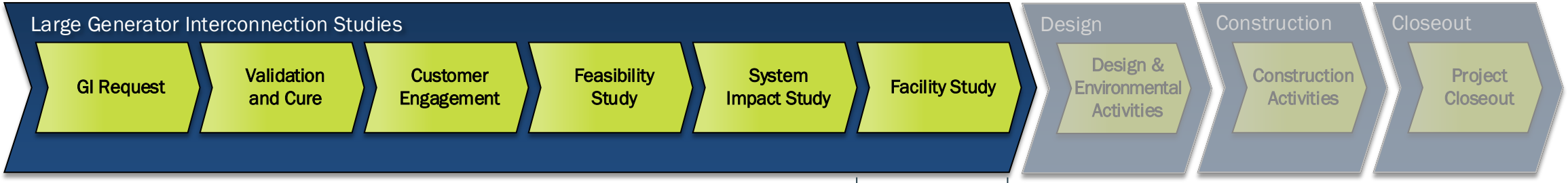
Requests are clustered. Withdrawals may occur at any time by customer choice or due to an uncured deficiency.



Continues to Interconnection Facility and Environmental Study

Current Process – Before Transition

Requests are processed individually. Withdrawals may occur at any time by customer choice or due to an uncured deficiency

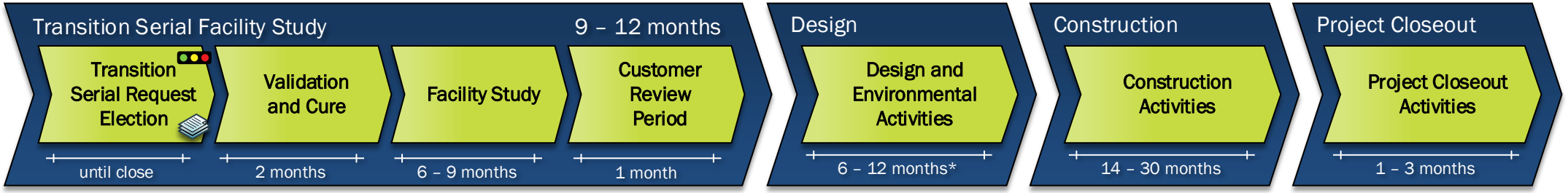


Requests with a tendered Facility Study Agreement may opt in to the Transition Serial Facility Study

Election for Transition Serial Facility Study

Transition Serial Facility Study Process

Requests are processed individually. Withdrawals may occur at any time by customer choice or due to an uncured deficiency.



**Timeline applies to individual request – Estimated completion rate of 15 individual studies/year*

**Duration may vary due to the nature of the project*

BPA would allow customers who demonstrate commercial readiness requirements, site control, and are in a late stage in the current interconnection queue to remain under the current process, so long as the processing of these requests would not unduly delay the start of a new cluster study process.

Late Stage Definition

An interconnection customer that has executed a Facilities Study Agreement

Late Stage Projects will not be required to enter the Transition Cluster Study process. They may either:

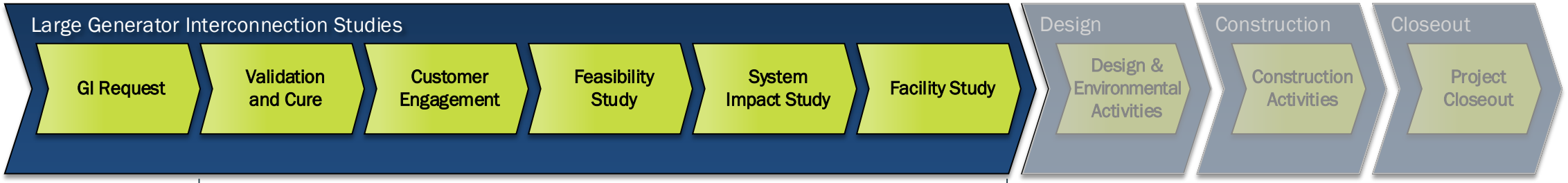
- Elect to continue through the remaining Facilities Study and interconnection agreement execution phases, or
- Opt into the Transition Cluster Study process

Readiness Milestones – Transition Serial Study

- **Study deposit**
  - Good faith estimate to complete preliminary engineering
- **Site control**
  - Exclusive site control (no deposit in lieu of site control)
- **Commercial readiness**
  - Readiness demonstration (e.g. sale agreement, resource plan selection, site-specific equipment PO)

Current Process – Before Transition

Requests are processed individually. Withdrawals may occur at any time by customer choice or due to an uncured deficiency



Requests in these phases may opt in to the Transition Cluster Study

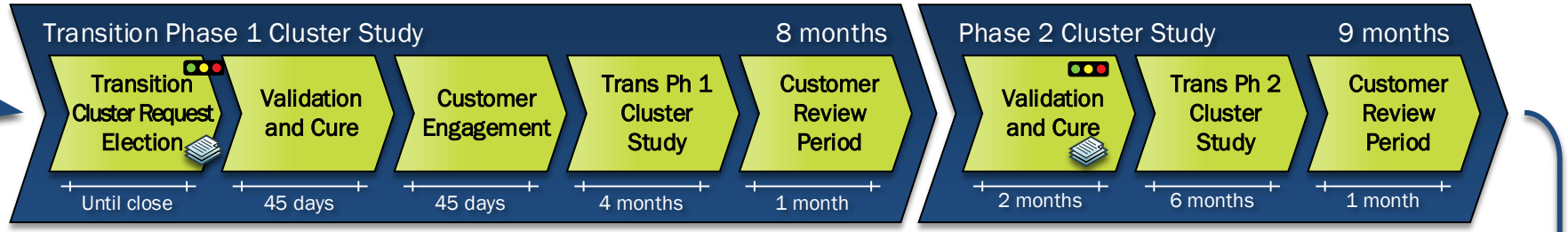
Readiness Milestones
Transition Cluster Study

- **Study deposit**
  - Phase 1: $25k + $500/MW (max $100k)
  - Phase 2: $50k + $1k/MW (max $250k)
- **Site control**
  - Exclusive site control (no deposit in lieu of site control)
- **Commercial readiness**
  - Readiness demonstration (e.g. sale agreement, resource plan selection, site-specific equipment PO)

Election for Transition Cluster Study

Transition Cluster Study Process

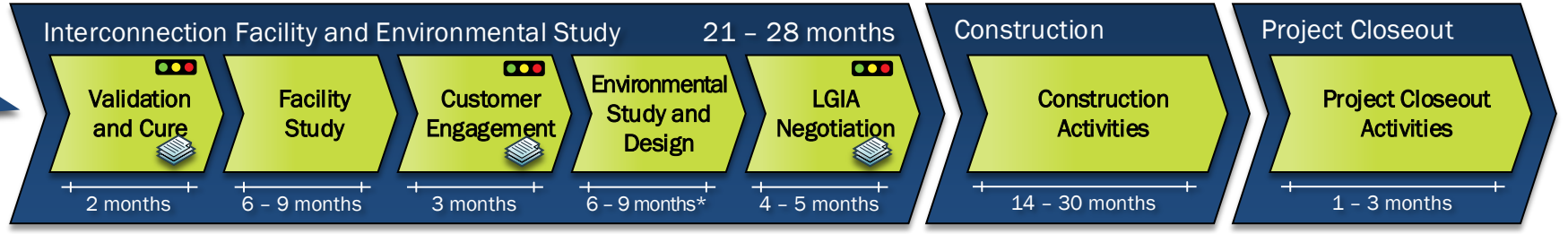
Requests are clustered. Withdrawals may occur at any time by customer choice or due to an uncured deficiency.



**Under some circumstances, a restudy may be needed which would extend the duration*

Interconnection Facility and Environmental Study, Construction, and Project Closeout Process

Requests are processed individually, but may be grouped based on shared network upgrades. Withdrawals may occur at any time by customer choice or due to an uncured deficiency.



**Duration may vary due to the nature of the project*

BPA would allow non-late stage customers who demonstrate commercial readiness requirements and site control in the current interconnection queue to participate in the transition cluster study, so long as the processing of these requests would not unduly delay the start of a new cluster study process.

	Transition Serial (existing LGIP with new readiness requirements) – Late Stage Requests w/an Executed Facilities Study Agreement	Transition Cluster
Study Deposit	The deposit amount at FAS study would be a good faith estimate of that requests allocated share of the cost for BPA to perform the preliminary engineering necessary to complete the FAS report on a non-clustered basis for that Sub-cluster's network plan of service identified in the System Impact Study.	Phase 1: $25K + $500/MW (max $100K) Phase 2: $50k + $1K/MW (max $250K)
Site Control	Evidence of exclusive site control for the entire generating facility.	Evidence of exclusive site control for the entire generating facility.
Commercial Readiness Milestones	• Executed term sheet; • Executed contract binding upon the parties for sale of (i) the constructed Generating Facility to a load-serving entity or to a commercial, industrial, or other large end-use customer, (ii) the Generating Facility's energy where the term of sale is not less than five (5) years, or (iii) the Generating Facility's ancillary services if the Generating Facility is an electric storage resource where the term of sale is not less than five (5) years; • Reasonable evidence that the Generating Facility has been selected in a Resource Plan or Resource Solicitation Process; or • Site specific purchase order for generating equipment specific to the Queue Position	• Executed term sheet; • Executed contract binding upon the parties for sale of (i) the constructed Generating Facility to a load-serving entity or to a commercial, industrial, or other large end-use customer, (ii) the Generating Facility's energy where the term of sale is not less than five (5) years, or (iii) the Generating Facility's ancillary services if the Generating Facility is an electric storage resource where the term of sale is not less than five (5) years; • Reasonable evidence that the Generating Facility has been selected in a Resource Plan or Resource Solicitation Process; or • Site specific purchase order for generating equipment specific to the Queue Position

Leanings Index

Click to Topic

Topic Area	*Staff Leaning*	Section	Leaning
First-Ready/First-Serve (FR/FS) Cluster Study Process	*Alt 3: FR/FS Two-Phase Cluster Study Approach (FR/FS CS) w/ FERC Approved Tariff Filings*		
Readiness Requirements: Study Deposits	*Alt 3: Linear deposits (per MW), with cap.*		
Readiness Requirements: Site Control	*Alt 2: Site Control is required at application with no deposit in lieu of.*		
Readiness Requirements: Commercial Readiness	*Alt 2: No readiness requirement at the initial request. Demonstration 1 would be prior to entrance to Phase 2.*		
Study Financials Cost Allocation	*Alt 3: Cost per MW for the cluster study allocation*		
Network Costs: Network Cost Allocation	*Alt 1: Allocation of Network costs in two phases*		
Network Costs: Shared Network Upgrades	*Alt 1: To not allocate costs after the cycle concludes*		
Technical Studies Requirements: Interconnection Information Access	*Alt 3: Perform a two phased cluster study approach and provide a publically available interconnection capacity heat map*		
Technical Studies Requirements: Affected System Study Process and Modeling	*Continue with status quo until final FERC ruling*		
Technical Studies Requirements: Modeling Requirements	*Alt 2: Remove Attachment A to Appendix 1 of BPA's LGIP & require customer to submit signed Model Attestation*		
Study Flexibility	*Support the addition of the co-located resource definition and the extra flexibility in the Material Modification evaluation procedures*		
Transition Process	*Alt 2: Staff proposal*		

Next Steps

- BPA would like to get feedback on staff leanings
  - Do you support staff leaning?
  - If you do not support staff leaning, which alternative do you support and why?
- Please provide feedback/comments to techforum@bpa.gov and cc your AE by COB May 10
- Please submit request for customer-led workshop by Friday, May 5
- Development of Tariff Language and Business Practices
  - Tariff language will be shared at the May pre-proceeding workshops
  - After the TC-25 Pre-proceedings any modifications or additions to applicable Business Practices will be governed by the standing business practice process and procedures

Upcoming Workshops

- May 18 – Customer Led Workshop (Virtual)
- May 25 – 26 – Staff Recommendations (Hybrid)
  - Tariff redlines
  - Summary of impacted business practices
- June 15 – Wrap up (Hybrid)

Appendix