

TC-25 Tariff Proceeding Workshop

March 15 & 16, 2023

Agenda

Wednesday, March 15

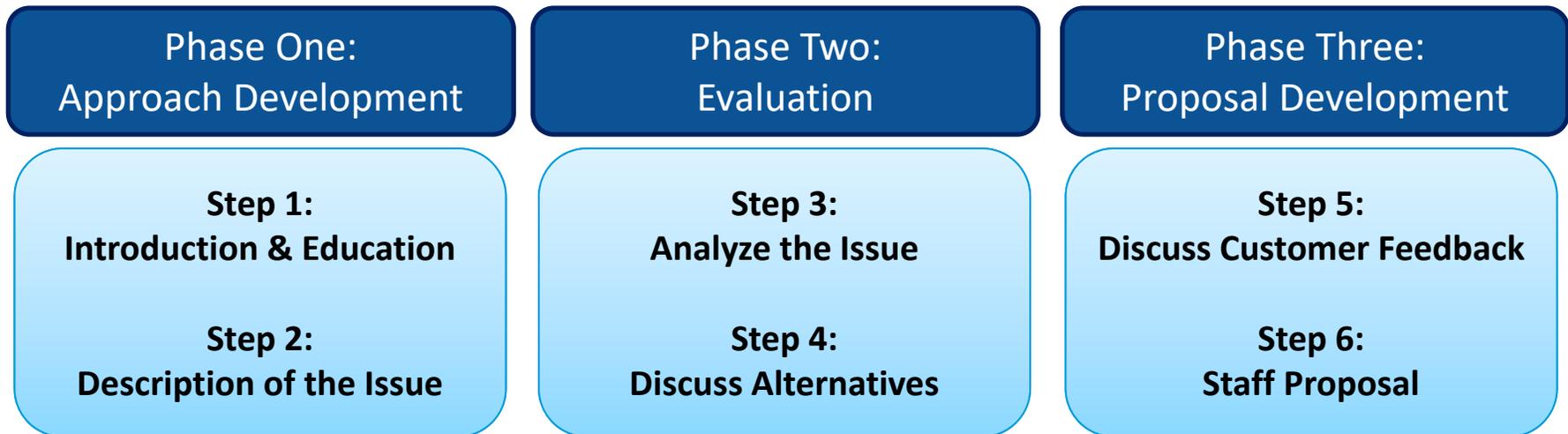
Time	Topic	Presenter
9:00 to 9:20a	Agenda Review	Rebecca
9:20 to 10:20a	First Ready/First Served	Tammie
10:20 to 10:30a	<i>BREAK</i>	
10:30 to 12:00p	Readiness Requirements	Kevlyn
12:00 to 1:00p	<i>LUNCH</i>	
1:00 to 1:30p	Study Financials	Rebecca
1:30 to 2:00p	Network Costs	Rebecca
2:00 to 2:15p	<i>BREAK</i>	
2:15 to 3:45p	Transition Process	Katie
3:45 to 4:00p	Wrap up & Review Next Day Agenda	Rebecca

Thursday, March 16

1:00 to 2:00p	Technical Study Requirements	Christina
2:00 to 2:30p	Study Flexibility	Cherilyn
2:30 to 3:00p	Wrap up & Next steps	Melanie

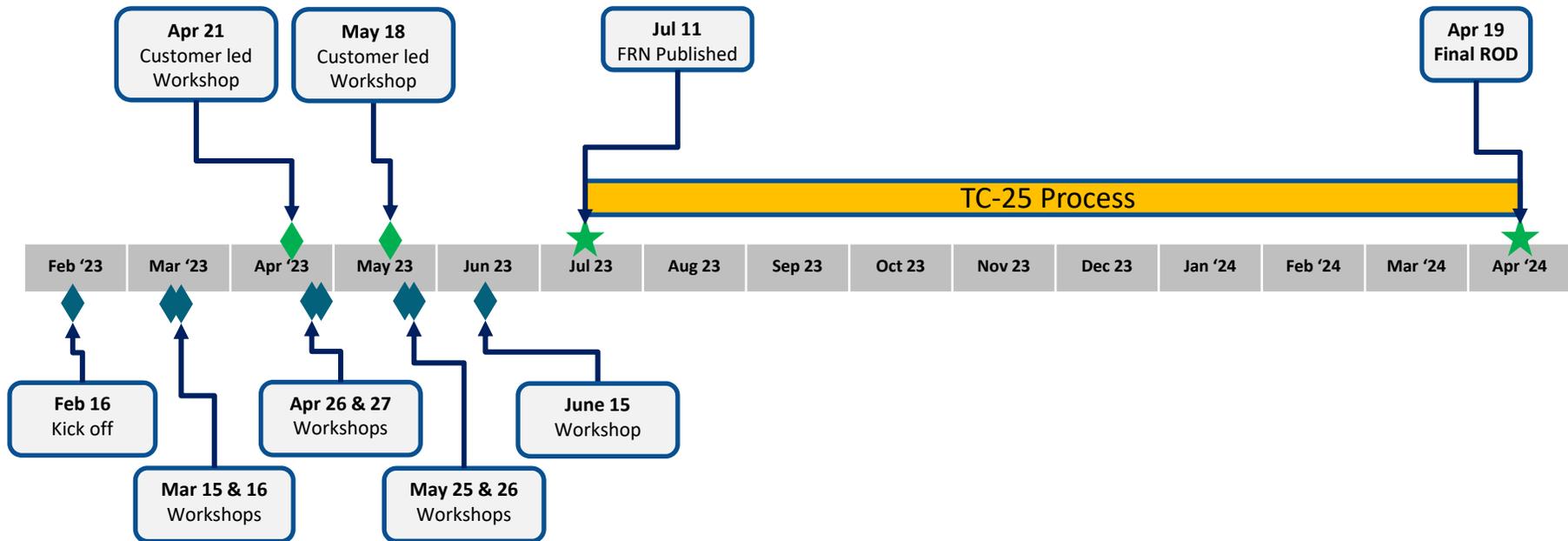
Approach to Customer Engagement

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



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

TC-25 Timeline



◆	Pre-Proceeding Workshop
◆	Customer-led Workshop
★	Deadline/Decision

Procedural Schedule dates are draft only
Internal Use Only



Customer Led Workshops

- Based on customer feedback from the February 16th kick-off meeting, Customer Led workshops are moved to April 21 and May 18.
- Within one week after March and April BPA led workshops, customers can request a Customer Led workshop (April 21 and May 18) that would focus on topics presented in the previous workshop.
- Customers should provide the topic and estimated time needed for discussion with BPA SMEs.
- BPA will not create new content – this is an opportunity to ask further questions on materials previously presented.
- Opportunities for customers to present on topics of interest, where BPA will be in listening and understanding mode.

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
- Workshops presented by BPA in April, May and June 2023 will be hybrid (note: we added one additional workshop based on customer feedback).
- All other workshops will be virtual

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
- Transition Process
- Study Financials
- Network Costs
- Technical Study Requirements
- Study Flexibility

Analysis Approach:

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

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

Steps 1- 4

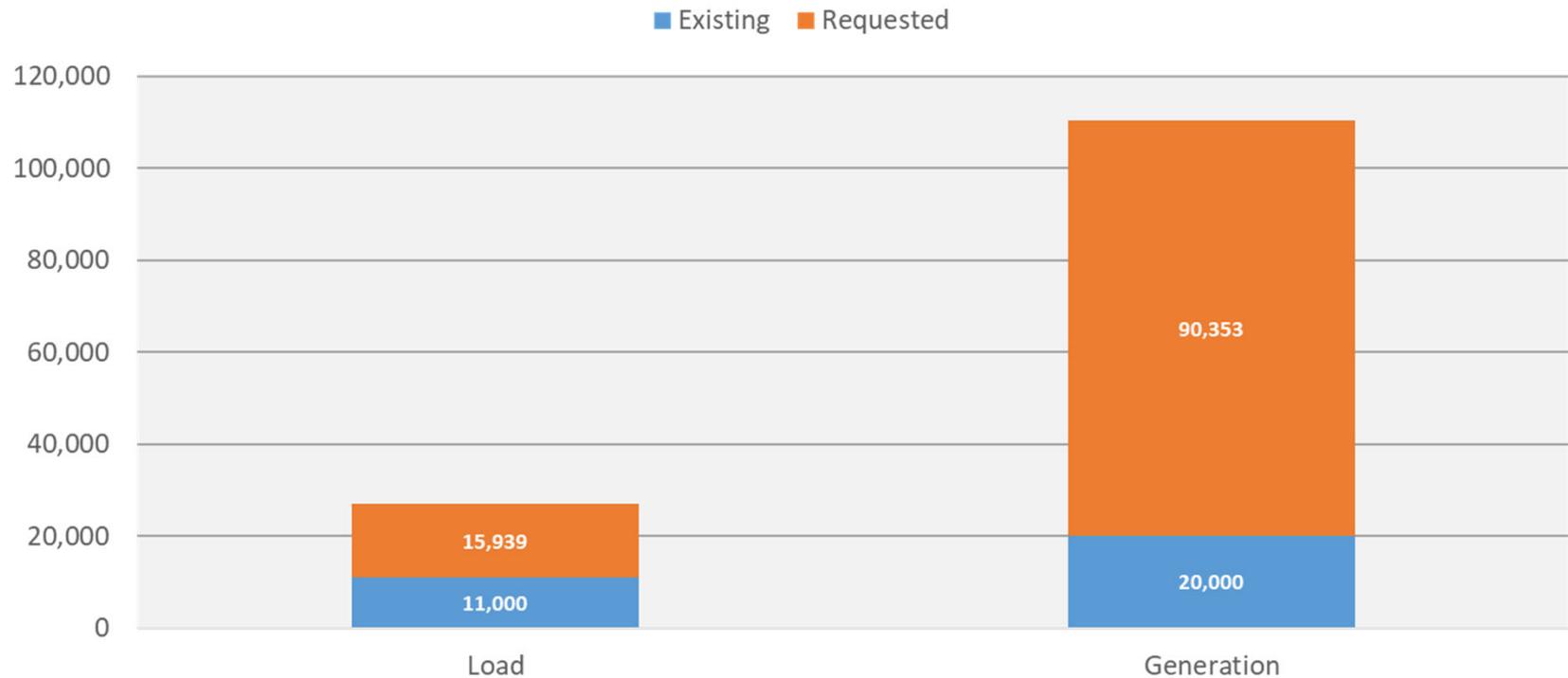
Steps 1: Introduction and Education

Background

- Generally, BPA's Large Generator Interconnection Procedures (LGIP) use a pro forma first-come, first-served study process that studies interconnection requests individually and in the order in which they are received.
- This serial process has led to interconnection queue backlogs, uncertainty regarding the cost and timing of interconnecting to the transmission system, and a piecemeal identification of network upgrades.
- This process does not allow possible efficiencies of studying multiple interconnection requests together, identifying fewer network upgrades that can accommodate multiple interconnection requests, particularly requests located in a similar area.

Background (cont.)

Load vs. Generation (MW)



Steps 2-3: Description of Issue & Data and/or Analysis

Issue

- BPA’s volume of large generator interconnection requests has increased exponentially over the past 5 years:

LGI Projects	Count		MW	
Year	% Increase	# of Requests	% Increase	Total
2018	50.00	24	102.71	7,320
2019	-20.83	19	-20.86	5,793
2020	57.89	30	141.27	13,977
2021	63.33	49	62.23	22,675
2022	108.16	102	278.54	85,833

*Parameters: LGI Projects Only. Request date within the year specified.
All MW for those projects requested in year specified*

Issue: Number of Large Generator Request Withdrawals

LGI Projects Withdrawn			
Year	Count of Requests (#)	Sum of MW	% Increase (MW)
2017	17	3,536	
2018	13	2,943	-16.80
2019	11	2,505	-14.90
2020	22	6,361	153.90
2021	9	2,690	57.70
2022	17	9,415	250.00
2023	3	850	



Parameters: LGI projects only;
all MW for those projects
requested in that year.

Problem

- Exponential increases have led to significant interconnection study delays and backlogs due to the sheer volume of interconnection requests.
- These study delays are further exacerbated by a large number of projects that withdraw from the queue that do not prove to be commercially viable.
- For almost every project that withdraws, BPA must re-study lower-queued projects to ensure the proper network upgrades are identified to meet planning criteria and maintain reliability.
- These withdrawals also create significant timing and cost uncertainty for interconnection customers who have lower-queued projects. Impacted customers may be subject to unexpected re-studies and/or additional network upgrade costs, which may cause those customers to withdraw, causing a cascade of withdrawals and resulting re-studies.

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

Alternatives for a FR/FS Cluster Study Process

1. The Federal Energy Regulatory Commission's (FERC) "Improvements to Generator Interconnection Procedures and Agreements" Notice of Proposed Rule (NOPR)
2. FERC NOPR with BPA deviations
3. Another approach with deviations already approved by FERC (PAC, MISO, PJM, SPP)

Alternative 1: FERC NOPR

- Implement all FR/FS elements of FERC NOPR
 - If BPA implemented the proposals in the NOPR, we would not be strictly pro forma. We may need to make adjustments due to our status as a non-jurisdictional entity
- BPA could still adopt its own alternatives for other reforms
 - Readiness requirements
 - Study Financials
 - Network Allocation
 - Technical Requirements
 - Transition Process

NOPR FR/FS Umbrella Provisions *	NOPR Readiness & Fiscal Requirements *
LGIP 3.1.2, Submission (p. 205)	LGIP 3.1, Interconnection Requests (p. 204)
LGIP 3.4.1, Cluster Request Window (p. 215)	LGIP 3.1.1.1, Initial Study Deposit (p. 204)
LGIP 3.4.5, Customer Engagement Window (pp. 219-220)	LGIP 3.1.1.2, Additional Study Deposit (p. 204)
LGIP 3.4.6, Cluster Study Scoping Meeting (pp. 219-220)	LGIP 3.1.1.3, LGIA Deposit (p. 204)
LGIP 7.1, Cluster Study Agreement (pp. 251-252)	LGIP 3.4.2, Initiating an Interconnection Request (p. 215)
LGIP 7.5, Cluster Study Re-Studies (pp. 255-257)	LGIP 4.2.2, Cost Allocation for Transmission Provider’s Interconnection Facilities and Network Upgrades (p.237)
LGIP 8.1, Interconnection Facilities Study Agreement (pp. 257-259)	LGIP 4.4-4.4.7, Modifications (pp. 237-241)
LGIP 8.4, Meeting with Transmission Provider (p. 261)	LGIP 7, Cluster Study (p. 251)
LGIP 8.5, Re-Study (p. 261)	
LGIP 11.1, Tender (pp. 266-267)	
LGIP 11.3, Execution (pp. 267-268)	

* See Appendix for specific NOPR proposal information.

Alternative 2: NOPR with BPA Deviations

- BPA will analyze an approach similar to TSR Study and Expansion Process (TSEP) in the following areas:
 - Procedures: customer engagement window, election letter for next phase, etc.
 - Where possible, BPA would identify subgroups of interconnection customers based on areas of geographic and *electric relevance. [***FERC sought comment on this approach in this NOPR.*]
- More definition around the Environmental Study Agreement (ESA) phase

** Projects that have an electrical impact on the same facilities.*

***FERC sought comment on whether the Commission should require transmission providers to conduct cluster studies on subgroups of interconnection customers based on areas of geographic and electric relevance, and, if so, whether the Commission should adopt provisions governing how cluster areas should be formed to ensure that cluster areas are formed in a transparent and not unduly discriminatory manner*

Alternative 3: FR/FS w/ FERC Approved Tariff Filings

- MISO/SPP/PJM all have implemented FR/FS generator interconnection processes that have been approved by FERC.
- However, MISO/SPP/PJM deviate from each other on how they process the cluster.
- BPA would evaluate each FERC-approved process and pull effective aspects out of all three (potentially) to create its own FR/FS process.
- All three processes generally aligns with the NOPR.

Alternative 3: FR/FS w/ FERC Approved Tariff Filings (MISO)

- MISO uses a 3-phase Definitive Planning Phase (DPP) (which consists of three distinct phases – DPP I, II, and III) process to study and review interconnection requests.
- The DPP is a sequential review process that facilitates a structured study and restudy of proposed generation projects to determine whether there is available transmission capacity to accommodate their interconnection or whether network upgrades are needed and helps assist customers through the interconnection process through various decision points.
- At each step, customers will be offered various study contracts and expected payments throughout each phase. MISO's process has used a clustering approach since 2008.

Alternative 3: FR/FS w/ FERC Approved Tariff Filings (SPP)

- SPP uses a cluster study methodology in three separate phases, each with different deposit and milestone requirements.
 - Stage 1, DISIS Phase One, is a cluster study which consists of a steady-state thermal and voltage analysis.
 - Stage 2, DISIS Phase Two, is a cluster study which consists of a steady-state thermal, voltage analysis and transient and dynamic stability and short-circuit analysis.
 - Stage 3, the Interconnection Facilities Study, includes a refresh of the cluster analysis followed by an individual study that consists of facility scoping and estimation of costs and construction lead time.

Alternative 3: FR/FS w/ FERC Approved Tariff Filings (PJM)

- PJM's new process uses a single application and study process that includes three Phases, each with a System Impact Study, to evaluate New Service Requests on a unified, cluster basis.
- The new process also includes Facilities Studies in Phases II and III to determine required network upgrades and assign them to the customers whose requests require them.
- There are specific decision points in each phase for customers to continue in the process or withdraw.
- Deposits are required in each phase and become increasingly non-refundable.

Break

Readiness Requirements

Steps 1- 4

Overview

- BPA is considering reforms for readiness requirements in three areas:
 1. Study Deposits
 2. Site Control
 3. Commercial Readiness
- The slides will walk you through the background, issues and alternatives for each of these reform areas for Readiness Requirements.

Objective

- Support a cluster study process that encourages the submission of commercially viable requests.
- Increase the speed of interconnection queue processing by reducing withdrawals and restudies.

Study Deposits

Steps 1-3: Introduction, Education, and Description of Issue & Data and/or Analysis

Background

- Interconnection Customers are required to provide a study deposit of \$10,000, \$50,000 and \$100,000 for the FES, ISIS, and FAS respectively.
- The \$10,000 deposit submitted with the application is applied to the FES study.
- There is no set deposit for Re-Study.



Issue with status quo

- BPA collects study deposits that are too low encouraging customers to submit speculative requests.
- This leads to customers submitting multiple speculative requests that are later withdrawn.
- Withdrawal of requests triggers multiple studies and re-studies, contributing to backlogs in the interconnection queue and creating uncertainty for costs and timing for other interconnection customers.

Benchmarking

- Reviewed FERC approved reforms by other transmission providers in our region and across the country (PacifiCorp, MISO, CAISO, PJM, etc.).
- Found study deposits were tiered or per MW with different caps and variation on whether deposits were collected by study phase or at once.

Study Deposits

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

Alternatives for Study Deposits

1. FERC NOPR or industry standard.
2. Staff Proposal for formulated tiered deposit, with cap, collected once.
3. Staff Proposal for linear deposits (per MW), with cap.

Alternative #1: NOPR or FERC approved Tariff Filings

- 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 non-refundable application fee of \$5,000, and a refundable study deposit of:
 - a) \$35,000 plus \$1,000 per MW for requests ≥ 20 MW < 80 MW, or;
 - b) \$150,000 for requests ≥ 80 MW < 200 MW; or
 - c) \$250,000 for requests ≥ 200 MW.
- Transmission Provider shall apply the initial study deposit toward the cost of the Cluster Study Process.
- Same deposit amount is required at restudy and FAS stage.

Alternative #1: Study Deposit Table (Example)

Alternative #1: #1: NOPR or Industry Standard				
MW	Application Fee (Per Request)	Base Fee	\$1000 Per MW	Total
20	\$5,000	\$35,000	\$ 20,000.00	\$60,000
50	\$5,000	\$35,000	\$ 50,000.00	\$90,000
79	\$5,000	\$35,000	\$ 79,000.00	\$119,000
80	\$5,000	\$150,000		\$155,000
100	\$5,000	\$150,000		\$155,000
150	\$5,000	\$150,000		\$155,000
200	\$5,000	\$250,000		\$255,000
500	\$5,000	\$250,000		\$255,000
1000	\$5,000	\$250,000		\$255,000

Alternative #2: Tiered deposit, with cap, collected once.

- 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 non-refundable application fee of \$5,000, and a refundable study deposit of:
 - a) \$200,000 for requests ≥ 20 MW < 50 MW, or;
 - b) \$250,000 for requests ≥ 50 MW < 100 MW, or;
 - c) \$300,000 for requests ≥ 100 MW < 250 MW; or
 - d) \$350,000 for requests ≥ 250 MW < 750 MW; or
 - e) \$400,000 for requests ≥ 750 MW.
- Transmission Provider shall apply the initial study deposit toward the cost of the Cluster Study Process, Restudy, and FAS
 - BPA is exploring an option for deposits for the FAS study: the deposit amount at FAS study would be a good faith estimate of the cost for BPA to complete preliminary engineering and scoping for the plan of service identified in the Cluster Study or Restudy (split pro-rata between interconnection customers for that network upgrade)

**final deposits amounts TBD based on analysis*

Alternative #2: Study Deposit Table (Example)

Alternative #2: BPA formulated tiered deposit*, with cap, collected once			
MW	Application Fee (per Request)	Base Fee	Total
20	\$5,000	\$200,000	\$205,000
50	\$5,000	\$250,000	\$255,000
75	\$5,000	\$250,000	\$255,000
80	\$5,000	\$250,000	\$255,000
100	\$5,000	\$300,000	\$305,000
200	\$5,000	\$300,000	\$305,000
500	\$5,000	\$350,000	\$355,000
1000	\$5,000	\$400,000	\$405,000

*** Table does not include option for deposits for FAS study**

Alternative #3: Linear deposits (per MW), with cap

- \$5,000 non-refundable Application Fee and a base deposit of \$25,000, and a \$ per MW amount, capped at \$250,000, collected per study.
- 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 \$5,000, and a refundable study deposit of \$25,000 plus \$1,000 per MW for each request.
- Transmission Provider shall apply the initial study deposit toward the cost of the Cluster Study Process.
- Same deposit amount is required FAS stage.
 - BPA is exploring an option for FAS study: the deposit amount at FAS study would be a good faith estimate of the cost for BPA to complete preliminary engineering and scoping for the plan of service identified in the Cluster Study or Restudy (split pro-rata between interconnection customers for that network upgrade).

**final deposits amounts TBD based on analysis*

Alternative #3: Study Deposit Table (Example)

Alternative #3: Staff Proposal of Linear Deposits (per MW), with cap.				
MW	Application Fee (per Request)	Base Fee	\$1000 Per MW	Total
20	\$5,000	\$25,000	\$20,000	\$50,000
50	\$5,000	\$25,000	\$50,000	\$80,000
79	\$5,000	\$25,000	\$79,000	\$109,000
80	\$5,000	\$25,000	\$80,000	\$110,000
100	\$5,000	\$25,000	\$100,000	\$130,000
150	\$5,000	\$25,000	\$150,000	\$180,000
200	\$5,000	\$25,000	\$200,000	\$230,000
500	\$5,000	\$25,000	\$225,000	\$255,000
1000	\$5,000	\$25,000	\$225,000	\$255,000

*** Table does not include option for deposits for FAS study**

Site Control

Steps 1-3: Introduction, Education, and Description of Issue & Data and/or Analysis

Background

- Under BPA's LGIP, "site control" is defined as: "**Site Control** shall mean documentation reasonably demonstrating: (1) ownership of, a leasehold interest in, or a right to develop a site for the purpose of constructing the Generating Facility; (2) an option to purchase or acquire a leasehold site for such purpose; or (3) an exclusivity or other business relationship between Interconnection Customer and the entity having the right to sell, lease or grant Interconnection Customer the right to possess or occupy a site for such purpose."
- Interconnection Customers are allowed to provide a deposit in lieu of Site Control (\$10,000) at the initial FES study stage, but must demonstrate Site Control at the System Impact Phase.



Issue with Status Quo

- BPA requires a demonstration for site control with the System Impact Study or \$10,000 deposit but does not require customers to demonstrate an ongoing commitment that their project is commercially viable.
- When customers elect to provide the deposit in lieu of demonstrating site control, it may lead to late withdrawal of projects that fail to achieve site control of their projects which then leads to multiple studies and re-studies, backlogs in the interconnection queue and creates uncertainty for costs and timing for other interconnection customers.

Benchmarking

- Reviewed FERC approved reforms by other transmission providers in our region and across the country (PacifiCorp, MISO, CAISO, PJM, etc.)
 - Found some entities eliminated deposit for site control.
 - MISO has the deposit in lieu when there are regulatory limitations.
 - PacifiCorp, Duke and Dominion allows deposits.

Site Control

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

Alternatives for Demonstration of Site Control

1. Conform to proposed pro forma or FERC approved Tariff filings.
 - 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. Site Control is required at Cluster Study with no deposit in lieu of.
3. Allow deposit in lieu of site control (for any reason) but it is nonrefundable if not provided prior to the execution of the FAS agreement.

Commercial Readiness

Steps 1-3: Introduction, Education, and Description of Issue & Data and/or Analysis

Background

- BPA does not have anything in our current tariff that requires the Interconnection Customer to demonstrate commercial readiness in order to proceed in the LGIP.



Issue with status quo

- BPA requires demonstration of site control and deposits, but does not require a demonstration for commercial readiness milestones throughout its interconnection process.
- This leads to late withdrawal of projects that are not commercially viable which then leads to multiple studies and re-studies, backlogs in the interconnection queue and creates uncertainty for costs and timing for other interconnection customers.

Benchmarking

- Reviewed FERC approved reforms by other transmission providers in our region and across the country (PacifiCorp, MISO, CAISO, PJM, etc.)
 - Entities generally set deposits between \$3,000 to \$4,000 a MW. Some entities only allow deposits while others allow readiness milestone (or financial security in lieu of readiness milestone).
 - PJM tied deposits to a percentage of a customer's network cost allocation depending on study milestone.

Commercial Readiness

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

Alternatives for Commercial Readiness

1. FERC NOPR or FERC approved tariff filings industry standard
2. Staff Proposal for Tiered/Linear Readiness Deposit only
3. Staff Proposal for Tiered/Linear Readiness Deposit and the addition of other Commercial Readiness demonstrations

Alternative #1: FERC NOPR or industry standard

- Customer provides evidence of commercial readiness at the Cluster Study and/or before FAS:
 - a) Executed term sheet (or comparable evidence) related to a contract for sale of (1) the constructed Generating Facility to a load-serving entity or to a commercial, industrial, or other large end-use customer, (2) the Generating Facility's energy or capacity where the term of sale is not less than five (5) years, or (3) the Generating Facility's ancillary services where the term of sale is not less than five (5) years;
 - b) Reasonable evidence that the Generating Facility has been selected in a Resource Plan or Resource Solicitation Process by or for a load-serving entity, is being developed by a load-serving entity, or is being developed for purposes of a sale to a commercial, industrial, or other large end-use customer;
- Customer provides deposit in lieu of meeting requirements in the following amounts:
 - Two times the study deposit amount to enter the initial cluster study phase;
 - Five times the study deposit amount after the initial cluster study phase and before the system impact re-study phase; and
 - Seven times the study deposit after receipt of the facilities study agreement
- The commercial readiness deposit is separate from the study deposit.
- The commercial readiness deposit may be partially or fully non-refundable depending on the study phase/timing of withdrawal.

Alternative #2: Tiered/Linear Readiness Deposit* only

- Customer provides commercial readiness deposit or letter of credit in the following amounts:
 1. At Cluster Study: 2x study deposit*
 2. At Re-study: 3x study deposit*
 3. At FAS stage: 10%* of network facilities identified in the Cluster Study or Re-study required for the request
 4. At ESA stage: No additional deposit, Tied to permitting milestone.
- The commercial readiness deposit may be partially or fully non-refundable depending on the study phase/timing of withdrawal.

** final amounts TBD based on analysis*

Alternative #3: Tiered/Linear Readiness Deposit and the other Commercial Readiness Demonstrations

- Evidence of commercial readiness at the Cluster Study and/or before FAS:
 - a) Executed term sheet (or comparable evidence);
 - b) Reasonable evidence that the Generating Facility has been selected in a Resource Plan or Resource Solicitation Process;
- Customer provides commercial readiness deposit or letter of credit in the following amounts:
 - 1) At Cluster Study: 2x study deposit*
 - 2) At Re-study: 3x study deposit*
 - 3) At FAS stage: 10%* of network facilities identified in the Cluster Study or Re-study required for the request
 - 4) At ESA stage: No additional deposit, Tied to permitting milestone.
- The commercial readiness deposit is separate from the study deposit.
- The commercial readiness deposit may be partially or fully non-refundable depending on the study phase/timing of withdrawal.

**final amounts TBD based on analysis*

Lunch Break

Study Financials

Steps 1- 4

Steps 1: Introduction and Education

Background/Current Process

- BPA assigns costs to the customer studied in a serial study process.
- BPA performs serial study per request.

Steps 2-3: Description of Issue & Data and/or Analysis

Initial Approach: Problem

- If BPA moves to a First-Ready, First-Served cluster study, BPA will need a method to allocate those costs to those who participate in the study.

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

Benchmarking

Name	Method for Allocation
CAISO	Cluster study costs are allocated based on # of interconnection requested
Dominion, Duke, MISO	Cluster study costs are allocated by taking 90% of the costs and allocating to those who participate by MW. The remaining (10%) of the study costs are allocated to those who participate by # of who participate
PAC, NYISO, PNM, PSCo, SPP and Tri-State	Cluster study costs are allocated by taking 50% of the study costs and allocating them based on MW and the remaining (50%) of the Study Costs are allocated on # of interconnection requested
PJM	Cluster study costs are allocated by MW's participating in the cluster study

Alternatives

Status Quo: No allocation for cluster study.

Alternative 1: 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: 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: 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 Participating			50								
Alternative 1		Alternative 2		Alternative 3		Alternative 4					
90% Cluster Study on a Pro Rata 10% Cluster Study on # of customers		50% Cluster Study on a Pro Rata 50% of Cluster Study on # of Customers		100% Cluster Study on a Pro Rata		100% of Cluster Study on # of Customers					
Total Study Costs	\$	300,000	Total Study Costs	\$	300,000	Total Study Costs	\$	300,000	Total Study Costs	\$	300,000
90% of Study Costs	\$	270,000	50% of Study Costs	\$	150,000	100% of Study Costs	\$	300,000	N/A		
10% of Study Costs	\$	30,000	50% of Study Costs	\$	150,000	N/A			100% of Study Costs	\$	300,000
Total Participating		50	Total Participating		50	Total Participating		50	Total Participating		50
Total MW		10000	Total MW		10000	Total MW		10000	Total MW		10000
Cost per MW	\$	27	Cost per MW	\$	15	Cost per MW	\$	30.00	Cost per MW		N/A
Cost per customer	\$	1,111	Cost per customer	\$	3,000	Cost per customer		N/A	Cost per customer	\$	6,000
example:		example:		example:		example:					
One customer with 50MW request		One customer with 50MW request		One customer with 50MW request		One customer with 50MW request					
Cost per MW	\$	27	Cost per MW	\$	15	Cost per MW	\$	30.00	Cost per MW		N/A
Total MW for customer		50	Total MW for customer		50	Total MW for customer		50	Total MW for customer		N/A
Total Cost for MW	\$	1,350	Total Cost for MW	\$	750	Total Cost for MW	\$	1,500	Total Cost for MW		N/A
Cost per Customer	\$	1,111	Cost per Customer	\$	3,000	Cost per Customer		N/A	Cost per Customer	\$	6,000
Total for Customer for a 50MW request	\$	2,461	Total for Customer for a 50MW request	\$	3,750	Total for Customer for a 50MW request	\$	1,500	Total for Customer for a 50MW request	\$	6,000

Network Costs

Steps 1- 4

Overview

- BPA is considering reforms for network costs in two areas:
 1. Network Cost Allocation: how BPA may allocate costs of network upgrades identified in a cluster study.
 2. Shared Network Upgrades: how BPA may allocate network costs for customers who need upgrades where the same network upgrades were identified in a previous cluster study and allocated to other customers.

Steps 1: Introduction and Education

Background

- Currently BPA has a serial study process that assigns all the costs related to build that is determined to interconnect the generator into BPA system to one customer that is was interconnecting into BPA system.

Steps 2-3: Description of Issue & Data and/or Analysis

Initial Approach: Problem

- **Network Cost Allocation:** If BPA adopts a first ready, first served cluster study process, then it will need a method for allocating the costs of network upgrades identified in the cluster study.
- **Shared Network Upgrades:** For a cluster study where the network costs are allocated to those who participate, if there is additional interconnection capacity from the previous cluster, how do we allocate the network costs to customers in the current cluster, who come in after the previous cluster study, that need the same network upgrades for their requested interconnection service.

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

Benchmarking: Network Cost Allocation

Name	Method for Allocation
MISO, Duke, Dominion, CAISO, PSCo	Uses the proportional impact method by performing a distribution factor analysis (Power Transfer Distribution Factor or Outage Transfer Distribution Factor per NERC definition) and considers the MW impact of each request.
PJM	Each Project Developer and Eligible Customer shall be obligated to pay for 100 percent of the costs of the minimum amount of Network Upgrades necessary to accommodate its New Service Request. All New Service Requests that contribute to the need for a Network Upgrade will receive cost allocation for that upgrade pursuant to each New Service Request's contribution to the reliability violation identified on the transmission system in accordance with PJM Manuals.

Benchmarking: Network Cost Allocation (cont.)

Name	Method for Allocation
SPP	<p>The cost of each Network Upgrade component are allocated to each Interconnection Customer on a pro-rata impact basis for the positive incremental power flow impacts of the requested service on such Network Upgrade in proportion to the total of all positive incremental power flow impacts on such Network Upgrade. The average incremental power flow impact of each Interconnection Request in the Cluster Study is determined using each seasonal model available for the Cluster Study period during which the generating facility associated with the Interconnection Request is most likely to be generating at nameplate capacity.</p>
Tri-state	<p>Tri-State specifically provides that: (1) thermal network upgrade costs are allocated based on the impact (in MWs) from each generating facility within the cluster; (2) voltage network upgrade costs are allocated based on the voltage impact from each generating facility within the cluster on the most constrained bus under the most constraining contingency case; (3) transient stability network upgrade costs within a cluster are allocated based on the pro rata share of the total MW requests of all generating facilities causing instability; (4) short circuit network upgrade costs are allocated based on the impact from each generating facility within the cluster on the constrained facilities under the most constraining fault case; and (5) when a network upgrade resolves multiple types of constraints, the costs are allocated within a cluster based on a ratio share of the total cost of the independent mitigation types.</p>

Alternatives: Network Cost Allocation

Status Quo: No allocation for Network costs.

Alternative 1: Use the proportional impact method by performing a distribution factor analysis (Power Transfer Distribution Factor or Outage Transfer Distribution Factor per NERC definition) and consider the MW impact of each request. Have an impact study and determine the impact by MW.

Alternative 2: Allocate the Network upgrade build costs based on MW to those who are determined to contribute to the reliability violation identified in the study and not *de minimis*.

Alternative 3: Allocate Network upgrade build costs different factors depending on the build. 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 that cause the instability. 4) short circuit network upgrades are allocated on the impact of the generating facility within the cluster. 5) if there several constraints, the costs are allocated on a ratio share of the total costs.

Benchmarking: Shared Network Upgrades

Name	Method for Allocation
MISO	<p>MISO implemented a 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.</p>
NYISO	<p>If there is Headroom associated with System Upgrade Facilities and a Developer of any subsequent project interconnects and uses the Headroom within ten years of its creation, such subsequent Developer shall pay the Connecting Transmission Owner or the Developer for this Headroom. The ISO will determine the depreciated cost of the System Upgrade Facilities and/or System Deliverability Upgrades associated with the Entity-created Headroom. In the case of Upgrades that have an excess capacity readily measured in discrete electrical units, the use will be measured in terms of the electrical impact of the subsequent Project. In other cases, it will be measured as an amount equal to $(1/b)$, where “b” is the total number of Projects in all prior and current Class Years using the System Upgrade Facility.</p>

Benchmarking: Shared Network Upgrades (cont.)

Name	Method for Allocation
PJM	PJM's Tariff states that there will be no inter-Cycle cost allocation for Interconnection Facilities or Network Upgrades identified in the System Impact Study costs identified in a Cycle; all such costs shall be allocated to New Service Requests in that Cycle.

Alternatives: Shared Network Upgrades

- **Alternative 1:** Do not require latecomer to fund upgrade if the shared Network upgrade for each cluster
- **Alternative 2:** 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:** 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.

Break

Transition Process

Steps 1- 4

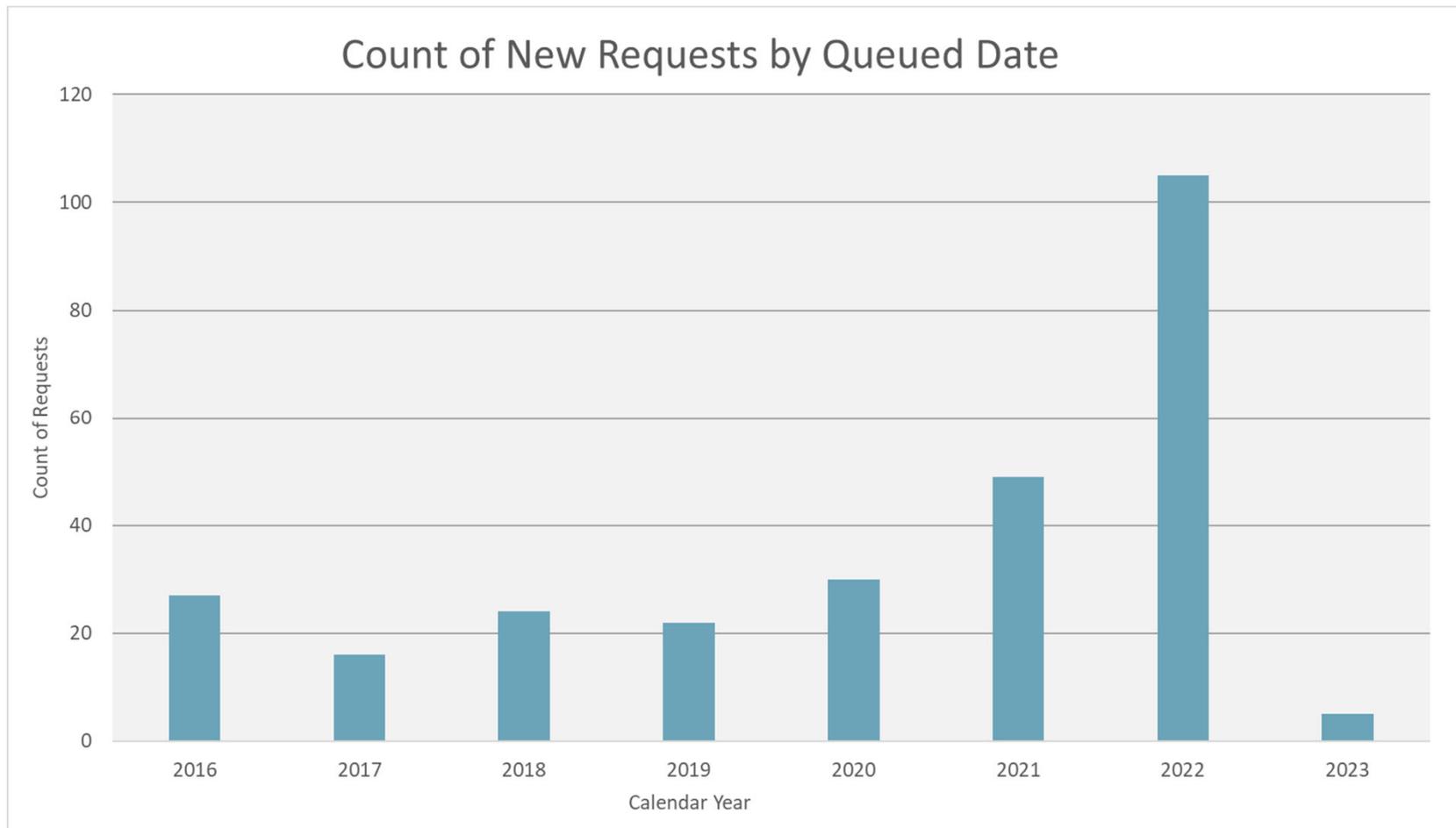
Objective

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:

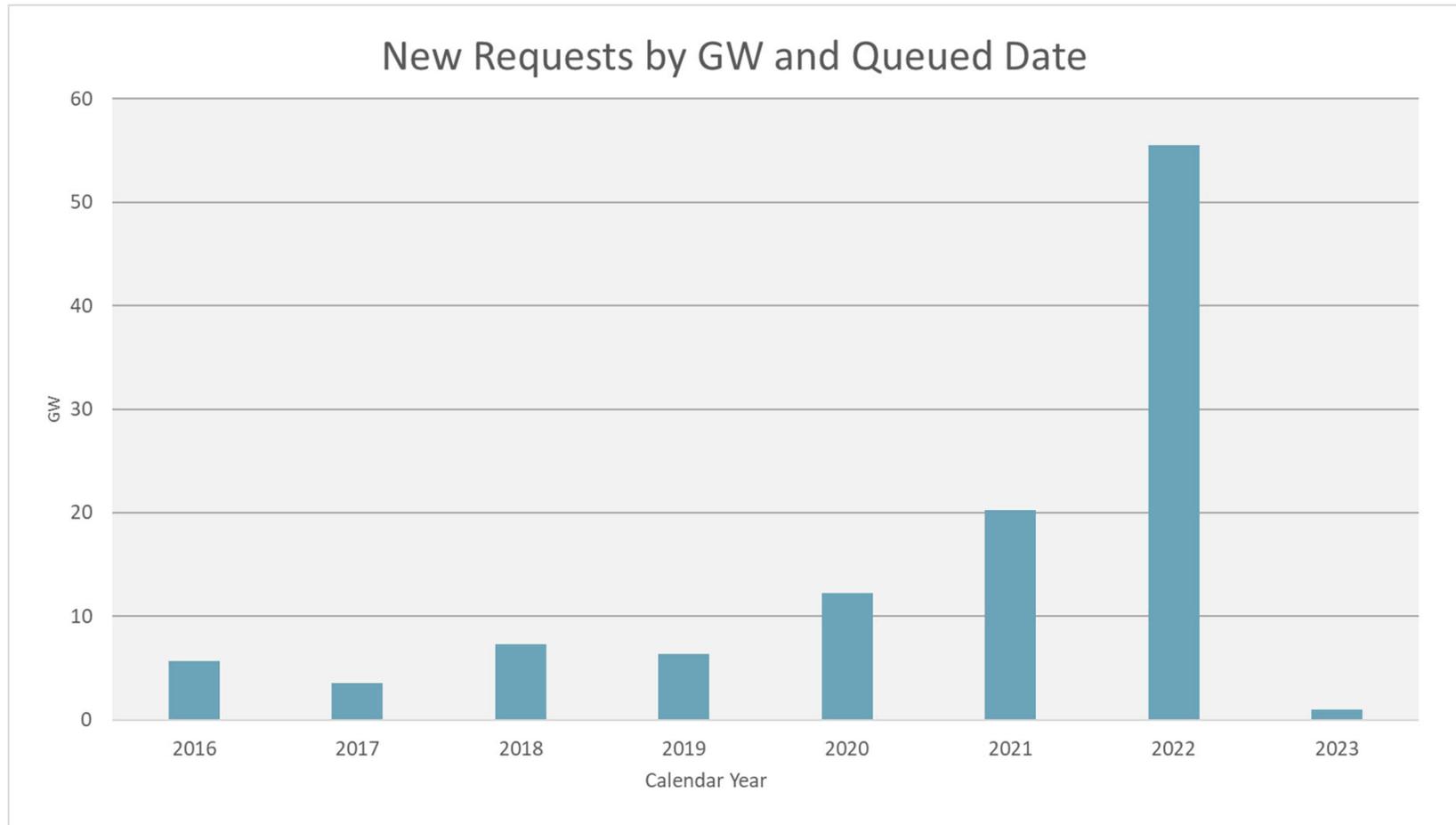
- 1) Advancing existing requests to connect generation in order to meet customer needs efficiently and responsively, and
- 2) Moving quickly to new reforms that could make the LGIP more efficient overall.

Steps 1-3: Introduction, Education, and Description of Issue & Data and/or Analysis

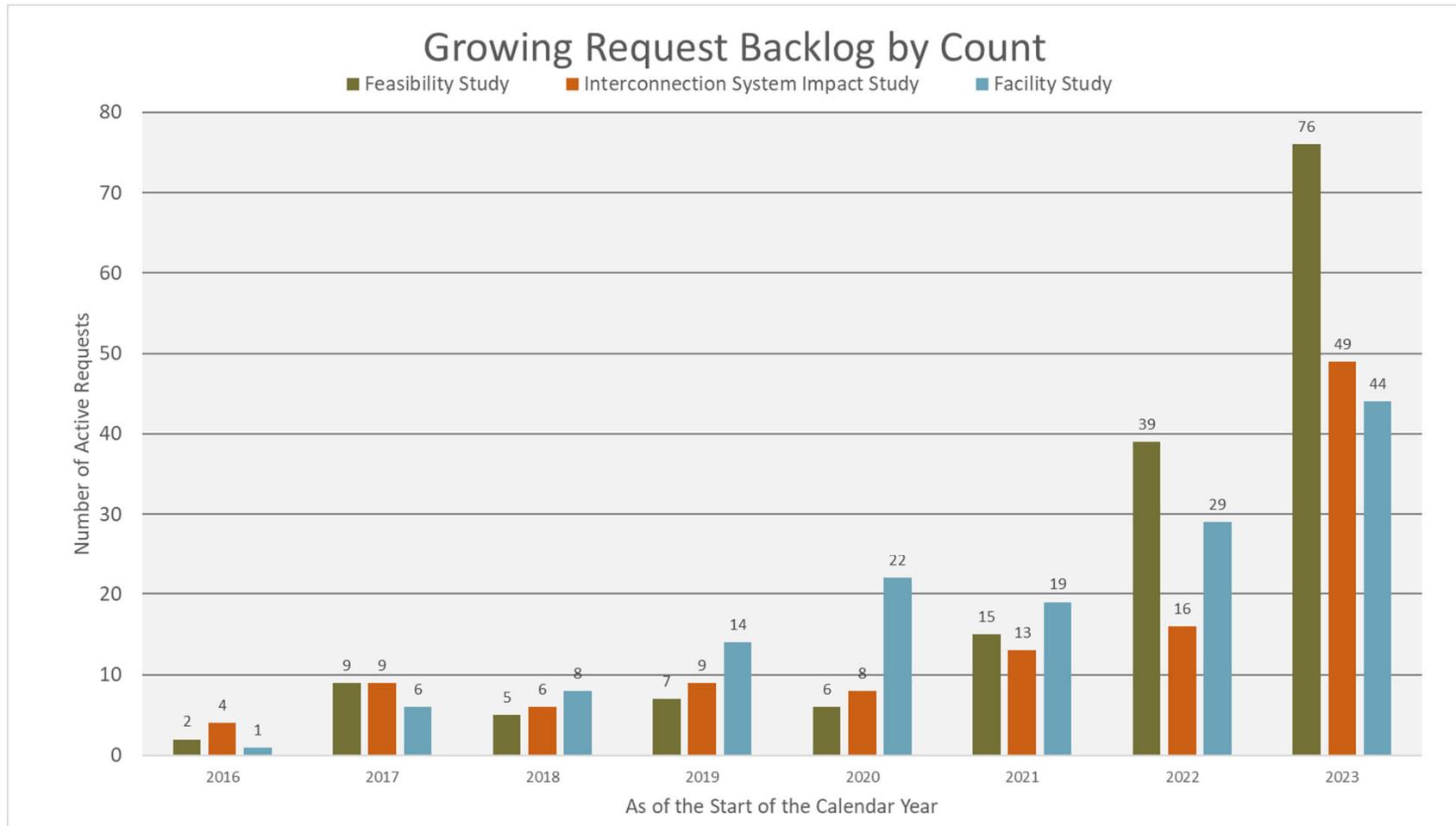
New Requests per Year



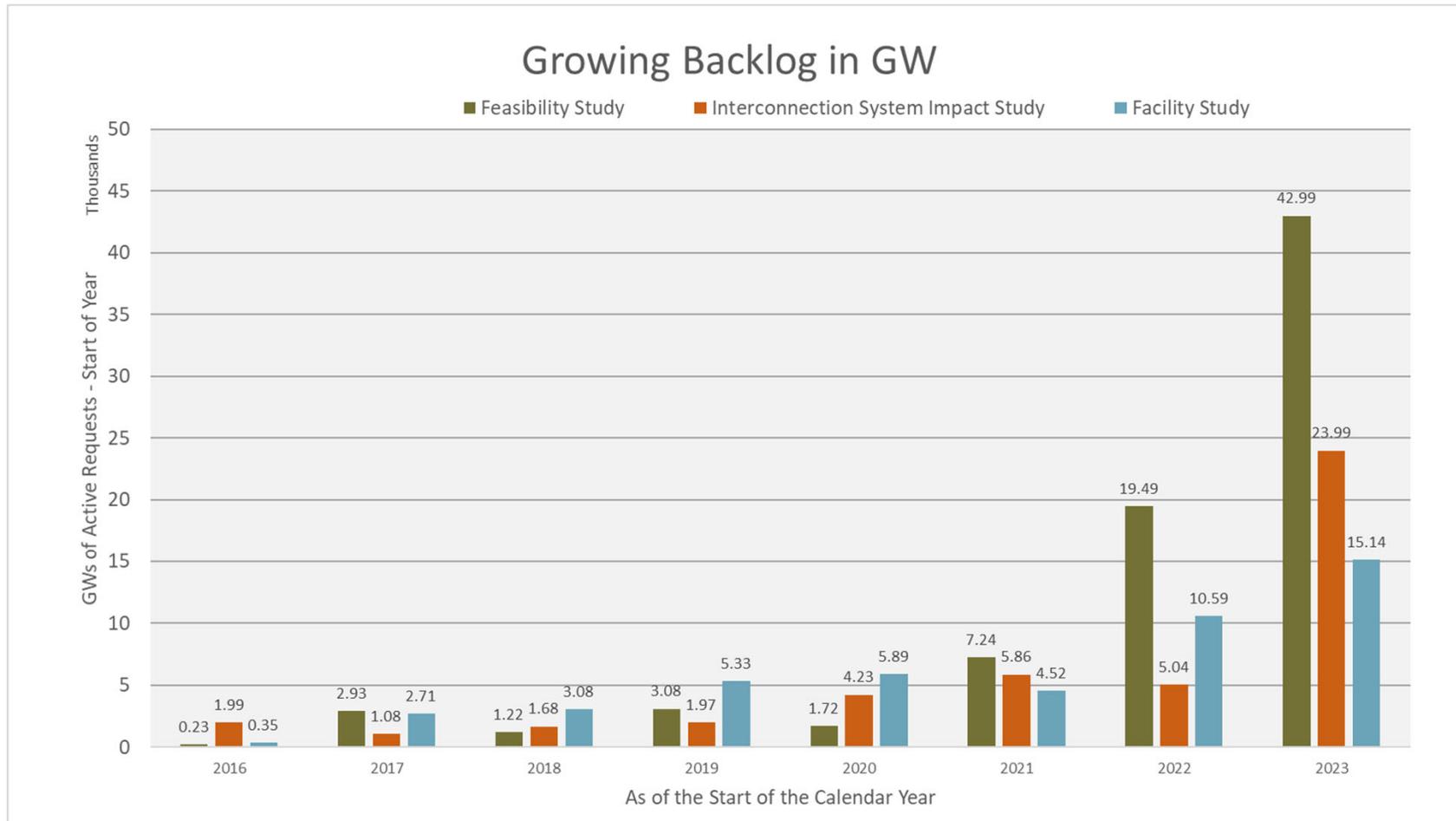
New Requests per Year by GW



Study Backlog Growth by Request



Study Backlog Growth by GW



Also available to download [here](#).

COMMERCIAL IMPLEMENTATION REQUIREMENTS		Typical GI Phases			
		Interconnection Request	Feasibility Study Executed	Interconnection System Impact Study (SIS) Executed	Interconnection Facilities Study Executed
NOPR	<p>TRANSITIONAL SERIAL REQUIREMENTS: Within 60 calendar days provide (1) Final SIS Report (2) Facilities Study Agreement executed before the effective date of the new LGIP (3) Demonstrate commercial readiness and (4) Executes a Transitional Serial Interconnection Facilities Study Agreement.</p> <p>TRANSITIONAL CLUSTER REQUIREMENTS: Within 60 calendar days provide (1) Meet commercial readiness and (2) Execute a Transitional Cluster Study Agreement.</p>				
	<p>GRANDFATHERED LATE STAGE CUSTOMER REQUIREMENTS: Completed SIS prior to January 3, 2017 continue with serial process</p> <p>TRANSITIONAL CLUSTER REQUIREMENTS (Geographical Cluster): 60 days to meet specified milestones and deposit requirements.</p> <p>Details: All projects determined to be electrically remote are slated to be part of a group study.</p>				
PAC	<p>LATE STAGE CUSTOMERS: Option to continue through Facilities Study and Interconnection Agreement OR opt in to the Transition Cluster process.</p> <p>LATE STAGE REQUIREMENTS: By transition readiness deadline have (1) Tendered Facility Study Agreement (2) Readiness Milestones (3) Site Control and (4) Additional Study Deposit.</p> <p>TRANSITIONAL CLUSTER REQUIREMENTS: By transition readiness deadline meet (1) Readiness Milestones (2) Site Control and (3) Additional Study Deposit.</p>				
PSCo	<p>TRANSITIONAL SERIAL REQUIREMENTS: Within 30 calendar days provide (1) Final SIS Report and Interconnection Facility Study Agreement executed prior to September 27, 2019 (2) Deposit for Interconnection Facilities & Network Upgrades (3) Demonstrate Site Control (4) Sign transitional interconnection study agreement and (5) Additional demonstration of readiness.</p> <p>TRANSITIONAL CLUSTER REQUIREMENTS: Within 30 calendar days provide (1) \$5 million deposit (2) Demonstrate Site Control (3) Sign transitional interconnection study agreement and (4) Additional demonstration of readiness.</p>				
PJM	<p>GRANDFATHERED: November 1, 2016-March 31, 2019 TRANSITIONAL CLUSTER: April 1, 2018-September 30, 2021</p> <p>TRANSITIONAL CLUSTER REQUIREMENTS: 60 days to provide (1) Readiness Deposits (2) Site Control at outset and at Decision Points I and II.</p> <p>Details: = Either an Expedited Process w/individual cost allocation OR Transition Cycle Process w/clustered cost.</p>		<p>Proceeding under the Grandfathered and Transitional Cluster Process is based on the date the request was received, not a phase.</p>		
CAISO	<p>SERIAL PROCESS: Request received before June 1, 2008 TRANSITIONAL CLUSTER: Request received after June 1, 2008</p> <p>TRANSITIONAL CLUSTER REQUIREMENTS: Within 60 calendar days provide (1) Study Deposit (2) Statement of the requested deliverability status (3) Preferred Point of Interconnection & technical data (4) Demonstration of Site Exclusivity or a posting of a Site Exclusivity Deposit of \$250,000.</p>		<p>Proceeding under the Serial Process and Transitional Cluster Process is based on the date the request was received, not a phase.</p>		

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

Alternatives for Transition Process

1. Status Quo
2. FERC NOPR
3. Staff Proposal - First-ready, First-served Hybrid Transitional Process

Status Quo

- The current interconnection queue would be processed under the current LGIP and Business Practices.

Alternative #1: FERC NOPR

- **Transitional Serial:** Late-stage interconnection customers that have executed a facilities study agreement can continue under the existing serial study process.
 - Readiness Requirements
 - Required to provide a deposit equal to 100% of the interconnection facility and network upgrade costs allocated to the interconnection customer in the system impact study report.
 - Evidence of exclusive site control for the entire generating facility.
 - Demonstrate commercial readiness through **one of the following:**
 - An executed term sheet (or comparable evidence) related to a contract for the sale of the generating facility or its energy/ancillary services
 - Reasonable evidence that the generating facility is included in a resource planning entity's resource plan, has received a contract via a resource solicitation process, or is being developed for a large end-use customer
 - A provisional LGIA that is not suspended and includes a commitment to build the generating facility

Alternative #1: FERC NOPR (cont.)

- **Transitional Cluster:**

- The transitional cluster will be subject to an expedited combined system impact and interconnection facilities study.
- Transitional cluster study to be completed by the transmission provider within 300 days after the deadline for eligibility requirements to be satisfied.
- Readiness Requirements
 - Required to make a \$5 million deposit. The deposit is subject to the same conditions as the transitional serial (old process) study deposit.
 - Evidence of exclusive site control for the entire generating facility
 - Demonstrate commercial readiness through one of the same three options in Transitional Serial (Grandfathered).

Alternative #2: First-ready, First-served Hybrid Transitional Process

- Transitional Serial:
 - BPA would allow customers who demonstrate commercial readiness requirements, site control, and are in a late stage* in the current interconnection queue (e.g., executed facilities study agreement or facilities study report received) 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.
 - If the delay is too significant, then BPA would:
 - Process the request under a transitional cluster study process
 - Late stage interconnection customers will also be given the option to opt into the Transitional Cluster Study process, so long as they meet those commercial readiness requirements.

*TBD based on analysis

Alternative # 2: First-ready, First-served Hybrid Transitional Process (cont.)

- Transitional Cluster:
 - BPA would allow non-late stage* customers who demonstrate commercial readiness requirements and site control* in the current interconnection queue to participate in the transitional cluster study, so long as the processing of these requests would not unduly delay the start of a new cluster study process.
 - The transitional cluster study methodology would be based on the First-ready/First-served Hybrid approach (Cluster studies would be performed based on electrical relevance.)
 - If the delay is too significant, then BPA would:
 - Process the request under the new cluster study process after BPA's customer engagement window closes.

*TBD based on analysis

Technical Studies Requirements

Steps 1- 4

Steps 1: Introduction and Education – Interconnection Information Access

Background: Interconnection Information Access

- Under BPA's LGIP, the Interconnection Feasibility Study is the primary mechanism for an Interconnection Customer to obtain a preliminary evaluation of the system impact and cost of a prospective generating facility.
- BPA is required to use Reasonable Efforts to complete the Feasibility Study within 45 calendar days after receiving the executed Feasibility Study Agreement.
- BPA does not currently provide a publicly available generation interconnection "heat map" that displays where interconnection capacity exists.

Steps 2-3: Description of Issue & Data and/or Analysis - Interconnection Information Access

Problem – Interconnection Information Access

- Because the Interconnection Feasibility Study is the primary mechanism for an Interconnection Customer to obtain a preliminary evaluation of the system impact and cost of a prospective generating facility, Interconnection Customers are incentivized to submit multiple speculative requests in an attempt to obtain information about costs and viability associated with various project configurations.
- These speculative requests contribute to interconnection late-stage withdrawals, re-studies, and queue backlogs.
- In 2022, BPA exceeded the 45 calendar day timeline for nearly 100% of the Feasibility Studies that it performed: the average time for completing one Feasibility Study was over 120 days.
- The Feasibility Study backlog also contributes to the System Impact Study backlog because the same resources are used to study both study phases.

Step 4: Discuss additional considerations and possible alternatives to solve issue - Interconnection Information Access

Objective: Interconnection Information Access

- Replace the Feasibility Study with publicly posted information that provides information (system impact and cost of a prospective generating facility) to prospective interconnection customers that are considering efficient points of interconnection and could ameliorate the incentive to submit multiple speculative interconnection requests to gather information useful to assessing the viability of proposed generating facilities.
- Provide customers with sufficient information so that BPA's cluster study is limited to the more viable requests, resulting in a more efficient cluster study.

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 (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.

Steps 1-3: Introduction and Education, Description of Issue – Affected System Study Process and Modeling

Background & Issue – Affected System Study Process and Modeling

Background

- Affected System Studies are used by Transmission Providers to study the impact of proposed interconnection requests on neighboring transmission systems.
- Transmission Providers are obligated to coordinate the conduct of affected system studies.
- FERC has not developed a detailed, standardized Affected System Study process or Affected System Study agreements for Transmission Providers to follow.
- 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.

Issue

- BPA does not provide the same level of customer visibility in terms of tracking for Affected Systems as they do for interconnection requests directly in BPA's interconnection queue.
- BPA needs an efficient, consistent, and sustainable process for performing Affected System Studies in parallel with interconnection studies for interconnection requests in BPA's Queue.

Step 4: Discuss additional considerations and possible alternatives to solve issue - Affected System Study Process and Modeling

Pre-Decisional. For Discussion Purposes Only.

Objective: Affected System Study Process & Modeling

- Implement an affected system study process that results in efficient studying of requests in Affected System Operator queues when BPA is identified as an impacted party.
 - Provide improved tracking and increased visibility of Affected System Study status.
 - Include Affected System Study modeling assumptions in Affected System Study Process (NRIS vs ERIS).

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.

Steps 1: Introduction and Education – Modeling Requirements

Background: Modeling Requirements

- Interconnection Customers must submit technical data specified in Attachment A to Appendix 1 of BPA's LGIP.
- This Attachment is largely geared toward synchronous generators
- BPA performs studies using Reasonable Efforts to meet timelines in the LGIP once the applicable study agreement, study deposits and all modeling data is received.

Steps 2-3: Description of Issue & Data and/or Analysis – Modeling Requirements

Issue: Modeling Requirements

- While Attachment A to Appendix 1 of the BPA's LGIP requires all generating facilities to submit certain types of information, the information required is only sufficient to accurately model the behavior of synchronous generating facilities.
- In contrast, given the electrical characteristics of the inverters used by non-synchronous generating facilities, additional information is required to achieve a comparable level of model fidelity.
- If sufficiently accurate and validated models are not provided, interconnection studies may not identify appropriate interconnection facilities and network upgrades needed for that interconnection request, potentially resulting in skewed interconnection costs.

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

Objective: Modeling Requirements

- Ensure that all interconnection customers requesting to interconnect to BPA's system provide models needed for accurate interconnection studies, including models for non-synchronous generating facilities.

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*

Study Flexibility

Steps 1- 4

Overview

- BPA is considering reforms for study flexibility in two areas:
 1. Co-location of resources: allowing more than one resource to co-locate on a single site, behind a single point of interconnection, in a new request
 2. Changes to Material Modification for Co-located resources: allowing modifications to existing requests to include additional resources.
- The slides will walk you through the background, issues and alternatives for each of these reform areas for related to study flexibility.

Steps 1: Introduction and Education

Background

- Co-location of Resources
 - First request in BPA’s queue that had multiple fuel types was submitted in 2015.
 - BPA currently has received 102 GI requests with more than one fuel type.
 - BPA has not used the term “co-location” to describe these requests in the LGIP.
- Material Modification
 - Material Modification procedures, as interpreted by BPA, do not include changes in Interconnection Service level or changes in Generating Facility Capacity (i.e. nameplate).
 - We measure Generating Facility Capacity on the AC side, so changes that are on the DC side have usually been deemed non-material. For example, a developer could add a battery to the DC side of the inverters of a solar plant, to charge from the solar panels, but the developer could not add a new inverter for the battery.

Steps 2-3: Description of Issue & Data and/or Analysis

Initial Approach: Problems

- **Co-Location of Resources:** LGIP does not align with BPA's practice to allow customers to include multiple resources at a single site, for a single point of interconnection, in a new request.
- **Changes to Material Modification for Co-Located Resources:**
 - BPA has received requests to add additional resources to an existing interconnection request. BPA expects more requests will come as developers seek to increase the annual capacity factors of renewable projects.
 - BPA requires requests to add co-located resources to existing requests to be submitted as new interconnection requests, this adds to the overall backlog of requests in the queue and slows down the speed of queue processing.
 - Developers end up with parts of their projects separated by time and queue priority. They can't get the total estimates for their projects until the later queued project completes its studies.

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

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

- 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.

Add Flexibility to Material Modification: Alternative to Status Quo

- 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.

Next Steps

- Upcoming Workshops
 - April 21 – Customer Led Workshop (Virtual)
 - April 26 – 27 – Steps 5 - 6 for all six topics (Hybrid)
 - May 18 – Customer Led Workshop (Virtual)
 - May 25 – 26 – Steps 1-6 for all six topics (Hybrid)
 - June 15 – Wrap up and share Tariff redlines (Hybrid)
- Comments can be submitted at:
 - techforum@bpa.gov
 - Subject line: GI Queue Reform
 - Please cc your Transmission Account Executive
 - **Comments due by Thursday, March 30, 2023**

Appendix

FERC Proposed First Ready / First Serve Cluster Study Process

FERC Proposed First Ready / First Serve Cluster Study Process

LGIP 3.1.1.1 Initial Study Deposit

An interconnection customer must submit its interconnection request and applicable study deposit **during a cluster request window**.

LGIP 3.1.2, Submission (p. 205)

New subsection 3.1.2 of the *pro forma* LGIP also provides that the interconnection customers must select a definitive point of interconnection to be studied when executing the cluster study agreement. Upon mutual agreement, the transmission provider may make reasonable changes to the requested point of interconnection to facilitate efficient interconnection of clustered interconnection requests at common points of interconnection.

LGIP 3.4.1, Cluster Request Window (p. 215)

Interconnection customers must submit an interconnection request during a specified period, the cluster request window, which is a 45-day period with the start date to be determined by each transmission provider (with the annual start date for the transmission provider's cluster request window included in its LGIP). The transmission provider would consider all interconnection requests accepted within this period to have equal queue priority for purposes of the cluster study.

FERC Proposed First Ready / First Serve Cluster Study Process

LGIP 3.4.5, Customer Engagement Window (pp. 219-220)

Following the close of the cluster request window, the transmission provider would begin a 30-day customer engagement window as provided in new subsection 3.4.5 (Customer Engagement Window) of the *pro forma* LGIP.

LGIP 3.4.6, Cluster Study Scoping Meeting (pp. 219-220)

During the customer engagement window, transmission providers must hold a scoping meeting with all interconnection customers whose interconnection requests were received in that cluster request window. Revised subsection 3.4.6 of the *pro forma* LGIP would also require transmission providers to hold individual customer-specific scoping meetings, at the interconnection customer's request, which must be requested by no later than 15 business days after the close of the cluster request window. By the end of the customer engagement window, the transmission provider would post on OASIS the final cluster study plan, which lists all valid interconnection requests with an executed cluster study agreement that will be part of the cluster study.

Replace 3.5.2 (Requirement to Post Interconnection Study Metrics) with requiring the posting of the time from when the transmission provider received a valid interconnection request to the completion of the cluster study, cluster re-study, and facilities study.

Revise Section 4 (Queue Position) of the *pro forma* LGIP to make clear that cluster studies are the required interconnection study method under the *pro forma* LGIP and that transmission providers may not have a first-come, first-served interconnection study method under their respective LGIPs.

FERC Proposed First Ready / First Serve Cluster Study Process

Rename and revise section 4.1 of the *pro forma* LGIP as “Queue Position” and add two new subsections: (1) subsection 4.1.1 (**Assignment of Queue Position**), which makes clear that queue position will be based on the time and date that the transmission provider receives all items required under section 3.4 (Valid Interconnection Request) and that there is no queue priority for interconnection customers that opted for informational interconnection studies; ^[137] and (2) subsection **4.1.2 (Higher Queue Position)**, which provides that all interconnection requests studied in a single cluster shall be considered to have equal queue priority, but clusters initiated earlier in time shall be considered to have a higher queue position than clusters initiated later. To be clear, the date of submission of an individual interconnection request within the same cluster would have no bearing on the allocation of the cost of the network upgrades identified in the applicable cluster study, because such costs would be allocated among interconnection requests using a proportional impact method (discussed below in section II.A.4).

New subsection 4.1.2 of the *pro forma* LGIP also provides that moving a point of interconnection shall result in a loss of queue position if the transmission provider deems the change a material modification. To align with this, we propose corresponding changes to the material modification provisions in section 4.4 (Modification) of the *pro forma* LGIP to provide that moving a point of interconnection shall result in a loss of interconnection queue position if it is deemed a material modification by the transmission provider. We note that the interconnection customer may decide to forego the requested change that constitutes a material modification and retain its existing queue position.

FERC Proposed First Ready / First Serve Cluster Study Process

Revise section 4.4.5, which currently states that an extension of less than three cumulative years of the generating facility's commercial operation date are not material and should be handled through construction sequencing. Proposal is to provide that the commercial operation date reflected in the initial interconnection request shall be used in calculating the permissible three-year extension.

Remove from section 4.2 (Clustering) the provisions allowing interconnection requests to be studied serially. Removes the requirement for the transmission provider to provide 180 days' advance notice before opening a cluster window. In addition to removing these provisions, **Rename section 4.2 of the *pro forma* LGIP “General Study Process”** and revise it to provide that interconnection studies shall be performed within the cluster study process.

LGIP 7.1, Cluster Study Agreement (pp. 251-252)

Revise section 7 (Interconnection System Impact Study) to make clear that the system impact study will now *be conducted on a clustered basis*, and that the transmission provider must complete the cluster study within 150 days of the closing of the customer engagement window.

LGIP 7.5, Cluster Study Re-Studies (pp. 255-257)

Revisions to delete section 7.5 (Meeting with Transmission Provider) and adopt the new section 7.5 (Cluster Study Re-Studies) to include provisions governing clustered re-studies where an interconnection customer in the cluster or a higher-queued cluster withdraws its interconnection request. Specifically, this would require transmission providers to conduct a re-study of the cluster within 150 days of informing the cluster of the need for re-study.

FERC Proposed First Ready / First Serve Cluster Study Process

LGIP 8.1, Interconnection Facilities Study Agreement (pp. 257-259)

Simultaneously with the delivery of the [Interconnection System Impact Study to Interconnection Customer] *final Cluster Study Report, or Cluster Re-Study Report if applicable*, Transmission Provider shall provide to Interconnection Customer an Interconnection Facilities Study Agreement in the form of Appendix 4 to this LGIP. The Interconnection Facilities Study Agreement shall provide that Interconnection Customer shall compensate Transmission Provider for the actual cost of the Interconnection Facilities Study. [Within three (3) Business Days following the Interconnection System Impact Study results meeting,] Transmission Provider shall provide to Interconnection Customer a non-binding good faith estimate of the cost and timeframe for completing the Interconnection Facilities Study.

Interconnection Customer shall execute the Interconnection Facilities Study Agreement and deliver the executed Interconnection Facilities Study Agreement to Transmission Provider within thirty (30) Calendar Days after its receipt, together with requirements: see technical data, study deposits, site control, commercial readiness, etc.

LGIP 8.4, Meeting with Transmission Provider (p. 261)

See LGIP 7.5

LGIP 8.5, Re-Study (p. 261)

Revise facilities study provisions in section 8 (Interconnection Facilities Study) to make clear that re-studies can be triggered by a higher or equally queued interconnection project withdrawing from the interconnection queue or modification of a higher or equally queued interconnection project pursuant to section 4.4 (Modifications).

FERC Proposed First Ready / First Serve Cluster Study Process

LGIP 11.1, Tender (pp. 266-267)

Revise section 11.1 (Tender) to clarify the procedures for executing the LGIA.

LGIP 11.3, Execution (pp. 267-268)

Revise section 11.3 (Execution and Filing) to provide that the interconnection customer must submit to the transmission provider at the same time it submits the executed LGIA demonstration of continued site control, the requisite deposit, and reasonable evidence of achieving milestones in the development of the generating facility. An interconnection customer that requests that the transmission provider file an unexecuted LGIA with the Commission must submit the aforementioned information within 15 days of the Commission issuing an order on the unexecuted LGIA filing, or its interconnection request will be deemed withdrawn. Revisions the system impact study agreement and facilities study agreement to be consistent with the new cluster study process. Add several new definitions to section 1 and article 1 that relate to the new first-ready, first-served cluster study process and to modify a number of other definitions.

Key to Terms

- FES: Feasibility Study
- SIS: System Impact Study
- FAS: Facilities Study
- NEPA: National Environmental Policy Act
- FERC: Federal Energy Regulatory Commission
- NOPR: Notice of Proposed Rulemaking