



BPA'S INTERCONNECTION PROCESSES

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Interconnections

- BPA operates the Federal Columbia River Transmission System (FCRTS)
- BPA's customer utilities also operate Transmission Systems, as well as lower voltage Distribution Systems
- The connection of a generating facility directly to the FCRTS is a "Generation Interconnection"
- The connection of a new load to a customer utility system is a "Line and Load Interconnection"
- When a Generating Facility connects to a customer utility system and operates within our Balancing Authority Area (BAA), BPA refers to the customer utility as the "Host Utility" and describes this as "Generation Integration"
- BPA completes interconnection studies in a serial process

Interconnections to the BPA Grid



BPA has three types of interconnection requests:

1. Large Generation Interconnections
2. Small Generation Interconnections and Integrations
3. Line and Load Interconnections

Large Generation Interconnection

Requirements: >20 MW: Large Generation Interconnection Procedure (LGIP)

Start process: Request Submitted (\$10,000 or \$20,000); Scoping meeting

Three stages of technical studies:

Feasibility Study (FES)

Deposit: \$10,000.

Approximately: 3 months (incl. procedural, e.g. tendering/executing agreements, review meetings, etc.)

System Impact Study (SIS)

Deposit: \$50,000.

Approximately: 3 to 6 months

Facilities Study (FAS)

Deposit: \$100,000.

Approximately: 6 to 12 months

Total deposits required: < \$200,000

*Restudies as needed and Optional Studies as requested can increase the total deposits collected

Small Generation Interconnection

Requirements: ≤ 20 MWs or less generating capacity, Small Generation Interconnection Procedure (SGIP)

> 200 kW threshold

- Aligns with Power Services Regional Dialog contracts
- Aligns with BPA Technical Requirements for Interconnection

BPA does NOT have a Fast Track process – only applies to Distribution Systems

Same steps as the LGI but with smaller deposits

Start process: Request Submitted (\$2,500); Scoping meeting

Study Deposits: ~\$5,000 - \$60,000 for each study

FES, SIS, FAS studies: any or all may be skipped

Total deposits required: < \$65,000

Line and Load Interconnection

Requirements: Line Tap, New Point of Delivery, New Large Load, Merchant Transmission Line: Line Load Interconnection Procedure (LLIP)

Same study steps as the LGIP/SGIP but with different deposits depending on the type of utility customer

Start process: Request Submitted (No deposit required); Scoping meeting

Network Customers (NT) – All studies are funded by BPA

Point to Point customers (PTP) – Require the following deposits

Feasibility Study (FES)

Deposit: \$15K-\$20K

Approximately: 3 months (incl. procedural, e.g. tendering/executing agreements, review meetings, etc.)

System Impact Study (SIS)

Deposit: \$20-\$25K

Approximately: 3 to 4 months

Facilities Study (FAS)

Deposit \$75K.

Approximately: 9 to 11 months

Total deposits required: < \$120,000

Interconnection Procedures

- Generation Interconnections
 - Regulated by FERC Orders 2003 (LGIP) & 2006 (SGIP)
 - Governed by formal procedures contained in BPA's Open Access Transmission Tariff (OATT)
 - LGIP is [Attachment L](#)
 - SGIP is [Attachment N](#)
- Line and Load Interconnections
 - Obligation to interconnect utility customers upon their request per BPA's OATT
 - Governed by formal procedures contained in BPA's business practices

Interconnection Procedures

- BPA's OATT and Business Practices
- Provide a transparent and non-discriminatory basis for:
 - Addressing the technical aspects of interconnecting new generation (system impacts, needed upgrades, etc.)
 - Establishing costs of system upgrades and interconnection facilities necessary for bringing the generating facility online
 - Establishing rules for prioritization of interconnection rights and allocation of costs



BPA's Interconnection Studies

Interconnection Technical Studies

- The Three Study Stages:
 - Feasibility Study (FES):
 - Can it be connected to one of these POIs? (agreed at Scoping meeting)
 - Early approximation of what it might take to achieve the interconnection, and ballpark estimates.
 - Interconnection System Impact Study (ISIS):
 - Choosing a single POI, what overloads or other transient problems would the project cause; and what would it take to mitigate them?
 - Facilities Study (FAS):
 - In detail from the ISIS, what facilities need to be constructed and how much would they cost? Scoping and preliminary engineering

BPA's Environmental Requirements

BPA's Interconnections:

- BPA must comply with the following:
 - The National Environmental Policy Act (NEPA), the National Historic Preservation Act (NHPA), and the Endangered Species Act (ESA) require federal agencies to consider the potential environmental effects of proposed projects before making a decision to fund, approve, or implement an action
 - <https://www.bpa.gov/efw/Analysis/NEPADocuments/Pages/Types-of-NEPA-Documents.aspx>
- Environmental analysis starts with the Facility Study
- BPA will not complete environmental Record of Decision until developer's site permitting or certification is complete

NEPA analyses:

CX = Categorical Exclusion

- Four weeks to six months after developer's permitting is complete

EA = Environmental analysis

- Six months to eighteen months after developer's permitting is complete

EIS = Environmental Impact Statement

- A year to three years after developer's permitting is complete

Developer pays for costs. Costs can have a large range.

Interconnections and NEPA

- With limited exceptions, no action may be taken on a proposal until it has been the subject of a CX or an EA showing that no EIS is necessary.
 - If an EA is determined, it can result in a finding of no significant impact (FONSI) memo or a recommendation to prepare an EIS.
 - If an EIS is determined, it produces a Record of Decision (ROD) documenting the BPA Administrator's decision on the action.
 - If a CX is determined, a CX memo is completed.
- NEPA completion:
 - Required for BPA to offer a LGIA and SGIA
 - Still required but not required to be completed in order for BPA to offer a construction agreement for line and load interconnections.

BPA's Generation Interconnection Queue

Active GI Requests in BPA's Interconnection Queue at December 31, 2018

GI Snapshot 12/31/2018	RECEIVED, IN STUDY		STUDY COMPLETED		TOTAL ACTIVE	
	Sum of Requests	Sum of MW	Sum of Requests	Sum of MW	Total Requests	Total MW
Biofueled			1	28	1	28
Energy Storage	6	2,649			6	2,649
Geothermal			1	+ 45	1	45
Hydro	4	858	2	645	6	1,503
Natural Gas	1	1,100	1	410	2	1,510
Solar	41	3,940	5	180	46	4,120
Wave	1	20			1	20
Wind	12	3,513	20	4,646	32	8,159
Grand Total	65	12,080	30	5,954	95	18,034

Projects in the Line and Load Queue

- Substation Terminal Additions
- Transmission Line Taps or Loop-ins
- Merchant Transmission Line Interconnection
- Metering Additions



Line and Load Stats

- Line/Load Interconnection Requests are received from three customer classes:
 - Network Transmission customers (90%)
 - Point to Point Transmission customers (5%)
 - Merchant Transmission Line Developers (5%)
- 49 active requests in study status
- Most interconnections serve load growth, i.e. a new Point Of Interconnection (POI) or a new large load.
- Interconnections are typically inside a BPA substation or a tap on a BPA line.

Customer Perspective and BPA process

- First 110 – 200 days (~3.5 - 7 months for interconnections)
 - Customer Meetings, Agreements and Studies
 - Customer deliverables
 - Customer Meetings
 - Feasibility Study
 - System Impact Study
 - Typical Estimate
 - Plan of Service Offered
 - Typical Project Schedule Proposed



Customer Perspective and BPA process



- Next 190 – 790 days (~6 months – 26 months)
 - Customer Meetings, Agreements and Preliminary Engineering
 - Customer Meeting #3
 - Preliminary Engineering/Scoping initiated internally
 - Environmental/NEPA process begins
 - Facilities Study begins
 - Site Visit
 - Customer feedback important

Customer Perspective and BPA process

- At the end of the 190 – 790 days and before design is approved to proceed internally (~3-4 months)
 - Facilities Study completed
 - Project Schedule Commitment
 - Finalized project cost estimate(s)
 - Engineering & Procurement offered for GI requests
 - Construction Agreement may be offered for LLI requests
 - Long term transmissions credit agreement for LLI's
 - Contract bid process is initiated



Customer Perspective and BPA process

- What comes next!
 - Design Activities begin and NEPA is completed (~150 - 350 days)
 - Once design and NEPA are completed
 - A LGI or SGI agreements are offered and if a construction agreement for a LLI was not offered yet, it's offered here.
 - Construction activities begin (~ 420 – 900 days)
 - Project Closeout (~30 – 90 days)
- Total project timeframe range 900 – 2330 days (ie. 3 – 6.5 years)