

Generator Interconnection Process

Wholesale Transmission Cluster Study Process (CSP)



This presentation summarizes the FERC-approved Generator Interconnection Procedures (GIP) in Appendix Y of the California Independent System Operator (CAISO) Tariff dated January 11, 2012. Information in subsequent versions of Appendix Y may supersede the information herein, so you should check the CAISO website (<http://caiso.com/rules/Pages/Regulatory/TariffArchive/Default.aspx>) for updates. The presentation does not replace the tariff. PG&E advises customers to become familiar with the tariff and use this presentation only as a supplement to it.



Generation Interconnection Services

Updated: September 18, 2012

Cluster Study Process (CSP) Definition

A CSP evaluates a group of interconnection requests collectively. CSP Phase I and Phase II engineering studies identify distribution and reliability network issues or upgrades required to mitigate thermal overloads and voltage violations and address short-circuit, stability, and other reliability issues.

Geographically and electrically related interconnection requests are processed together to speed engineering studies, reduce costs and increase planning efficiencies.



Overview of Wholesale Transmission Cluster Study Process ⁴



PG&E's transmission voltage level: 60 kV and higher

- **Governed by CAISO Tariff**
- **All applications must be submitted to CAISO**
- **This presentation supplements CAISO Tariff Appendix Y**



Cluster Study Process

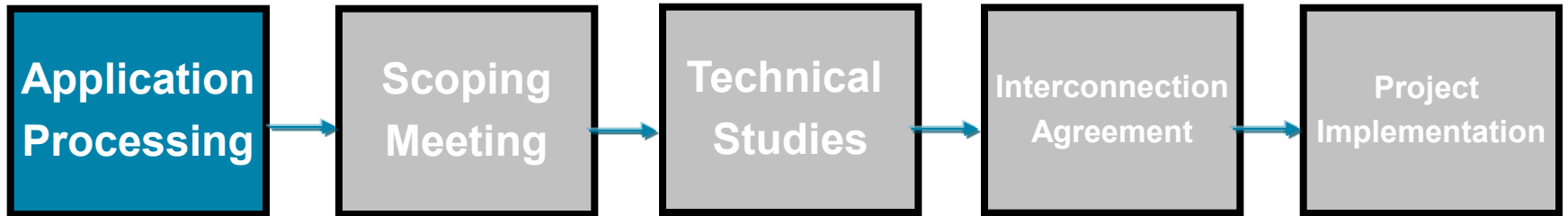
Tariff	Section 6 & 7
Cluster application window	See http://caiso.com/docs/2002/06/11/2002061110300427214.html
Application fee	\$50K plus \$1K/MW (max \$250K)

Study	Timing*	Fee
Phase I	134 CD	Included in app fee
Phase II	196 CD	Included in app fee

*Determined by CAISO CD – Calendar Day



Transmission Interconnection Application



The Transmission Interconnection Request form on the CAISO website under “Study Process” at

<http://caiso.com/docs/2002/06/11/2002061110300427214.html>



Complete Application



Transmission interconnections

- Completed application
- Site plan diagram
- Single-Line Diagram
- \$50K plus \$1K/MW (\$250K max) application fee
- Site control or in-lieu financial security



Application Processing Timeline



Process Milestone	Duration	Responsible Party
Submit application	Clock start	Customer
Deem application complete or provide notice of outstanding items	10 BD	CAISO
Provide outstanding items	10 BD from deemed incomplete notification or 20 BD from close of application window	Customer
Notify customer of whether application is complete	5 BD after additional information is provided	CAISO
Deem application complete		CAISO

BD – Business Day



Scoping Meeting Purpose



Scoping meeting:

- Ensures common understanding of project
- Ensures customer understanding of generator interconnection process
- Secures agreement on point of interconnection and generator size
- Advises which process (Independent, Fast Track or Cluster study) customer qualifies for and study to be conducted
- Determines next steps

Three business days after scoping meeting, customer must confirm point of interconnection (POI) and generator size to CAISO



Scoping Meeting



Process Milestone	Duration	Responsible Party
Deem application complete	Clock start	CAISO
Schedule scoping meeting	5 BD	CAISO
Scoping meeting	Scheduled less than 60 CD from application window close	All parties
Designate and confirm point of interconnection	3 BD from scoping meeting	Customer
Tender Generator Interconnection Study Process Agreement (GISPA)	10 BD from customer confirmation of POI	CAISO

BD – Business Day CD – Calendar Day



Technical studies:

- Show impact of generation on CAISO-controlled electric grid
- Show capital improvements required to ensure safety, reliability and integrity of the CAISO-controlled grid:
 - Generator-specific facilities required for interconnection
 - Distribution upgrades to be triggered by cluster
 - Network upgrades to CAISO-controlled grid to be triggered by cluster
- Provide schedule and cost estimate for scope of capital improvements



Phase I Study



Process Milestone	Duration	Responsible Party
Scoping meeting	Clock start	CAISO
Execute GISPA	30 CD	Customer
Begin Phase I study	June 1*	CAISO
Provide Phase I study results	134 CD	CAISO
Initial posting	90 CD from Phase I study results	Customer
Phase I study results meeting	30 CD from Phase I study results	All parties

*Subject to change CD – Calendar Day



Phase II Study



Process Milestone	Duration	Responsible Party
Phase I study results meeting	Clock start	Both
Provide Appendix B (data form to be provided by the interconnection customer before Phase II interconnection study begins)	5 BD	Customer
Begin Phase II study	January 15*	CAISO
Provide Phase II study results	196 CD	CAISO
Post second posting	180 CD from Phase II study results	Customer
Phase II study results meeting	30 CD from Phase II study results	Both

*Subject to change BD – Business Day CD – Calendar Day



Interconnection Agreement



Small Generator Interconnection Agreement (SGIA) – 20 MW or less

Large Generator Interconnection Agreement (LGIA) – greater than 20 MW

CAISO GIA is a three-party agreement between CAISO, PG&E and interconnection customer

Process Milestone	Duration	Responsible Party
Provide final study results	Clock start	CAISO
Tender IA	30 CD from clock start	CAISO
Phase II Study Results Meeting	30 CD from study start	All parties
IA negotiated and agreed on	90 CD from clock start	All parties
Issue executable IA	15 BD from finalized IA	CAISO
All parties execute IA	ASAP	All parties
Post final posting	On or before start of construction	Customer

BD – Business Day CD – Calendar Day



- **Post-Interconnection Agreement, PG&E and customer engineer, design, procure and construct (EPC) electrical interconnection**
 - **PG&E designs/engineers capital improvements per Interconnection Agreement**
 - **Customer engineers electrical system on customer side of meter and any upgrades to be customer-built and deeded**
- **Post-EPC, PG&E, CAISO and customer coordinate a pre-parallel inspection and commissioning to achieve commercial operation**



Financial Security Postings

Posting Number	Posting Type	Posting Amount	Timing	Phase
Initial	Interconnection facilities	20% of interconnection facilities cost	90 CD	After Phase I
	Network upgrades	Lesser of 15% or \$20K/MW or \$7.5M (>20 MW only), but in no event less than \$50K (<20 MW) or less than \$500K (>20 MW)	90 CD	
Second	Interconnection facilities and distribution upgrades	30%	180 CD	After Phase II
	Network upgrades	Lesser of 30% or \$1M (<20 MW) or \$15M (>20 MW), but in no event less than \$100K (<20 MW) or \$500K (>20 MW)	180 CD	
Third	Interconnection facilities and distribution upgrades	100%	On or before start of construction	After Interconnection Agreement (acquisition of permits)
	Network upgrades	100%		

CD – Calendar Day



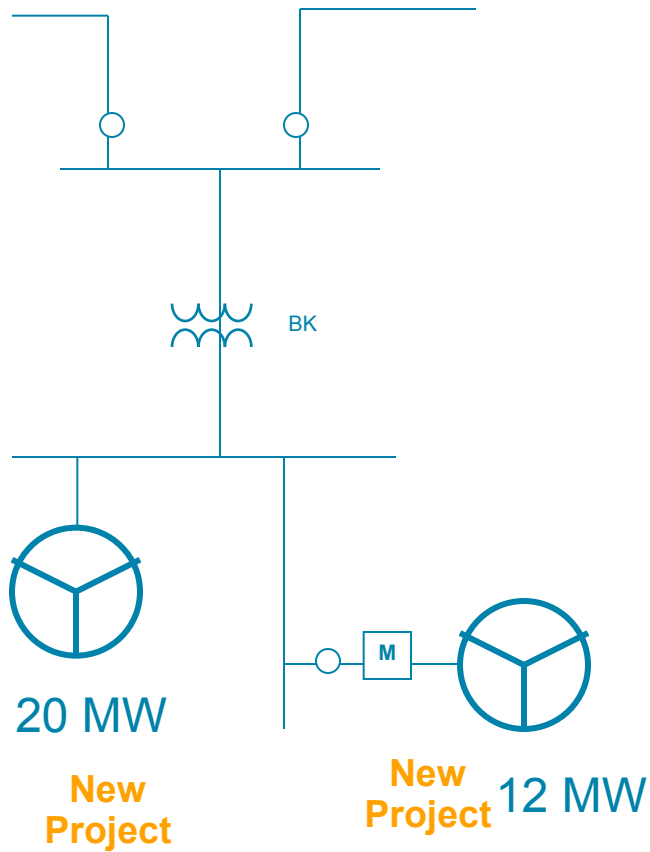
Financial Security Posting Instructions

The link below directs to the CAISO website, “Participating transmission owner financial security instruments/PG&E” which contains PG&E Letter of Credit documents and the PG&E Surety Bond:

<http://caiso.com/docs/2002/06/11/2002061110300427214.html>



Appendix 1: Clustering Methodology



Two or more requests for interconnection at a single substation that do not pass the Independent Study Electrical Independence Test will be studied together



Appendix 2: Transmission Cluster Schedule Summary

This diagram is for estimating purposes and assumes immediate customer response.

2011 (Monthly)												2012 (Monthly)												2013 (Monthly)											
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
		Queue Window	IR Validation	Scoping Mtg	Phase I Study					Results Mtg	Security	Phase II Study					IA	EPC																	

Thank You

**For more information please contact
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