California ISO
Shaping a Renewed Future

CAISO Current Generator Interconnection Procedures (GIP)

Robert Emmert
Lead, Interconnection Services

Renewable Distributed Energy Collaborative Workshop
March 3, 2011

The ISO revised its Generator Interconnection Procedures (GIP) in 2010

- ISO held a 9-month stakeholder process in 2010 to deal with mounting issues with the SGIP process
- Resulted in merging LGIP & SGIP processes into one GIP
- FERC approved tariff modifications effective 12/19/2010

GIP is a clustered 2-phase study process

- Annual interconnection request window every March
  - Early window in October (prior year) for early scoping meeting
  - $50,000 plus $1,000 per MW study deposit
- Projects grouped by location into cluster study groups
- Total study process takes 420 days
  - Down from 750 days
  - Includes 90 days for customer to decide to continue from Phase-1 to Phase-2
- Studies start in June of each year
- PTOs perform reliability network upgrade studies
- ISO performs deliverability network upgrade studies

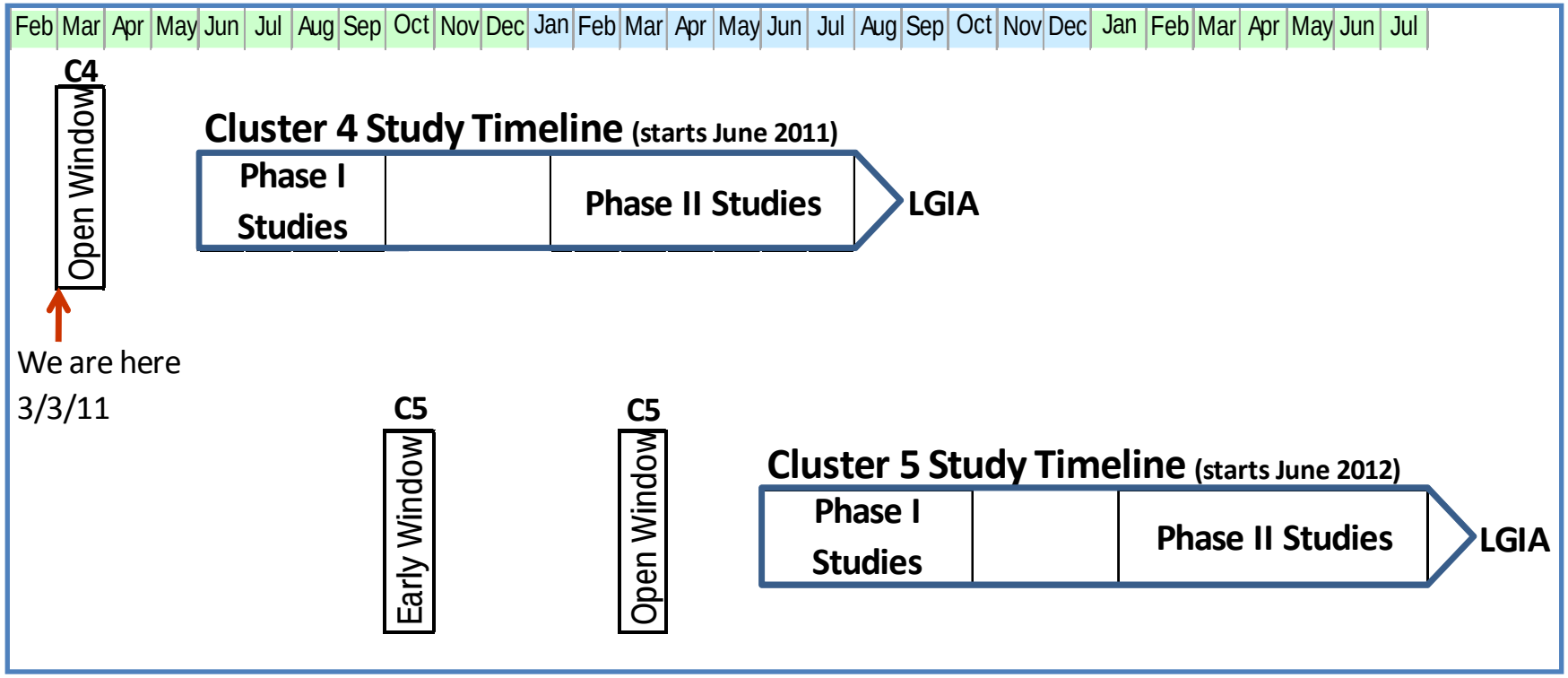
GIP Phase-1 study process

- Phase-1 determines
  - Required network upgrades for projects in cluster study group
  - Each customer's cost share of network upgrades
  - Required interconnection facilities and costs
  - Cost cap for network upgrades and interconnection facilities
- 90-days to post 1st interconnection financial security (IFS)

GIP Phase-2 study process

- Based on those projects that posted 1st IFS
- Phase-2 determines
  - Final network upgrades for projects in cluster study group
  - Each customer's cost share of network upgrades
  - Final interconnection facilities and costs
  - Operational date based on transmission upgrade completion
- 90-days to negotiate interconnection agreement
- 180-days to post 2nd IFS

GIP study process timeline



GIP Independent Study Process

- May apply any time of year
  - 240 calendar days study timeline
  - $50,000 plus $1,000 per MW study deposit
  - Energy only, can apply for full capacity in next cluster window
  - Project responsible for network upgrades
- Must demonstrate that standard process will not accommodate the desired COD
- Show desired COD is achievable, by demonstrating at least two of the following:
  - Has obtained, or demonstrated ability to obtain, all regulatory approvals and permits needed to meet the COD
  - Purchase order for specific generating equipment
  - Provide evidence of financing or financial resources to make IFS postings
- Must demonstrate Site Exclusivity
- Must demonstrate electrically independent from projects in Queue by:
  - Passing a Flow Impact Test
  - Passing a Short Circuit Test

GIP Fast Track Process

- May apply any time of year
- Generating Facilities no larger than 5 MW
- $500 non-refundable processing fee and $1,000 study deposit
- Energy-only deliverability status
- Must demonstrate site exclusivity
- Must pass 6 screens and no upgrades are reasonably anticipated
- Or, if fails the screens:
  - no upgrades are reasonably anticipated; and,
  - ISO & PTO determine that the facility may be interconnected safely, reliably, and consistent with power quality standards
- Moves directly into Small Generator Interconnection Agreement

Interconnection Financial Security Detail: Posting under the GIP

Project Size	First Posting (Due 90 days after phase I study complete)	Second Posting (Due 180 days after phase II study complete)	Third Posting (Due at start of construction)
20 MW or less	*Network Upgrades* Lesser of •15% of phase I study estimated network upgrade costs •$20,000 per MW (but not less than the lesser of $50,000, or the estimated cost of network upgrades) *PTO Interconnection Facilities* - 20% of estimated costs	*Network Upgrades* Lesser of •$ I million •30% of lower of phase I or phase II study estimated network upgrade costs (but not less than the lesser of $100,000, or the estimated cost of the network upgrades) *PTO Interconnection Facilities* - 30% of estimated costs	*Network Upgrades* 100% of lower of phase I or phase II study estimated network upgrade costs *PTO Interconnection Facilities* – 100% of estimated costs
Greater than 20MW	*Network Upgrades* Lesser of •$7.5 million •15% of Phase I estimated network upgrade costs •$20,000 per MW (but not less than the lesser of $50,000, or the estimated cost of network upgrades) *PTO Interconnection Facilities* - 20% of estimated costs	*Network Upgrades* Lesser of •$15 million (New Cap with this proposal) •30% of lower of phase I or phase II study estimated network upgrade costs (but not less than the lesser of $500,000, or the estimated cost of the network upgrades) *PTO Interconnection Facilities* - 30% of estimated costs	*Network Upgrades* 100% of lower of phase I or phase II study estimated network upgrade costs *PTO Interconnection Facilities* – 100% of estimated costs

ISO GIP 2 Process started March 3, 2011

- ISO will work with stakeholders to develop scope for GIP 2 initiative
- Straw proposal will be posted in April
- Resolved topics will be taken to ISO Board in August
- Unresolved topics and further refinements will be addressed in a GIP 3 stakeholder process

Very important to hear stakeholder opinion on how they see these topics and their relative importance. Asking stakeholders to "score" the importance of topics.

ISO has identified 12 topics that it considers high priority for GIP 2 and two to consider deferring to GIP 3.

Work Group #	Topic	ISO Considers High Priority	Consider Deferring
1	Economic test and cost allocation for network upgrades	✓	
1	IC cost and credit requirements when LGIP network upgrades are modified in transmission planning process	✓	
2	PTO per-unit cost estimation and methodology for allocating costs		
2	Generators interconnecting to non-PTO facilities in ISO BAA		
2	Triggers for financial security posting deadlines	✓	
2	Clarify definitions of start of construction and other transmission construction phases, and specify posting requirements at each milestone	✓	
2	Information provided by ISO		

Page 2 of 3

Work Group #	Topic	ISO Considers High Priority	Consider Deferring
3	Provisions for partial termination of an LGIA	✓	
3	Repayment of IC funding for network upgrades associated with a phased generation facility	✓	
3	Deliverability provisions for grandfathered resources transitioning to commercial status		
3	Clarify site exclusivity requirements for projects on federal land	✓	
4	Financial security requirements for PTO funded network upgrades	✓	
4	Revise ISO insurance requirements	✓	
4	Refinements to posting requirements for grandfathered generating units		
4	Standardize use of adjusted vs. non-adjusted dollars in LGIAs	✓	

Page 3 of 3

Work Group #	Topic	ISO Considers High Priority	Consider Deferring
5	Interconnection of energy storage devices and behind the meter expansion		
5	Conform technical requirements under LGIA	✓	
5	Revisit tariff requirements for off-peak deliverability assessment	✓	
5	Partial Deliverability as an interconnection option		
N/A	Include operation impacts in assessing generator interconnection impacts		✓
N/A	Revise provisions for transferring queue position to a new IC		✓

Generator Interconnection Procedures 2011 stakeholder process (GIP-2)

Issue Paper, presentation and other materials at:

- Caiso.com/Initiatives & Meetings/Generation Interconnection Procedures Phase II
- http://caiso.com/2b21/2b21a4fe115e0.html