

Forward Capacity Market (FCM)/ Generator Interconnection Process Stakeholder Group

Stakeholder Meeting No. 3

October 25, 2007

Sturbridge, MA

Agenda

Welcome and Introductions	10:00 – 10:15
Review of FERC Orders 2003/2006 and the Existing Generator Interconnection Process	10:15 – 12:00
Lunch	12:00 – 1:00
Review of FERC Orders 2003/2006 and the Existing Generator Interconnection Process (cont.)	1:00 – 1:45
FCM Qualification Interconnection Analysis	1:45 – 2:45
Closing Remarks and Adjournment	2:45 – 3:00

Future Meeting Dates in 2007

- Tuesday November 6 – Double Tree Hotel – Westborough, MA
 - Continue information sharing and process details
 - Identify key principles
- Tuesday November 27 – Double Tree Hotel – Westborough, MA
 - Wrap up information sharing and process details presentations
 - Agree on full set of key principles for alternative development
 - Focus on next steps in the process
- Friday December 14 – Mass Mutual Center – Springfield, MA
 - Continue next steps on how FCM and Queue can be better coordinated
 - Set up early 2008 meeting dates

Overview of Process

- ISO New England (ISO-NE), New England Conference of Public Utilities Commissioners (NECPUC) and New England Power Pool (NEPOOL) have agreed to engage in a stakeholder process to look for ways to improve the coordination between the requirements of the FCM and the current Federal Energy Regulatory Commission (FERC)-approved Generator Interconnection Process
- Information regarding this stakeholder process may be found at:

http://www.iso-ne.com/committees/comm_wkgrps/othr/fcm_gen/index.html

Generator Interconnection Process

David W. Forrest, Project Manager, System Planning

Three Aspects of Interconnecting a Generator

- Interconnection Process – leads to interconnection agreement
- I.3.9. Approval Process – leads to permission to operate interconnected to New England transmission system
- Market Process – leads to agreement on sale of generator's energy, capacity and ancillary services

FERC Pro-forma Interconnection Procedures

- Interconnections in New England – Schedules 22, Large Generator Interconnection Procedure (LGIP) / Large Generator Interconnection Agreement (LGIA), & 23, Small Generator Interconnection Procedure (SGIP) / Small Generator Interconnection Agreement (SGIA)
 - Applicability: FERC-jurisdictional facilities; wholesale sales
 - Interconnection Service: Minimum Interconnection Standard
 - Process: Defined timeline and studies; less flexibility regarding subordinate/optional studies
 - Interconnection Agreement: Pro forma, unless warranted by unique characteristics of the interconnection project
 - FERC has accepted changes to the procedures that facilitate interconnections
 - FERC has rejected changes that result in delay or limitations

Applicability of Interconnection Procedures (FERC or State Jurisdiction)

- FERC Orders 2003 (-A, -B, -C), 2006 (-A) and 661 (-A) provided standardized process for interconnections and new guidance on applicability
 - Orders address both large and small interconnection procedures
 - LGIP-Applicable to Large Generating Facility >20 MW
 - SGIP-Applicable to Small Generating Facility < or = 20 MW
 - Orders impact definitions of
 - Administered Transmission System
 - Interconnection Request

Administered Transmission System (ATS)

- Pool Transmission Facilities (PTF)
- Non-PTF
- MEPCO (Maine Electric Power Company) Transmission System
- Distribution facilities that are subject to the Tariff

An Interconnection Request is a Request to:

- Interconnect a new Generating Facility
- Increase the capacity of an existing Generating Facility that is interconnected with the Administered Transmission System
- Make a Material Modification to the design or operating characteristics of an existing unit
- An existing unit commencing participation in the New England Markets

Interconnection Request is NOT:

- A retail customer interconnecting a new Generating Facility that will produce electric energy to be consumed only on the retail customer's site
- A request to interconnect a new Generating Facility to a distribution facility that is subject to the Tariff if the Generating Facility will not be used to make wholesale sales of electricity in interstate commerce
- A request to interconnect a Qualifying Facility (QF) where the QF's owner's intent is to sell 100% of the QF's output to its interconnected electric utility

FERC Interconnection Process Topics

- Review and Process Interconnection Request
- Scoping Meeting
- Feasibility Study
- System Impact Study (SIS)
- Facilities Study
- Engineering & Procurement Agreement
- Optional Interconnection Study
- Re-Study
- Interconnection Agreement
- Managing the ISO-NE Queue

Review and Process Interconnection Request

- Interconnecting customer must provide
 - Generating Facility Capacity
 - Commercial Operation, Initial Synchronization and In-service Dates
 - Site Control
 - Deposit or Processing Fee
- Detailed technical data must be provided with Small Generator Interconnection Request
- Detailed technical data may be provided with executed Large Generator Study Agreement

Review and Process Interconnection Request (cont.)

- Large Generating Facility Deposit
 - \$10,000 with Site Control
 - \$20,000 without Site Control
- Small Generating Facility Deposit
 - \$1,000 study process deposit
 - For greater than 2 MW and
 - For 2 MW or less submitted under the study process
 - \$500 non-refundable processing fee for 2 MW or less submitted under Fast Track Process*
- Inverter-based facility no larger than 10 kW processing fee
 - \$100 non-refundable processing fee

* *Fast Track Process is for certified technologies for Small Generating Facilities that are 2 MW or less. Presently there are no certified technologies in the ISO-NE process.*

Scoping Meeting

- Attended by business and technical representatives of ISO-NE, Interconnection Customer, Interconnecting Transmission Owner, and Affected Parties
- Held within 30 days from receipt of valid Large Generator Interconnection Request
- Held within 10 days from receipt of valid Small Generator Interconnection Request
- Meetings have standard agendas

Scoping Meeting Agenda

- Introductions – **All**
- Goals of Meeting and Approval of Agenda – **All**
- Description of Generation and Interconnection Configuration – **[Developer]**
- Description of transmission and local distribution system including potential reliability issues or challenges such as over loads, voltage levels, short circuit current levels, stability, etc. – **[Interconnecting Transmission Owner, ISO-NE]**
- Discussion of existing studies that should be considered – **All**
- Discussion of Bulk Power System Criteria – **ISO-NE**
- Discussion of Minimum Interconnection Standard – **ISO-NE**
- Discussion of Feasibility Study versus System Impact Study – **ISO-NE**
- Discussion of who will be parties to the study agreement and how they should be listed – **All**
- Discussion of ISO-NE approval process (I.3.9) – **ISO-NE**
- Discussion of need to contact ISO-NE Customer Services about metering, communications circuits, remote access gateway (rig), financial assurance, paperwork, database updates, etc. – **ISO-NE**
- Discussion of project team members for each party and communication protocol – **ISO-NE**
- Discussion of low voltage ride through requirements – **ISO-NE** [Wind projects]
- Discussion of timeline for study – **All**
- Next Steps – **All**

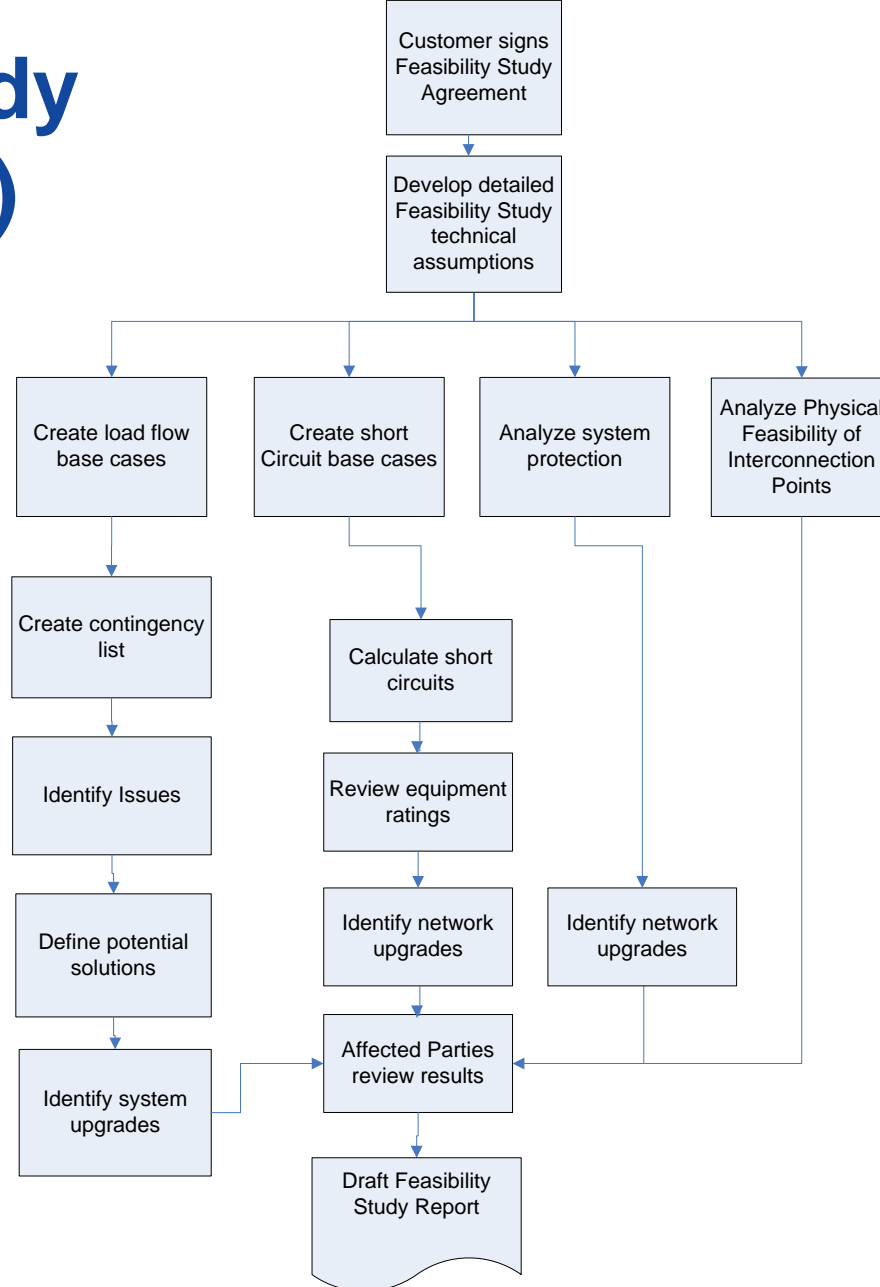
Scoping Meeting Action Items

- Interconnection Customer chooses to proceed with Feasibility Study or System Impact Study
- ISO-NE, Transmission Owners, and Affected Parties agree on who will perform various aspects of the study
- ISO-NE, Transmission Owners, and Affected Parties estimate study cost & timeline
- ISO-NE creates three-party study agreement
- Interconnection Customer executes study agreement within 30 days (Schedule 22) or 15 days (Schedule 23)

Feasibility Study Process

- Power flow, including thermal analysis and voltage analysis
- Short-circuit analysis
- Protection system assessment
- Physical feasibility of interconnection
- Good faith estimate of interconnection cost
- Good faith estimate of system upgrades
- Good faith estimate of time to construct interconnection facilities and system upgrades

Feasibility Study Process (cont.)



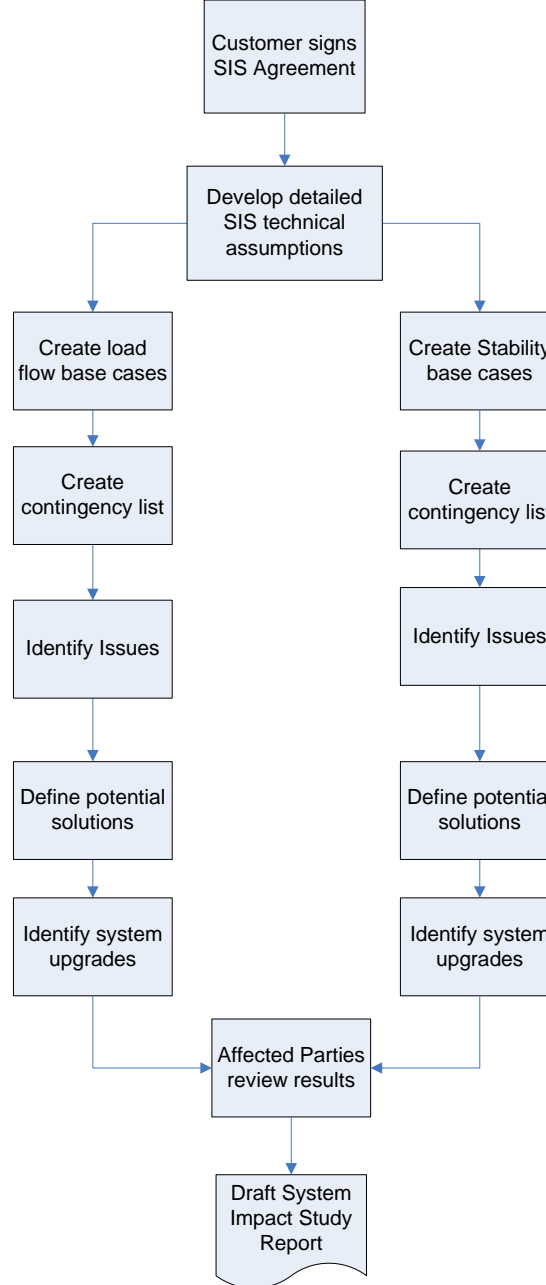
Feasibility Study Process (cont.)

- For Large Generator, Interconnection Customer provides initial deposit of \$10,000 and then monthly deposits for study work in upcoming month
- For Small Generator Interconnection, Customer provides deposit of 50% of study cost and pays balance upon completion of study
- Study report is available to authorized parties when presented to Interconnection Customer
- Study results meeting must be held within 10 days of draft report being provided to Interconnection Customer for Large Generator

System Impact Study Process

- Feasibility Study could be included as first step of System Impact Study
- System Impact Study includes Feasibility Study, if not done separately, stability analysis and determination of Bulk Power System (BPS) status
- Small Generating Facility System Impact Study may have separate transmission and distribution studies

System Impact Study Process (cont.)



System Impact Study Process (cont.)

- For Large Generator, Interconnection Customer provides initial deposit of \$50,000 then monthly deposits for study work in upcoming month
- For Small Generator Interconnection, Customer provides deposit of 100% of a distribution study and 50% of a transmission study cost. The balance is paid upon completion of study
- Study report is available to authorized parties when presented to Interconnection Customer
- Study results meeting must be held within 10 days of draft report being provided to Interconnection Customer for Large Generator

Facilities Study Process

- The Facilities Study specifies and estimates the cost of the equipment, engineering, procurement, and construction work needed to implement the conclusion of System Impact Study
- Facilities Study may be waived
- If waived, Interconnecting Transmission Owner approval of engineering of Interconnection Facilities becomes a milestone in the Interconnection Agreement

Facilities Study Process (cont.)

- For Large Generator, Interconnection Customer provides initial deposit of \$100,000 then monthly deposits for study work in upcoming month
- For Small Generator Interconnection, Customer provides deposit equal to the study cost
- Study report is available to authorized parties when presented to Interconnection Customer
- Study results meeting must be held within 10 days of draft report being provided to Interconnection Customer for Large Generator

Engineering & Procurement Agreement

- Interconnection Customer, who is interconnecting a Large Generating Facility, may request an Engineering & Procurement (E&P) Agreement to accelerate its project
- The E&P Agreement is a two-party agreement between the Interconnection Customer and the Transmission Owner

Optional Study

- Interconnection Customer, who is interconnecting a Large Generating Facility, may request an Optional Interconnection Study
- Interconnection Customer specifies which Interconnection Requests, with earlier queue priority, will be excluded from the study
- Optional Interconnection Study may only be requested after the SIS has been completed and no later than five days after the SIS results meeting
- Optional Interconnection Study provides system upgrade cost assuming some earlier queued projects are not completed
- The Optional Interconnection Study will be at the cost of the Interconnection Customer

Re-Study

- If a higher queued project drops out the queue or is modified, the project may have to be re-studied
- The re-study will be at the cost of the Interconnection Customer

Interconnection Agreement

- The FERC rules contain pro-forma Interconnection Agreements for Large and Small Generating Facilities
- FERC must approve any changes to the body of these agreements
- Project specific information is included in appendices
- Large Generator Interconnection Agreement is Appendix 6 to Schedule 22
- Small Generator Interconnection Agreement is Exhibit 1 to Schedules 23

Interconnection Agreement (cont.)

- Contains sections on
 - Scope and Limitations of Agreement
 - Inspection, Testing, Authorization, and Right of Access
 - Effective Date, Term, Termination, and Disconnection
 - Cost Responsibility for Interconnection Facilities and Distribution Upgrades
 - Cost Responsibility for Network Upgrades
 - Billing, Payment, Milestones, and Financial Security
 - Assignment, Liability, Indemnity, Force Majeure, Consequential Damages, and Default
 - Confidentiality
 - Disputes & Taxes
 - Notices

Managing the ISO-NE Queue

- Queue is a spreadsheet included on the ISO-NE website http://www.iso-ne.com/genrtion_resrcs/nwgen_inter/status/index.html
- Queue has one sheet for active projects connecting to the Administered Transmission System
- Queue has one sheet for active projects connecting to distribution systems in the ISO-NE area or nearby transmission systems
- Queue has one sheet for projects that are commercial
- Queue has one sheet for projects that are withdrawn

Managing the ISO-NE Queue (cont.)

- Queue contains valid requests in the New England Control Area in the order established based upon the date and time of receipt of such requests by the ISO-NE
- Interconnection Requests
- Requests for Elective Transmission Upgrades
- Requests for transmission service
- Requests for interconnection to other electric systems, as notified by the other electric systems, that impact the Administered Transmission System
- Queue contains all requests under FERC jurisdiction
- Queue contains generators under state jurisdiction that are 5 MW or more

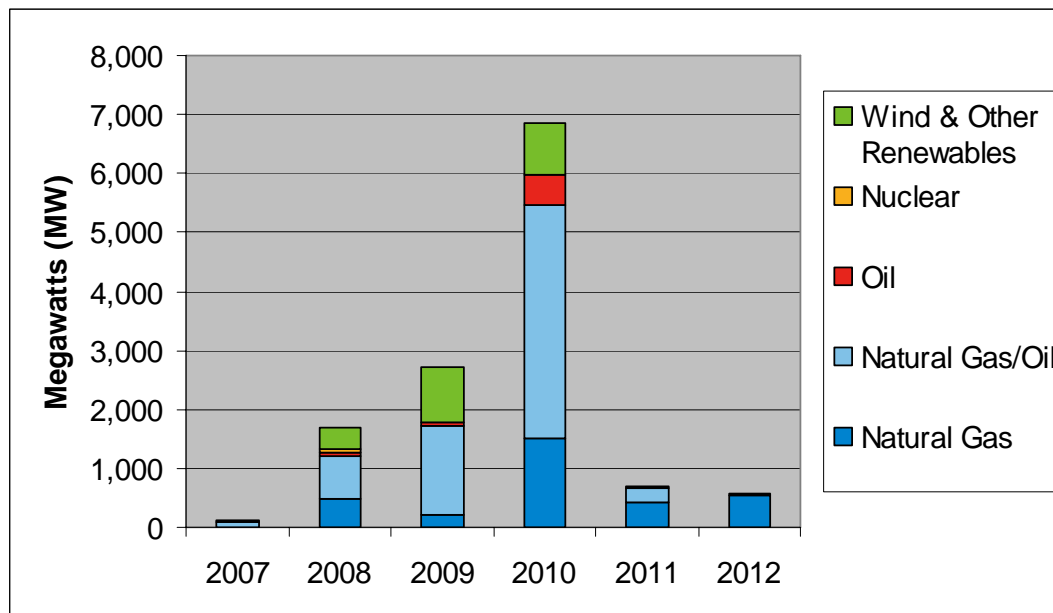
Managing the ISO-NE Queue (cont.)

- As of 10/1, the queue contains 102 projects
 - 12 in scoping process
 - 30 in Feasibility Study process
 - 28 in SIS process
 - 2 in Facility Study process
 - 5 negotiating Interconnection Agreements
 - 9 with signed Interconnection Agreements
 - 16 connecting to distribution

Managing the ISO-NE Queue (cont.)

- As of 10/1/07, the queue contains 102 projects
 - 4 that are 500 MW or larger
 - 4 that are 400-499 MW
 - 6 that are 300-399 MW
 - 7 that are 200-299 MW
 - 17 that are 100-199 MW
 - 18 that are 50-99 MW
 - 46 that are 49 MW or less this includes all 16 projects connecting to distribution

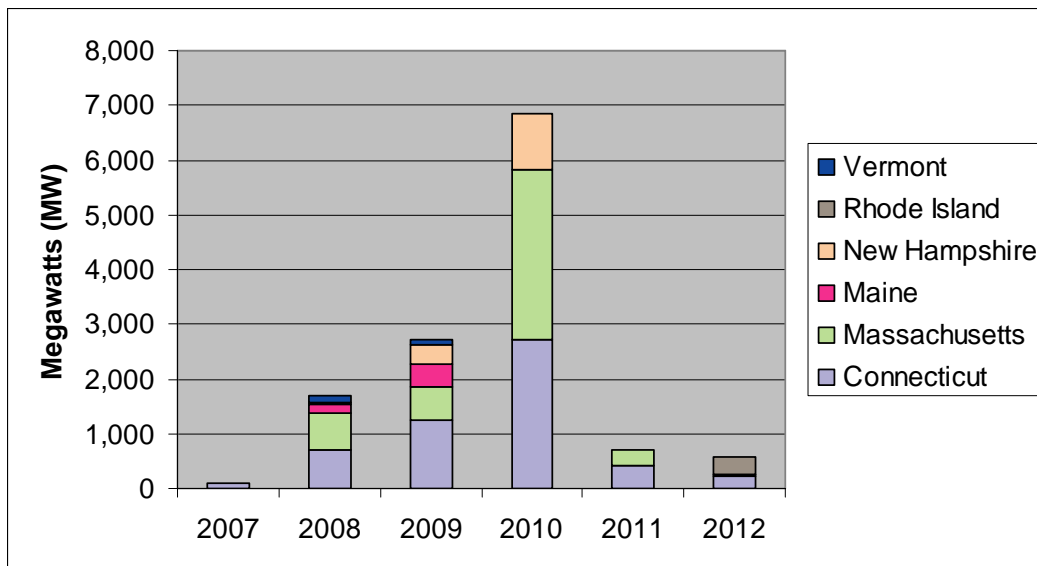
Actual and Projected Annual Capacity Additions By Fuel Type



	2007	2008	2009	2010	2011	2012	Total	% of Total
Wind & Other Renewables	9	361	921	880	43	43	2,257	17.8
Nuclear	0	70	0	0	0	0	70	0.6
Oil	0	54	78	491	0	0	623	4.9
Natural Gas/Oil	89	736	1,512	3,972	244	0	6,553	51.8
Natural Gas	13	479	204	1,507	411	543	3,157	24.9
Totals	111	1,700	2,715	6,850	698	586	12,660	100.0

Note: To date, approximately 100 MW of new generation has gone into service in 2007. An additional 15 MW is projected to be in commercial operation by the end of the year.

Actual and Projected Annual Capacity Additions By State



	2007	2008	2009	2010	2011	2012	Total	% of Total
Vermont	0	140	82	6	0	0	228	1.8
Rhode Island	0	0	0	0	0	320	320	2.5
New Hampshire	0	24	350	1,031	0	0	1,405	11.1
Maine	0	150	442	0	0	0	592	4.7
Massachusetts	9	680	603	3,097	287	43	4,719	37.3
Connecticut	102	706	1,238	2,716	411	223	5,396	42.6
Totals	111	1,700	2,715	6,850	698	586	12,660	100.0

Note: To date, approximately 100 MW of new generation has gone into service in 2007. An additional 15 MW is projected to be in commercial operation by the end of the year.

Material Modification

- Except as expressly provided in Section 4.4.1 of Schedule 22 for Large Generating Facilities, modifications to Large or Small Generating Facilities
 - Modifications, requested by the Interconnection Customer to the technical data that they provided, that either require significant additional study of the same Interconnection Request and could substantially change the interconnection design; or have a material impact on the cost or timing of any Interconnection Studies or upgrades associated with an Interconnection Request with a later queue priority date
 - A change to the design or operating characteristics of an existing Generating Facility that is interconnected with the Administered Transmission System which **may** have a significant adverse effect on the reliability or operating characteristics of the New England Transmission System
 - A delay to the Commercial Operation Date, In-Service Date, or Initial Synchronization Date of greater than three (3) years where the reason for delay is unrelated to construction schedules or permitting which is beyond the Interconnection Customer's control

Minimum Interconnection Standard

- Details in PP 5-6
- Minimizes system upgrades required for new generators
- Assumes generators will compete for transmission system access via their energy bids
- Example: gas turbines connecting at Middletown substation in Connecticut (#160 and #161) were studied assuming that existing generation at that bus was turned off when the new generation is turned on
- Generators connected under MIS may or may not be eligible for FCM payments

Clustering

- At ISO-NE's option, Interconnection Requests may be studied serially or in clusters for the purpose of the Interconnection System Impact Study
- ISO-NE studies projects serially because there is no process in place to utilize clusters
- Under the ISO-NE procedure, one study that impacts a specific portion of the transmission system must be completed before a second study affecting the same portion is started
- Under Clustering, all Interconnection Requests received within a fixed period of time are studied together
- Rules and procedures for clustering need to be developed. This is an area for possible linkage with FCM

Wind Generation

- FERC issued rules to encourage the development of wind generation
 - Specific low voltage ride through capability
 - Maintain power factor of .95 leading to .95 lagging if shown SIS indicates needed to maintain safety or reliability
 - Provide detailed electrical design up to six months after submitting the Interconnection Request

I.3.9 Approval Process

David W. Forrest, Project Manager, System Planning

I.3.9 Approval Process

- Peer review process to ensure generator or transmission project has no significant adverse impact on reliability
- Transmission and Stability Task Forces review studies and make recommendations to NEPOOL Reliability Committee (RC)
- RC makes recommendation to ISO-NE
- ISO-NE issues letter stating project has no adverse impact

I.3.9 Approval Process (cont.)

- Generator or Transmission Owner makes a Proposed Plan Application (PPA) after System Impact Study is complete
- Generating Facilities 5 MW or less only required to notify ISO-NE and the RC

Market Process

David W. Forrest, Project Manager, System Planning

Market Process

- Requirements to participate in a market include metering, communication circuits, financial assurances, etc.
- Energy Market-Settlement only
 - Less than or equal to 5 MW
 - No day ahead or real time scheduling
 - Receive real time zonal price
- Energy Market – Energy Management System (EMS) Unit
- Capacity Market
- Locational Forward reserve – 10 min. & 30 min.
- Black start
- Voltage Amperes Reactive (VAR)
- Regulation (Automatic Generation Control)

Interconnection Process for Generators Under State Jurisdiction

John Morissette, Supervisor Distributed Resources
Connecticut Light and Power Company

Public Act 05-01

- Distributed Generation (DG)
 - \$450/kW, \$500/kW Southwest Connecticut (prior to April 30, 2008)
 - Rebate of gas distribution charge
 - Reduced back-up electric rates
- Emergency Generation - terminated as of July 25, 2007
 - \$200/kW, \$250/kW Southwest Connecticut (prior to April 30, 2008)
 - Must enroll in ISO-NE Demand Response Program

DG Grant Status
April 2006 through October 18, 2007

	Number of Projects	Total Capacity (MW)	Awarded Capacity (MW)	Customer Grants (\$M)
Final Decisions	119	204	159	\$57.2
Draft Decisions	13	15	13	\$ 5.7
No Decision	57	58	-	-
Total	189	277	172	\$62.9

State Interconnection Process

- The Connecticut Light and Power Company (CL&P) and The United Illuminating (UI) Company collaborated to review and update the existing Generator Interconnection Guidelines
- Reconciled differences between the CL&P-UI Guidelines, adopted in 2004, and the FERC Small Generation Interconnection Standards and Energy Policy Act of 2005
- On July 10, 2007, filed the CL&P-UI Generator Guidelines in compliance with the Final Decision, in Docket 03-01-15
- Ensure successful ongoing support of the volume of Distributed Generator applications within tighter regulatory time limits
- Created CL&P-UI Generator Guidelines that meet or exceed national interconnection standards to allow for adoption as Connecticut State Guidelines for Electric Distribution Companies (EDC's) Interconnection Standards

State Interconnection Process

- Three ways to evaluate a request for interconnection
 1. Expedited process for Certified Inverter-Based, 10 kW and less
 2. The Fast Track Process for units no larger than 2 MW
 3. The Default Study Process that can be used by any project
- Federal jurisdiction over generators participating in wholesale markets which will be connected to a circuit already in use. First wholesale use of distribution circuit is State jurisdiction
- State jurisdiction over all other generators-load reducers, QF's, power export to EDC, etc.

Year	Photovoltaics	Non-Photovoltaics	Total
2006	103	34	137
2007	193	36	229

Aggregate DG Data Tracking Census for the Period Q2 2004 through Q1 2006 for all DG Applications Submitted to the Distribution Companies

Type of Review				
	All Applications		Approved Appl.	
	Count	kW	Count	kW
SIM	238	687	234	676
EXP	43	4,685	30	4,120
STD	47	52,885	12	15,406
Total	328	58,257	276	20,202

Fuel Source				
	All Applications		Approved Appl.	
	Count	kW	Count	kW
SOLAR	248	1,746	233	925
WIND	12	11,102	5	681
HYDRO	3	910	0	0
DIESEL	2	2,460	0	0
NG	58	29,554	36	13,735
OIL	0	0	0	0
COAL	1	4,000	1	4,000
BIODIESEL	2	80	0	0
BIOMASS	1	40	0	0
LANDFILL G	4	8,890	0	0
DIGEST G	0	0	0	0
ETHANOL	0	0	0	0
OTHER	1	861	1	861

Generator Type				
	All Applications		Approved Appl.	
	Count	kW	Count	kW
INV	259	1,770	243	949
IND	56	15,781	27	4,852
SYN	17	42,091	6	14,401

Prime Mover				
	All Applications		Approved Appl.	
	Count	kW	Count	kW
PV	248	1,746	233	925
IC ENG	61	20,080	32	4,791
MICRO TUR	0	0	0	0
GAS TUR	4	15,690	2	3,690
FUEL CELL	1	4	1	4
WIND TUR	12	11,102	5	681
STEAM TUR	3	10,111	3	10,111
OTHER	3	910	0	0

Service Type				
	All Applications		Approved Appl.	
	Count	kW	Count	kW
RADL	331	59,640	276	20,202
SPOT	0	0	0	0
AREA	1	3	0	0

Application Initially Complete?		
	Yes	No
SIM	219	19
EXP / STD	47	43

Review Fees and Costs*		
	Customer	Utility
SIM	N/A	\$ 16,650
EXP	\$ 17,745	\$ 7,050
STD	\$ 30,465	\$ 4,450

* Review Fees and Costs are only for the review of screens in the SIM and EXP Processes or the

Total Fees and Costs		
	Customer	Utility
SIM	N/A	\$ 30,300
EXP	\$ 7,230	\$ 17,391
STD	\$ 25,352	\$ 26,725

Issues

- Forward Capacity Market and Public Act 05-01

- Distributed Generation Definition

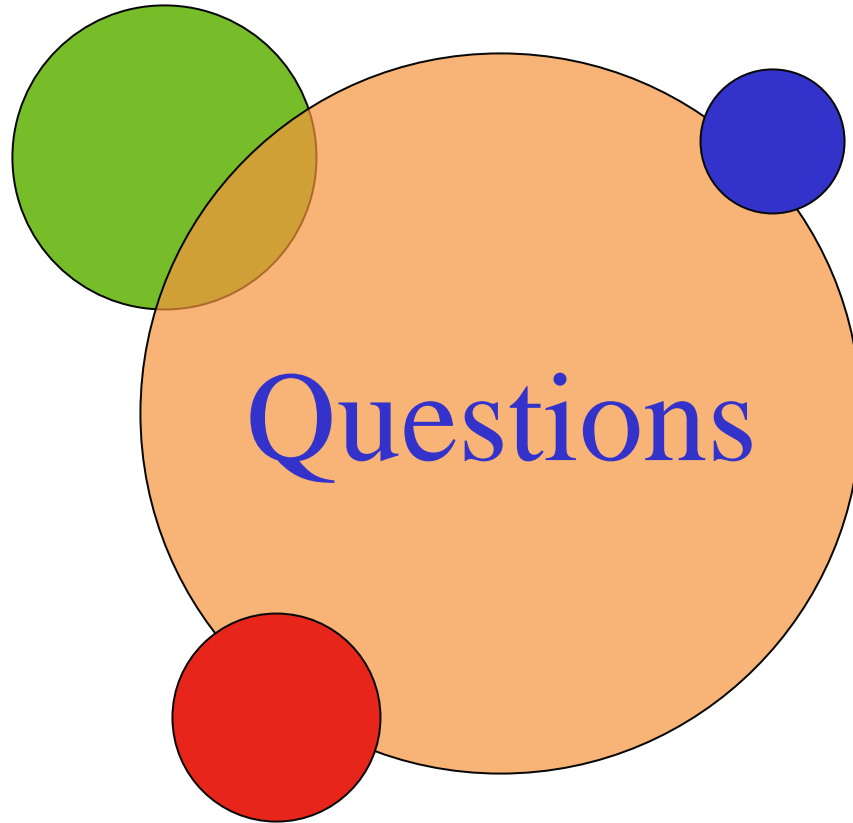
- “Distributed Generation” shall mean generation resources directly connected to end-use customer load and located behind the end-use customer’s billing meter, which reduce the amount of energy that would otherwise have been produced by other Capacity Resources on the electricity network in the New England Control Area during Demand Resource On-Peak Hours, Demand Resource Seasonal Peak Hours, Demand Resource Critical Peak Hours, Real-Time Demand Response Event Hours or Real-Time Emergency Generation Event Hours, provided that the aggregate nameplate capacity of the generation resource does not exceed 5 MW, or does not exceed the most recent annual non-coincident peak demand of the end-use metered customer at the location where the generation resource is directly connected, whichever is greater. Distributed resources are not eligible for energy payments from ISO-administered energy markets. Generation resources cannot participate in the Forward Capacity Market as Demand Resources, unless they meet the definition of Distributed Generation.

- Coordination of State Jurisdiction projects with ISO-NE process

- The EDCs responsible for Generator coordination with ISO-NE
 - Clear demarcation between Federal and State jurisdiction
 - Time frames governed by ISO-NE process
 - Generator ultimately responsible for the timeliness and data quality
 - Generator responsible for meeting all applicable ISO-NE requirements

References – FERC Filings and Orders on LGIP & SGIP

- November 10, 2005 – Separate LGIP & SGIP filings
- January 18, 2006 – Wind compliance filing
- February 15, 2006 – Separate LGIP & SGIP filings
- April 14, 2006 FERC Order on LGIP & SGIP filings
- May 15, 2006 LGIP & SGIP compliance filings
- June 1, 2006 LGIP & SGIP errata filings
- All available on ISO-NE website



FCM Qualification Interconnection Analysis

Al McBride

Principal Engineer, FCM and Tariff Administration

From the Settlement Agreement...

“While a full and completed System Impact Study is not a requirement to participate in the FCA, at a minimum, initial interconnection analysis is required. The ISO and the Reliability Committee shall work out specifics with respect to the performance of such initial interconnection analysis and selection criteria (including auction details) for multiple projects when only a subset of such projects can be selected in the FCA due to overlapping interconnections impacts”. SA II.B.3.c

Initial Interconnection Analysis

- ISO shall perform an initial interconnection analysis and shall determine the amount of capacity that the resource could provide
- Include, but not limited to, a power flow analysis and a short circuit analysis
- If the ISO determines that the interconnection facilities and upgrades identified can not be implemented before the start of the Capacity Commitment Period, the New Generating Capacity Resource's summer Qualified Capacity may be adjusted or the Resource may not qualify

Market Rule 1 - Section III.13.1.1.2.3

ISO-NE Planning Procedure 10

- Approved by the NEPOOL Participants Committee in September 2007
- Contains Procedures for the following
 - Base Case Development & Network Topology
 - Standard for Direct Connect Review
 - Standard for Initial Interconnection Analysis
 - Standard for Overlapping Impact Analysis
 - Guideline for determining if upgrades can be completed in time for the Commitment Period (Appendix F)

Direct Connect Review

- Ability to connect the resource to the point of common coupling (Interconnection Point)
- Focus is on cases of longer distances
 - Uncertainty of actual Interconnection Point
 - Right-of-way issues
 - Land Ownership Issues
 - Terrain/Obstacles
 - Permittability

Interconnection Analysis

- Assess the ability to interconnect by the start of the Capacity Commitment Period subject to a Minimum Interconnection Standard
 - Thermal Power Flow Analysis
 - Short Circuit Analysis
- Uses Large Generator Interconnection Procedure result whenever available
- For the FCM, if qualification is restricted due to Initial Interconnection Analysis, the threshold is
 - Where the upgrade(s) cannot be completed in time for the Commitment period
 - Where upgrades can be completed in time, the generator will be qualified and the generator will be responsible for the upgrades

Overlapping Impacts within FCM

- New Qualified Capacity must be incrementally useful – must provide an additional capacity benefit
- New Generation is analyzed for Overlapping Interconnection Impacts during qualification
- For the FCM, if qualification is restricted due to overlapping impacts, the threshold is
 - Where the upgrade(s) cannot be completed in time for the Commitment period
 - Where upgrades can be completed in time, the generator will be qualified and the generator will be responsible for the upgrades
 - If applicable the resource may be partially qualified to participate in the FCA up to the amount that the resource can operate without fixing the observed violations

Overlapping Impacts within FCM (cont.)

- Where multiple New Generating Resources cannot be selected because they overlap with each other
 - Interconnection Queue order is used to choose between the overlapping generators
 - For example, if the generator under study was the fifth in the Interconnection Queue, the generators that have a higher Interconnection Queue position that are seeking qualification for the Forward Capacity Auction will be included within the analysis
 - The new unit under study, will be responsible for those overloads within or neighboring the Load Zone to which it is electrically connected but will not be responsible for upgrading interfaces that form the boundaries between existing Load Zones
 - An ongoing, stakeholder process is underway to reevaluate the interaction of the generation Interconnection Queue and FCM Qualification

Initial Interconnection Analysis

- Analysis of New Capacity under FCM differs from the Interconnection Request (IR) process and does not bypass the LGIP/SGIP
- LGIP/SGIP is more time-consuming than Initial Interconnection Analysis and may identify problems/costs not revealed by Initial Interconnection Analysis
- All New Capacity must complete the LGIP/SGIP before becoming interconnected
- An LGIP/SGIP IR may be submitted at anytime before, during or after the FCM Qualification process
 - Submitting an IR earlier in the process will provide more detailed information to the Project Sponsor regarding necessary interconnection and network transmission upgrades and their cost

Initial Interconnection Analysis Compared with LGIP/SGIP Analysis

FCM Market Element	Interconnection Analysis under FCM	Potential System Impact Scope of Analysis Required before the project can Interconnect
New Generating Capacity – Never Previously Listed	<ul style="list-style-type: none"> • Thermal • Short-Circuit • Overlapping Interconnection Impacts • Identify Violations • Determination whether upgrades can be implemented in time for the Commitment Period 	<ul style="list-style-type: none"> • Thermal • Short-Circuit • Voltage • Stability • Identify Violations • Develop Solutions & Costs
New Generating Capacity – Capacity Addition to Existing Capacity	<ul style="list-style-type: none"> • Thermal • Short-Circuit • Overlapping Interconnection Impacts • Identify Violations • Determination whether upgrades can be implemented in time for the Commitment Period 	<ul style="list-style-type: none"> • Thermal, • Short-Circuit • Voltage • Stability • Identify Violations • Develop Solutions & Costs
New Generating Capacity – Re-powering Modification to Existing Capacity	<ul style="list-style-type: none"> • Thermal • Short-Circuit • Overlapping Interconnection Impacts • Identify Violations • Determination whether upgrades can be implemented in time for the Commitment Period 	<ul style="list-style-type: none"> • Thermal (if greater MW) • Short-Circuit • Voltage • Stability • Identify Violations • Develop Solutions & Costs
New Generating Capacity – Modifications to comply with Environmental Regulations	<ul style="list-style-type: none"> • None (provided no change in capacity or major electrical equipment) 	<ul style="list-style-type: none"> • None (provided no change in capacity or major electrical equipment)

