



# Interconnection Queue Proposed Clustering Methodology

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*Transmission Committee*

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SYSTEM PLANNING



# Project Title: Interconnection Queue Clustering

Proposed Effective Date: Q1 2017

- ISO New England is proposing to incorporate a clustering methodology in the Interconnection Procedures
- The proposed clustering methodology will allow, under specific circumstances, for two or more Interconnection Requests to be analyzed in the same System Impact Study (SIS) effort
- The Projects participating in a cluster would share cost responsibility for certain shared interconnection related transmission upgrades
- [Design description memo](#) issued to the Transmission Committee on September 20, 2016

# Background

- The ISO-NE Interconnection Queue has experienced a persistent backlog of requests to interconnect in northern & western Maine
- Elsewhere in New England, the Interconnection Queue has proceeded well
  - On average, system impact studies are completed within a year of the interconnection request
- All of the other ISOs/RTOs include some form of clustering in the interconnection process
  - Stakeholders have requested that ISO-NE investigate clustering
  - In response to an American Wind Energy Association petition, FERC held a technical conference regarding interconnection issues in May 2016



# Review of Clustering Methodologies

- Presented and discussed at the March & May 2016 Planning Advisory Committee (PAC) meetings
  - ISO-NE’s review of clustering methodologies used by other ISOs
    - NYISO, PJM, MISO, SPP & California ISO
  - “Targeted” clustering approaches
    - California Edison Tehachapi Renewable Transmission Project
    - Portland General Electric Company Cascade Project
  - ISO requested stakeholders share their experiences with clustering processes in other areas



# Observations & Considerations for Design

- ISO-NE does not want to introduce clustering in all circumstances
  - Overall the serial queue is working well
- What can cause clustering to fail?
  - If the ISO and Interconnection Customers embark on a cluster study with no idea of the potential outcome, customers can be surprised by the results of the study and then decide to withdraw
    - This triggers a re-study of the entire cluster
      - This can cause further surprises and additional withdrawals and further re-study



# ISO Proposal: Cluster Trigger

- A cluster approach will be triggered by ISO-NE's identification of the following circumstances in the ISO New England Interconnection Queue
  1. There must be a backlog of two or more requests in the same part of the ISO-NE transmission system
  2. ISO-NE must have identified that none of the applicable interconnection requests will be able to interconnect, either on an individual basis or as a cluster, without incurring significant transmission upgrades (such one or more 345 kV transmission line(s))
    - The 'significant transmission upgrades' shall be known as Cluster Enabling Transmission Upgrades (CETU)
- The ISO will announce and discuss the creation of a given cluster with the PAC through the Regional Planning Process



# ISO Proposal: Two-Phase Process

## Phase 1

- Identification of cluster study trigger
- CETU Regional Planning Study
- Conducted in the Regional Planning Process (Attachment K)
- Scope and results presented and discussed with PAC
- 12 months best-efforts to complete
  
- Study will identify:
  - CETU Description
  - MW Quantity enabled by the CETU
  - Approximate cost of CETU and associated supporting upgrades
  - Eligible Queue Positions

## Phase 2

- Cluster System Impact Study
- Conducted under the ISO Interconnection Procedures
- Cluster is filled in queue position order by eligible queue positions electing to participate
  
- Cluster Entry Requirements:
  - 5% Deposit of expected CETU and other upgrades cost allocation responsibility – forfeited upon withdrawal (unless all withdraw)
  - Site Control
  - All Data and Applications required for a system impact study

# ISO Proposal: Upgrade Cost Allocation

1. Direct allocation of direct-connect costs
  - e.g., the generator lead that would connect the generator to the CETU
2. CETUs will be allocated to each cluster project by MW ratio share
  - e.g., if a \$500 million CETU enables the interconnection of 500 MW of resources, then a 100 MW project in the cluster would be allocated a CETU contribution cost of \$100 million
3. Network upgrades (other than the CETU(s)) will be allocated to each project in the cluster by MW ratio share
  - e.g., if the re-conductoring of an existing line costs \$50 million and there are 500 MW of resources in the cluster, then a 100 MW project would be allocated a cost of \$10 million
4. All upgrade costs paid by Interconnection Customers
  - No regional or local rate-payer support for interconnection upgrades





# ISO Proposal: Withdrawal, Re-study, Backfill & Oversubscription

- Additional 5% Cluster Participation Deposit to move to the Interconnection Agreement phase
- Cluster Participation Deposit(s) forfeited upon withdrawal
  - Divided among remaining cluster participants on a per-MW basis
  - All deposits returned if everyone withdraws
- Cluster is re-studied if there is a withdrawal
  - Cost responsibilities updated
- Later-queued eligible projects can enter the cluster (backfill) if there is a withdrawal
- If a cluster is oversubscribed (more eligible projects remain in the queue than can ultimately be accommodated by the CETU), then another CETU Regional Planning Study would be commissioned at the PAC
  - First round of eligible projects proceed with the first CETU cluster study
  - Process is repeated for second round of eligible projects – with a second CETU cluster study

# DESIGN ELEMENTS DISCUSSION

# Why Does the Design Have Two Phases?

- The first phase (the CETU Regional Planning Study) provides a significant amount of information to Interconnection Customers regarding the likely outcome and cost of the cluster effort
  - Interconnection Customers can decide to move forward or not
- As a comparison:
  - The California ISO methodology also includes two primary phases – with increased commitment required to enter the second phase
  - The Tehachapi Renewable Transmission Project was effectively carried out in two phases
    - The first phase was conducted in the regional planning process
    - The second phase was conducted in the interconnection process

# Why is the Cluster Participation Deposit Required?

- The initial Cluster Participation Deposit is required to demonstrate commitment to proceeding towards interconnection
  - Because it will include more than one project, the cluster study is dependent on more than one project moving forward
    - Projects in the cluster need assurance that the other projects are also moving forward
    - Projects that do not move forward should not “block” later queued projects
- The additional Cluster Participation Deposit is required before entering the Interconnection Agreement phase so that there is reassurance of commitment to move forward before developing all of the Interconnection Agreement details
- Unless forfeited, the initial and additional Cluster Participation Deposit (including any additional reallocations) is returned following the payment of 100% cost responsibility deposit required by the Interconnection Agreement

# Why is the Upgrade Cost Allocation on a Per-MW Basis?

- The methodology hinges on “enabling” upgrades
  - None of the projects could interconnect without the enabling upgrades
  - The amount of generation that the upgrades can enable will be limited by MW
  - Each project would utilize the CETU(s) and associated upgrades on a MW basis

# Can Elective Transmission Upgrades Participate in the Cluster?

- Elective Transmission Upgrades (ETUs) can participate in the cluster in Queue Position order
  - External ETUs can be considered as eligible projects
  - Internal ETUs can be considered as eligible projects and/or potential CETU solutions



# What will not change?

- The current “default” serial interconnection process and cost allocation methodology will continue for all queue positions, unless they participate in a cluster
- The addition of the proposed cluster methodology in the Interconnection Procedures will not change the existing service products that result from the interconnection processes
  - Resources meeting the applicable procedural milestones will continue to be eligible to request and receive Network Resource Interconnection Service, or Network Import Capacity Interconnection Service in the case of eligible external ETUs, and Capacity Network Resource Interconnection Service, or Capacity Network Import Capacity Interconnection Service in the case of eligible external ETUs
- Finally, there will be no changes to the existing dispatch, market and OATT structures within the ISO-NE Tariff
  - No introduction of firm reservations, grandfathering or point-to-point rights over the any Pool Transmission Facilities, including those that are built/upgraded as a result of the cluster or serial SIS processes
  - Internal transmission facilities, regardless of categorization for rate purposes, will be operated and scheduled by the ISO without recognition of physical transmission right
  - No change to the FCM milestones or procedures
  - Requested CTRs and ARRr will be allocated for system upgrades as appropriate in accordance with existing rules

# What is the Proposed Transition?

- The current Maine Resource Integration Study will form the basis of the first cluster study
  - It will provide the:
    - CETU(s) Description
    - MW Quantity enabled by the CETU(s)
    - Approximate cost of CETU(s) and associated supporting upgrades
    - Eligible Queue Positions
  - Interconnection Requests in the interconnection queue located in the relevant portions of Northern and Western Maine that do not have a completed System Impact Study by the effective date of the clustering methodology will be considered as eligible resources
  - The CSIS entry deadline will be 30 Calendar Days after the later of the effective date of the rules or the completion of the Maine Resource Integration Study



# Tentative Stakeholder Schedule

- September 27 Transmission Committee
  - Present cluster design
- October 11 Transmission Committee
  - Further discussion of design
  - Any stakeholder alternatives
- October 26 & November 17 Transmission Committees
  - Tariff language
- December NEPOOL Participants Committee (Tentative)

# Questions

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