

Transmission Interconnections CCTC Infrastructure Meeting

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Transmission Owner Responsibilities

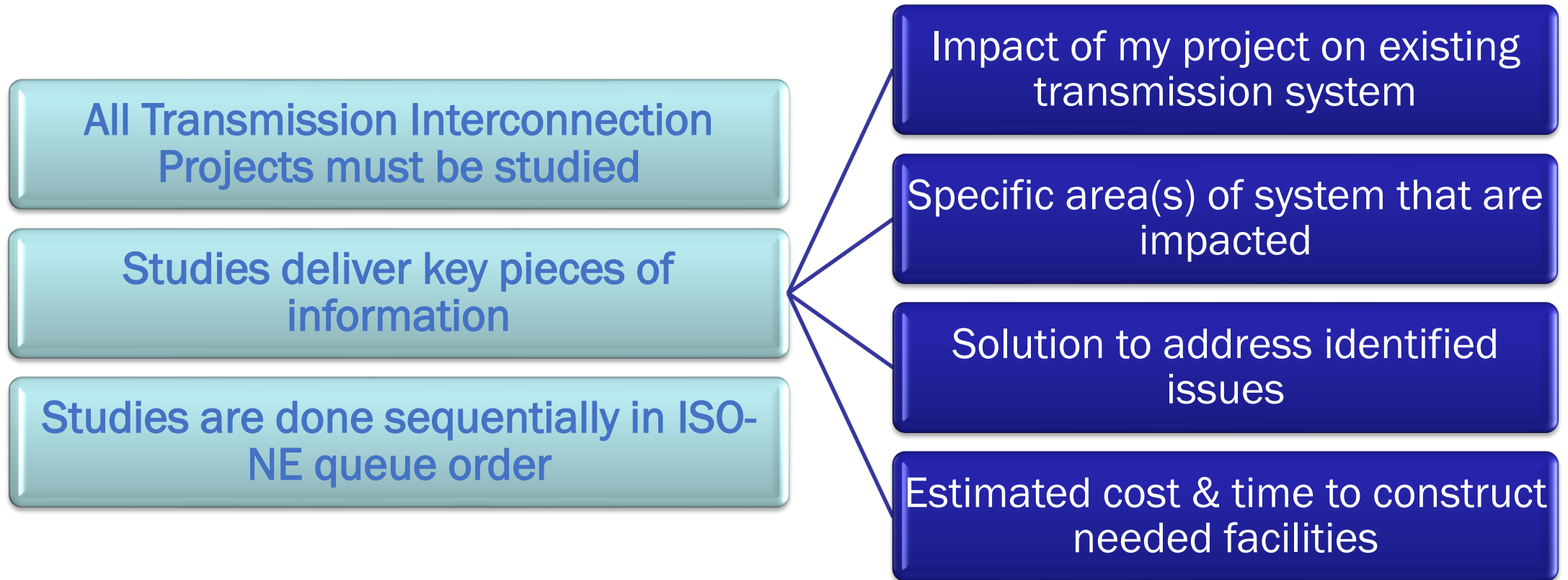


- Delivers reliable power from generation to retail customers
- Interconnects projects to the transmission system
- Complies with Tariff
(Established by FERC & ISO New England, Inc.)
- Enables renewable energy interconnections to the grid

Purpose of the Interconnection Process

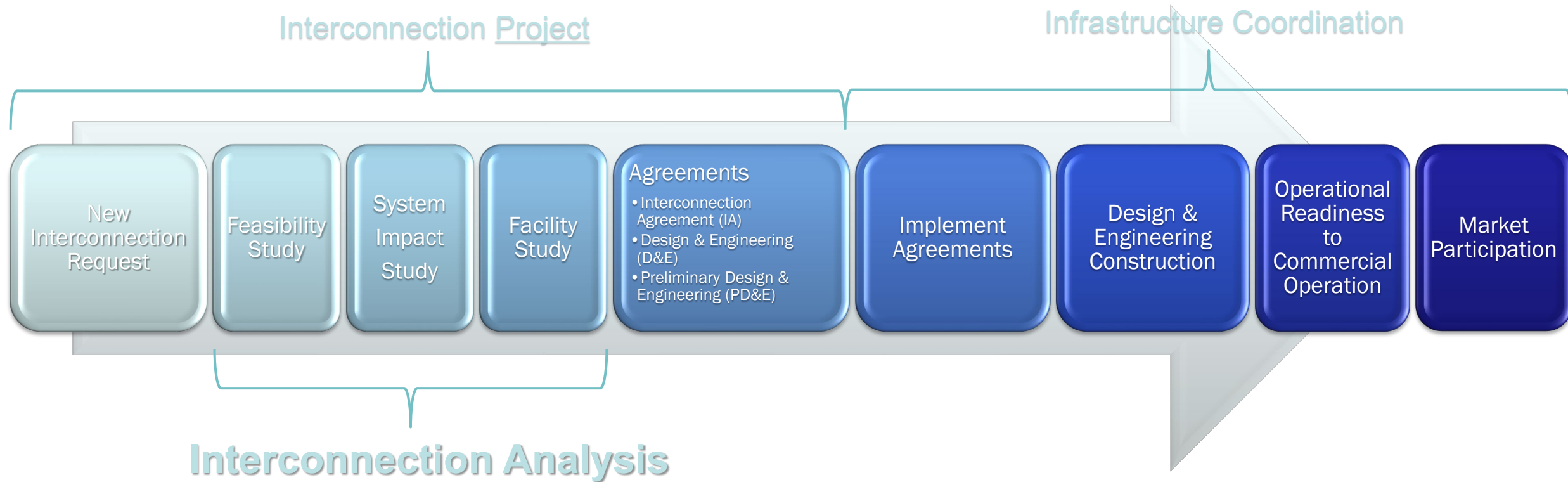
- Facilitate interconnection of new generation to ensure system reliability and generation deliverability to all New England load
- Guide developers through the process on a timely basis while maintaining fair and equal treatment between customers in accordance with the FERC approved Open Access Transmission Tariff (OATT)
 - Specifically, Schedules 22, 23 and 25 of the Tariff
 - **Result: Provide the cost to physically connect the generator to the transmission system along with all necessary network upgrades**

What to Study and Why?

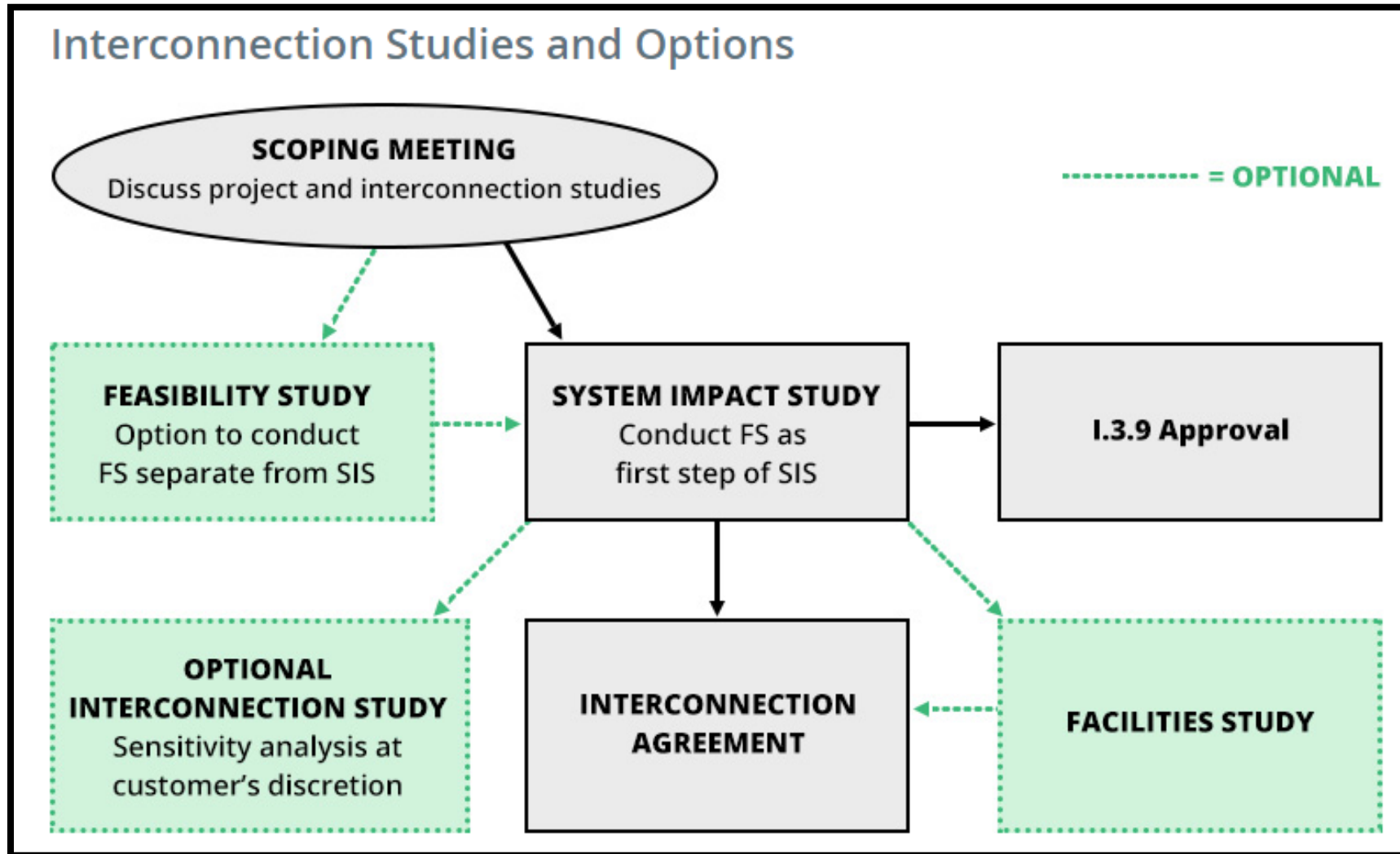


Developers pay ALL project costs, not rate payers

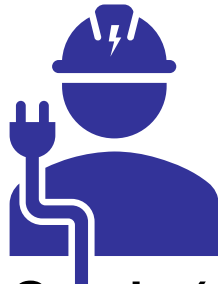
The Interconnection Process Steps



Interconnection Analysis Performed and Optional Studies



Interconnection Analysis Study Descriptions



Feasibility Study (Optional)

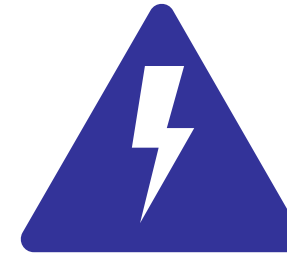
90 Days

Thermal and Voltage Analysis “Steady State”

Separate and distinct from System Impact Study

Report delivers findings and non-binding good faith estimate (-50%/+200%) and time to construct.

Results meeting with all involved parties upon completion.



System Impact Study (Required)

270 days

Thermal, Voltage, stability and protection requirement analysis.

Report delivers findings and non-binding good faith estimate (-50%/+200%) and time to construct.

Results meeting with all involved parties upon completion.

Interconnection Analysis Study Descriptions

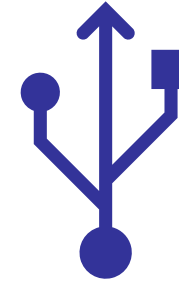


Facilities Study (Optional)

Goal is to obtain a more refined cost estimate.

If +/-20% accuracy, study is 90 days OR +/-10% 180 days.

TOs must complete nearly all engineering for this level of cost estimate! Typically, a very expensive study for this reason.



Optional Interconnection Study (Optional)

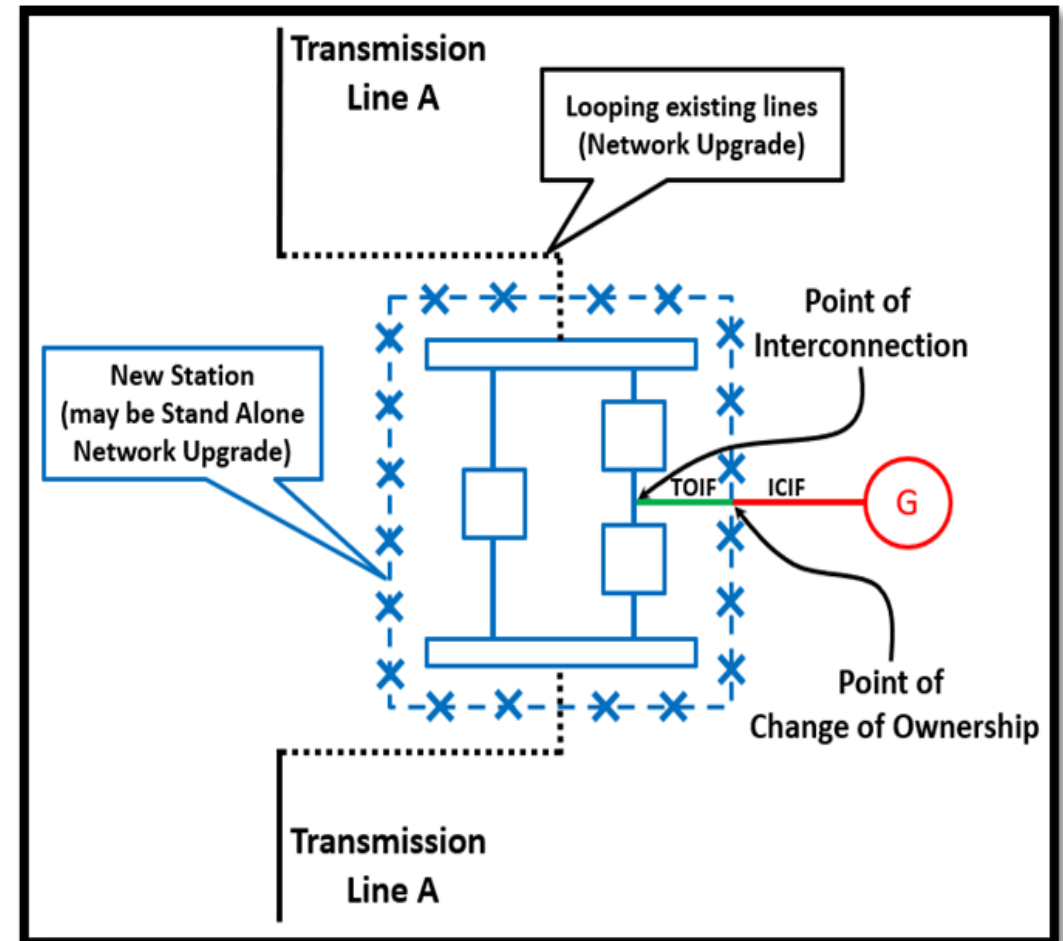
Allows developers to request a specific scenario for an additional study assessment.

Generally used to check sensitivity of a previously queued project being removed from the study base case.

Can also used as a what if sensitivity analysis.

Fundamental Key Terms which are identified in the Interconnection Agreement

- Key Pieces of an Interconnection
 - Point of Interconnection (POI)
 - Point of Change of Ownership (POCO)
 - Transmission Owner Interconnection Facilities (TOIF)
 - Interconnection Customer Interconnection Facilities (ICIF)
 - Operation and Maintenance (O&M)
 - Network Upgrades



Study Result: Interconnection Agreement

- An executed Interconnection Agreement or “IA” is required under tariff for a generator to interconnect to the power grid
- Draft is initiated by ISO-NE largely developed by the Transmission Owner and Interconnection Customer
- Three party agreement segmented into the proforma (body) and the appendices sections
- An IA is a legally binding document under the terms and conditions of the associated Tariff Schedule



Other Agreement that can be Executed with a Transmission Provider (TO)

- Design and Engineering Agreement (D&E) – Allowed under the Tariff for the TO and the IC to start or do specific work such as:
 - Begin Conceptual Engineering ahead of the IA.
 - Perform specific engineering tasks that might give the project optionality.
- Engineering and Procurement Agreement (E&P) - Allow under the Tariff and very similar to the D&E except this agreement operates under the intent that material will be procured. Often used to secure long lead equipment.
- Related Facilities Agreement (RFA) – Similar to an IA however is only between the Affected Party and the IC.
 - Affected Party – Neighboring utility that is not the primary TO but has impact and upgrades to their system.