

Step-By-Step Interconnection Introduction

AWEA Wind & Transmission Workshop

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Step-By-Step-Interconnection Introduction Outline

- FERC Order 2003 lays out standard procedure
- Step-By-Step Pro-Forma LGIP
- Interconnection backlogs form across nation
- FERC technical conference on queuing practice leads to individualized queue reform
- Metrics report on current status

FERC Order 2003

- Put in place a standard large generator interconnection procedure (LGIP)
- Also put in place a standard large generator interconnection agreement

Step-By-Step LGIP

- Interconnection Request
- Entry into Interconnection Queue
- Scoping Meeting
- Studies done serially in queue order
 - Feasibility Study
 - System Impact Study
 - Facility Study

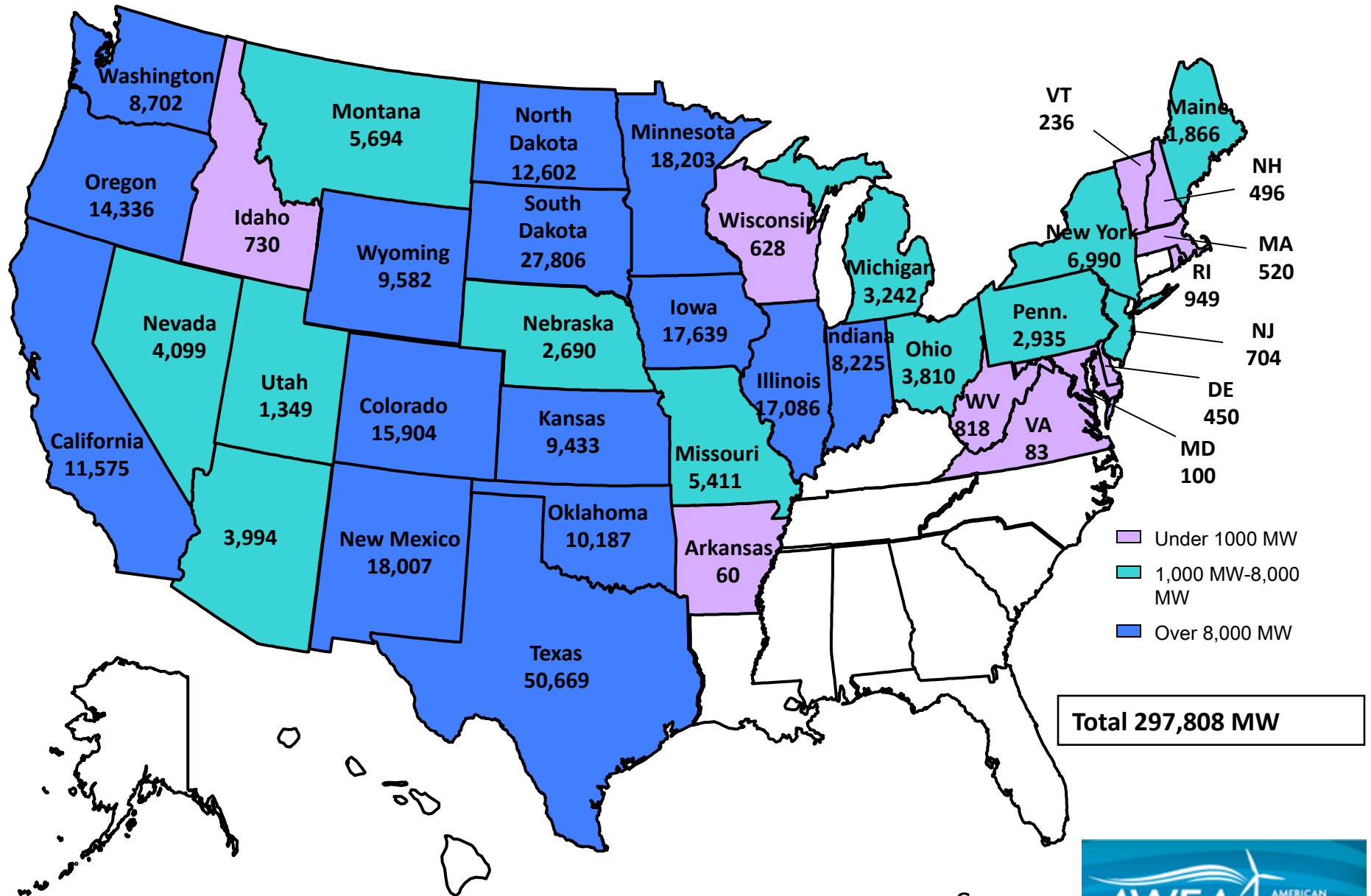
Step-By-Step LGIP

- Determination of required upgrades and cost responsibility
- Interconnection Agreement
- Construction

Interconnection Backlogs Form

- Surge in interconnection requests causes backlogs across the country
 - Particularly from wind, significant portion of requests
 - Wind turbine model availability
 - Control interactions
 - Upgrades required to connect remote wind
 - Most pronounced in organized markets
 - ISO's and RTO's

Wind Power in Queues As of March 2010 (MW)



Source:



FERC Technical Conference 2007 Interconnection Queuing Practices

- Required all RTO's and ISO's to file status reports on efforts to improve queue processing
- Allowed RTO's and ISO's to propose tailored solutions rather than imposing a single, standard queue reform

Metrics Report

- First annual ISO/RTO metrics report submitted to FERC December 2010
- Includes metrics related to interconnection
- Gov't Accountability Office has suggested similar metrics be developed/reported for non-RTO's/ISO's

Metrics Report

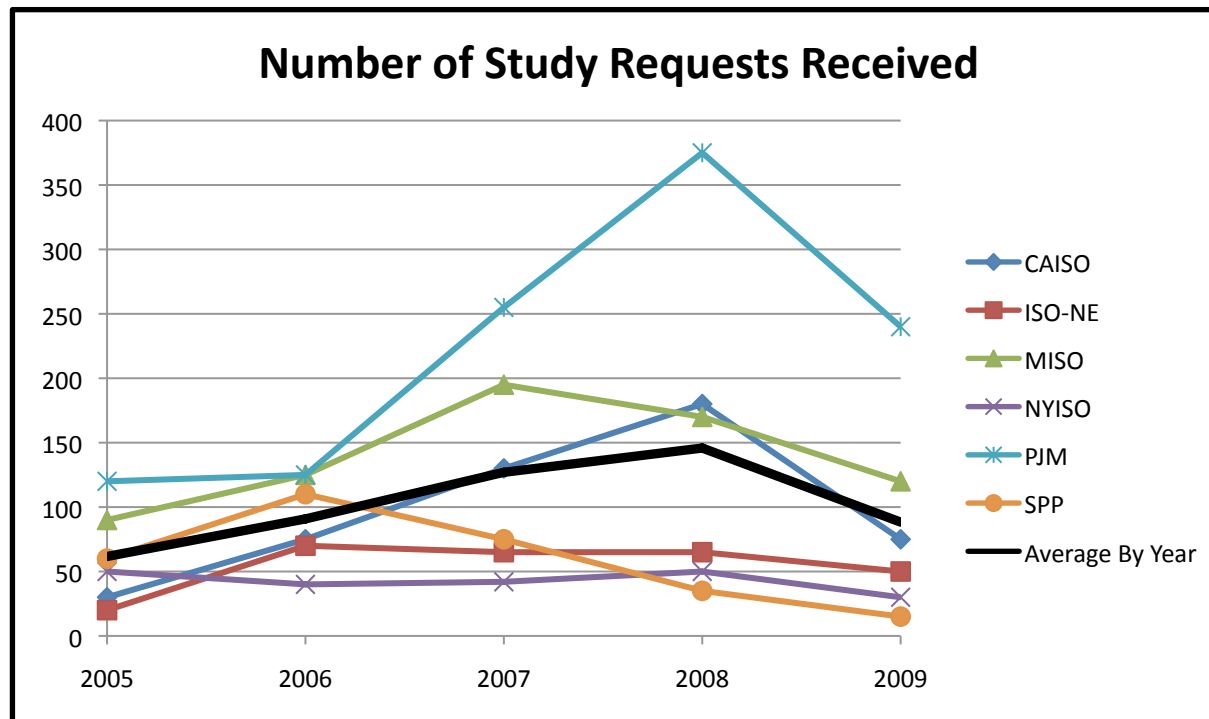
Queue Reform

- CAISO, MISO, NYISO, PJM moved from a serial process to a cluster or group study process
- MISO, SPP, (NYISO) moved from a first-come-first-served process to a first-ready-first-served process
- ISO-NE has increased deposit levels throughout interconnection process

Metrics Report

Number of Study Requests

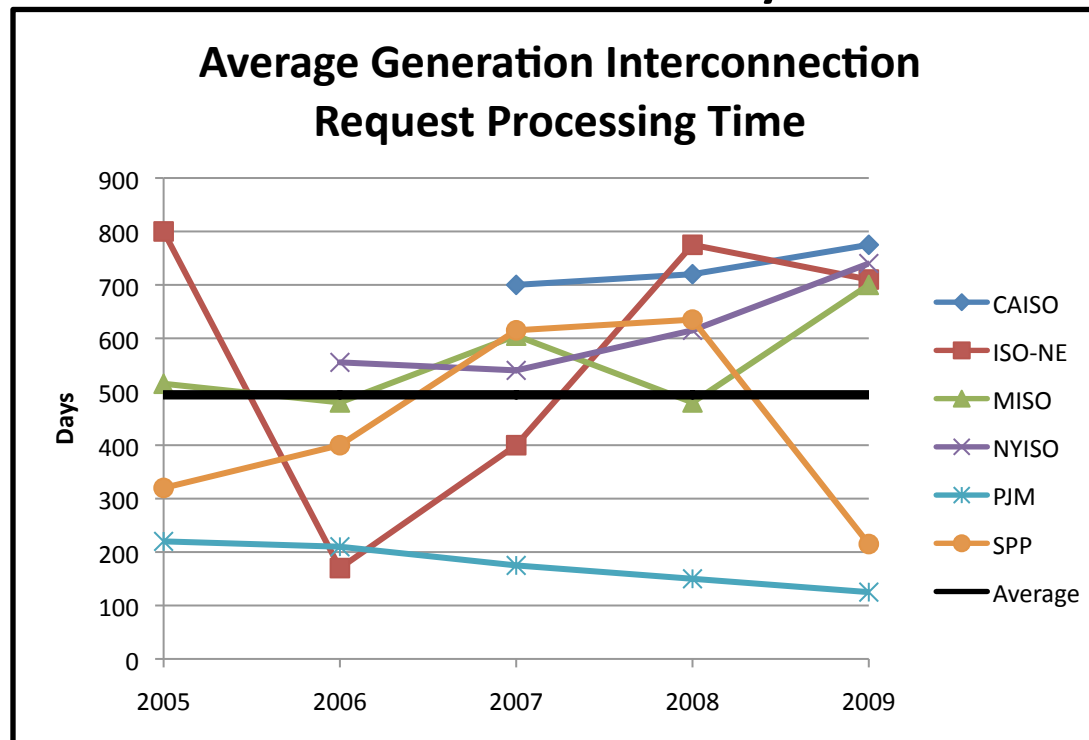
- Study requests increased rapidly through 2008 then sharply declined



Metrics Report

Interconnection Processing Times

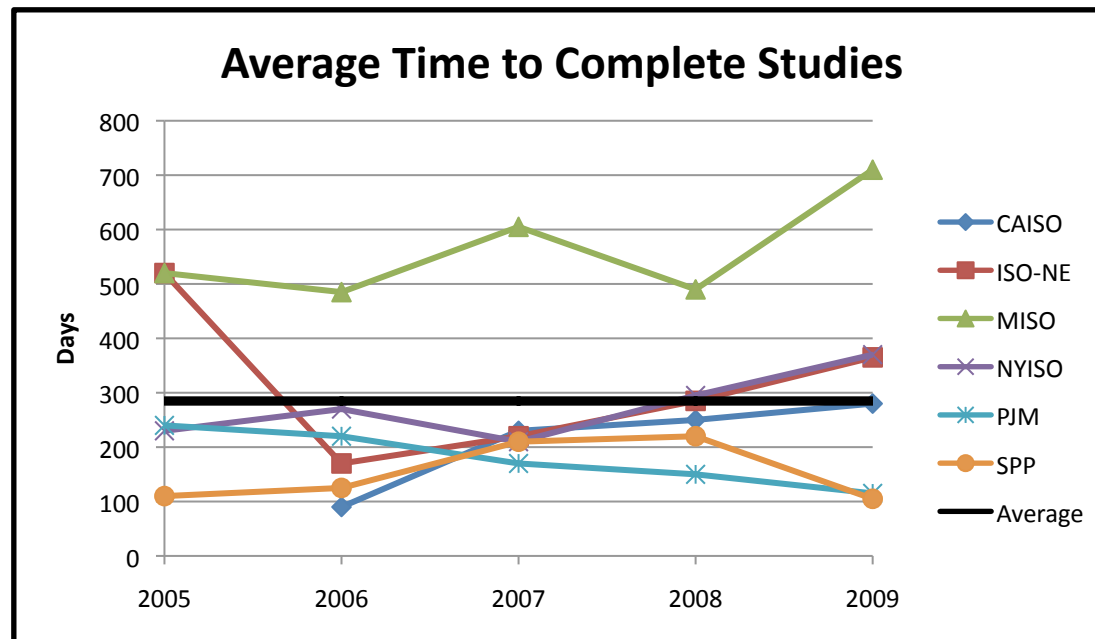
- Average processing time about 500 days
- Range from about 100-800 days



Metrics Report

Average Study Duration

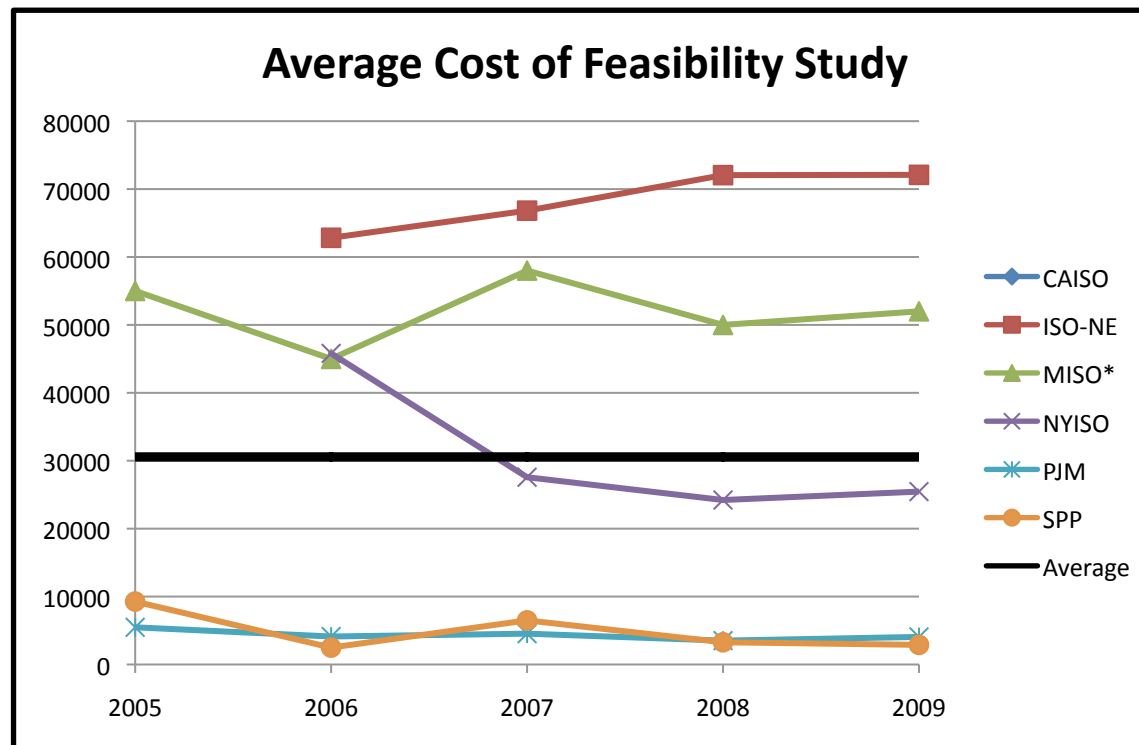
- Average time to complete a single study just under a year (blend of Feasibility, System Impact, and Facility Study durations)



Metrics Report

Feasibility Study Costs

- Ranges from about \$2,500 to \$72,000

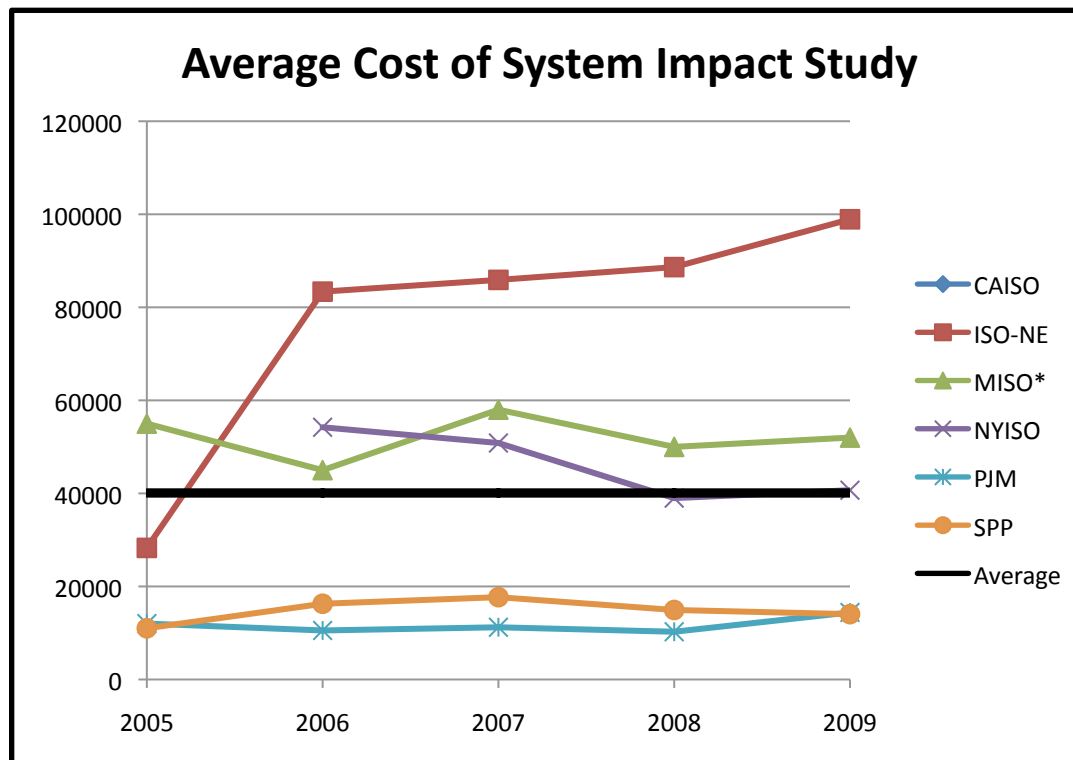


* MISO gave average for all study types without differentiating between Feasibility, System Impact, and Facility Studies

Metrics Report

System Impact Study Costs

- Ranges from about \$10,000 to \$99,000

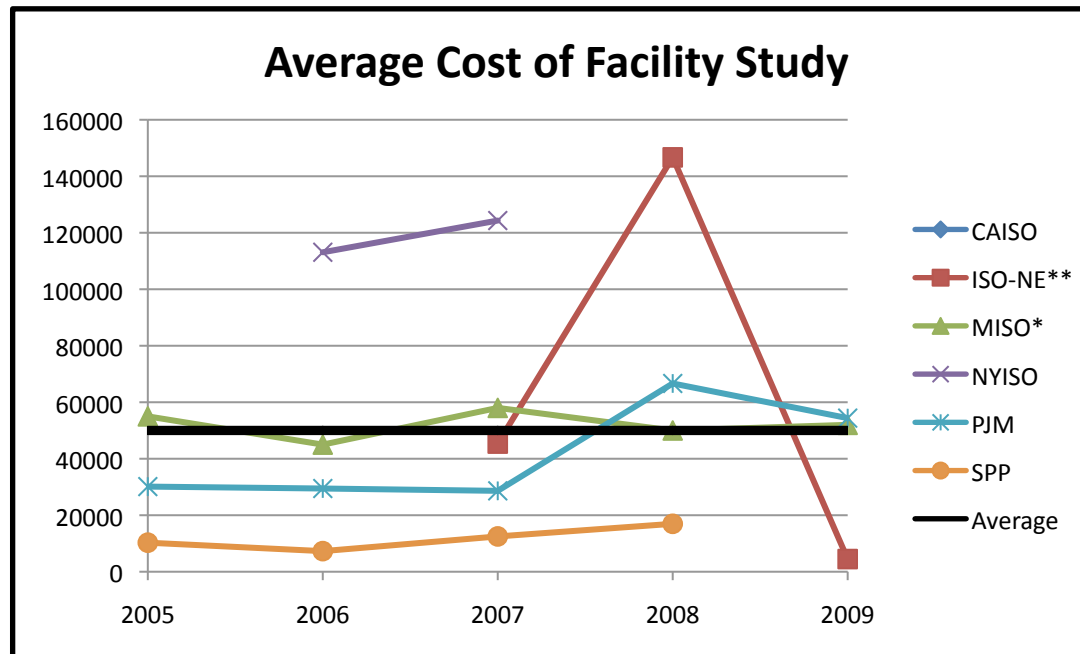


* MISO gave average for all study types without differentiating between Feasibility, System Impact, and Facility Studies

Metrics Report

Facility Study Costs

- Ranges from about \$5,000 to \$125,000



* MISO gave average for all study types without differentiating between Feasibility, System Impact, and Facility Studies

** ISO-NE costs were based on a single study each year

Differing Incentives to Enter Queue All Dealing With Same Process

- **Project viability known:** wants to move fast
- **Project viability unknown,** wants to reduce uncertainty surrounding interconnection or lock in early queue position: wants to get feasibility study answers then move slow
- **Project not viable** due to transmission constraints, wants to be counted for long term planning or public policy discussions: wants to be in queue while moving as slow as possible

Ways To Save Money and Time In Interconnection Process

- Make project design decisions before starting interconnection process
 - project size
 - project one-line
 - plan for access to point of interconnection in unconstrained part of system
 - turbine selected with all required data from manufacturer
- Provide study data and execute agreements quickly
- Communicate desire to move quickly
- Skip optional study phases where applicable (Feasibility Study, Facility Study)

References

- 2010 ISO/RTO Metrics Report, December 6, 2010. FERC Docket AD10-5-000
- Interconnection Queuing Practices Technical Conference held December 11, 2007. FERC Docket AD08-2-000
- Standardization of Generator Interconnection Agreements and Procedures, Order 2003, issued July 24, 2003. FERC Docket RM02-1
- FERC Docket Search: http://elibrary.ferc.gov/idmws/docket_search.asp