

Easier Said Than Done: The Continuing Saga of Moving from Principle to Practice in Crafting Transmission Infrastructure Investment Rules

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Legacy Transmission

Allocated to historic transmission zones – Load Ratio Share



Generation Interconnection

Direct assignment of cost to project developer



Reliability, Market Efficiency Upgrades

≥ 500 kV - Socialized , Load Ratio Share
< 500 kV – Beneficiary Pays(load) DFAX

Reliability	Scenario Planning	Current Economics	Market Efficiency
<ul style="list-style-type: none"> 5-year baseline, load growth impacts beyond 5-10 years 	<ul style="list-style-type: none"> multi-year analysis, >5 years 	<ul style="list-style-type: none"> 10-year projections 	<ul style="list-style-type: none"> 10-year baseline
<ul style="list-style-type: none"> prescribed reliability criteria tests and assumptions, e.g. firm transfers, load growth 	<ul style="list-style-type: none"> typical transfers, prescribed reliability criteria tests, at risk generation, Demand Response, others 	<ul style="list-style-type: none"> typical transfers, reliability criteria tests 	<ul style="list-style-type: none"> scenario planning, econometric cost/benefit analysis
<ul style="list-style-type: none"> bright line – build for violation 	<ul style="list-style-type: none"> criteria ?? 	<ul style="list-style-type: none"> criteria – build for combination of violation and economic benefit 	<ul style="list-style-type: none"> criteria – build for economic benefit

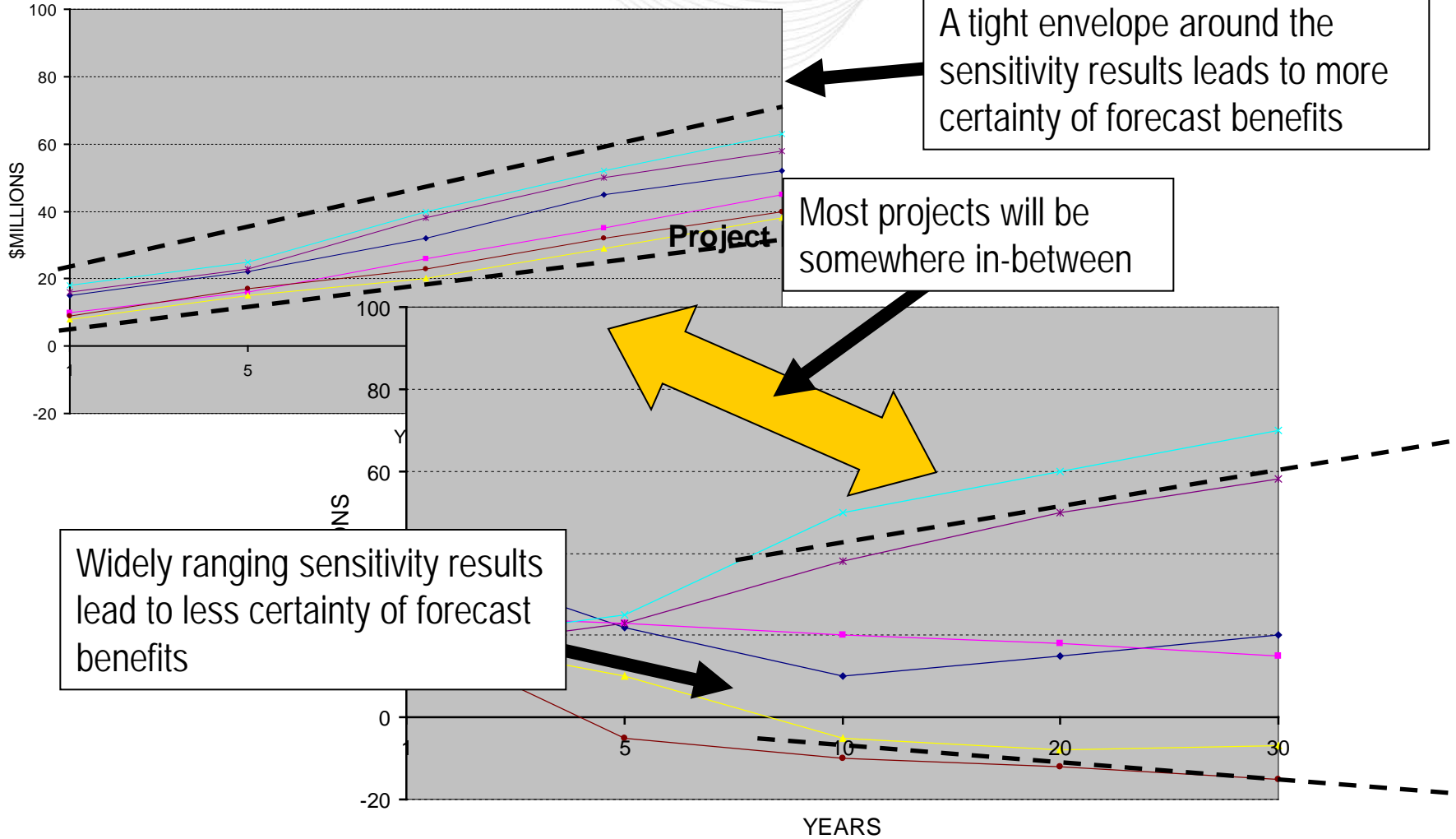


Solutions integrating all drivers and benefits – opportunities for technological innovation



Integrate transmission, generation and demand response

Project Benefits vs Time



A tight envelope around the sensitivity results leads to more certainty of forecast benefits

Most projects will be somewhere in-between

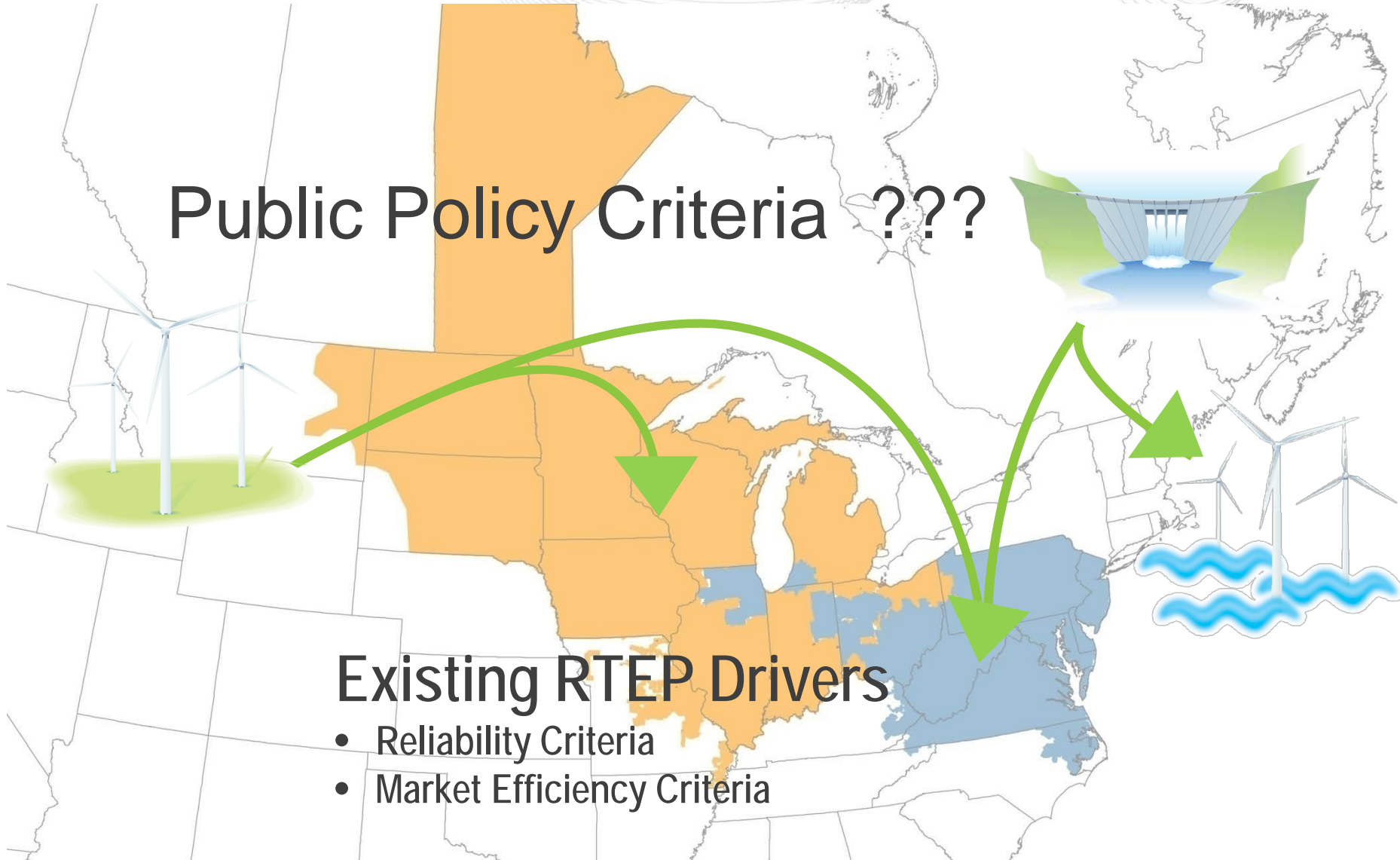
Widely ranging sensitivity results lead to less certainty of forecast benefits

- “the proposed rule would (1) provide that local and regional transmission planning processes ***account for transmission needs driven by public policy requirements established by state or federal laws or regulations***”
 - “adherence with this proposed requirement may eventually increase the proportion of transmission network investment that is constructed pursuant to proactive transmission planning processes, thereby reducing the proportion of network upgrades that would otherwise be triggered by individual generator interconnection requests, which can be time consuming and inefficient”

Public Policy Criteria ???

Existing RTEP Drivers

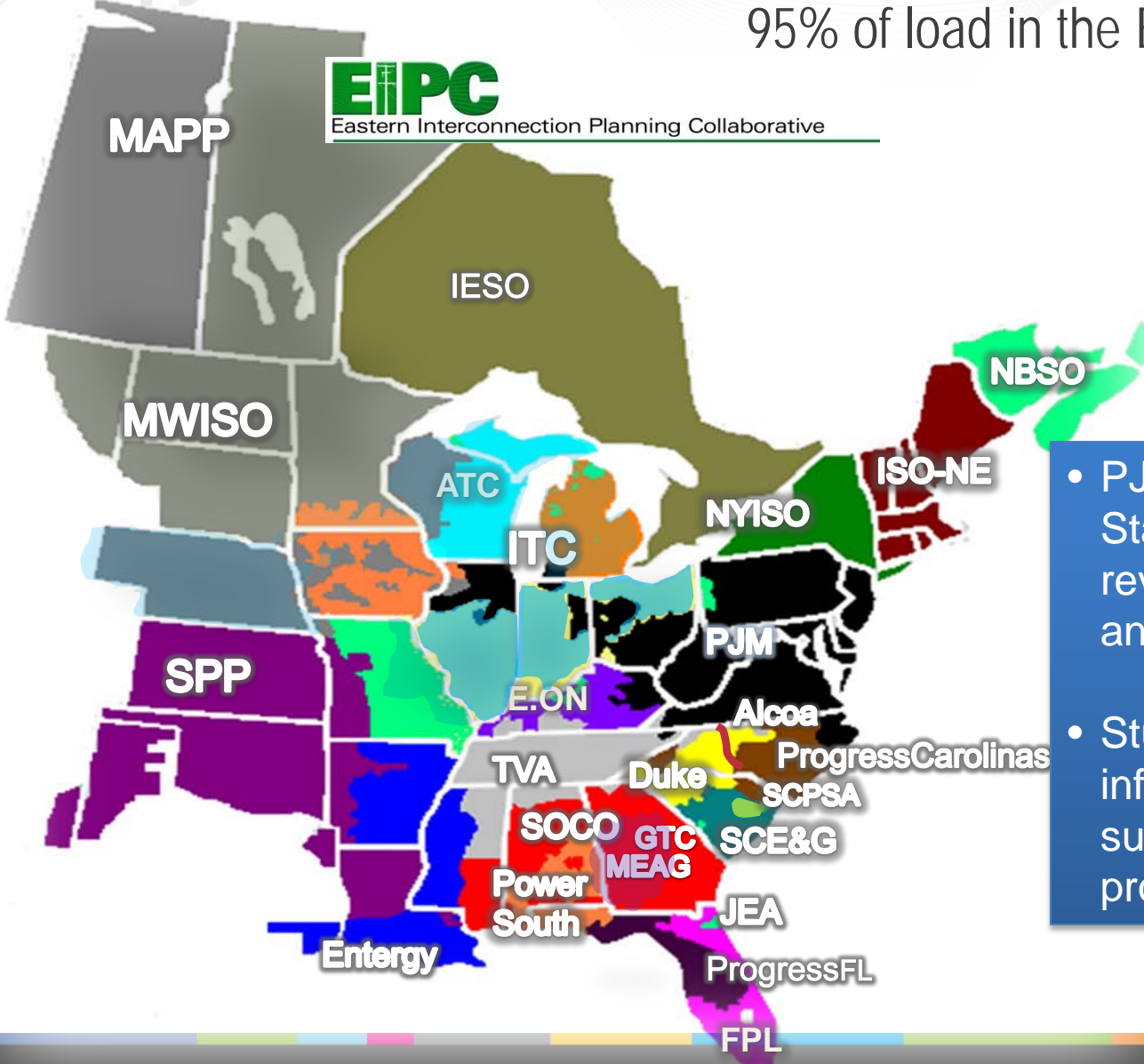
- Reliability Criteria
- Market Efficiency Criteria



- Technical assessment of needed upgrades
 - *Reliability criteria*
 - *Market efficiency analysis*
 - *How would we assess Public Policy Criteria ?*
- PJM's Regional Transmission Expansion Plan (RTEP)
 - *5-year and 15-year horizons*
 - *Need to evolve from "bright-line" test to probabilistic assessment*

- 1) Regional Planning** -- required
- 2) Cost Allocation**
 - “*roughly commensurate with estimated benefits*”
- 3) Equal Treatment for Non-Incumbents**
 - Utilities do not have a Right of First Refusal for facilities in a regional transmission plan
- 4) Interregional Planning** – required for neighboring regions
- 5) Consideration of Public Policy**
 - Planning processes must “*take into account*” RPS and other requirements established by law

26 Planning Authorities in 40 states covering 95% of load in the Eastern Interconnection



EIIPC
Eastern Interconnection Planning Collaborative

- PJM participates on Stakeholder Committee that reviews modeling, scenarios and roll-up of plans
- Study results will provide information but do not supplant regional planning processes

- FERC Direction
 - Driven by equity concerns
 - Require ongoing analysis updates
 - Require bright line triggers
- Interaction of capacity market and transmission planning requirements has not been stable
- Result has been incentive to do nothing ?

1) *Between load and generation*

- Generally, load pays in the U.S.

2) *By amount of usage*

- Per Megawatt Hours

3) *By peak consumption or generation*

- Coincident or non-coincident to the system peak

4) *By flow-basis*

- Relative impact on transmission facilities

5) *By a monetary impact basis*

- Who gains financially?