



Overview of PJM Economic Planning Process Market Efficiency Analysis

IPSAC
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- **Economic component of PJM RTEP Process**
 - Determine which reliability upgrades, if any, have an economic benefit if accelerated or modified.
 - Identify new transmission upgrades that may result in economic benefits.
 - Identify economic benefits associated with “hybrid” transmission upgrades. Such hybrid upgrades resolve reliability issues but are intentionally designed in a more robust manner to provide economic benefits in addition to resolving those reliability issues.

Annual Benefit Metric

$$\text{Annual Benefit} = (.7)(\Delta\text{System Production Cost}) + (.3)(\Delta\text{Load Energy Payment})$$

- **$\Delta\text{System Production Cost}$** is change in system generation variable cost (fuel costs, variable O&M costs and emissions costs) associated with total PJM energy production
- **$\Delta\text{Load Energy Payment}$** is change in net load energy payment (change in gross load payment minus change in transmission right credit)
 - For projects that have costs allocated regionally (500 kV and up), the load energy payment for all PJM zones is considered
 - For projects that have costs allocated using a flow-based methodology (below 500 kV) , the load energy payment for only those PJM zones that show a decrease in load energy payment is considered

Simulation/Model Details

- ▶ Annual market simulations made with and without upgrade for future years 1, 4, 7 and 10 (current year (cy), cy+3, cy+6 and cy+9)
- ▶ Annual benefits within the 10-year time frame for years which were not simulated interpolated using these simulation results
- ▶ Annual benefits for years beyond the 10-year simulation time frame based on an extrapolation of the market simulation results for years 1, 4, 7 and 10
- ▶ A higher-level annual market simulation made for future year 15 (cy+14) to validate the extrapolation results and extrapolation of annual benefits for years beyond the 10-year simulation time frame may be adjusted accordingly

Cost/Benefit Analysis

- ▶ Present value of annual project benefit for first 15 years of project life compared to present value of annual project cost for first 15 years of project life
- ▶ Project is considered economic and included in RTEP if B/C ratio exceeds 1.25:1