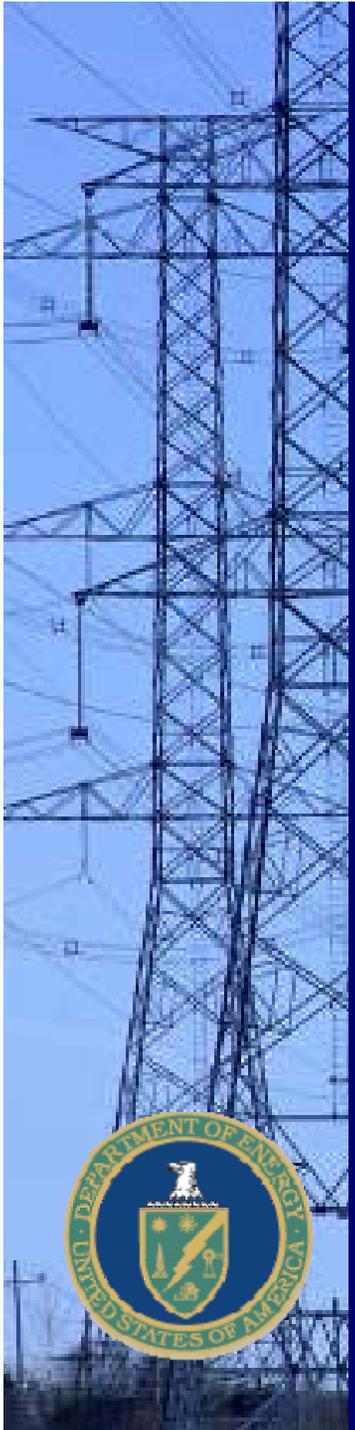


**Meeting of PJM/MISO Joint Board
for Economic Dispatch
November 21, 2005**

**DOE Report to Congress on
Value of Economic Dispatch**

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Mandate for DOE Report

- **Secs. 1234 and 1832 of the Energy Policy Act of 2005 directed DOE to study and report to Congress on economic dispatch (ED) by November 7, 2005**
- **DOE was told to study current ED procedures, identify possible improvements, and analyze the potential benefits of such changes**
- **Congress' definition of ED: "operation of generation facilities to produce energy at the lowest cost to reliably serve consumers, recognizing any operational limits of generation and transmission facilities"**



Study Plan

- **DOE prepared a short questionnaire (6 questions) about ED practices and possible improvements, and circulated it to interested stakeholders through seven trade associations**
- **92 parties, including representatives from all stakeholder groups, responded to the questionnaire. DOE drew upon these comments in preparing its report.**
- **DOE also reviewed 25 existing studies that gave substantial attention to economic dispatch or regulatory or organizational changes affecting economic dispatch**



Findings: Benefits of ED

- **Benefits of ED: Economic benefits tend to increase as the geographic scope and electrical diversity of the area under unified dispatch increases**
- **Retail customers benefit if cost savings are passed through in retail rates**
- **ED can reduce fuel use and emissions as high-efficiency units frequently displace lower-efficiency units using the same or similar fuel**



Mechanics and Regulation of ED

- In practice, ED requires balancing economic efficiency, reliability, and other factors, such as the ability of a given generating unit to shift output at short notice, and scheduling limitations imposed by environmental laws, hydrological conditions, and fuel characteristics. Result: ED is a “constrained cost minimization process”
- Two subtypes of ED: Unit commitment (day ahead) and unit dispatch (real time); in practice, both are “security constrained”
- States have lead on regulation of ED by investor-owned utilities; FERC oversees ED by RTOs and ISOs; ED by public power entities and cooperatives is overseen by their respective governing boards



Extant ED Studies

- **Two main types of extant studies: Analyses of impacts associated with proposed formation of ISOs and RTOs (“RTO studies”), and studies of the dispatch of IPPs (“IPP studies”)**
- **Neither type was designed to produce the disaggregated assessment of benefits of ED envisioned in Secs. 1234 and 1832**
- **RTO studies found benefits in the range of 1 to 5% of total wholesale electricity costs. IPP studies found benefits of 8 to over 30% of total variable production costs.**



Economic Dispatch Issues

- **Non-utility generators (NUGs) assert that some vertically integrated utilities use dispatch processes to favor their own generation**
- **Some of the operating rules and practices used in economic dispatch may have the effect of excluding NUG capacity from the economic dispatch “stack” or shifting it to a disadvantageous position in the stack**
- **Such practices may include rules for determining whether NUGs receive long-term contracts for their output or for the use of transmission facilities, and whether NUGs provide sufficient operational flexibility to qualify for economic dispatch**



“Economic” vs. “Efficient” Dispatch

- **Efficient use of natural gas for generation is a matter of great interest at present**
- **Economic dispatch does not *always* run high-efficiency gas units before lower efficiency units. “Efficient” dispatch would presumably seek to mandate that units be dispatched in “efficiency” order.**
- **DOE is skeptical of the merits of “efficient dispatch”; it would increase consumers’ electricity costs, for benefits that are at best uncertain.**
- **By comparison, improvements to economic dispatch have the potential to both reduce consumer costs and improve the efficiency of natural gas use for generation**



Improving the Practice of Economic Dispatch

- **The Joint Boards for Economic Dispatch established under Sec. 1298 may wish to examine ED practices in their respective areas to determine whether NUG capacity is treated appropriately**
- **DOE urges NUG and power purchaser communities to work together to ensure that contract terms compensate NUGs for providing operational flexibility**
- **The tools used in ED – software, data, algorithms, and assumptions – should be subject to systematic review aimed at improving the efficiency of the process**
- **Economic dispatch is dependent on accurate load forecasting. Improvements in the accuracy of such forecasting will enhance ED efficiency.**



Questions?



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