Beneficiary Pays, An Overarching Transmission Issue

discussed with the
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Market and Institutional Context

- **Legacy Transmission**
  - Built to serve local demands; some loop flow across interfaces
  - Comparatively inexpensive...all-in costs ≈ $3-$4/MWh

- **Flourishing wholesale market transactions, ‘98 forward**
  - Workably competitive markets...advantage, Midwest
  - Tight supply/demand balance, manifested in reliability concerns
    - April 14, 2003 power outage (≈ 65,000 MW)
  - Renewable portfolio standards

- **Result: altered flow patterns across meshed networks**
  - Chronic congestion of networks – e.g., Wisconsin interface West
  - Substantial expansion of transmission arguably appropriate
Era of Nascent Wholesale Markets

Emergency, Split Savings, and Occasional L-T Transactions, Eastern Power Pools
- L-T planned and negotiated in advance
- price discovery largely non-competitive
- application before the FERC; concurring opinion under Section 205 of the FPA

Marginal Running Cost = $30/MWh

Incumbent Retail Markets
\[ \text{Price}_{\text{Retail}} = \$80/MWh \]
\[ \text{Cost}_{\text{Transmission}} = \$4/MWh \]

Expansion of transmission conducted by incumbent utilities; neighboring systems advised of plans, but plans generally not coordinated

Marginal Running Cost = $60/MWh
Regions, Flow Under Organized Markets

Unbundled Wholesale Markets (MISO, SPP)
- auction-based generation supply
- locational pricing (LMP)
- path-specific transmission charges
- under FERC Order 2000

West
LMP = $25/MWh
LMP = $15/MWh

Incumbent Retail Markets
Price\text{Retail} = $80/MWh
Cost\text{Transmission} = $4/MWh

East
LMP = $55/MWh
LMP = $65/MWh

Expansion of transmission can dramatically decrease congestion charges ($55 – $15)
Organized Wholesale Markets (MISO, SPP)
- auction-based generation
- locational pricing (LMP)
- path-specific transmission charges
- RTOs w/stakeholders, determine least-cost transmission under FERC Order 890

Retail Markets, Native Loads
Price\textsubscript{Retail} = $82/MWh
Cost\textsubscript{Transmission} = $6/MWh

Expansion of Transmission can dramatically reduce congestion but are partially offset by larger transmission access charges on all transactions, including incumbent retail markets
**Issue: Who Benefits, Who Pays**

- TRX reduces all-in G&T costs across regions
- However, *incremental cost of transmission* $\approx 4x >$ legacy facilities
  - Some participants – i.e., Eastern markets – may benefit more than others
- **Who should pay?**
  - An issue of distributive justice...
    - thus, the stakeholder processes of MISO (w/MVP) and SPP (w/H-B)
  - Models in the style of SC-OPF can estimate the distribution of benefits, certainly
    - benefit flows extend forward over decades
- **Essential question:**
  Degree to which costs are socialized: is it appropriate, as a matter of public policy, to set prices according to locational accident, particularly where doing so is a change in longstanding paradigms?