

Cost Allocation for Transmission

How Do We Allocate Costs Today?

How Did We Get Here?

**CARP WORKSHOP
January 28th, 2009
St. Paul Minnesota**

**Jeff Webb
Midwest ISO**

Goals of this Discussion

- Review how utilities currently pay for new transmission infrastructure improvements, and
- How Midwest ISO allocates costs for transmission projects.

Recovery of Transmission Costs

- Transmission Owners recover transmission costs from both wholesale and retail tariff rates.
- Most Transmission Owners recover between 80% and 90% of their transmission revenue requirements from retail customers and rates, because these customers make up the bulk of the utility's transmission usage.
- FERC's Order 2000 established RTOs that would perform regional planning and that would collect and settle wholesale transmission usage charges for existing and new transmission under a regional tariff.

Regional Tariffs

- The Midwest ISO regional tariff was designed as a License Plate tariff
- License Plate tariffs allow the use of the regional transmission system for the single payment associated with the “home” zone.
- This is similar to a citizen licensing a car in his home state and being allowed to drive in the other states without any additional charge at the states’ borders.
- All existing facilities are recovered from local zone wholesale and retail customers.

License Plate – the Good

- Advantages of License Plate Pricing:
 - Achieves the FERC policy goal of improving the competitive landscape for generation, since all generation competing for service to a Load pays the same transmission rate of the load zone.
 - Causes minimal cost shifts between members since each member's transmission rates continue to be based upon the revenue requirements of their own zones.
 - Very easy to administrate.
 - Causes very little regulatory turbulence between utilities and their retail regulators.

License Plate – the Bad

- Disadvantages of License Plate Pricing:
 - Customers pay for transmission systems because they live next to it regardless of whether they benefit. Transmission in a “thru-zone” between two others have no incentive to build and pay for transmission needed to provide benefits outside of their own zone
 - This concern tends to lead to investment decisions that maintain the status quo, but do not incent expansion to enable broader economies of scale that are available to the entire region.
 - The transmission system is now used differently than the mission it was designed for and so current beneficiaries and payers may not be aligned. Because no change in rates occurred , this has not attracted much attention.
 - May be more appropriate for pre-market infrastructure where most zones met almost all their own needs internally.

Regional Cost Sharing

A brief History First

- Regional cost sharing began at the Midwest ISO with the FERC Order 2003 pro forma Generator Interconnection Procedures and Agreement
- Order was to establish fair practices between Transmission Providers and Interconnection Customers, and applied to both independent (RTOs) and non-independent (Utilities not in RTOs) providers
- Pro forma Requirements
 - Generator Upgrades funded by generator and repaid when transmission service taken (or “credits” for transmission service)
 - Equivalent to TOs rolling in costs of upgrades, but then levying transmission service charges for plant output

Order 2003 for RTOs

- FERC reasons for requiring TOs to roll-in upgrade costs
 - Ensures Gens don't pay for Base Upgrades needed anyway
 - Don't pay twice (for upgrades, and for transmission service)
 - Network Upgrades provide benefits to all grid users
- FERC allowed options for Independent Providers (RTOs)
 - Less concern about comparable service issues
 - Allowed RTOs to propose alternatives to the credit/repayment policy
 - Requested State positions on pricing

Midwest ISO Order 2003 Filing

- There was not time to develop superior proposal to pro forma pricing by filing deadline in late 2003
- Filed pro forma, stating concern for credit policy in RTO with License Plate pricing
 - There may be no transmission service revenues to offset credits or repayments (point-to-point transmission service revenues go to sink zone, and there are no transaction based revenues for Network Service which is based on peak demand of the load zones)
 - Unfair burden to TO or local zone customers
- Midwest ISO committed to working with stakeholders to develop a preferred policy

Origin of RECB Task Force

- OMS filed in support of Midwest ISO proposal to develop a preferred pricing policy
- Offered key principles
 - Beneficiaries pay, and
 - Cost-causers pay
- Creation of RECB TF – March '04
 - Charter broadened scope to include comprehensive policy for all upgrades (generation, load growth, any other beneficial upgrades)
 - Develop criteria for including all transmission projects in regional plan (MTEP)
 - Develop methods for allocating and recovering costs of these projects based on measures of benefit

Overview of RECB TF Products

- Worked from March '04 to September of '05 before initial filing
- First filing addressed Network Upgrades resulting from Generator Interconnections and from load growth.
- Referred to these generally as reliability projects and more specifically as:
 - Generator Interconnection Projects (GIP)
 - Baseline Reliability Projects (BRP)
- Deferred filing at that time for projects driven by anything other than reliability
- Continued in 2006 (RECB II) to discuss what were called Regionally Beneficial Projects (“economic or market efficiency projects”)
- Filed RECB II in November '06

RECB | OMS Principles

Provided to guide the RECB TF

- The cost allocation policy should be designed so that MISO can satisfy the requirements of FERC's Order 2003.
- The cost allocation policy should send appropriate signals to generators to efficiently locate their plants on the grid.
- The cost allocation policy should reflect the classic principles of "cost causers should be cost bearers" and "he who benefits should pay".
- The cost allocation policy's inherent incentives or disincentives to construct network improvements should be made transparent.
- The cost allocation policy should be designed to work well within MISO's set of general network facility upgrade cost allocation policies (e.g., reliability, load growth or congestion relief driven).
- The cost allocation policy should not unnecessarily conflict with the various transmission company business models (e.g., vertically integrated, stand-alone affiliated, independent, or merchant) employed within MISO's footprint.

Ground Covered by RECB TF

Measures of Benefit of Transmission

- Customer, supplier, societal benefits
- More efficient dispatch – reduced production cost
- LMP reductions – spot market opportunities
- Reliability benefits
- Reduced reserve requirements
- Flow-based methods – flow reduction, distribution factor impacts

Ground Covered by RECB TF Cost Causation

- “But for” requests – incremental needs of requestor
- Flow-based causation – contribution to limits

Initial Proposal - October '04

- Heavily based on “cost-causation”
- Zone load is cost causer – therefore let zones pay for load growth driven transmission in own zones, regardless size or external benefits
- New Interconnection requests cause upgrades – direct assign costs

Stakeholder's Rejected October 04 Proposal

- VITOs majority approved
- MSATs opposed
- IPPs opposed
- TDUs opposed
- OMS opposed

OMS Resolution November '04

- MISO proposal for reliability is primarily cost causers pay
- OMS Principles envisioned allocation of cost between both cost causers and beneficiaries for reliability
- Assigning costs to last requestor/cost causer
 - unfairly ignores other contributors to cause
 - Does not account for other beneficiaries
- Recognized that any single best test of beneficiaries is costly in time and resources to implement
- Recommended that MISO continue to work on creative, workable and cost-effective methods for determining beneficiaries

RECB I Retooled to better address Beneficiaries as well as Causers

Resulting approach to Generator Interconnect and Baseline Reliability Projects tried to address the following observations

- Transmission expansion can benefit many by impacting:
 - Reliability, Production costs, LMP, Reserve Requirements, Losses, etc.
- Benefits of expansions vary but can extend far beyond zone of construction
 - History shows reliability issues can profoundly impact distant areas
 - A postage stamp component may capture some of this
- Reliability benefits of expansions attenuate, in general, as move away from upgrade
 - Electrical “Proximity” can be an indicator of relative benefit
- Stakeholders do not want protracted benefits calculations and possible disputes for each and every project
 - A formulaic allocation linked to beneficiaries and causers was preferred to a case by case detailed beneficiary determination

RECB I

Method for Baseline Reliability Projects

- Only share larger Projects – at least \$5 M
- Higher voltage projects get wider cost allocation
 - 345 kV and higher
 - 20% Postage Stamp allocation
 - 80% Sub-regional allocation
 - 100kV – 344 kV
 - 100% Sub-regional allocation
- Sub-regional allocation is based on proximity

RECB I Sub-Regional Method

- Between a Postage Stamp and pure Local Zone
- Based on electrical proximity to the beneficial upgrade
- Calculate using Line Outage Distribution Factors (LODF)
- If the new upgrade were not there, would your zone's line flows change materially
- Grid impedance based - not sensitive to changeable resource and load relationships and assumptions
- Originally intended to determine zones influenced by the upgrade, and to postage stamp amongst those zones
- But stakeholders wanted a more granular determination of level of influence
- Extent to which flows change on branches in one zone as compared to all others, determines relative proximity

RECB I

Method for Generator Interconnects

- Split the difference between causation (“but for” and grid benefits
- 50/50 cost sharing between customer and pricing zones (as long as 1 year contractual commitment to MISO network customer)
- Without contract, direct assigned
- Zonal 50% piece is shared as per Baseline Reliability (blend of Postage Stamp and Sub-regional)
- Customer 50% piece is participant funded, or charged as a monthly fixed charge to recover return and O&M, at option of TO

RECB II

What's a Regionally Beneficial Project?

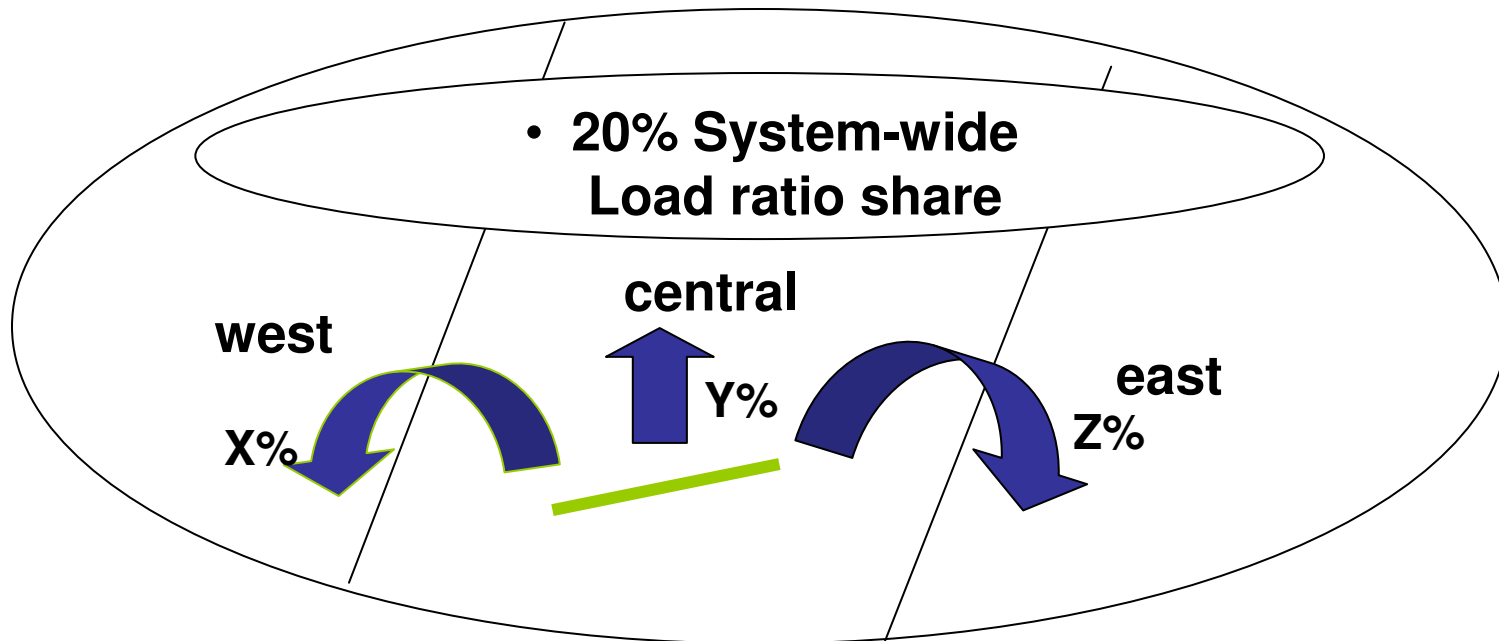
- RECB II was designed to address market efficiency
- Thought was that after the TOs and MISO planned and built what was needed to meet peak load serving conditions reliably, there may still be congestion that could be relieved by additional upgrades
- There was a recognition that energy policy directives such as RPSs could drive additional upgrades that might not be considered “economic” in the market efficiency context, and these might fall under this category of project – thus we labeled them RBPs rather than Economic projects.
- However neither the RECB I, nor the RECB II policies adequately addressed outlet transmission for renewable energy that can be large and not necessarily for predominant use near the generator or the upgrade.

RECB II

Method for Market Efficiency Projects

- Parallels RECB I for BRPs in basic framework
- Only share larger Projects
 - at least \$5 M
 - 345 kV and higher project only
 - 20% Postage Stamp allocation
 - 80% Sub-regional allocation
- Sub-regional allocation is an evaluation of beneficiaries as for RECB I, but based on a congestion-based metrics
 - A negotiated 70/30 blend of projected reductions in production cost and LMP based load payments, resulting from the project
 - The “benefit” is divided between 3 sub-regions and then postage stamped within each
 - Once the benefit is calculated a Benefit to cost threshold of 1.2 to 3 must be met (depends on how far out in time project completion is)

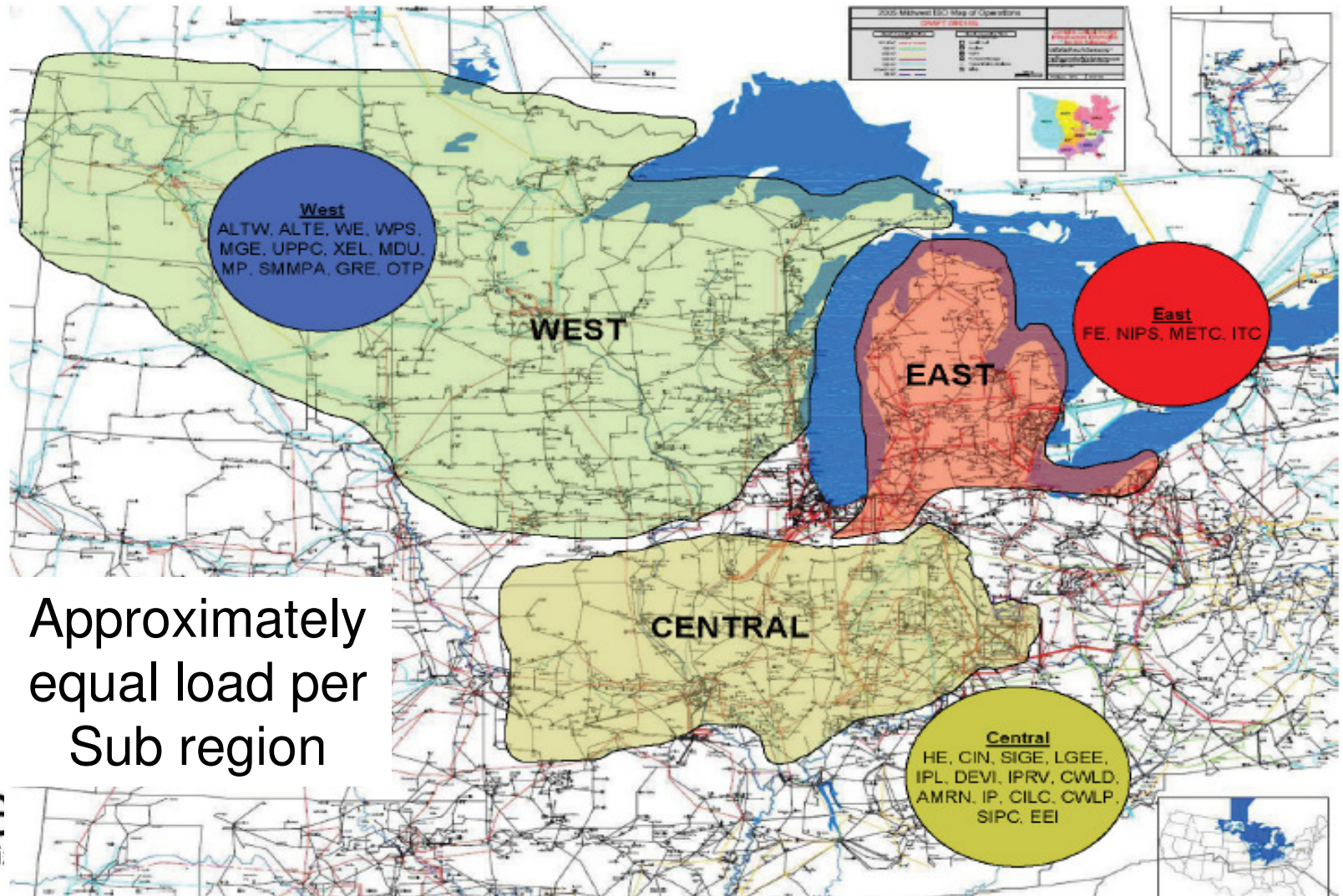
RECB II Method



- Larger projects only
- 80% to Sub Regions based on share of congestion-based benefit metric (X,Y,Z)
- Load ratio share within each Sub Region

Sub regions

Existing Planning Sub regions



RECB I and II

What works and does not work?

- Both approaches involve determination by the Midwest ISO on a non-discriminatory basis, of the relative beneficiaries of expansions
- Larger projects get a wider regional allocation than smaller ones
- Both cost causation and beneficiaries are considered in the sharing protocols
- The methods are relatively easy to apply and fit well with existing tariff mechanisms for recovering and distributing costs
- The sharing protocols are a backstop approach and do not preempt an entity's willingness to fund.
- Work reasonably well to address smaller projects with more localized benefits, or generation interconnects with more localized usage

RECB I and II

Some Problems

- Taken together, perpetuate the gray distinction between “reliability” and “economic” projects
- Difficult to quantify reliability “benefits” are accepted rather than measured, causing stakeholders to question allocations based on postage stamp components or electrical proximity measures.
- The granularity of the LODF calculation at the zonal level can cause more highly developed grid areas to see more effects and more shares as compared to more sparse zones.
- Treat generator interconnection based transmission as reliability needs and do not recognize economic or other values of the new generation additions enabled

RECB I and II

Some More Problems

- Do not well address location constrained generation connected remote from usage zones, since local zone or zones may get up to 50% of large high cost transmission needs, and the other 50% may be excessive for smaller developers to accommodate.
- The permissible metrics for “economic” projects are too narrowly focused on congestion to capture the much broader range of potential benefits of transmission.
- Tend to perpetuate the status quo localized build patterns rather than inter-zonal or regional needs, as RECB I metrics tend towards localized sharing and RECB II metrics are limited and face high B/C hurdles.

Questions ?