Participant Funding: Comments on Cost Assignment

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Submitted by

Sunflower Electric Power & Sand Sage Power LLC

Outline

- Re-cap of principles and objectives
- Difficulty of determining regional vs. local benefits of transmission facilities – new and existing
- Proposed allocation and pros and cons
- Examples and support for proposed allocation

Principles & Objectives

- RSC Principles in brief:
  - Cost causers pay; but not more than benefits
  - No free riders, no discrimination
  - Build a reliable system and recover costs
  - Economic benefit projects allocated to beneficiaries
  - Send correct price signals for generation location
  - Encourage competitive supply
  - Be able to make economics-driven upgrades
  - Funder retains rights to revenue recovery for capacity paid for (and may retain transmission capacity rights).
- Other objectives:
  - No shocks to rates or operations
  - System that is not burdensome or costly to administer, e.g. does not result in extensive litigation or delay that thwarts needed construction.

Determination of regional vs. local benefits of transmission facilities is difficult

- Character of systems varies widely:
  - Relatively self-sufficient systems e.g. SPS
  - Highly intertwined systems e.g PSO and OG&E
- Reliability "n-1" benefit of use of regional system is important for every TO and not always apparent in normal flows.
- System, as a whole, is highly loaded (see the long list of 'base case' thermal and voltage overloads to be fixed), so that even investments that change flows slightly on constrained facilities in neighboring systems may be a benefit to those neighbors in postponing reliability investment, but small changes in assumptions can change the location and extent of benefits.
- Technical obstacles and uncertainties to determining project-specific benefits are serious, e.g what to assume about locations of new generators?
- All the above argues for some regional sharing of costs but lack of strong evidence for which slant is best.

A Proposed allocation

- Given difficulty of determining "actual benefits", we propose a 50:50 cost split for all types of new facilities over 100 kV between all customers and the requesting transmission customer.
- Regional portion paid uniformly by all SPP customers.
- Exception: Generator interconnection is presumed to be 100% participant but could apply to demonstrate regional benefit (as in New England).
- Similar split of 50:50 for existing facilities (could get similar results for existing facilities by highway/byway 'functional' assignment of high voltage to regional rate as Xcel has proposed).

What's magic about 50:50? If you have little or no information about whether 0% or 100% is the right answer, 50% is the correct best guess.

Proposal in More Detail

- A 50:50 cost split for all types of new facilities over 100 kV between all transmission customers and the requesting transmission customer.
  - 100 kV is suggested as capturing high percentage of facilities that carry at least some flows across zones. Perhaps allow lower voltage to be included if regional flow is demonstrated.
  - "Requesting transmission customer" in this context means the party initiating the upgrade, which would include a TO's base plan upgrades, a party requesting designation of a generator as a network resource, or requested economic upgrade planned and approved by SPP. Except in the case of a generator requesting export service, 'customer' and 'zone' will be identical.

Proposal in More Detail

(continued)

- Regional portion paid uniformly by all SPP customers.
  - The regional portion of all facilities would become part of a permanent, cumulative regional asset base.
  - SPP would calculate the payment to be made by each transmission customer according to a formula rate and appropriate load-based allocation.
  - The regional charge would change over time only depending on the balance of additions and depreciation, and thus would be stable.
- Exception: Generator interconnection is presumed to be 100%. Participant but could apply to demonstrate regional benefit (as in New England).
  - If the generator can make the case that other parties benefit, based for example on changes in needed future base plan upgrades, let them do so through a process and schedule developed by SPP. If extensive upgrades are identified it is more likely that they will have some regional benefit and the generator can choose to so demonstrate.

Allocation Pros and Cons

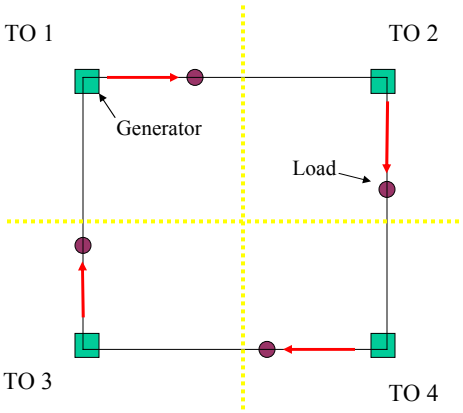
- Pro:
  - Provides rough representation, on average, of benefit to causers and beneficiaries.
  - Provides price signal & discipline for customer decisions.
  - Since all types of facilities, especially 'base reliability upgrades' and upgrades to accommodate designation of network generation resources, are treated equally, the cost allocation will not create incentives or penalties for how and when new generation resources are introduced into the system plan. Other proposals could cause such distortions.
  - Simple and inexpensive to administer and decisions can be rapid.
    - Both regional and zonal charges will be relatively stable and predictable, so that frequent adjustment to retail rates may not be necessary.
  - Could be used as transition to more complex process.
    - Proposals for 'flow based' allocation will rely on complex modeling where the development of techniques and assumptions, and demonstrating their reasonableness to stakeholders, may be contentious and will certainly not be quick. No such systems are fully implemented anywhere in the US today.
- Con:
  - Will miss-allocate costs every time to some extent.
  - Requires a mechanism for rate recovery by TO's of regional portion of charge.
    - All proposals currently offered share this problem in that some TO other than the initiating transmission customer will likely have to bear some costs.

Some Examples & Their Purpose

Several simplified example power flow situations are presented below. The purpose of these examples is to demonstrate why one of the principle benefits of the transmission grid - reliability – is based to a substantial extent on the use by each TO of neighboring systems in situations where a generator or line is out. This reliance is not captured in a single power flow, or even by the average of flows in system intact and 'n-1' outage situations. Often, except for reliance on neighboring systems, each TO would not be able to serve load reliably without that neighborly benefit. The proposed 50:50 sharing is partly based on the concept that a substantial portion of the benefit of any high-voltage transmission facility is that it contributes to the overall reliability of the regional system.

Case 1: Four Connected, Self-Sufficient TO's

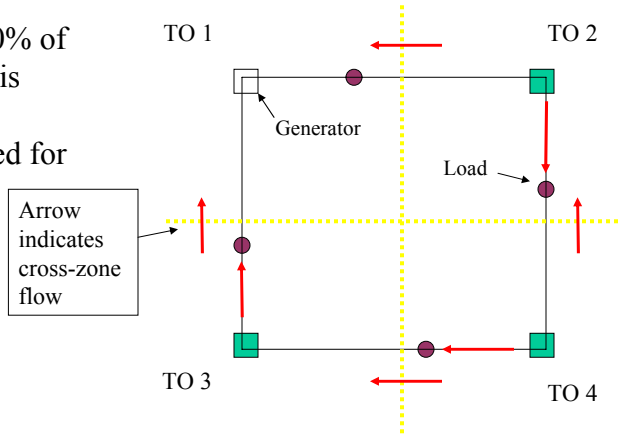
- System intact 90% internal, 10% 'around the loop'.
- Generator out: 100% of flow is 'regional'.
- Generator-to-load line out: 15% of lines used to import, 85% used to export around the loop.
- Conclusion: For reliability each TO must use all the rest of network.



"Internal' means from generator and over line owned by TO to that TO's load. "Regional' means flow over one TO's line from a foreign generator or to serve another TO's load.

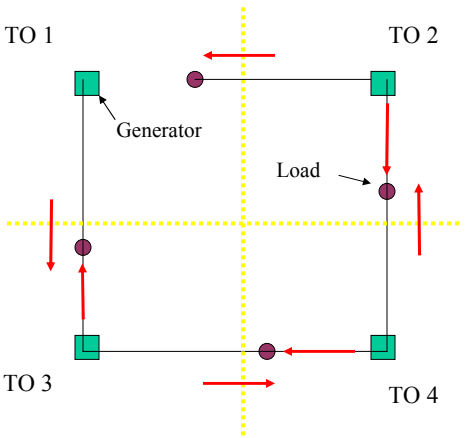
N-1 Case – Generator Out

Generator out: 100% of flow in TO 1 area is 'regional' in that transmission is used for imports.



N-1 Case: TO-1 Line Out

Line out: 100% of flow in TO 1 area is 'regional'



Western SPP Example