WHO SHOULD PAY FOR TRANSMISSION?

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Overview

The paper will begin with a summary of the pertinent economic theory related to efficient cost allocation practices – the linkage between cost causation and rate design. The paper will describe how cost allocation and determination of parties that are charged a fee for electric transmission can support productive and allocative efficiency. We will also explain beneficiary pays principals and the linkage to optimal investment and dynamic efficiency over time. We will then discuss problems that plague transmission investment and cost allocation and pricing. Through parallel references to economic theory and real-world case studies, we will examine the challenges and consider how information asymmetry plays a role in these challenges. Finally, we will examine how the well-known Coase Theorem can be applied to resolve some of these information-related challenges and smooth the path to more efficient cost allocation practices for transmission, which will ultimately support transmission investments needed to facilitate the energy transition.

Methods

The paper will describe the nature of costs included in transmission rates by diving into actual transmission cost of service details, as well as trends in investment (and what that means for cost-of-service revenue requirements and pricing of transmission). The purpose of this first section is to highlight that the majority of costs are related to investments in assets, which are of a fixed and sunk cost nature, rather than variable, and therefore are not dependent on consumption of transmission services by customers. On the other hand, efficient use of the transmission system is very dependent on consumption patterns (both temporally and locationally). This bifurcated nature of costs and usage patterns has important implications for rate design. We need to understand both what drives costs and investments and how consumers are likely to respond to rates before we are able to perform accurate allocation of costs and design of efficient rates.

The next section of the paper will describe the complexity of implementing efficient cost allocation for large-scale transmission – discussing issues ranging from (a) difficulties in identifying the beneficiaries of transmission system expansion (which can include electricity customers, generators, electric power markets, and the economy more generally), to (b) natural conflicts in designing rates (and selecting billing determinants) that ensure revenue requirement recovery versus motivating efficient transmission system use. We will highlight a number of real-world cases where transmission cost allocation has hit roadblocks and challenges. Indeed, cost allocation debates directly or indirectly have prevented a number of transmission projects from going forward. These real-world examples of proposed transmission projects that have been delayed or cancelled will highlight some of the practical challenges around cost allocation and rate design in relation to transmission planning and investment. As part of the case study portion of the paper, we will discuss examples of both regulated projects, as well as “merchant” transmission projects.

Results

Many of the issues in cost allocation (which are also creating roadblocks for realizing beneficial transmission investment) are tied to uncertainty in asset use and/or information asymmetry. For example, costs must be incurred before the benefits are known. In addition, various levels of reliable information are available to distinct stakeholders – most transmission projects have many beneficiaries with varying usage profiles and different levels of sophisticated knowledge (resulting in private value and common value information), and many stakeholders have varying views on the magnitude of benefits. Furthermore, identification of beneficiaries and magnitude of benefits may change over time, complicating optimal cost allocation. It has also been argued (theoretically) that some parties may incur economic losses or reduction of economic rents (interdependence with generation assets) because transmission has characteristics of a public good/good with externalities. Through the lens of economic theory and real-world case studies, the paper will discuss whether and how these information-related challenges can be

overcome through structured arbitration with information dissemination policies that support negotiation and pre-empt holdout by one or more stakeholders. We will also weigh the pros and cons of coordinated or "managed" agency processes and search for advice from economic theories, like the Coase Theorem, that help resolve some of the problems identified.

Conclusions

The paper will conclude with an evaluation of how additional information can advance the stalemates often seen in regulatory processes for transmission investment. The Coase Theorem requires certain conditions that rarely present themselves in the real world – so we recommend setting up requirements in the real-world regulatory arena that align with the practical pinch points, while also learning from the theoretical conditions of the Coase Theorem. We will recommend a regulatory process for cost allocation and rate design that is tied to the transmission system planning process and contains the following elements:

1. identify/screen for only socially net beneficial projects;
2. set up a negotiation space/structure where all affected parties are invited;
3. provide information about benefits and externalities to all affected parties;
4. identify negotiating hierarchy (nested classes of affected parties); and
5. set time limits (as with efficient arbitration) and supra-majority voting metrics for designating successful outcomes (to stop individual hold outs).

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