The Truth About the Need for Electric Transmission Investment: Myths Debunked

By London Economics International LLC

Transmission infrastructure is part of an integrated system of resources that keeps the lights on. Transmission investment decisions are complex and large-scale, and they require careful evaluation, forward-looking analysis and long-term commitments.

Many common misconceptions around transmission investment have evolved from light-handed generalization about why transmission investment is needed and oversimplification of the costs and benefits. In this summary of their recent report on electric transmission investment, London Economics International highlights the most often repeated myths and those that are most distracting to investment and security of electricity supply in the future.

MYTH #1: Transmission is only built to meet current demand, which is not likely to grow. Constructing more transmission in anticipation of the unforeseeable future is a waste of resources.

TRUTH #1: Transmission is not only built to meet current demand, but also to manage evolving consumer behavior and new economic activities.

Even if "top-line" growth seems slow, electricity demand surges may arise in the near future. As the U.S. becomes more energy efficient, the economy constantly finds new uses for electricity; for instance, for electric vehicles (EV) adoption and electric-based heating of homes. Plus, a rapid penetration of EVs will lead to higher demand for electricity and may require new transmission and distribution infrastructure. Many utilities are actively planning for these new loads, by installing charging stations and other new infrastructure. The increased popularity of electricity for home heating could also impact the seasonal and daily pattern of electricity demand, and require new transmission upgrades.

MYTH #2: Transmission by 'wire' is old technology. There are new and more cost-effective substitutes for transmission.

TRUTH #2: Market-resource alternatives (MRAs)—such as distributed generation—are not always apples-to-apples substitutes for transmission. More often, new transmission serves as catalyst for investment in other electric infrastructure and promotes energy efficiency programs.

While new generation and demand-side can meet some of the same technical needs of the system that drives transmission investment, they are rarely a complete substitute to transmission in terms of the comprehensive spectrum of benefits and services provided. It is also important to recognize that transmission investment and MRAs are often complements rather than substitutes. Individual market-resource alternatives and non-transmission alternatives typically can provide only a partial suite of the services that transmission provides, and usually can meet only very specific and local needs.

MYTH #3: Transmission investments are prone to overbuilding. Therefore, transmission investments should be avoided.

TRUTH #3: Transmission projects go through stringent and comprehensive cost-benefit evaluations to avoid overbuilding and/or over-sizing.

"Gold-plating," or overbuilding, is often raised as an objection to transmission projects when stakeholders do not understand the benefits and focus only on costs. Regulators often focus on keeping consumers' rates as low as possible. However, it is equally, if not more, important to support long-term grid reliability, as reliable electric service will contribute to economic activity in a region. Deferring investment in transmission may result in risks and higher costs in the future. In addition, multiple avenues for avoiding and correcting "gold-plating" exist. For large transmission projects, stakeholder review is required by FERC, the ISOs/RTOs and the state agencies to ensure that investments are appropriate. Competitive procurements—where market forces are harnessed to control costs—are another venue for ensuring projects are sized appropriately for benefits and market activities.

MYTH #4: Transmission projects are big and have large up-front costs. Consumers will be required to pay for the costs regardless of whether benefits materialize. Large transmission investments should therefore be avoided or deferred.

TRUTH #4: The "price tag" for transmission investment is recovered gradually, with only modest impacts on consumers. Projects are subject to extensive cost-benefit evaluations to ensure the usefulness of the project and reasonableness of the costs.

The cost of a transmission investment is spread over many years, over hundreds or even thousands of customers and over millions of kilowatt hours. Transmission costs account for only a small portion of the final electricity bill—typically around one cent per kilowatt hour, or 10% of the retail price. For example, a $2 billion project in a state the size of New York will cost end-users less than a penny per kWh consumed—only around $0.00225/kWh. In order to combat concerns over uncertain benefits or underutilized investment, ISOs/RTOs conduct extensive cost-benefit evaluations and set conservative investment thresholds. Investments that go forward are therefore vetted to ensure expected benefits outweigh costs. Costs should not be evaluated in a vacuum—the real criteria for investment is the "net" benefit-cost relationship.

MYTH #5: Customers on the receiving end of a new transmission line are the only ones who benefit.

Truth #5: Benefits of transmission investment can be geographically widespread.

Benefits are multi-faceted and have varying timeframes and durations. A state or region that is a source of supply ("source" of the energy flowing on the transmission line) may see benefits from the construction of the transmission line—including economic benefits from an employment boom during construction—or the collection of taxes or other payments once the project is complete and operating, as well as economic opportunities for the generation resources that are sending their power on the line. "Source" regions may also see the prospect of additional economic development if and when new generation is built to supply the transmission. "Transit" states or regions—through which the new transmission line crosses—will see benefits from tax revenues or other payments in lieu of taxes collected from the transmission operator in addition to potential electricity cost savings, as well as environmental benefits. Finally, "sink" locations, the receiving end of the new transmission project, will see local economic and reliability benefits from more access to electric power and could also see "knock-off" effects from local economic boom from construction activities.

From Myth to Reality: Recommendations for a new "Playbook"

To avoid myths and think about transmission investment realistically, decision makers need to adopt a comprehensive and consistent approach to evaluating the costs and benefits of transmission.

- Costs and benefits should be evaluated as a whole package
- Transmission alternatives need to be examined comprehensively
- Recognize that certainty of costs and uncertainty of benefits can be an illusion
- Plan for the future
- Overcome the natural human tendency to be short-sighted and over-rely on recent experience
- Plan for the unexpected

Decision-making around transmission investment is complex and multi-faceted, and each transmission project is unique to some degree in the mix of benefits it can provide to consumers and the electric system. As London Economics International has shown, relying on outdated myths can handicap the decision-making process, wrongfully reject valuable transmission investment and result in missed opportunities to benefit consumers. We must strive to correct the myths in our thinking about transmission investment.

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