Transmission Rate Design: A New Dynamic

Competition and a regulated monopoly seem to be at the opposite ends of the economic world. But in Alberta's transmission environment, competition is a new and troubling reality.

In the emerging low-carbon world, customers large and small have increased incentives to install on-site generation. In addition to environmental benefits, on-site generation can to some extent avoid transmission and distribution costs. AltaLink has raised serious concerns that a flight of load from the transmission system could create a 'death spiral' as the fixed costs of transmission are imposed on an ever smaller group of customers, further increasing their economic incentives for on-site generation.

More fundamentally, *"Some recent large transmission projects have been caused by generation and by government mandate. Consumers did not directly cause these projects and any of their response would not have deferred or eliminated these projects." [AESO]* The AESO's forecasts indicate that generation – not customer loads – will be the major driver of transmission system expansion for the next 20 years.

The traditional focus of rate design is *"Cost causation based tariff design relies on identifying what is causing the cost, then price signal targets **consumption** behavior that causes cost." [AESO]* But since Alberta's transmission tariffs cannot by law target **generator** behavior, they cannot target the behavior that primarily causes cost.

"What questions do we have ?" In Alberta's situation, the central transmission rate design questions now appear to be:

How can transmission revenues from customers be maximized ?

How can incentives to (uneconomic) transmission bypass be minimized ?

"What do we want to know ?" The first question is competitive: how can I maximize the economic productivity of an asset? To consider this, the full range of feasible rate designs should be considered, from energy only through to fully demand based with a long-term ratchet. Each of these alternatives should then be tested for their ability to minimize uneconomic bypass, based on behind-the-fence project costs.

"What work does this lead to ?" Develop a broad set of feasible rate designs, incorporating 20 year transmission cost forecasts. Apply each rate design to a set of 'typical' customer loads (including distribution charges). For each such load, identify the most viable on-site generation options (including a forecast of possible future technology costs), and estimate the extent of transmission bypass. Scaling these typical loads up to the total province, estimate transmission revenues received and the resulting transmission rates.

The AESO's forecasting process already has the base data needed for these calculations. A 'first cut' approach might be to assess a very small number of scenarios, then focus in on areas of particular concern. Technical and economic advice from generation project and technology experts would be helpful for such a working group, as would rates modelling expertise. This work should then be integrated with capacity market rate design options.

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