Alberta's Electricity Future

energyfutureslab

CHALLENGE STATEMENT #5

Minimizing stranded assets as the electricity system evolves

What is the systemic barrier?

From power plants to wires and substations to customer meters, electricity system infrastructure have a built-in lifespan upwards of 20 to 40 years. In Alberta, power plants are paid off over a period of time through revenue generated within the electricity market, transmission and distribution infrastructure are paid off through the rates they collect from their customers. These assets become stranded when they still have remaining lifespan, but no longer earn a return on investment, due either to economic factors (e.g. market dynamics make the asset too expensive to operate profitably) or regulatory factors (e.g. policy interventions limit demand or preemptively curtail the asset's use).

As Alberta transitions to a net-zero electricity grid there is a possibility that some traditional electricity infrastructure (eg. power plants, wires, substations, etc.) may become stranded due to decarbonization policies, increasingly frequent and severe weather events such as wildfires, or alternative technical solutions coming online. The potential of stranded assets has significant implications, in particular from an economic and liabilities perspective. Transmission and distribution companies may shy away from attracting and deploying new and disruptive innovations that move the electricity system toward net-zero if they also increase the potential of stranding existing assets. This may limit the degree and speed by which the system overall will change.

Why is this critical to achieving our vision?

Electricity planning has a time horizon of decades and decisions made today have a material impact on our ability to make the shifts needed to achieve the vision we've set as our North Star. However, even if a new resource, business model, or technology that reduces overall electricity system costs and demonstrates additional benefits were to become available, it may face resistance if its implementation undermines the economics of previous investments. To avoid this, any solutions seeking to address this issue must involve a larger cultural change.

To align with Alberta's Electricity Future Vision's principles of diversifying solutions, embracing environmental integrity and adapting to change, we must provide players in a

deregulated system clarity on how assets at risk of obsolescence under a new electricity paradigm might effectively be wound down, repurposed or transformed.

What surface-level barriers are related to this systemic barrier?

Surface level barriers are often what actors see or experience as a result of a systemic barrier. Such barriers provide insights into areas that can be improved should the systemic barrier be resolved.

The following are examples of surface level-barriers given the financial risk of stranded assets as the electricity system continues to evolve:

- **Investor confidence is diminished by uncertainty over future Federal Clean Electricity Regulations and resulting targets**
- **Uncertainty over new regulations is causing capital to flee to other markets**
- **Complicated, overlapping, unpredictable and rapidly-shifting policy prevents credible investment modeling**
- **Businesses are struggling to make a case for investment in decarbonization due to lack of data**
- **Integrating distributed energy resources (DERs) may cause stranded assets, increasing the perception of DERs as a threat to current business models**
- **Regulatory decisions don't historically favour shortening amortization (asset life) of capital investments to align with higher pace turnover in technology assets. (e.g. smart meters)**