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The Battery and the Charger

B.C. and Alberta need each other’s power

By Martin Merritt

About 14 years ago, Alberta began to restructure its electrical system, and it’s been quite a journey to the market-based system we have today. Most people don’t understand what an important role British Columbia’s government-owned system plays in our market. From my perspective as head of the agency charged with making sure Alberta’s electricity markets are fair, efficient and competitive, I see our relationship with B.C. as mutually rewarding.

Alberta’s electricity market includes a host of buyers and sellers. At one end of the spectrum are small consumers like you and me who depend on electricity in our homes; on the other are huge industrial consumers mining the oil sands, operating pipelines and milling forest products.

On the supply side, generators range from wind farms east of Crowsnest Pass to huge coal-fired plants near Edmonton. The diversity of Alberta’s electricity supply has increased substantially. We now have more technology, fuels, locations, ownership, and maintenance diversity than in the past. Our system’s reliability, its cost structure and Alberta’s collective exposure to various risks are well-served by this diversity.

Less known is that Alberta and British Columbia are buyers and sellers of each other’s power. We Albertans buy from B.C. during our peak hours. B.C. buys from Alberta during the night. This arrangement confers tremendous benefits on both provinces.

There’s a misconception among some Albertans that the relationship between Alberta and B.C. is parasitic: we’re the host and they’re the parasite. According to this argument, our western neighbour is pulling a fast one by preying on a weakness in our market design.

The facts do not support those ideas. The power-exchanging relationship between the two provinces is symbiotic, and the symbiosis is based on geography. Alberta has lots of coal and natural gas, while B.C. has big mountains, long valleys and lots of rain. It makes perfect sense that B.C. based its system on hydroelectric power while we constructed one that primarily burns

hydrocarbons. Because of these basic realities, over the years the two provinces have evolved a mutually beneficial relationship – somewhat like a battery and a charger.

The power we get from next door perfectly complements our own – and vice-versa. Alberta's electrical demand varies substantially throughout the day and across the seasons. When we are fixing supper and using our home appliances our demand for power goes up, as it does during heat waves and cold snaps. It tapers off during spring and fall. Like other mechanical devices, generators fail unexpectedly from time to time. If they are wind-powered, their output is quite variable and difficult to predict.

Whether for reasons of temporary high demand, short supply or both, we're fortunate to be able to buy electricity from our neighbour. Last year B.C. sent us as much as 465 megawatts for brief periods. What we have in B.C. is a standby generator that can provide us with significant amounts of reliable power on short notice.

Could Alberta make do without B.C.'s hydropower? Sure, by over-building generation capacity in the province. It's worth noting that we don't just buy power from B.C. because we can't supply it ourselves....we buy it *anytime* that they are willing to supply it for less than it costs in Alberta. Every hour of the year Alberta generators have to compete with B.C. for the right to serve Albertans. If we had built a generator of our own just to supply the power that B.C.'s government-owned generators sent us in 2007, it would have run only 742 hours over the course of the year, or just 8 per cent of the time. This would make as much sense as buying an additional family car to avoid the odd cab fare.

Like cars, generators have costs that are largely fixed. Investing over \$500 million plus ongoing maintenance in a generator that would run infrequently would be a very poor use of capital in any market. At the end of the day such power would cost far more than the power we buy from B.C.

Mutual self-interest has evolved a smarter way. We sell electricity to British Columbia at night when we have surplus capacity, so they can recharge their hydroelectric reservoirs. We buy electricity from B.C. at supertime or on cold days or when a larger-than-normal number of our own generators are down for maintenance.

Our neighbour buys electricity from us when we least need it, and provides it to us when we need it most. This enables both provinces to make optimal use of their generating and storage capacity and use assets more efficiently. This keeps power prices lower in both provinces than they would otherwise be.

This arrangement has evolved naturally because of the physical differences between our electrical systems. It depends very little on differences in our market models. Yes, the market models are different. Alberta has developed a system in which markets determine prices and the

pace of investment, while B.C. has a regulated, government-owned power system. British Columbians are justifiably proud of their hydroelectric system, although today's B.C. taxpayers do not appear as keen to invest in publicly funded generation as their parents were. As a result, B.C. has become a net electricity importer. Many Albertans might be surprised to learn that in 2007 we sold much more electricity to B.C. than we bought from them, though overall Alberta too was a slight net importer in 2007.

Despite the vast differences in our market designs and because of large differences in the mix of our generation assets, the electricity systems of Alberta and British Columbia enjoy a unique symbiotic relationship. The big battery next door provides a market for our night-time surplus and a peaking supply for our crunch periods. Combine this with an investment climate that has attracted a steady stream of investor-funded generation projects for the past ten years, and you have a system that has provided reliable, sustainable power to the most robust economy in the country.

Alberta's Market Surveillance Administrator, Martin Merritt is head of an independent agency developed to ensure that the province's electric markets operate in a fair, efficient and competitive fashion. The MSA also monitors the retail natural gas market.