

How similar are TECO Electric and Nova Scotia Power?

Larry Hughes

AllNovaScotia.com – 12 October 2015

When announcing the expected benefits of Emera’s decision to purchase TECO Electric (part of TECO Energy), Chris Huskilson, CEO of Emera said that, “The beauty of this is that the company is very similar to us (Nova Scotia Power) today”. He went on to say that the two companies exhibited similar challenges and opportunities as well as a similar customer base.

An examination of the 2014 Annual Reports from both companies shows that in many respects they are surprisingly similar. For example, as the following table shows, in 2014, NSP and TECO obtained about 60% of their electricity from coal.

Fuel	NSP	TECO
Coal and petcoke	59.8%	58.9%
Natural gas	13.3%	36.1%
Oil	1.4%	0.0%
Purchased: Other	3.2%	5.0%
Renewables (Internal)	14.6%	~0%
Renewables (Purchase)	7.7%	~0%
Total	100.0%	100.0%

The major difference is how the two companies met the roughly 40% of non-coal generation. Ignoring the small volumes of purchased electricity both companies rely on (“Other” in the table), NSP is considerably more diverse than TECO. While TECO relies almost exclusively on natural gas, NSP generates roughly equal amounts of electricity from natural gas and wind (both purchased and internal), with the remainder coming from its hydroelectric facilities.

The completion of Muskrat Falls and the Maritime Link in 2017 is expected to mean that NSP will be obtaining less than 40% of its electricity from coal. Mr. Huskilson expects the “same kind of transformation” to occur at TECO, with it using “more and more clean energy”. (President Obama’s Clean Energy Act promise of support for states that reduce their use of coal for electricity generation will undoubtedly help Emera achieve TECO’s transformation.)

As the following table shows, perhaps the most striking similarity is the revenue generated by each company from its Residential and Commercial sectors. The considerable differences in the Industrial and Other sectors can be attributed to the fact that TECO sells bulk power to electricity resellers.

Sector	NSP	TECO
Residential	50.7%	49.9%
Commercial	29.4%	29.8%
Industrial	16.2%	8.1%
Other	3.7%	12.2%

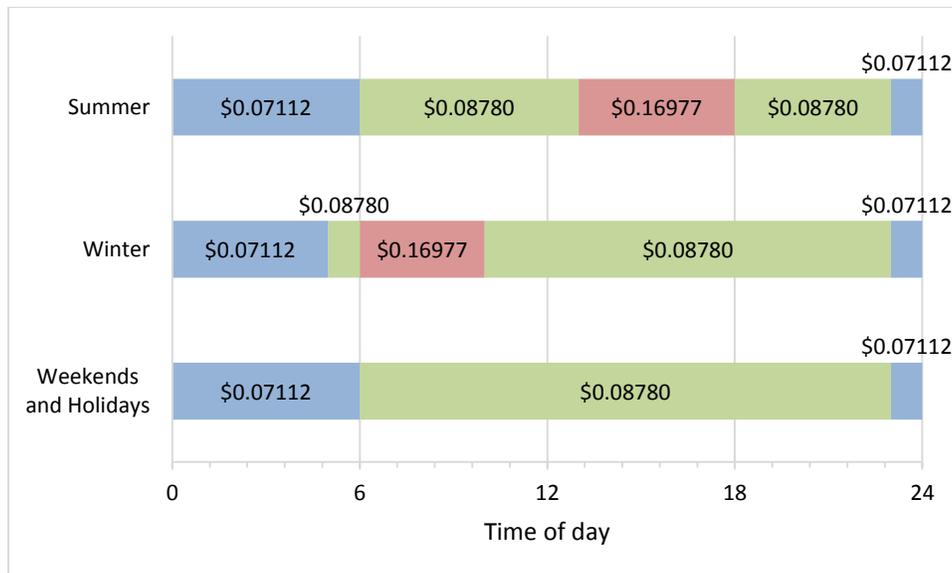
While it is reasonable to accept Mr. Huskison’s argument that TECO and NSP have numerous similarities with respect to generation and their respective customer bases, the same cannot be said for how the two companies bill their residential customers.

The vast majority of NSP’s residential customers pay a flat rate of \$0.14947 per kilowatt-hour for the electricity they consume. The flat rate means that consumers who use more electricity during the early-evening peak-hours are subsidized by those who use more during the off-peak hours. Moreover, flat-rate billing gives customers no opportunity to reduce their electricity costs by shifting their load to times when production costs are lower.

On the other hand, TECO’s residential customers have the choice of two billing structures. The first is an inverted-block rate, which costs \$0.09076 per kilowatt-hour for the first 1000 kilowatt-hours consumed and \$0.11076 per kilowatt-hour for each additional kilowatt-hour. While not reflecting the cost of generation, the inverted-block rate offers customers a way of reducing their electricity costs.

TECO also offers its residential customers a time-of-use billing structure known as Energy Planner, which varies the cost of electricity throughout the day, with a low overnight rate (\$0.07112 per kilowatt-hour), a medium rate (\$0.08780 per kilowatt-hour), and a peak rate (\$0.16977 per kilowatt-hour). Unlike flat-rate billing, time-of-use billing more closely reflects the cost of generation.

As the following figure shows, TECO’s residential rates vary by hour, day-of-week, and season (a summer afternoon peak and a winter morning peak for cooling and heating, respectively). The low and medium rates are available 87% of the time.



Unlike in Nova Scotia, TECO’s Energy Planner customers can reduce their electricity costs by allowing them choose when to operate their appliances. Most of today’s high electricity-demand appliances such as washing machines, dryers, dishwashers, electric water-heaters, storage heaters, and electric-vehicle chargers are referred to as “smart” because they can be programmed to operate during low- and medium-rate periods.

Energy Planner meters are connected to TECO's "smart grid", allowing the company to read the meter remotely for billing purposes. This also allows TECO to signal customers that it is experiencing a period of extremely high demand and that high-demand appliances should be shut-off. To discourage use during these periods (which are limited to no more than 131 hours a year), the price of electricity increases to \$0.41706 per kilowatt-hour. Customers aren't required to respond to this, the signals sent over the smart grid by TECO can be recognized by smart-appliances, causing them to shut down temporarily.

Despite the shortcomings of flat-rate billing to the customer, experience has shown that neither NSP nor the UARB have shown much interest in changing to either inverted-block or time-of-use billing.

At a rate hearing in 2004, some of my students and I proposed that NSP adopt an inverted block rate. Although NSP was willing to adopt the new rate structure, it was rejected by the UARB on the grounds that it would be unfair to low-income ratepayers. The fact that the province subsidized the energy use of low-income ratepayers was apparently not taken into account.

At a subsequent rate hearing in 2007, we proposed that NSP offer its customers time-of-use billing. This was rejected by NSP, claiming that since about 80% of its electricity came from coal, there would be little price difference between the low, medium, and high price periods (the UARB sided with NSP). Despite this claim, NSP continued offer time-of-use billing to anyone using electric thermal storage for heating. It is worth noting that in 2008, TECO, with an energy mix similar to that of NSP, implemented its Energy Planner program.

At the 2013 Maritime Link hearings, we recommended that NSP be required to install smart meters throughout the province because its energy mix would become sufficiently varied by the time Muskrat Falls came on-line. This was rejected by both NSP and the UARB. I was subsequently told that time-of-use billing would be pointless in Nova Scotia because NSP's energy mix is now too varied, changing at unpredictable periods throughout the day with the advent of variable renewables, principally wind.

NSP's claim of having too varied an energy mix is no reason for rejecting time-of-use billing. Not only do smart meters allow flat-rate, inverted-block, and time-of-use billing, they also allow real-time billing, letting the electricity provider change the rate dynamically to reflect the cost of generation and influence demand. For example, the cost of electricity could reflect the carbon content of the fuel used to generate it, encouraging the purchase of electricity from low carbon fuel sources. TECO uses real-time billing to increase its rates during times of extremely high demand.

Mr. Huskison will need to do more than transform the way TECO generates electricity to make it similar to NSP – he will also need to change the way TECO bills its residential customers. This won't be an easy thing to do since TECO's Energy Planner program is apparently very popular. Alternatively, he could transform NSP to make it similar to TECO by changing the way NSP bills its residential customers.

As TECO demonstrates, there's more to being an electricity provider than simply generating electricity.