

WHY ARE POWER PRICES SO DARN HIGH?

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It's a question we keep hearing from Albertans. In this *Policy Trends*, we leverage new research to break down what's behind Alberta's rising power prices.

In 2021, Alberta's wholesale power price more than doubled, rising from roughly \$48 per MWh (5 cents per kWh) in 2020 to over \$105. For many Albertans, nearly half of whom who are on a floating rate tied to the wholesale market, this led to shockingly high bills.

Some have pointed to transmission as the reason for high power bills. And while it's true delivery fees have [risen substantially over the past 10 years](#), now making up a large part of a typical bill, they're not the reason for the large and sudden jump in prices. Others point to the federal carbon tax, an oft-used fodder for complaints. But the federal carbon tax doesn't even apply to the electricity sector. The provincial large emitter program, TIER, does apply but it turns out the change from 2020 to 2021 only had a small effect on prices.

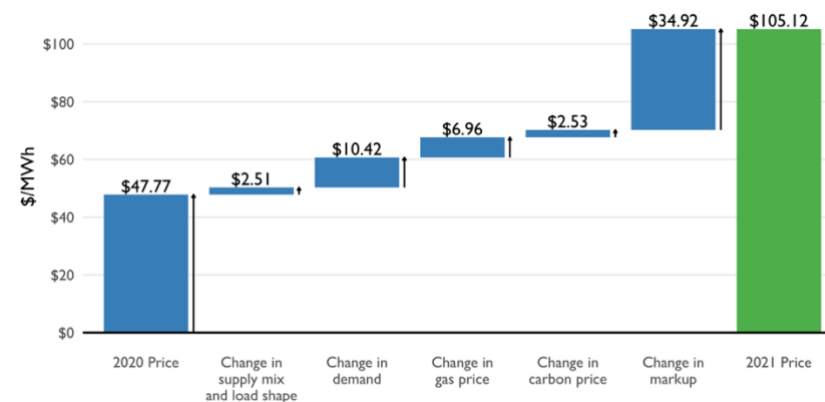
So to properly answer what's driving power prices we constructed a model, or *what-if scenario*, based on every available power plant offering power into the market at their marginal cost. It tells us where prices would be in a (fictional) perfectly competitive world. We can then see what happens when we change certain inputs. Here's what we find:

- First, the mix of power plants changed in 2021, with many coal plants converting to natural gas. Also, the hourly shape of load differs between the years. Both factors combine to raise our "benchmark price" by about \$2.50/MWh (0.3c/kWh).
- Second, [demand was nearly 3% higher](#) in 2021 versus the year before. Higher demand means more costly power plants are needed to keep the lights on. This adds \$10/MWh (1c/kWh) to our competitive benchmark.
- Third, [natural gas prices](#)—a key input to most power plants in Alberta—rose by over 60%. Higher gas prices mean higher costs to generate power. This adds \$7/MWh (0.7c/kWh).
- Next, the provincial "TIER" [carbon price increased by \\$10/tonne](#). Despite the attention, this adds only a small amount, roughly \$2.50/MWh (0.3c/kWh).

All told, these changes to the cost to generate power account for \$22 of the \$57/MWh price increase. So what's behind the other \$35? The answer lies in how Alberta's power market differs from much of the rest of Canada. In other provinces, regulated utilities pass on *all* their costs to consumers through regulated rates. Whereas in Alberta, generators compete

in an open market, with no guarantee the revenue they earn will be sufficient to recoup their fixed costs of investing in power plants. To do so, they need to earn revenues over and above their marginal costs of generating power.

In 2020, the difference between the realized market price and what we get from our model with all firms offering at their marginal cost—what we call the "market markup"—was only \$9/MWh. In 2021, this markup nearly quintupled: to \$44/MWh—a change of \$35/MWh.



Based on forthcoming research by Brown, Eckert and Shaffer (2022).

Why the sudden jump? The end of Alberta's 20 year PPAs (Power Purchase Arrangements) left control of more power plants in the hands of fewer power companies. This increase in market concentration, coupled with a generally tighter market overall, means firms can more easily exercise market power and profitably raise their offer prices.

So, what does this mean for Alberta's power market? On this, views will differ. Some will respond with calls to re-regulate. Others will note that occasional periods of high prices are needed for generators to recoup their fixed costs. After a period of low prices for the past 6 years, firms may be seizing the opportunity to earn a return on their investments. Over time, it is expected that market power will get disciplined by new entry. And we're seeing this, with thousands of megawatts currently in the development queue, but it will take time. In our view, the end of the PPAs and the resulting pop in prices raises important questions about the degree of market concentration and the potential benefits of forward contracting.

In the meantime, consumers wishing to be removed from the cut and thrust of wholesale power markets would do well considering a [fixed rate](#) for their power. Even with the runup in prices, fixed rates look attractive relative to floating rates for at least the next year.