MARKET SURVEILLANCE ADMINISTRATOR

Challenges of Success

Alberta's Restructured Power Market

Martin Merritt

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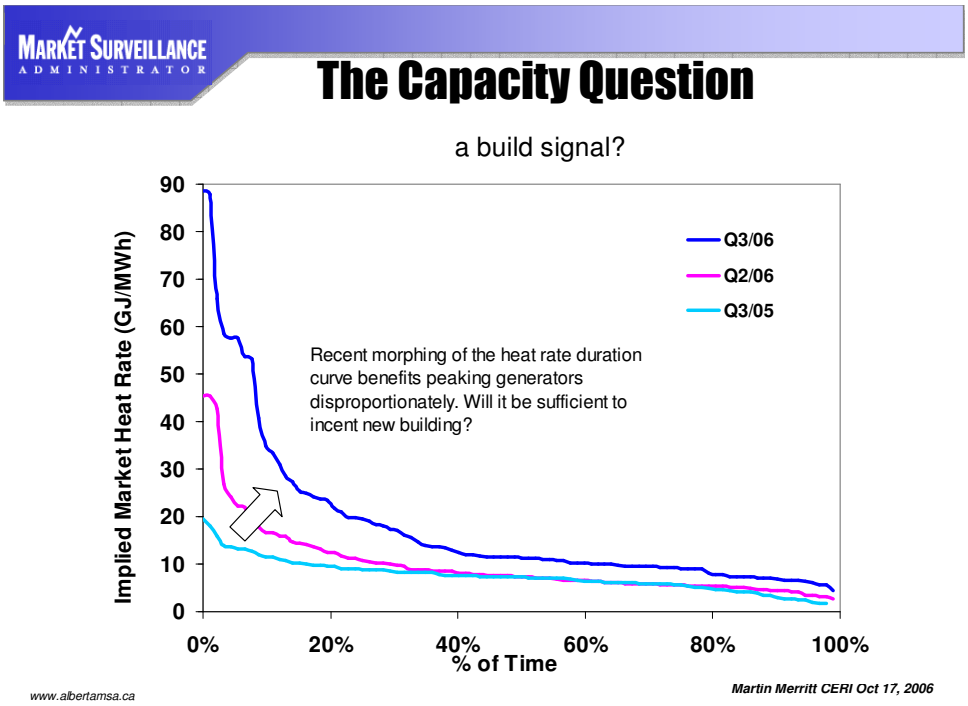
Challenges of Success – Alberta's Restructured Electricity Market

Since the first steps in restructuring Alberta's electricity market in 1996 we have been producing an hourly price signal. Since that time the province has moved from capacity deficit to surfeit and now back toward deficit, all documented appropriately by rational fluxing of the price signal and subsequently rational responses by market participants. As a booming economy ushers in a new period of inevitably tighter capacity several interesting questions confront us:

1) If, when, and how will investors respond to the current price signal?
2) Is society sophisticated enough to understand scarcity pricing and patient enough to wait for it to do its job?
3) In a market with high and growing concentration how do we ensure that appropriate and necessary scarcity pricing does not turn into monopoly rent?

My answers are: soon I hope, yes I think so with some education and very carefully, thank you….

Actually, my remarks today will skirt around these three questions as they apply to our wholesale market… as I am frequently reminded that the MSA does not make policy but maybe by asking the interesting questions and putting a little analysis out there we can at least contribute to the debate. Today I will try to give a sense of why I think these three questions are at the crux of a lot of what is important to Alberta's wholesale power market today.



The capacity question

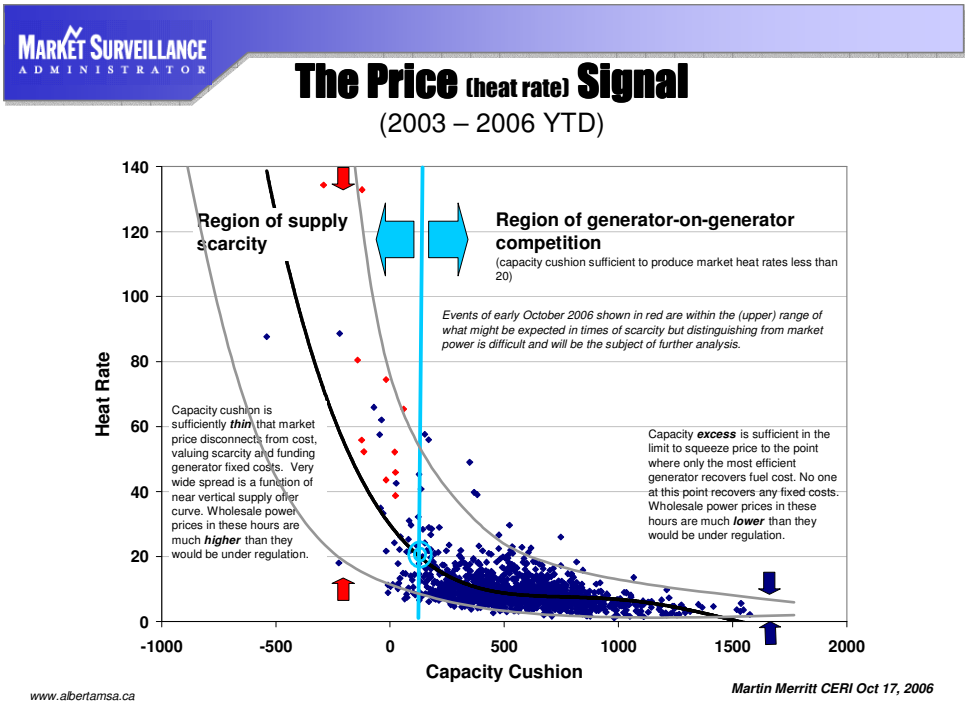
A couple of years ago the MSA with help from industry developed a rough model for examining retrospectively the theoretical profitability of various prototypical types of generation. (coal, gas combined cycle and gas simple cycle). Each spring the MSA runs the previous year's gas and power price through the model to get a read (with 20/20 hindsight) on the types of generation that might have been encouraged by the price signals that our market has produced. We will update this again in the spring of 2007. Last spring we observed that the retrospective view of simple cycle peaking capacity looked better than it has for some years, a consequence of higher price volatility despite what was at the time continued soft average power prices and heat rates.

I derived some comfort from the fact that the price signal appeared to be encouraging a form of generation that we had not built much of in quite a few years. I am curious to see what this year's run of the model says. Given the slide in gas prices since last spring and the further increases in both power price level and volatility I will be very surprised if it does not echo and amplify last year's indication. For reference the slide here shows how market heat rates have pushed out since this time last year and even since last quarter. Notice that most of the additional area captured under the heat rate curve is in the infrequent excursions to relatively high heat rates. While this improves the economics of all generation it helps peaking plants disproportionately.

Interesting as all that might be, last time I checked investors were not in the practice of calling the MSA to determine when or what to build; so the REALLY relevant question is: if, when and how will investors respond to the signal? We will shortly get to the point where all devotees of competitive markets hold their breath and cross their fingers while we watch load grow at about 400MW year and wait for what we all believe should happen, to happen.

Typically I don't get anxious over whether markets will "do the right thing" because unless they're broken many years of experience says that they do, One thing that I have been watching over the past few days is

a generous and persistent arb between Alberta and mid-C that suggests we should be seeing more imports. This concerns me for two reasons, first because in the short run if participants who are large and sophisticated enough to close the arb by importing are already so long that it makes no economic sense for them to do so, then size is getting in the way of efficiency, and second, if the portfolio math of today's large participants precludes closing an arb in real time with no capital investment then it seems likely to me that it might be unnatural to expect already long players to build new capacity… notwithstanding an apparent price signal to do so. Maybe the persistence (or not) of this arb will turn out to be the proverbial "canary in the coal mine", an indicator of participants' portfolio interests.



The pricing signal

The relationship between wholesale power prices and the thickness of the capacity cushion at any point in time should be conceptually obvious, large cushions produce low prices, small cushions produce higher prices and no cushion produces scarcity prices. It's always gratifying to see the real world line up with theory as we see in this slide which I would like to walk you through. The graph you are looking shows daily average heat rates scattered against the capacity cushion that produced them. Data is from January 2003 till just last week, about 3 ½ years worth, almost 1400 data pairs. The AESO's protocol for calculating capacity cushion does not include imports on either tie or wind so this is why it's possible to show a "negative cushion".

I have divided the chart into two halves with a pale blue line. To the right of the line the capacity excess is sufficient that generator-on-generator competition squeezes market heat rate to the point where at the right hand limit only the most efficient generator recovers fuel cost. No one at this point recovers any fixed costs. Wholesale power prices in these hours are much lower than they would be under regulation and the MSA's job is relatively easy. In fact, some of you may be aware that last year the MSA spent a great deal more time investigating the price depressing activity of dumping on the tie lines than we did looking at issues artificially pushing price the other way.

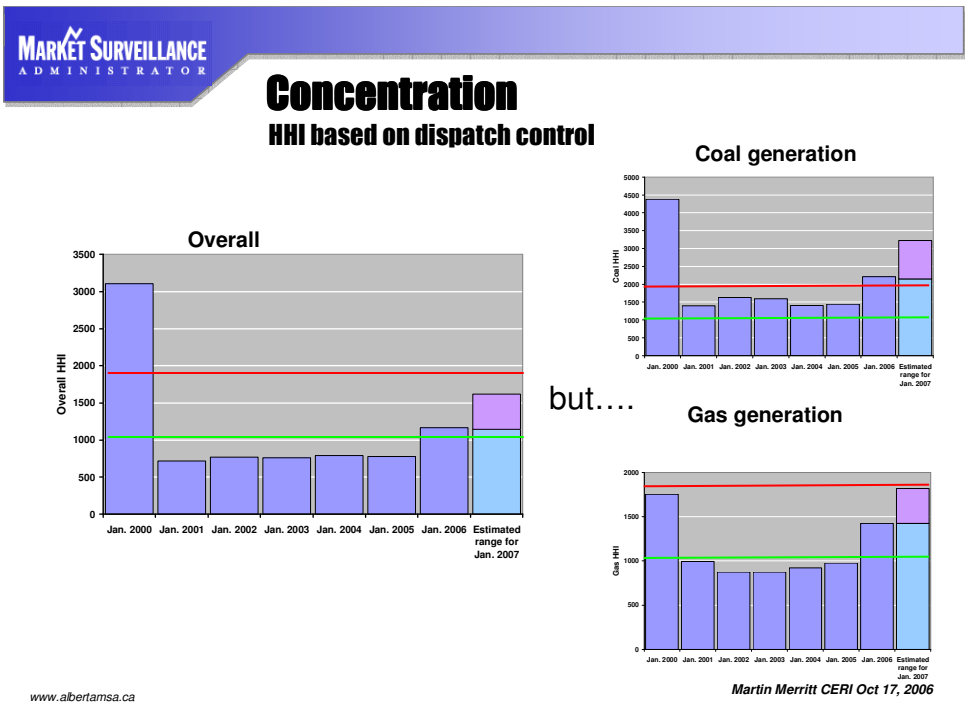
As we move left the capacity cushion gets thinner market heat rates climb through 20GJ/MWh and the region of gen-on-gen competition ends; we move to the left of the pale blue line, price disconnects from

short run generation cost, scarcity is valued and generator fixed costs are funded. The very wide spread is a function of our near vertical supply offer curve and market prices in these hours are much higher than they would be under regulation.

You may be aware that the first week of October produced several record high daily average pool prices. Capacity was indeed scarce through this period as a result of a combination of planned and unplanned outages. The Sep30 – Oct10 points are plotted in red. As you can see prices during this period were not totally out of line with what might be expected during a period of tight supply. Having said that, the line between necessary and appropriate scarcity rent and market power derived monopoly rent is a fine one. The MSA is sifting through the data and behaviours from this period and in due course we shall publish our analysis as we typically do.

Notwithstanding what we may or may not find on the behavioural side it is so important that all Albertan's understand that genuine scarcity pricing from time to time is a normal feature of our market design, it is an indicator that things are working, it is how we pay for all those low priced hours on the right side of this chart and it is how we signal the need for new generation.

When the market is operating in the region left of the line as we will do much more often in the next couple of years the MSA's job is much tougher. When the market is operating in this region it is absolutely imperative that the MSA stay out of the way of the price doing what it properly needs to do: signal and pay for scarcity, our long term adequacy depends on the integrity of this "build" signal. We must at the same time however be watchful for wealth transfers that are the product of anti competitive behavior. Such behaviour becomes increasingly possible when genuine scarcity coincides with growing supply side concentration – the subject of my next slide.



Concentration

Late last spring and through the summer the MSA undertook a research project to enumerate the various metrics that exist in electricity and other markets for measuring "competitiveness", the project also included a survey of market power screens and mitigation strategies used in various markets. We will be publishing

that report on our website shortly. I have one excerpt to share with you today that applies one of the simpler concentration metrics, HHI, to our Alberta power market. The Herfindahl-Hirschman Index or HHI is simply computed as the sum of the squares of participant market shares. So a monopoly, 1 participant with a 100% market share would have an HHI of 100^2 or 10,000. A market with 100 participants each holding 1% share would have an HHI of 100. In the limit then HHI can range from 0 to 10,000. Clearly this index is non-linear.

The US Department of Justice have published guidelines that they use in interpreting HHI. Markets whose HHI is below 1000 are considered to be unconcentrated and receive little scrutiny, above 1800 is considered highly concentrated. In moderately concentrated markets with HHI's between 1000 & 1800, M&A activity that increases HHI receives careful scrutiny and may require undertakings by merging entities.

The Canadian Competition Bureau also uses HHI among many other indicators, as does the FERC. HHI based arguments figured prominently in the recent collapse of a proposed merger between Exelon and PSEG. So despite various analytical shortcomings HHI does have a certain following among courts and competition regulators.

On the graph that you see behind me the HHI has been computed for Alberta's wholesale power market back to 2000. I have marked the DOJ thresholds that I spoke of with the green and red bars. You can see the precipitous drop in concentration brought about by the PPA auction in 2001 and you can also see how concentration has increased since as a result of retirements, new builds, Balancing Pool divestment and several secondary market transactions.

At least two large change-of-control transactions remain in the offing, one involving Calpine's Calgary Energy Centre and the other the Genessee PPA presently held by the Balancing Pool. The range of possible HHI's that our market could have in 2007 depending on where those assets go is shown by the right hand bar of each graph. As you can see when taken as a whole and judged by the US DOJ criteria Alberta's overall power market is moderately concentrated today and may get much more so as early as 2007. One of the weaknesses of HHI as an indicator is that it is very dependant on getting an appropriate definition for "market". For example: in Alberta the on peak and off peak markets, marginal assets and prices are quite different. Since coal generation is typically marginal at night and gas is typically marginal during the day we can consider the markets distinctly by computing HHI's on a fuel denominated basis to produce the two graphs you see on the right. When considered as separate daytime and night time markets the concentration challenge appears even more formidable.

I'm sure we'll have much more debate on this and other competitiveness indicators in the months ahead. For now watch our website for the complete report in the next couple of weeks. (or use the contact webmaster button on our home page to request to be on our spam list and we'll drop you a note when the report goes up)

Summary

So to conclude:

Alberta needs new capacity, the price signal has been moving the logical direction for logical reasons, we wait now with baited breath for the sound of shovels.

It seems certain to me that the frequency of capacity shortfall induced price spikes of the type we have seen in July and earlier this month will increase until new generation is built. It is imperative that Albertans understand that this is normal market functioning as is the high frequency of below full cost hours.

Concentration in Alberta's wholesale power market is growing, I urge you follow our website for the full report that I touched on today. If our next 10 years are to be as competitive and successful as our first 10 then we have to land on a means of ensuring that concentration does not get in the way of fair, efficient and open concentration.

Thank you.