$150 Million For 6 Minutes Of Work – Why Not?

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Less than a day after the news that shares in Elon Musk's Tesla Motors are down 20% on their peak as questions start to mount about the company's ability to successfully deliver quality products (including here, here, here, here and here) comes the news that Tesla, already the beneficiary of $5 billion of taxpayer subsidies has now won the right to build 100 megawatts (*or 129 megawatt hours, see note below) of battery storage in South Australia.

Predictably, the media is all over it, and is happily running the government and the company's lines – including that it is about "securing power," shoring up the grid, and pushing that wicked coal and gas further to the sidelines. How lucky South Australia is that Tesla has come to save the day!

But let's do the journos' job for them and ask a few questions:

- **How Much Will It Cost?**

No idea. After scouring available news sources it doesn't appear that the South Australian Government has revealed how much of its long-suffering taxpayers' money is being spent. But it's probably most of the $150 million set aside for battery storage by the SA Government earlier this year. This is quite a lot – and much more than the $8 million per year that it would have cost to have kept South Australia's last coal-fired power station open a little longer.

- **Batteries Are the Solution to Our Problems, Right?**

No – electricity batteries are not Duracell. They don't come with stored power and still rely on the electricity that somebody else needs to generate. If renewables were able to generate all of the electricity that households and businesses need in the first place then we wouldn't need batteries!

- **Isn't 129 Megawatt Hours Big?**

While 129 megawatt hours certainly sounds like a lot of battery space, it actually isn't

According to an official Australian Energy Market Operator report into South Australia of last year, SA electricity consumption in 2015-16 was 12,934 gigawatt hours or 12,934,000 megawatt hours. This equals an average of 35,435 megawatt hours a day or 1,476 megawatt hours an hour or 24.6 megawatt hours a minute.

So yes – if your maths is OK you will realise that this $150 million 'mega-battery' will only provide 6 minutes worth of South Australian electricity.

- **But It Can Help Stabilise the System, Right?**

Yes, renewables when coupled with batteries can help to solve some of the problems that renewables themselves have created over the last 10 years but at what cost? Because traditional coal and gas generators are able to be controlled at will, they have been able to provide the so-called "grid stabilization" measures that the network needs to function. As gas and coal are pushed out of the market by government-subsidised renewables that cannot be controlled because their performance depends on the sun or wind at the time, authorities have to apply various band-aids which may very well include a bunch of expensive batteries ready to be used if needed. Stealing food scraps from bins may satisfy your hunger, but a good meal is much better.

- **What Could it Really Be About?**

The official Tesla announcement is as amusing as it is revealing in that it seems to imply the batteries will solve any number of problems including helping to "solve power shortages, reduce intermittencies, and manage summertime peak load to improve the reliability of South Australia's electrical infrastructure." It also clams its power output is equal to the consumption of 30,000 homes which it magically claims is equal to the number of homes that lost power during last year's blackout. Convenient.

The most relevant sentence from the Release is: "Tesla Powerpack will charge using renewable energy from the Hornsdale Wind Farm and then deliver electricity during peak hours to help maintain the reliable operation of South Australia's electrical infrastructure."

In other words it will be built partly with taxpayer funds, get cheap electricity from a nearby wind farm, wait until the market price is high then sell its limited output for a very large profit. This will also further undercut the economics of the gas generators that faithfully supply electricity into the market for less and less of the time but stick around because they can make up some of their costs during these peak times. Batteries that throw their power into the grid during peak times will push reliable gas and coal generators out of the market sooner.

- **Is there a More Detailed Explanation of Why a Battery Won't Solve South Australia's Problems?**

Yes. For a slightly technical, but interesting explanation of some of this issues involved and why the battery is unlikely to fix them, see this blog piece by Paul McArdle from March where he explains that there are actually six problems in the South Australian power network.

- **Summary**

This is what happens when politicians are in panic mode, particularly when it is to fix the problems that their own policies have created.

Like Transurban's proposal for a new Melbourne road tunnel to help the Victorian Government get out of its East-West Link cancellation pickle at the cost of extending tolls on existing roads for another 10-15 years, battery providers have used the South Australian

Government's inability to guarantee a reliable supply of electricity to have its taxpayers subsidise their own business model.

The only reason Australia is suffering from supply interruptions and unprecedented price rises, is because governments have pursued policies that have destroyed the electricity market. This problem is likely to get a lot worse before it gets better.

Note

(* Note that a megawatt is typically a unit of strength, not of a unit of output like the traditional megawatt hour. Batteries are usually measured by how much electricity they can provide not by how big they are. Fortunately Tesla has confessed that its 100 megawatt battery will provide only 129 megawatt hours (i.e. the equivalent of 129 megawatts for one hour) of actual electricity. It is like the difference between speed and kilometres travelled).