

Snowy hydro and market concentration

November 2019

Snowy hydro currently has a dominant position in the peak generation and the related cap contract market segment of the National Electricity Market (NEM). When analysing peaking generation capacity, this becomes readily apparent (see Figure 1 below).

- **Two thirds** of the peaking generation capacity in NSW, and **half** of the peak generation capacity in Victoria is currently owned by Snowy Hydro.
- This is an **exceedingly concentrated** market in both NSW and Victoria, according to common metrics.
- Assuming “Snowy 2.0” is completed, the market share will be **further increased**, and the degree of concentration will become **untenable**.

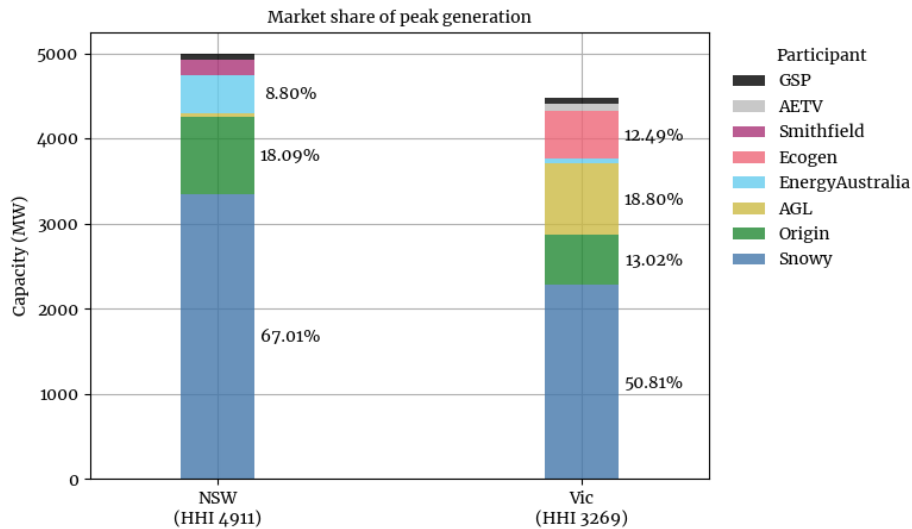


Figure 1: Current market share of peaking generation capacity for NSW and Victoria market regions.

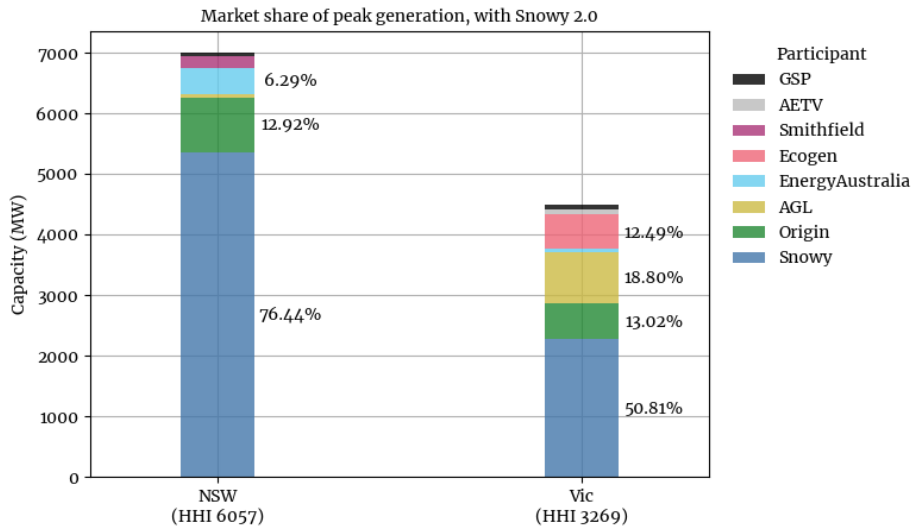


Figure 2: Market share of peaking generation capacity for NSW and Victoria market, assuming Snowy hydro peaking capacity in NSW increases by 2000 MW on completion of “Snowy 2.0”.

Herfindahl–Hirschman Index (HHI)

The Herfindahl-Hirschman index (HHI) is a commonly used measure of market concentration and is reported annually by the Australian Energy Regulator (AER) in the ‘State of the Energy’ market report (AER 2018, page 127). The HHI is a static metric, calculated by summing the squares of the percentage market shares for all firms participating in a market.

An HHI value of 10,000 is equivalent to a 100% share, and represents complete monopoly. An HHI value of 2000 is used by the Australian Competition and Consumer Commissions (ACCC) to flag competition concerns (ACCC 2008, page 37), while the U.S. Department of Justice considers markets to be *unconcentrated* at below 1500, *moderately concentrated* at 1500-2500 and *highly concentrated* at 2500 (U.S. Department of Justice and Federal Trade Commission 2010, pages 18 and 19).

The UK’s Office of Gas and Electricity Markets (OFGEM) guidelines are perhaps more relevant for the electricity market in Australia. The OFGEM regards an HHI exceeding 1000 as *concentrated* and above 2000 as *very concentrated* (OFGEM 2015, page 37). With a HHI value of 1243 in 2015, the considers the UK wholesale electricity market *somewhat concentrated* (OFGEM 2015, page 64).

HHI in the NEM

The most recent aer ‘State of the Energy’ market report shows annual HHI trends for each of the four mainland states over several years (AER 2015, Figure 2.38, page 127). aer’s reported an average HHI over 2000 for each region, which has not varied significantly in recent years. This is high by both OFGEM standards, and standards used by the ACCC.

In this analysis, the peaking section of the market is analysed a separate segment. Specifically, only scheduled generators of the following technologies type are included:

- Hydro
- Open cycle gas turbines
- Combined cycle gas turbines¹
- Reciprocating engines (distillate and Gas)
- Batteries

These technologies are typically used to meet peak demand, and have low capacity factors. They do not typically compete with technologies that produce bulk energy (for example coal, wind or solar). In addition, these power plant sell (and are financed through) cap contracts. As such, it is not unreasonable to consider this market segment in isolation. The following tables contain the list of scheduled generators and participants considered in this analysis from each state.

Victorian peaking generation

Participant	Power station	Max capacity
AETV	Bairnsdale Power Station	94.0
AGL	Bogong / Mackay Power Station	300.0
	Dartmouth Power Station	185.0
	Eildon Power Station	120.0
	Somerton Power Station	170.0
	West Kiewa Power Station	68.0
Ecogen	Jeeralang ‘A’ Power Station	260.0
	Jeeralang ‘B’ Power Station	300.0
EnergyAustralia	Ballarat BESS	30.0
	Gannawarra Energy Storage System	25.0
GSP	Hume (Vic) Hydro Power Station	70.0
Origin	Mortlake Power Station	584.0
Snowy	Laverton North Power Station	344.0
	Murray Power Station	1575.0
	Valley Power Peaking Facility	360.0
Total		4485.0

¹Traditionally, CCGT’s operated at high capacity factors. Current generation patterns suggest they operate more as peaking generators.

NSW peaking generation

Participant	Power station	Max capacity
AGL	Hunter Valley Gas Turbine	50.0
EnergyAustralia	Tallawarra Power Station	440.0
GSP	Hume (NSW) Hydro Power Station	70.0
Origin	Shoalhaven Power Station	240.0
	Uranquinty Power Station	664.0
Smithfield	Smithfield Energy Facility	185.0
Snowy	Blowering Power Station	80.0
	Colongra Power Station	724.0
	Guthega Power Station	80.0
	Tumut 3 Power Station	1800.0
	Tumut Power Station	665.0
Total		4998.0

References

- ACCC. 2008. *Merger guidelines*. Canberra: Australian Competition and Consumer Commission.
- AER. 2015. *State of the energy market 2015*. Melbourne, Australia: Australian Energy Regulator.
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