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## **Special Review on power system security, electricity prices, and emissions**

CSR Limited (CSR) is a manufacturer of building products employing over 4000 people in Australia, manufacturing or processing a product in every State and territory. The company operates with five divisions, CSR Bradford™, PGH Bricks, Monier Roofing, CSR Lightweight Systems which includes Gyprock™ Plasterboard, cement sheeting, ceiling tiles, Hebel and the glass division, Viridian™. Several factories are high electricity and gas users, including Viridian™ glass, PGH™ bricks and Gyprock™ Plasterboard. CSR welcomes the opportunity to provide this submission.

Energy and climate change policies are inextricably linked. CSR is highly impacted by energy and carbon policies, market structures, and supply security and availability. Commodity prices paid by CSR for both energy and gas have more than doubled over the last two years, and we expect them to triple by 2018. Australian energy costs were a competitive advantage against import competition for many years. This, combined with Australia's small scale, is now a competitive disadvantage.

CSR has consistently expressed its support for policies that will drive the lowest cost pathways to transition the economy *over time* to a low carbon environment, and that do not involve an early and unnecessary loss of competitiveness against its product competitors and trading partners.

Loss of competitiveness arising directly from the lack of availability of competitively priced energy will almost certainly lead to manufacturing plant closures, creating significant sectoral and regional employment disruption with significant social consequences.

The next major rebuild of a high energy demand furnace requiring a major commitment of capital by CSR is due in the early 2020s. The burden and relative loss of competitiveness from escalating energy costs will necessarily figure in the assessment of the economics of maintaining production in Australia.

### **Power System Security & Electricity Price Issues**

- The mission of the energy regulatory bodies (AER, AEMC, and AEMO) needs to encompass longer term energy security and supply. Regulations should be reconsidered to ensure and enable these bodies to fulfil their responsibilities in varying circumstances over time.

- **AEMO Rules of the game need a major overhaul to support secure and stable supply at economically driven prices:**

Almost 20 years ago, Australian governments supported the move to a more market driven electricity trading system with the establishment of the NEM. With most generating capacity and networks in the hands of governments that *at the time* behaved as though security was an overriding objective, generators' pricing and supply was primarily based on providing stable supply at economic prices. The original (now AEMO) Rules were founded and drew heavily on "good faith" principles.

With the privatisation and corporatisation of generators, the vertical integration of the industry, the changed objectives of owners (whether government or private), and the composition of generation capacity, the rules need a major revision to ensure the incentives and penalties built into the system meet the needs of today's environment and system. The overhaul should take account of:

- Suitability of "Good faith" based concepts particularly around bidding and rebidding in the entirely changed environment. Rules should spell out when and how bidding and rebidding is required and allowed in objective terms, and incorporate oversight and penalties for breaches.
- The time frames for rebidding need to consider the potential for gaming of the system, potentially by converting to the 5 minute timeframe while providing nuances to accommodate gas generators and demand management.
- Markets can be gamed because of the open nature of the bidding without the need for specific collusive activity. Rule changes need to address this issue.
- Minimum notice period of 2 years required when a generator is to close permanently. We recently saw the ludicrous situation of the withdrawal of 1600 MW of capacity through closure of the Hazelwood power station with only 4 months' notice. This short notice period completely undermines system security and reliability, and undermines the economics of businesses relying on power in east coast Australia.
- Generation availability – rules should mitigate against generators gaming the system with sudden withdrawal of previously forecast available capacity in the absence of actual and demonstrable system failure.
- System incentives need to economically support ancillary services and demand management
- Penalties for failure to act in accordance with the directions of AEMO need to be of substance.
- Renewable generation capacity should be required to twin with battery or gas capacity to ensure continuity of supply to a stated capacity. Variable renewable generation without backup undermines the economics of coal generated supply, and thereby undermines system security through forcing closure of stable fossil fuel supply, creating stability issues. Preventing or at least constraining the intermittency of supply without backup arrangements is essential to ensure system integrity and security is preserved.
- AEMO needs to have the powers to prevent short notice retirements given the absence of long term planning or adequate price signals to provide for intermittency or in fact sufficient generation capacity.
- States with above average levels of renewables generation should bear the cost of the backup power to ensure supply; they should not be enabled to draw power from those States maintaining fossil fuel generation at the expense of supply to those States while forcing up prices in the generating State.
- The potential to have generators off-line for maintenance in forecast high demand periods which conveniently take advantage of soaring spot prices needs monitoring to ensure no deliberate gaming is taking place. Objective evidence rules may be required. One could conclude the current rules incentivise this kind of behaviour.

- The rules need re-consideration to send the right signals to address these various shortcomings. Furthermore, the rule making process needs to be more flexible and dynamic, especially in the case of a strategic re-write.
- Policy needs to specifically accommodate the vital role of fossil fuel generators, in the provision of stable, lower cost, reliable, and secure electricity generation over the period to 2050:
  - Avoiding incentives to close generation and not upgrade the emissions standards is critical. This is regardless of the targets set for renewable energy generation as the stability of supply from fossil fuels will be required for some time to come.
  - Withdrawal of secure fossil fuel supply is more likely incentivise large consumers to source power outside of the grid, for example to add diesel generation.
  - NSW in particular is highly vulnerable given its dependence on supply from Victoria and Queensland. Both of these latter States are developing policy without consideration of their essential role in east coast supply. New supply and storage must be incentivised to provide services as well as generation capacity to ensure NSW does not end up in the same situation as South Australia.
- Natural Gas Generation plays a Critical Role:
  - Natural gas based generation plays a critical role as a provider of base line generation to provide quick start supply.
  - It is also critical to supporting variable renewable generation such as wind and grid scale solar generation.
  - Competition in retail supply of natural, as well as security of supply, remains of *critical* concern, including readily available economic supply into gas generators. The vertically integrated nature of the industry can provide a disincentive to provide supply and use of gas given benefits to be garnered elsewhere from failure to source or use the commodity.
  - The pressure on gas supply and price will likely see further pressure on electricity prices.
- Markets for intermittency and ancillary services should economically incentivised and accommodated and supported by rules and regulations :
  - So far, the market for intermittency and services has not delivered.
  - Market design does not support the provision of capacity, reserve, nor frequency. This flaw needs to urgently be corrected.
  - It is not clear how much higher the commodity price must be to justify coverage of intermittency, however our understanding suggests current prices exceed the levels required.
  - Furthermore, as noted previously, additional VRE connections need to be accompanied by storage and/or gas, and market design must allocate economic reward accordingly.
- Overall market design needs to framed with energy security and system stability as a primary objective :
  - ***Vertically integrated electricity providers should have Chinese wall regulation strictly enforced through out and between each of their operations*** so that the upstream generation is not aware of the derivative or futures positions of their trading operations. This needs to ensure generation is based on the needs of the system, not on the market positions of their trading operations. Derivative trading should be risk based, and not available to game the system.

- Market design has allowed renewable generation to enter the grid without bearing the consequential costs of intermittency. Price signals alone have not generated storage solutions, such as pumped hydro in the short term or the addition of sufficient peaking capacity.
- Review into the bidding interval of either 5 mins or 30 mins (current) should be determined by what is expected to drive costs down and be technology neutral. The current bidding interval of 30 mins allows bidding behaviour to game the system by bidding high for the last 5 or 10 minutes intervals to push the 30-minute price up which leaves market participants unable to adjust their demand.
- However, gas generators must not be pushed out by changes which effectively preclude their participation. Nuances to accommodate gas generators and demand management are required.
- The lack of a competitive market place is illustrated by the relatively short duration of the active futures market. An active market of at least 4 to 5 years would support and provide confidence for investment on both the supply and industrial consumer side. This would be aided by Chinese wall regulations among the “gentailers”.
- There is a distinct lack of competition amongst generators in some States. There is a lack of clarity regarding the provision of power across interconnectors to enable interstate competition.
- Interconnector capacity is critical to underpinning competition as well as security. Policy should be transparent and incentivise construction of additional capacity paid for by the demand side. The technology used by other advanced countries should be considered, including DC transmission.

## Emissions :

- **Separating building fabric from renewables provide the most sustainable design solution.**  
There is a common misunderstanding of the relative importance of renewable energy versus building fabric. Jurisdictions around the world do not allow a trade-off of active renewables against passive building performance. There are two main reasons:
  - Renewables do not last the life of the building – often requiring replacement 2-3 times compared to building fabric with a 70-year life
  - By relying on current renewables, you are limiting the scope to introduce much better technology innovation in the future.

**Regulations and incentives which support renewables in preference to or to displace a better building fabric should be avoided**
- **Immediately upgrade the National Construction Code (NCC) to 7 stars provide the most sustainable design solution.**
  - Every house built to a lower thermal standard or not complying is building emissions for the life of the building of up to 70 years will needlessly generate additional emissions. Compliance and home ratings schemes need to be considered. For information Victoria has recently trialled a residential Home Energy Rating tool which provides and star rating out of ten for their home’s energy costs.
  - Incentives could be provided to home owners to be received post construction (eg via rates reductions) to further upgrade their homes energy rating. **This would improve affordability of higher standards, increase the attention home owners pay to energy efficiency in their home, and most importantly permanently lower future energy demand and emissions.**

- **Emissions Reduction Fund:** CSR would like to see the Emissions Reduction Fund available for funding the gap between minimum state based energy efficiency standards (such as NSW BASIX) and higher performing design upgrades across large residential estate projects. An issue has been verification of energy savings. We believe this can be reasonably achieved through a formal post-construction testing regime using air tightness and thermography and other verification requirements to ensure “as built” meets design.
- **LREC or LGC rules applied to Snowy Hydro** incentivise aberrant behaviour and a biannual generation cycle rather than generation based on the needs of the system. This is particularly concerning given the government ownership structure of this organisation.
- **International Units:**

CSR supports policies which support the lowest cost pathways to transition the economy to a low carbon environment. This includes access to affordable, credible, fungible international units for those industries that may be liable.

There is an opportunity for the current ERF with modifications to act as a functioning scheme, to provide both domestic and potentially international units. Perhaps a pilot scheme through a bilateral arrangement with New Zealand to develop an effective approach to supply/access and management of international units could be examined. However it should be noted that international units are not a solution to issues such as trade competitiveness and carbon leakage.

Yours sincerely



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