ENERGY RESPONSE linking demand with supply in the Australian energy market

17 September 2010

Ms Jacqueline Cranshaw
Project Leader
Australian Energy Market Commission

Dear Ms Cranshaw,

Re:Reliability & Emergency Reserve Trader REL0041

Thank you for the opportunity to comment on the RERT Program. Energy Response (ER) strongly supports a reserve mechanism for the National Electricity Market (NEM).

We do not know what measure/s AEMO and AEMC use to determine the effectiveness of RERT, but if it is recruitment of significant volume of DSR (ie tens or hundreds of firm MWs), ready to be dispatched at short notice and providing cover for each of the jurisdictions in the NEM the program must be judged a failure. To our knowledge, **since its inception, the RERT program has attracted only one provider of Demand Side Response (DSR)**.

Our suggested improvements to RERT that were detailed in our submission to the AEMC, dated 19 April 2010, have been ignored and subsequent discussions with the AEMC Commissioners lead us to believe that RERT has little future in the NEM.

We understand that the third phase of the AEMC's DSP Review is to delve further into the use of Demand Side Response (DSR). The outcome of the past two AEMC DSP Reviews have been most disappointing and ineffective in producing meaningful change, so we are not optimistic that another review will bring about the changes required.

Background

When making a case for an aggregated DSR program as a reserve mechanism in the NEM we should consider how much the existing reserve costs electricity customers:

Our understanding is that Reserve in the NEM at anytime, stands at between 2,000MW to 4,000MW. The **cost of this Reserve is buried within the "energy only"** price of the market but it is there, since without reserve prices would skyrocket and overall system security of the grid would be at risk. Assuming an average

wholesale price for electricity of around $40/MWh[1] the annual cost to the market for this reserve must be between $700m and $1.4bn. If 1,000MW of aggregated DSR as reserve was introduced to the NEM and paid for at a rate similar to that for DSR providers in the Texas' energy only market, ERCOT, the cost would be approximately $87.6m. This represents a saving to the NEM of approximately $350.4m per annum.

Building further on this example, reserve is likely to be dispatched at times when the NEM experiences high prices (ie a failure of generation/grid assets somewhere constrains supply and lifts prices dramatically). The price for Reserve at these times, regardless of whether power generation reserve is dispatched or aggregated DSR is dispatched, will be many times higher than the average pool prices. The difference is that generation will be paid a market price (ie up to $12,500/MWh) and the aggregated DSR will be paid a tendered or agreed price, which may be lower. In effect, introducing 1,000MW of aggregated DSR as a standing reserve mechanism will save the market (and consumers) at least $350m per annum.

Energy Response believes that there is up to 3,000MW available from the Commercial and Industrial market sectors alone, so sourcing 1,000MW is a viable target.

There is no doubt the energy only market model works well on the supply side (for economic dispatch of generators) however experience teaches us that the NEM is not effective in promoting demand side solutions to deal with constraints in system capacity. The example outlined above demonstrates just how much more economically efficient the market can be with appropriate incentives for Demand Side.

Impact on Greenhouse Gas Abatement

Assuming that approximately half of the reserve capacity is provided by coal fired plants, which must be warm and spinning (ready for service), every MWh produces 0.9Mt/hr of CO_2 . Therefore, reserve capacity in the NEM generates between 8 million to 15 million tons of CO_2 per hour (between about 70Tt and 130Tt per annum on load and something less than that at idle – say 30Tt to 60Tt per annum).

About half of the DSR capacity used by Energy Response is load curtailment. Some load which is curtailed is energy that is never used again (eg turn a light off for an hour you never will use that hour of energy again) whereas some curtailed load is deferred to another time, so the CO_2 saving from curtailed load is difficult to measure accurately. Whatever the actual CO_2 saving is, it will be far less than having coal fired plants warmed up on standby. The other half of the DSR capacity is provided by on-site generators of which approximately 90% are diesel while the rest are mainly gas fired. Well maintained diesels[2] and gas generators emit at least 40% less CO_2 than coal.

The analysis would not be simple but rule of thumb suggests that at least 15Ttons to 30Ttons of CO_2 could be saved per annum using 1,000 MW of aggregated DSR for reserve. This would be a valuable contribution to Australia's targets (whatever they might be) for reducing CO_2 emissions by 2020.

---

[1] We assume that the longer term average wholesale price of electricity is reflective of what a generator reasonably expects as a return on their investment of the generating asset .

[2] The running of diesel plant for DSR duty is only for 20-50 hours per year and generally replaces the need for maintenance runs for some or all of that time, so production of non- CO_2 pollutants from these units are not considered deleterious to the environment.

Interference with the Energy only Market

There are concerns that aggregated DSR as reserve distorts market prices. Energy Response does not believe that this is true. Aggregated DSR, contracted outside the market, would only be used at the direction of AEMO; just as generators are directed to come on line when AEMO determines that it is necessary. If market prices are high but no reserve shortfall is foreseen then the DSR is not required and left on standby.

Comparing the NEM to other markets like the WEM in West Australia may be an unfair comparison, but it cannot be ignored that 8% of the maximum capacity of that market is aggregated DSR. That 8% represents possibly hundreds of end users in West Australia who are getting an effective cost reduction to their electricity. Imagine the positive impact to the WA economy, the competitive advantage it provides those companies and the jobs that creates, compared to the complete opposite situation in the NEM. 8% of the NEM capacity would reflect about 4,000MW and at ERCOT Prices would inject about $400m annually into our economy and coincidentally save the economy about $1.4bn per annum.

Related Matters

Right now, the NEM does have both curtailable demand and non-scheduled generation that can be dispatched when prices are high. However, much of this capacity is contracted by retailers whose interests do not always coincide with the price signals given by the market. In addition, price distortions currently built into the market rules, such as the $187,500 rolling price cap, actually provide price signals to DSR providers that run counter to the prevailing requirements of the grid ie the DSR is stopped when most needed. The experience of South Australia last summer is a prime example; when the price cap was applied DSR that had been dispatched (ie curtailed load) because of high prices suddenly came back on load and non-scheduled generation that had been running because of the high prices came off the grid.

Market Operators need firmness in demand reduction. The demand reduction must be reliable, measureable and, known in advance. The current price driven mechanisms that reduce demand are unpredictable and in some instances provide signals opposite to what is required. Under these circumstances there can be no confidence in who will or won't curtail and where that curtailment will come from. A properly managed aggregated DSR program is contracted for a firm capacity and is dispatched when directed from predetermined sites.

As stated earlier, RERT as it currently stands appears to be a complete failure, attracting only one end user to the program since inception. The fee structure allowed under the current rules, which limit payments to dispatch only in deference to the "energy market", provides no incentive to entice aggregators and end users to join this program whereas the work involved to contract an end user is substantial. Once contracted a site must be trialled, its DSR verified and lines of communication established to ensure the site's availability for an emergency event. In its current guise RERT does not, and cannot, accommodate these necessary provisions.

The supply side orientation of the NEM is well known. However, any market that is too supply oriented is too expensive and hence, too inefficient. The NEM needs more demand side participation to ensure its wellbeing.

We trust these comments are useful in the RERT consultation process and we look forward to improvements which may ensue.

Yours faithfully

Peter Nolan

Energy Response RERT Program Manager

Energy Response Pty Ltd Level 1, 250 Queen Street, Melbourne VIC 3000
(ABN 49 104 710 278)
www.energyresponse.com