

14 December 2008

AEMC DSP Review Stage 2 – Supplementary Submission

Providing an environment to encourage Demand Side Participation (DSP) in the National Electricity Market (NEM)

Executive Summary

This Paper has been produced to support the Australian Energy Market Commission's Demand Side Participation Review process which is currently in its second stage. Energy Response is concerned that every endeavour must be made during this Review to identify barriers and recommend solutions that will encourage and empower the Demand Side of the National Electricity Market (NEM) to participate to the fullest extent possible. This would then mean that electricity consumers will be able to realise the best value for themselves and help create a more efficient and reliable electricity supply system.

The Paper does not cover all the issues because some are progressing reasonably well in the Review. While the main issues discussed in this paper are not being forgotten in the Review we do not think they are progressing as well as they could.

Energy Response has contributed to this Paper from its four years of Demand Side Aggregation experience gained in three electricity markets. We are delighted that others have also joined this process, especially via a recent Workshop which brought together significant NEM expertise. We recognise and appreciate the contributions and support of KPMG, NEMMCO and Lance Hoch (recently with CRAI).

We are all firmly of the view that fully functioning Demand Side Participation in the NEM will add very significant benefits to electricity consumers and the national economy. Knowledgeable economic analysis of such a properly functioning Demand Side Participation program in the NEM with 1,000MW of Demand Side Response (DSR) will benefit the Australian Economy by several billion dollars per year¹. This should be a significant stimulus for manufacturing and small business in Australia and an offset against the price rises which will be incurred.

In addition, the awareness of being able to respond to the electricity market should make all consumers much more aware of their energy consumption and that's good for the environment.

Arising from the Workshop we recommend small changes to the Rules that will progressively enable strong Demand Side Participation in specific areas of the NEM. Amongst the first of these changes is for the AEMC to introduce a new category of Market Participant in the NEM, that of a Demand Side Aggregator. Progressively, staged over three years, we also recommend that Energy Response, other Demand Side service providers and consumers,

¹ Energy Users Association of Australia "Trial of a Demand Side Response Facility for the National Electricity Market: Independent Consultant's Report", April 2004

are enabled and empowered to provide a range of Demand Side Services, including frequency control and reserve services. in the NEM.

Energy Response Pty Ltd remains focused on developing economically viable Demand Programs that add value in complex electricity environments.

1. Introduction

The introduction of the National Electricity Market (NEM) a decade ago was to provide a competitive environment for the supply of electricity. The competition in the NEM comprises “supply side” activities; namely, generators bidding to supply electricity, electricity Retailers purchasing from the “pool” of generated electricity and Network companies encouraged to tender their capital works. Although it was always intended that consumers would directly participate in the NEM by reacting to pricing signals (with “demand side” activities), the introduction of effective mechanisms such as smart meters with commercial and industrial (C&I) consumers over the past 10 years has not encouraged a demand side counterbalance. The supply side therefore dominates the electricity market operation, making the NEM far less potent and far more costly to consumers and the economy.

The purpose of this Paper is to inform a wide audience about the capability of and benefits from electricity consumers responding in a well organised way to signals from the NEM.

Effective DSP will maximise the benefits for the Australian economy in the order of \$3bn annually; or roughly 15% of the annual retail cost of electricity.

Consumer action to reduce their electricity demand in response to a price or other signal is termed a Demand Side Response (DSR). DSR can be applied in a number of different responses to various signals but in this Paper we are mainly addressing two forms of response. These are consumer responses in the context of providing Frequency Control Ancillary Services (FCAS) and Reserve.

Large generators currently are the main source of FCAS and the only source of Reserve under the current Rules. Generators earn revenue through the wholesale electricity market by selling energy and FCAS services and having spare capacity available to provide Reserve. This Paper defines why and how consumers can provide equivalent FCAS and Reserve services.

The Paper assumes a reasonable understanding of the overall arrangements of an electricity market such as the NEM but does not require the reader to have a detailed knowledge.

It is acknowledged that the AEMC is in the middle of its Review of Demand Side Participation in the NEM. Energy Response is a contributor to this Review and a member of the Review’s Reference Group.

2. What is a Demand Side Response?

As distinct from DSP, Demand Side Response (DSR) is the response action taken by a consumer, Demand Side Aggregator or others.

DSR can be used to reduce electricity consumption for a short time (seconds / minutes up to several hours) in response to a high price, peak demand, a shortage of supply or similar events in an electricity market.

Consumers on their own who choose to participate by providing a demand response (reduction in their demand) are not paid to do this from the NEM, even though their action provides value to the market and all other consumers as well as to themselves.

However the general mass of consumers all receive a benefit over time from such responses via a more efficient market.

In most cases DSR also benefits electricity retailers (by reducing price volatility), networks (by deferral of capital for the same network capacity) or generators (by minimising risk or by reducing CO₂) either directly from the purchase of the DSR or over time from a more efficient market.

3. Why is it efficient to have active DSR in the NEM?

- DSR is much cheaper than generation capacity to meet peaks in demand, respond to price peaks and to provide reserve
- FCAS and Reserve provided by DSR will further improve reliability and security of supply
- An effective DSP programme will
 - increase competition in the wholesale market as it responds to the current Supply Side dominance
 - empower electricity consumers to take additional specific actions for their own benefit
 - benefit all other consumers indirectly by improving the efficiency of the NEM and hence lowering retail costs
 - encourage them to reduce their demand and contribute to reductions in Carbon Pollution
- Electricity prices are rising due to rapid growth in the peak electricity demand, the impact of drought, tightening supply and demand and the rising cost of fuels such as coal and gas. The cost of carbon will further exacerbate these price rises. DSP will reduce these price rises.

It is therefore imperative to implement an effective DSP programme and support the use of DSR in all aspects of the NEM to, in part, counteract the impact on consumers and the national economy of electricity price rises.

4. How DSR is used in other electricity markets

Energy Response operates as a DSR aggregator in three quite different markets, viz, New Zealand, Western Australia, and the NEM. Our first hand experience has provided us with some relevant insights for this Review.

Demand Side Response is starting to accelerate its acceptance and hence contribution to a wide range of electricity markets around the world. It is particularly undertaking a growing role for Reserve Capacity.

It is also gaining acceptance to meet peak demands in networks (eg, by clipping peaks in demand to defer capital expenditure), to provide Frequency Control services (using fast acting metering and control systems based at the load site) as well as providing responses to peak prices.

New Zealand Market and West Australian Market

Our DSR experience to date in these two markets have provided positive co-operation for implementation of DSR as follows:

- In New Zealand, one of our products did not meet the Rules but an interim exemption was provided within a few weeks from the Energy Commission which enabled this innovative demand side product to be implemented in the market and help improve the stability of the power system. The Rule is now being changed.
- In Western Australia we found the regulators very interested in supporting DSR for a range of applications in the market. To that end we have been able to register as a Market Customer for the provision of DSR as Reserve Capacity without having the obligations and constraints of being an electricity retailer or generator.

California Energy Policy

Michael Peevey, President of the Public Utilities Commission of California was in Australia in May 2008 and met with delegations from the AEMC, AER, NEMMCO and other interested parties. Michael highlighted that California is determined to reduce its dependency on imported energy as well as that generated from coal fired and nuclear plants. Through the implementation of the “Loading Order” California is seeking to dramatically reduce the impact of Climate Change, improve the efficient use of electricity and make California more energy secure.

The “Loading Order” directs the utilities in California to assess all infrastructure projects (generation, transmission, etc) by:

- First considering all energy efficiency alternatives;
 - Secondly, consider all Demand Response (ie, Demand Side Response and Demand Management) alternatives;
 - Thirdly, consider all renewable options;
- and then, if the three alternatives above do not (in combination or in aggregate) achieve the required outcome, build the infrastructure.

This reverses the traditional approaches both there and in Australia, but would assist in steering the future in a positive direction for both market efficiency and carbon reduction.

The original White Paper on “Loading Order” is instructive for this Review process and is available at <http://www.energy.ca.gov/2005publications/CEC-400-2005-043/CEC-400-2005-043.PDF>.

5. How is DSR currently used in the NEM?

The current arrangements of the NEM allow consumers to either participate directly in the NEM (as a registered NEM Market Participant) or via their retailer. However, after 10 years there is still very little Demand Side Participation (directly or indirectly) by consumers. Hence inefficiencies prevail which impose higher than otherwise necessary costs on all consumers.

These higher than would otherwise be necessary costs in the NEM come from 3 main areas:

- Price volatility in the wholesale energy market, where generally more than 20% of the annual turnover of some \$8 billion occurs in less than 20 hours per year. Retailers purchase energy for their customers from this volatile market and cover their price risk by buying off-market hedge contracts. The costs of these hedge contracts add significantly to the retail price of electricity. A fast and reliable reduction in demand at the time of the extreme price peaks from the retailer's customers would reduce their exposure. However this does not happen very frequently.
- Peaks in network demand are currently mainly met by building additional network capacity. It is an expensive investment to cover peak demands that only exceed the current network capacity several times per year for a few hours per day (generally for less than 0.3% of the time). A reliable reduction in demand at the time of the extreme network peaks from local consumers can avoid the problem and defer the investment. However this also does not happen very frequently.
- Providing reliability and security of the power supply. This is mainly provided by the supply side and the Demand Side is excluded from being able to contribute by the current Rules. Energy Response and other similar organisations provide FCAS and Reserve services in a number of other electricity markets. This is our main area of focus in this Paper.

5.1 What currently is DSR doing in the NEM?

- Direct DSR
 - Only a handful of consumers (3 very large consumers at the moment) have ever participated directly in the NEM.
 - Knowledge of the electricity market and access to the right information is critical.
 - Consumers who participate directly are exposed to wholesale prices which are volatile but on average less expensive than a Retail contract for electricity
 - These consumers only benefit by avoiding the high costs at the time but are not paid for the value they create for all other consumers.
- DSR via a retailer
 - A number of Industrial and Commercial consumers participate indirectly via their electricity retailer
 - Due to the impracticality of a Retailer calling on tens and possibly hundreds of individual companies to reduce the demand in a very short timeframe

(generally with only a few minutes warning) only the largest consumers are ever called and even then infrequently².

- DSR for a Network
 - Several electricity Distribution Companies (those in Queensland and New South Wales) have control over the electric hot water load (ie control over the elements of the electric hot water storage units in their area). Victoria and South Australia have time switch controlled hot water load suitable only to switch the load on in off peak periods. This DSR is used only to serve the Network company's own needs. The effectiveness of this DSR is poor because hot water loads are generally light during peaks³. Also, the National Framework on Energy Efficiency Stage 2 (NFEE2) is seeking to ban storage water heaters because of their inefficiency and their high contribution to carbon pollution.
 - Other DSR programs are occurring in several Network business areas for example:
 - TransGrid (the NSW grid company) is currently contracted to use DSR to clip peak electricity demand over the coming summer
 - A small number of the electricity distribution network businesses such as EnergyAustralia, Integral Energy, Ergon and Energex have small but active DSR programs. These are all Government owned and all receive some form of incentive from government (or from a levy on consumers) to use DSR
 - Several Network companies supplement electricity infrastructure by using embedded generators (usually diesel fired) to meet predictable peaks
 - The Australia Energy Regulator (AER) is progressively assuming responsibility for regulation of distribution networks. They already have responsibility for regulation of the transmission networks. They are progressively increasing the requirements of all the network businesses to consider non-network solutions such as DSR in their economic evaluations.
- DSR for Ancillary Services
 - Arrangements exist within the NEM to provide grid reliability and security, including via FCAS and Network Control Ancillary Services (NCAS). However, there is almost no DSR participation in these areas in the NEM. Demand side is mainly excluded from participating at present.

² On 16 January 2007 ionised gases in the smoke from a bushfire in Victoria caused all the interconnectors from NSW to Victoria to be shut down. Energy supply and reserves from interstate (carried via the transmission lines) was cut for hours causing a quarter of Victoria to be blacked out. One large consumer saw the wholesale price fluctuating up to \$10,000/MWh that day but was not called by their Retailer to curtail their significant load. Eventually the consumer called the Retailer's Sydney offices to better understand why they had not been dispatched and was eventually asked to curtail.

³ In some grids (eg Gippsland in Victoria) off peak hot water loads constitute the peaks. Because these are time switched there is very little control over when the peaks occur and they occur in the off peak to keep carbon polluting plant running.

- DSR can provide FCAS and NCAS and does this in other electricity markets.
- DSR for Reserve
 - The only contribution that DSR is able to make for Reserve is via the Reliability and Emergency Reserve Trader (RERT) arrangements (formerly Reserve Trader). This is only called rarely and when the market is considered to have failed to deliver the required supply capacity. As it stands RERT is not a mechanism that can contract for DSR on an on-going or long term basis. It is also so rarely called and for such short periods that it discourages Demand Side investment, hence it is less reliable and efficient than a permanent solution would be.
 - DSR made a very successful contribution to a Reserve Trader requirement by providing 375MW of firm DSR for 8 weeks in 2005/6.
 - A defined quantity of Reserve is required all the time but there is no opportunity for DSR to provide any of this under the current NEM Rules.
- DSR via an Aggregator
 - DSR Aggregators are relatively new entrants into electricity markets. They source supplies of DSR from a range of consumers and aggregate the portfolio into a range of products which can fulfil any of the above market responses.
 - Aggregators are important because they absorb the market risk which they can manage through the diversity and size of their portfolio.
 - Only one independently owned DSR aggregation company operates in the NEM. It has successfully provided 125 MW of firm DSR for Reserve Trader (which demonstrates that DSR can provide substantial Reserve), regularly provides tens of MW for retailers and distribution networks, and is contracted to provide 50 MW of firm DSR for TransGrid for Network support this summer.
 - It is however, very limited in providing FCAS, NCAS or Reserve capacity in the NEM on a regular basis.

6. What are the problems for DSR in the NEM?

Demand peaks are growing about 50% faster than the average demand. Meeting these peaks will require major new infrastructure worth \$30bn to \$37bn over the next 12 to 14 years⁴. If we build this infrastructure (which is more than twice the rate than previously spent on electricity infrastructure in the NEM in a similar timeframe and we have less skilled resources available than ever before) it will increase the retail cost of electricity

⁴ Recent major Reports which have indicated a growing and urgent need for upgrade of much of Australia's key infrastructure:

- "Infrastructure Action Plan for Future Prosperity" Business Council of Australia (BCA) March 2005
- "Energy in Australia 2004" Australian Bureau of Agriculture and Resource Economics (ABARE) 2004
- "Growth 54" Committee for Economic Development (CEDA) April 2005
- ERIG Issues Paper July 2006

by an estimated 20% above cpi⁵. If we don't build the infrastructure because of lack of resources or capital then constraints across the NEM and lack of supply/reserves will also increase retail cost of electricity by an estimated 20%⁵ but with lower reliability.

The only mechanism that can break this upward cost cycle is a demand option like DSR. With 1,000MW of actively available DSR in the NEM the magnitude of the capital investment for new infrastructure would be significantly less and minimise rises in retail electricity costs for all Australians.

While the NEM works well overall and has provided a secure grid and a business model that provides effective supply oriented competition, this does not mean that it should not be improved.

The NEM is an energy only market and this is a design feature which currently seems to inhibit or at least limit Demand Side Participation. DSR is often seen as a capacity response (although measurable as energy). The benefits of DSR are very well known and in most other electricity markets the availability of DSR is growing much more strongly in capacity markets around the world than in energy only markets.

Overall there is very little consumer activity providing DSR into the NEM after 10 years of operation. This was not the intention of the market design or the NEM Objective. The NEM Objective states:

To promote efficient investment in, and efficient operation and use of, electricity services for the long-term interests of consumers of electricity with respect to—

- a. *price, quality, safety, reliability, and security of supply of electricity; and*
- b. *the reliability, safety and security of the national electricity system.*

It is clear that under this objective all possible action should be taken to promote the most efficient operation of the NEM. The best way that this objective can be met from now on is through the implementation of a strong and effective Demand Side. A missing component of this implementation is a strong Champion for this change process.

6.1 The range of problems for DSR in the NEM

- For Direct DSR
 - Only a few very large consumers participate due to the high risk through exposure to volatile energy provides for these consumers - it is not seen as attractive by large businesses unless they have some large loads that can be turned off at very short notice.
- For DSR via a retailer
 - Retailers generally offer this to larger customers in their supply contracts but the general view is that retailers do not value it as it is not firm (ie, not reliable and fast acting)
 - If called, these consumers only receive a portion of the benefits received by the retailer

⁵ Energy Response estimates based on References in Footnote 5

- Retail Traders as a general rule do not value this physical response and prefer to pay for the firm hedges they can purchase
- A Guideline introduced by the Australian Accounting Standards Board has further discouraged physical mitigation responses such as reducing demand and encouraged financial hedges.
- For DSR for a Network
 - Until recently the Regulations did not strongly emphasise the importance of considering “non-networks solutions” including DSR as an alternative to a capital spend.
 - Regulations are now progressively requiring that “non-network solutions” including DSR must be considered
 - There is a very strong business case for “non-network solutions” without incentives if two remaining issues can also be resolved, viz,
 - (1) adoption of a consistent and open financial comparison between a traditional build solution (capital expenditure) and a “non-network solution” (an operating expense) in every case, and
 - (2) publish confirmation that approval of the DSR solution will carry forward into the next regulatory period (just the same as the build solution does).
- For DSR to provide Ancillary Services
 - Only a Market Customer can classify a consumer load as an ancillary services load -- there's no provision for an intermediary. This imposes significant costs on any party wanting to enter the FCAS markets
 - Loads have to be bid into the ancillary services markets in whole MWs. Without aggregation, this is a problem: not many consumers have suitable demand that large. Aggregation is currently not accepted.
 - Currently the performance specifications are written around large generators.
- For DSR to provide Reserve
 - Despite the fact that DSR can provide Reserve all the time, it cannot provide reserve in the NEM without a change in the Rules that will provide a payment stream. The Rules currently only allow for Reserve to be provided by Generators.
 - The cost of generators providing the required Reserve in the NEM is bundled into the wholesale energy price. This means that it is not possible to identify and separate the cost of providing Reserve from the wholesale energy prices as it is in other markets. An estimate of the cost can be calculated by using annual Reserve cost figures from other markets but they can only be a guide.
 - Providing Reserve through generation means that the capital cost of the source of the Reserve is nominally AU\$1 million per MW of Reserve. The setup cost of supplying Reserve of equal capability from DSR (equivalent to the capital cost to establish the generation) is nominally AU\$40,000 per MW of Reserve.

- In some cases only having the source of the Reserve in large generators can mean that the Reserve is in the wrong place⁶.
- For DSR via an Aggregator
 - The problem remains that even though an Aggregator can provide better quality, quantity and more reliable DSR they still face the same inherent Design and Rule problems as the individual consumers. For example, the issue impeding Demand Side participation in the FCAS markets.

In summary, while DSR does participate in the NEM to a limited extent it is seriously inhibited by the current market design and some existing Rules. Table 1 shows observable differences between the acceptance of DSR in the New Zealand and West Australian electricity markets compared with the NEM. The most noticeable observations from Energy Response’s experience are with regard to Reserve and Frequency Control.

Major Programme	NEM	WEM	NZEM
Reserve Capacity (instead of Reserve Generation)	Non-market mechanism only	Commercial product	Possible but not simple
Frequency Control	Not feasible	Being encouraged	Commercial Product
Network or Grid Support Contracts	Difficult but gaining support	Showing interest	Commercial Product
Wholesale Price Hedging	Achievable (ER process)	Not practical	Gen-Ret vertically integrated

Table 1: Differences in acceptance of DSR in 3 electricity markets

6.2 Are consumers interested?

Energy Response has found a very strong interest from its DSR providers (electricity consumers). An excellent example is that, following involvement in a successful contract for 125MW with NEMMCO for Reserve trader for a period of 8 weeks in 2005/6, the participating consumers enthusiastically wanted to be able to provide this Reserve all the time. There has also been strong participation in other areas of DSR such as for the TransGrid 50MW network support project over this coming summer with over 100MW participating.

⁶ On 16 January 2007 ionised gases in the smoke from a bushfire in Victoria caused all the interconnectors from NSW to Victoria to be shut down. Energy supply and reserves from interstate (carried via the transmission lines) was cut for hours causing a quarter of Victoria to be blacked out. The reserve capacity meant to cover such a circumstance was in the wrong area of the grid and could not provide the required response.

6.3 Should parties in the NEM provide “Free” Services?

There are several areas of the NEM where there appear to be “free” services. These include apparently “free” Reserve provided by generators and apparently “free” demand reduction services by consumers (albeit as a compulsory last resort) when all else fails and they are switched off. Neither of these are actually free.

In the first case, sufficient generation capacity has to be built in order for this Reserve to be available and fuel has to be provided when the reserve is required to act. In the second case, consumers who are turned off (ie, lose all their electricity supply) make quite substantial losses.

We believe the cost of the Reserve is bundled in the wholesale energy prices bid by generators. This cost needs to be identified and the opportunity to supply Reserve made competitive with the Demand Side.

In the case of the free service by those consumers who are turned off, they are providing a benefit to all other consumers without compensation. Perhaps this opens an avenue for a Reserve Fund raised as a very small levy on all consumers. This levy could then be used to pay for competitively derived Reserve from both the Supply and Demand sides.

7. Recommended solutions for Consumers to Participate in the NEM all the time

In response to such a low and unreliable quantity of Demand Side activity after 10 years of NEM operation, Energy response arranged a Workshop on Thursday 4th December. This Workshop was aimed at identifying Demand Side solutions and to add value to the current AEMC Demand Side Participation Review.

The objective of the Workshop was to discuss the issue of lack of DSP with a number of acknowledged NEM experts and work together to define a set of viable solutions. The NEM expertise at the Workshop included Peter Eben (KPMG), Ben Skinner (NEMMCO) and Lance Hoch (recently with CRAi). Several others who could not attend the Workshop have also contributed.

The Workshop considered a number of alternatives that had been identified prior to the meeting with the focus on solutions which would enhance and encourage the ability of the Demand Side to participate much more readily and reliably in the NEM. The Workshop attendees agreed that this is a very important element of going forward in the NEM although it may not all be able to implemented at once.

The conclusions and a number of recommendations from the Workshop are documented below.

Energy Response acknowledges and appreciates the time and significant expertise provided voluntarily by the attendees at the Workshop and others who also made a contribution.

7.1 Assumptions

- It was assumed that:

- Initial solutions would be best to work within the current arrangements of the financial market or with only minor changes
- The Market Design is unlikely to be changed, however Rule changes will be undertaken to facilitate the development of DSP in the NEM
- There are some DSP activities which already do work in the NEM environment such as physical network responses. However, these need significant ongoing support for Market Participants to recognise their value.

7.2 Conclusions

The Workshop concluded that while DSP has environmental, community and business benefits for the NEM and Australia, the current arrangements are not conducive to supporting DSP as a recognised and paid for service. Therefore it is essential that a number of changes are implemented. The Workshop considered that the best approach would be:

- Define specific solutions. They include how to provide opportunities for DSP to participate in the NEM in various ways all the time, not just occasionally in response to an event.
- Adopt a staged approach. A three stage approach to implementation over several years is proposed. This commences with several relatively simple but important and effective initial changes.

7.2 Stage 1 (achievable within 6 – 9 months)

This initial stage will support DSP working in the existing financial markets (Energy, FCAS), and could open up off-market arrangements for DSP.

7.2.1 FCAS

There are several barriers to Demand Side providing FCAS. The barriers prevent DS Aggregation and non-scheduled loads from participating in the FCAS markets. We understand that the changes required are relatively simple to introduce, eg, performance measurement for FCAS is currently designed for generators and would need to be re-written to also include Demand Side and Aggregation. However, we expect there will a requirement for some minor Rule changes to allow aggregation and non-scheduled loads to provide FCAS.

Once these matters are changed we cannot see any technical problems that would preclude demand side (including aggregated loads) to enter a number of the FCAS markets. Energy Response has demonstrated to NEMMCO the technologies we have implemented to provide FCAS in other markets.

Recommendation: That the barriers to DSP in the FCAS markets be identified and removed within 6 months to enable aggregated Demand Side and non-scheduled loads with appropriate performance requirements to participate in the Ancillary Services markets.

7.2.2 New category of Market Participant

The view of the workshop was that establishing a new category of Market Participant for Demand Side Aggregators / Providers would be a significant and relatively simple way of bringing Demand Side Participation to the forefront.

Registering to participate in this category would need to be uncomplicated but must also ensure that standards for DSP in the NEM are defined and met.

Recommendation: That the requirements for such a category are established in consultation and approval is sought for this change from the appropriate authority and implemented within 9 months.

7.2.3 Generators contracting Reserve from Demand Side

The understanding at the Workshop was that scheduled generators can contract their Reserve responsibilities and / or FCAS out to other parties. This contracted or outsourced arrangement could be undertaken by appropriate Demand Side capabilities. If this is not correct, this may need a Rule change to enable it to happen.

Generators need to use additional fuel to provide Reserve and most FCAS services. The Demand Side alternative that they could contract directly does not consume additional fuel and also generally reduces electricity consumption to provide the service. While relatively small in volume this would create a reduction in Carbon Pollution.

Recommendation: That information is published within 3 months to confirm whether this is already possible. If not currently possible a Rule change will be required within 9 months.

7.3 Stage 2 (achievable within 18 months)

The second stage is for changes which may take 12 to 18 months to implement allowing for more complex Rule changes which may be required.

7.3.1 Introduce 5/30 minute settlement

The view of the Workshop was that introducing a 5 minute settlement will create more value for short term operations such as DSR and hence encourage DSP.

We understand that NEMMCO has already developed a set of recommendations for this and this should be re-considered in the light of the current DSP Review.

Recommendation: That NEMMCO re-present their earlier recommendations about 5/30 settlement to the DSP Review for discussion at the next Reference Group Meeting for new consideration aligned with DSP. For resolution and implementation within 18 months.

7.4 Stage 3 (achievable within 30 months)

This third stage would enable sufficient time to establish a permanent replacement for RERT. The permanent replacement for RERT will need to be designed and include full Demand Side Participation in providing Reserve capability in the NEM all the time.

There is a need to undertake a full analysis of the economic benefits of a Reserve capability arrangement to enable Demand support all the time. This should include Reserve from both generation and Demand Side (in competition) with long term contracts or other arrangements to enable cost effective pricing from both sides.

Energy Response's view is that Demand Side can make a very significant contribution to providing Reserve and is a logical option as it is provided from existing distributed assets which are in the best electrical location to respond to emergencies including short term shortage of supply.

There is plenty of evidence from both the NEM and other markets that existing Demand Side assets are capable of providing Reserve reliably and efficiently.

The Reliability Panel target of 0.002% is a long term average for grid performance. Reserve from the Demand Side would be provided from a widely spaced and diverse range of consumers and overtime would be capable of avoiding total blackout to any consumer in a major network failure such as 16 January 2007 in Victoria.

Recommendation: That the AEMC commission a study to examine, analyse, identify the benefits and define how Reserve can be provided in open competition between supply side and demand side including with flexibility to ensure that sufficient Reserve is available for all foreseeable circumstances into the future. For implementation within 30 months. This may become the suitable long term replacement for RERT.
