Mr John Pierce
Chairman, Australian Energy Market Commission
PO Box A2449
SYDNEY SOUTH NSW 1235

Re: Project EPR 0022- Stage 3 Demand Side Participation Review - Draft Report

18 October 2012

Dear Mr Pierce

The Energy Efficiency Council welcomes the opportunity to provide this submission on the Australian Energy Market Commission (AEMC)'s Draft Report "Power of choice - giving consumers options in the way they use electricity." The Council congratulates the Commissioners and staff on their substantial efforts to analyse the problems that are reducing the economic efficiency of the electricity market.

The Council believes that there is pressing need for specific reforms to parts of the National Electricity Market (NEM) to help ensure that electricity bills remains affordable. Electricity prices have risen by over 50 per cent in five years and, while some of this price rise arose from necessary or inevitable factors, a significant proportion of this price rise was avoidable. Without action, bills will continue to rise, affecting the welfare of households and the competitiveness of Australian businesses. These price rises could be exacerbated by rising coal and gas prices.

The Council calls for reforms to:

- Improve the cost-efficiency of network investment and operation
- Reduce peak demand, which is driving up network and generation costs
- Improve energy efficiency to help businesses and households get more out of every dollar that they spend on energy

The Energy Efficiency Council strongly supports key changes that the AEMC has recommended to the electricity market, including the proposal to allow consumers and third parties to sell demand-response into the wholesale market and the segmented approach to introduce time-of-use pricing. The Council believes that these recommendations will address significant issues in the electricity market, and place downward pressure on electricity prices for homes and businesses.

The Energy Efficiency Council also supports the AEMC's recommendation to provide a more substantial incentive program for network service providers to engage in demand-side activity. However, the AEMC's proposals for reforming network regulation, including the reforms being canvassed in other AEMC reviews, will not be sufficient on their own to rein in overspending by networks.

Network spending has accounted for around 50 per cent of electricity price rises in the last five years, more than all other factors combined. In comparison, while the carbon price has attracted significant media it has only accounted for around 10 to 15 per cent of price rises in the same period. Without urgent changes to the electricity market, network spending is likely to be one of two major factors driving up electricity prices in the next decade (the other factor being rising generation costs, largely from rising gas and coal prices). It is critical that the AEMC adopt stronger recommendations on network reform to keep electricity affordable for households and businesses.

In particular, the Council recommends that the AEMC introduce a minimum target for network service providers to offset at least 15 per cent of peak-growth driven network augmentation costs through demand-side activities each period. The Council notes that the Draft Report did not analyse this particular style of target, and the justifications for rejecting a target were limited and ignored the common use of targets in other aspects of network regulation, such as reliability standards.

The Council believes that current asset utilisation rates mean that most network service providers (NSPs) could substantially reduce future peak-growth driven capital expenditure through lower-cost demand-side activities. However, given that the exact proportion of demand-side activity would vary

Suite 2, 490 Spencer Street, West Melbourne VIC 3205 ABRN 136 469 291 ABN 63 136 469 291

between NSPs, it would be prudent to set a lower minimum target. Furthermore, if a NSP was to demonstrate to the Australian Energy Regulator (AER)'s satisfaction that, across its whole network, there were insufficient projects where demand-side options were more cost-effective than supply-side options to meet the target, it should be excused from penalties.

In summary, the Energy Efficiency Council:

- Endorses the AEMC's recommendation to allow demand-response to be sold into the wholesale market. The design phase of this mechanism should involve further work to consider and address the concerns of stakeholders.
- Supports the AEMC's segmented approach to introduce mandatory time-of-use pricing for network prices. The Council notes that this approach must also apply to capacity prices. Network businesses are currently significantly increasing their 'capacity charges' for maximum demand by energy users. Capacity charges must vary with time, as the costs of an energy user's peak demand are substantially higher if that peak aligns with a local or system peak.
- Supports the AEMCs recommendation to develop explicit rules that give consumers and third-parties (with consent) the right to access energy user data. However, these rules must specify the type of data, how it is provided, the cost of accessing data and the timeframes for accessing data.
- Broadly supports the AEMC's proposal that rules need to be developed to ensure sufficient consumer protection in relation to third parties providing energy management services. However, the AEMC needs to set some broad parameters for these protections. Where an energy management service provider is providing advice, retrofit services (e.g. building upgrades) or energy using products (e.g. fridges), normal consumer protection will be sufficient.
- Supports expanding the Demand-Management and Embedded Generation Connection Incentive Scheme (DMEGCIS) to provide incentives for network service providers.
- Supports the proposal to change the National Electricity Law (NEL) to provide network service providers with more clarity about how demand-side expenditure will be treated.
- Supports the proposal that the AER be allowed to provide networks with temporary exemptions from reliability service standards to reduce their risk-aversion to novel demand-side activities.
- Urges the AEMC to adopt much stronger changes to network regulation, including changes that are being canvassed by reviews outside of the Power of Choice. The recommended changes are:
    - Substantially increase the power and resources of the AER. The Council does not have a position on whether the AER should be part of, or separate from, the Australian Competition and Consumer Commission.
    - Ensure that the allowed Weighted Average Cost of Capital (WACC) is close to the actual cost of capital.
    - Set a mandatory minimum target for network service providers to offset at least 10 per cent of peak-growth driven network augmentation costs through demand-side activities each regulatory period.
    - Decouple electricity volumes from profits for currently price-capped NSPs. The Draft Report notes on page 128 that *"in the Victorian 2006-210 regulatory control period, the AER asserted there was over recovery of revenue of $568 million (in 2010 values) above the adjusted forecast. This represents an over recovery of revenue of 8.28 per cent annually for each distribution businesses"* but does not provide a justification for rejecting the obvious solution to this problem - decoupling volumes from profits.
    - Adopt a solution to the current system incentive to invest in capital expenditure (capex) rather than operational expenditure (opex), such as shifting to a total expenditure system (totex).

Suite 2, 490 Spencer Street, West Melbourne VIC 3205 ABRN 136 469 291 ABN 63 136 469 291

- Undertake a review on the system for charging generators to connect to, and use, the network, to ensure the system is fair and cost-effective. A well-designed system will result in better investment decisions, ultimately saving end-users money.
- Immediately establishing an interim system to reward the first 3,000 MW of cogeneration in Australia through either a simple 'network support payment' or energy efficiency certificate schemes. This interim measure is necessary as it will take some time to address the multiple barriers to distributed generation, including reforming the way that generators connect to and use the network.
- Introduce a distributed generation connection incentive, similar to that in the UK.

- Opposes the proposal that network service providers be allowed to sell the output from distributed generation to energy users or the wholesale market. This proposal is contrary to the principle that the electricity market should be competitive where possible, and would introduce distortions whereby monopoly companies could use their regulated returns to support activities in non-monopoly markets. This is a very substantial issue, given that distributed generation is growing substantially. NSPs can adequately foster distributed generation where it provides network benefits by offering network support payments to third parties that could install distributed generation and sell electricity output.

The Energy Efficiency Council looks forward to working with the AEMC as it finalises the Power of Choice review, to ensure that the NEM meets the needs of the community. Please contact me on 03 8327 8422 should you require further information on any of the issues raised in this submission.

Yours sincerely

Rob Murray-Leach

Chief Executive Officer

Suite 2, 490 Spencer Street, West Melbourne VIC 3205 ABRN 136 469 291 ABN 63 136 469 291

Contents

Suite 2, 490 Spencer Street, West Melbourne VIC 3205 ABRN 136 469 291 ABN 63 136 469 291

1. Need for demand-side reforms

Governments need immediately to start to work to introduce a suite of short and longer-term reforms to the National Electricity Market (NEM) to ensure electricity bills remain affordable. Household electricity bills have risen by over 50 per cent over the past 5 years, and unless action is taken now they are likely to increase substantially over the next decade.

Over the last 5 years, expenditure on the network (poles and wires) has risen significantly above historical trends, and network costs account for roughly 50 per cent of residential electricity price increases. Even just looking at the four year period 2010/11 to 2013/14, networks account for 40 per cent of price rises, the carbon price around 20 per cent of price rises, and other factors in the generation market around 19 per cent.

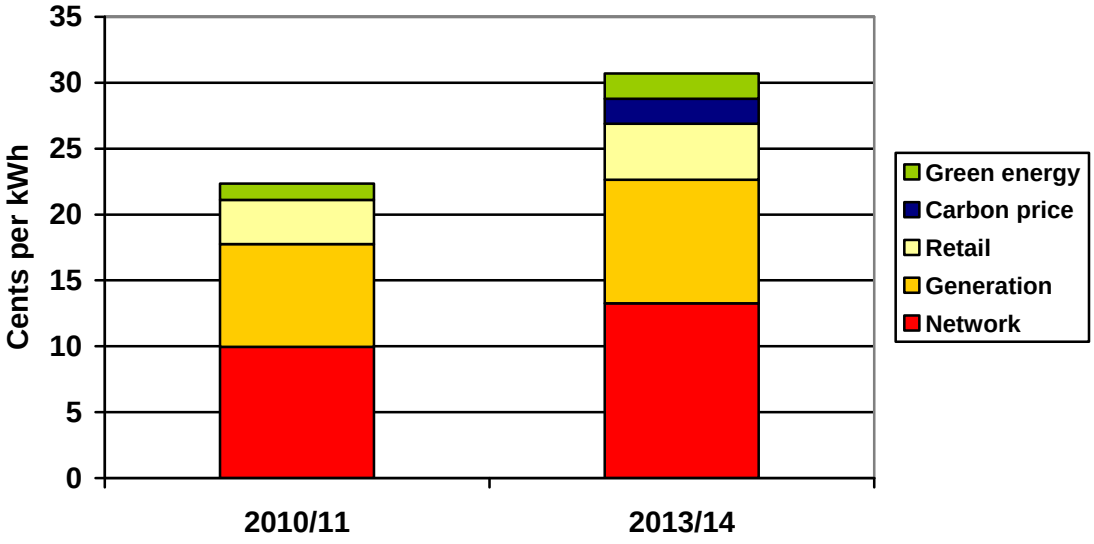

Figure 1: Projected national average residential prices in 2010-11 and 2013-14
Source: AEMC, 2011 *Final Report: Possible Future Retail Electricity Price Movements: 1 July 2011 to 30 June 2014*, p 19.

While some of this expenditure was necessary to replace aging assets, these costs have been exacerbated by:

- Incentives that do not encourage cost-efficiency; and
- Rapidly rising peak demand and the focus on building the network to meet peak demand, rather than reducing peak demand.

Peak demand has been growing much faster than consumption, growing by 30 per cent between 1999 and 2010, from 26 GW to 34 GW. High peak demand means that we now have over $11 billion in assets that are used for less than four days a year. In other words, assets that are used for less than 1 per cent of the year account for a significant proportion of energy costs.

The reasons for rapid growth in peak are well understood. Australia does not have a more serious peak demand problem than other high-income countries because of weather patterns or declining costs of air-conditioning units. Rather, it has a serious peak demand problem because the economic framework for cost-effectively reducing peak demand is under-developed. Currently, the vast majority of consumers pay only a fraction of the cost of supply during critical peaks and, unsurprisingly, this has lead to overconsumption during critical peak periods.

The Council believes that network expenditure could have been substantially lower if network regulations and incentives encouraged network service providers (NSPs) to be more cost-efficient, and the distortions that lead to higher peak demand had been tackled. Most projections indicate that, if we do not urgently reform network regulation and peak demand, network costs will continue to rapidly rise over the next decade, saddling households and businesses with much higher energy bills.

Suite 2, 490 Spencer Street, West Melbourne VIC 3205 ABRN 136 469 291 ABN 63 136 469 291

In addition to networks, wholesale energy costs could rise substantially in coming years, as the costs that generators pay for coal and gas rise and the growing 'peakiness' of demand encourages investment in relatively expensive forms of generation. Reducing electricity demand, particularly during peak periods, will be critical to keep wholesale prices down. Furthermore, helping households and businesses to become more energy efficient will help keep energy bills down while per unit generation costs rise.

Therefore, the Energy Efficiency Council also strongly recommends an urgent focus on improving the efficiency of the economy. This includes:

- Establishing a national Energy Saving Initiative (ESI) to help homes and businesses reduce their energy demand. This would reduce red-tape by replacing four state and territory schemes that already exist or are under development.
- Maintaining critical programs that help homes and businesses improve their efficiency, like the Clean Technology Investment Program, Energy Efficiency Opportunities Program and Commercial Building Disclosure Scheme; and
- Improving the efficiency of government owned and occupied buildings.

In summary, the Energy Efficiency Council recommends:

- Tacking the factors that distort peak demand, including the lack of cost-reflective pricing. A key option for simplifying time-of-use pricing is allowing energy users and third-parties to sell demand reduction into the wholesale electricity market.
- Ensuring that network investment is cost-effective, including investing in peak demand reduction when it is more cost-effective than building supply-side infrastructure to meet peak demand.
- Establishing mechanisms to address the barriers to energy efficiency, including a national Energy Saving Scheme; and
- Tackling the barriers to distributed generation, including expediting the rule-change for distributed generation connection.

Suite 2, 490 Spencer Street, West Melbourne VIC 3205 ABRN 136 469 291 ABN 63 136 469 291

2. Cost-reflective pricing

The Energy Efficiency Council supports the AEMC's proposals to:

- Mandate that NSPs introduce cost-reflective time-varying tariffs.
- Require a stepped approach where time-varying tariffs are mandatory for large energy users and opt-in for small energy users.
- Mandate that network tariffs be set through negotiation with consumers and energy experts like the Energy Efficiency Council.

However, the Council notes that:

- There will be significant challenges in rolling out smart-meters and time-varying pricing to the majority of small energy users.
- Without support, many consumers will not respond to time-of-use price signals.

As a result, time-varying pricing will need to be accompanied by other temporary and permanent policies

Benefits of cost-reflective pricing

There is clear evidence from numerous trials that improving the cost reflectivity of energy prices is one option to move consumption towards more optimal patterns. Trials have indicated that critical peak pricing is a highly effective form of time-of-use pricing, potentially reducing peak demand by 30 per cent or more[1]. The Council notes that daily variations in prices (off-peak, shoulder and peak) poorly reflect variations in the cost of supply, and critical peak pricing is greatly preferred.

To ensure that a critical peak price is as cost-reflective as possible, it should include both wholesale energy costs and network costs. The Council agrees that NSPs do not appear to have strong incentives to provide time-of-use signals, and as regulated monopolies it is appropriate to require them to do so. The Council further supports the proposal to mandate time-of-use pricing for large energy users and opt-in or opt-out provisions for smaller energy users. Finally, and most critically, the Council supports that monopolies must set their pricing through negotiations with consumers and expert bodies like the Energy Efficiency Council.

However, the Council recommends that the AEMC go further in its pricing recommendations. Many NSPs are seeking to move away from marginal pricing and kWh charging towards a system that provides them with more revenue certainty at the expense of a more cost-efficient energy market. For example, many NSPs have significantly increased their capacity charges for businesses, despite the fact that these charges do not reflect when the energy was used. This is a significant disincentive for businesses to reduce their demand during network peaks. Therefore, the Council urges the AEMC to provide prescriptive recommendations that network pricing should be weighted more heavily towards system efficiency, and both usage and capacity charges should account for time-of-use.

Challenges and limits in time-of-use pricing

There are major practical and social barriers to introducing critical peak pricing. Firstly, consumers will need to have a time-of-use meter installed, and there is currently considerable public opposition to the roll out of time-of-use meters. Secondly, political considerations mean that consumers will need to take up critical peak pricing voluntarily. As a result, it could take at least a decade before time-of-use pricing is widespread and it may never become widespread.

Furthermore, where time-of-use pricing is introduced, most consumers will still face information barriers and transaction costs in responding to critical peak pricing. For example, recent research by the Australian Industry Group found that many reasonably-sized businesses that currently face time-varying tariffs do not manage their energy use over time. As a result:

- The impact of critical peak pricing is greater when accompanied by information programs, technologies that help consumers respond to peak pricing and third-party services that can assist consumers optimise their energy use.

[1] Futura Consulting 2011, *Investigation of existing and plausible future demand side participation in the electricity market – a report for the AEMC*, Futura Consulting, Melbourne.

Suite 2, 490 Spencer Street, West Melbourne VIC 3205 ABRN 136 469 291 ABN 63 136 469 291

- Alternative mechanisms, such as demand-response markets that facilitate and incentivise third parties to assist energy users to optimise their demand over time, or programs that fund or obligate third-parties to assist energy users, may be more effective.

Therefore, while the Energy Efficiency Council supports the roll out of critical peak pricing where it is cost-effective, it will take at least a decade to implement in Australia and, even when it has been implemented there will continue to be imperfect price signals, particularly location-specific price signals. The Energy Efficiency Council believes that any decision to introduce cost-reflective pricing requires a number of other transitional or permanent policies to help consumers optimise their energy demand.

Location-specific pricing

The barriers to location-specific pricing are greater than the barriers to time-of-use pricing. Regulations currently require postage-stamp pricing, where consumers must be charged the same amount for electricity irrespective of their locations. Even if this rule were overturned, the technical barriers to introducing nodal pricing would be substantial, and the ability of consumers to respond to nodal pricing is questionable.

In the absence of location-specific pricing, NSPs will continue to have a critical and obligatory role in correcting the lack of location-specific pricing by funding location-specific reductions in demand where it is cheaper than location-specific investments in infrastructure. The Energy Efficiency Council's recommendations in relation to this are set out in Section 4.

Suite 2, 490 Spencer Street, West Melbourne VIC 3205 ABRN 136 469 291 ABN 63 136 469 291

3. Demand-response, consumer protection and access to data

The Energy Efficiency Council supports the AEMC's proposals to:

- Allow consumers to sell demand-response into the wholesale market.
- Create a new category of market participant in the NER that will allow for the unbundling of non-energy services (e.g. ancillary services) from the sale and supply of electricity.

The Council notes that this scheme will need to be complemented by:

- A mechanism that provides energy consumers with more notice and certainty about when to bid into the market. While some demand-side providers will be able to sell into the market at short notice, the market will secure substantially more demand-side response if additional notice can be given.
- Fair rules for consumer protection.
- Rules, prices and timelines about access to data.

Rationale for the policy

Most small energy consumers do not have a time-of-use meter and cannot buy energy from the wholesale energy market, although many are now securing some of their energy supply from on-site distributed generation. Typically, small energy consumers purchase the bulk of their energy through a retailer that provides valuable hedging services, and they do not have the option of taking up a critical peak pricing offer unless their retailer offers them that option.

Most large energy consumers currently have time-of-use meters and have the option of buying energy from:

- The wholesale market – This provides a critical peak price for energy, enabling consumers to benefit from demand-response. However, the risks and transaction costs of buying from the wholesale market outweigh the benefits for most energy consumers.
- A retailer – retailers substantially reduce energy price risk. While most retailers offer large customers a tariff that includes peak, off-peak and shoulder rates, many do not offer a critical peak price tariff system and, even when they are offered, many consumers don't take up these tariffs because they don't have the understanding to assess the potential benefit from such pricing structures.

Furthermore, whether an energy consumer buys from a retailer or the wholesale market, they will still not receive a critical peak price signal for network infrastructure use.

The Energy Efficiency Council recommends that energy consumers be provided with more choice by allowing them to buy electricity from a retailer but sell their demand-response separately into the energy market or to a demand-side service provider (which could be their retailer, another retailer or a non-retailer). Unbundling retail and demand-response would increase competition and allow energy users to:

- Benefit from reducing their demand during peak demand periods without losing the protection that retailers provide from other factors in the energy market; and
- Seek assistance from third-parties to respond to peaks, and fund this relationship with the third party through the benefits from reducing demand during peak periods. However, a consumer could also sell into the wholesale energy market directly.

Consumer protection

The separation of demand-response services into a clear service will require the establishment of clear rules, regulations and guidelines to ensure that consumers are protected when they engage with third-parties that provide these services.

The Council broadly supports the AEMC's proposal that rules need to be developed to ensure sufficient consumer protection in relation to third parties providing energy management services.

Suite 2, 490 Spencer Street, West Melbourne VIC 3205 ABRN 136 469 291 ABN 63 136 469 291

However, the AEMC needs to set some broad parameters for these protections. Where an energy management service provider is providing advice, retrofit services (e.g. building upgrades) or energy using products (e.g. fridges), normal consumer protection rules will be sufficient.

Access to data

To facilitate demand-response, consumers and third parties will need access to data. The Council supports the AEMC's recommendation to develop explicit rules stating that consumers can access their data and third parties can access consumer data with consumers' written consent.

However, this must be accompanied by clear definitions of the cost to access data and the timelines for provision of data.

Responses to concerns about the mechanism.

The Council notes there are a number of concerns about allowing demand-side to be bid into the wholesale market. Some preliminary responses are discussed below, although the Council notes that it is important to fully consider concerns as the system is designed:

Issue	Response
There is no need for a demand-response mechanism	The level of demand-response in the NEM is much lower than other major energy markets, despite the fact that the cost of energy supply in the NEM during peak periods can be very high, considering both wholesale and marginal network costs. There is a need to develop some mechanism to encourage demand-response.
The proposed demand-response mechanism is untested	There are examples of similar demand-response models in other countries.
It is too complex to determine a baseline and there is a risk of gaming	There are well-established, simple baseline methodologies for demand-response in the US that have been developed and refined over many years. There are over 8500 hours of energy-use data per year to form a baseline for an energy user, which would be used to enable typically far less than 100 hours of demand-response. If the baseline system is appropriate robust the risk of gaming will be low, as energy users would be unwise to increase their energy use for long periods just to obtain a higher price for a short period of demand-response.
The mechanism will significantly increase the cost of hedging	Any change to the energy market could result in short-term increases in the cost of hedging, as market participants would be uncertain about the impact of a measure and therefore risk premiums might increase. As market participants become accustomed to the impact of the measure on the behaviour of the market the cost of hedging should fall below its previous levels, as participants are able to lower risk premiums and demand-response offers a low-cost form of hedging.

Suite 2, 490 Spencer Street, West Melbourne VIC 3205 ABRN 136 469 291 ABN 63 136 469 291

4. Network Service Provider (NSP) incentives and regulations

The Energy Efficiency Council supports the AEMC proposals to:

- Expand the Demand-Management and Embedded Generation Connection Incentive Scheme (DMEGCIS) to provide incentives for network service providers.
- Change the National Electricity Law (NEL) to provide network service providers with more clarity about how demand-side expenditure will be treated.
- Allow the AER to provide networks with temporary exemptions from reliability service standards to reduce their risk-aversion to novel demand-side activities.

The Council urges the AEMC to adopt much stronger changes to network regulation, including changes that are being canvassed by reviews outside of the Power of Choice. The recommended changes are:

- Substantially increase the power and resources of the AER.
- Ensure that the allowed Weighted Average Cost of Capital (WACC) should be close to the actual cost of capital, allowing for differences between government-owned and private-sector networks.
- Set a mandatory minimum target for network service providers to offset at least 15 per cent of peak-growth driven network augmentation costs through demand-side activities each period.
- Decouple electricity volumes from profits for currently price-capped NSPs.
- Adopt a solution to the current system incentive to invest in capital expenditure (capex) rather than operational expenditure (opex), such as a total expenditure system (totex).

The Council has a number of recommendations specific to distributed generation that relate to networks. These recommendations are set out in Section 5.

Background

NSPs are monopoly 'agents' for energy consumers, generators and other market participants. In particular, as network tariffs do not strongly reflect spatial differences in the cost of energy supply, NSPs have a critical role on behalf of consumers of correcting spatial pricing distortions by investing in location-specific DSP.

Incentives and regulatory problems mean that there are principal-agent problems, and NSPs do not always act in the best interest of their clients (e.g. energy generators and consumers). We need to use all three of the mechanisms that are available to ensure that NSPs' interests and actions align with energy consumers' interests. These are:

- Ensuring that NSPs have the right incentives to undertake DSP;
- Regulating network businesses to ensure that they undertake DSP or purchase it from third parties where it lowers the cost of network augmentation; and
- Opening up the market for DSP to competition, so that other parties can capture the benefit of DSP if NSPs are not willing or able to undertake DSP.

Regulated returns and incentives

The Council believes that NSPs need to face the right price signals to encourage them to meet energy users' needs as cost-effectively as possible, including investing in demand-side activities when it is cheaper than investing in supply-side activities. Ideally, NSPs should face the right price signals through the overall system of regulated returns. This means:

- Ensuring that the WACC is set appropriately;
- Changing the National Electricity Law (NEL) to give network service providers more clarity about how demand-side expenditure will be treated;
- Allowing the AER to provide networks with temporary exemptions from reliability service standards, as the potential fines from reliability service standards create a price signal that can make them averse to novel demand-side activities;

Suite 2, 490 Spencer Street, West Melbourne VIC 3205 ABRN 136 469 291 ABN 63 136 469 291

- Decoupling electricity volumes from profits for currently price-capped NSPs; and
- Adopt a solution to the current system incentive to invest in capital expenditure (capex) rather than operational expenditure (opex), such as a total expenditure system (totex) or capacity carryover mechanism.

While the Council supports the expansion of the DMEGCIS to provide incentives for network service providers, this should not be used as an alternative to giving NSPs the right price signals through the WACC, as this will result in a tension between incentives, resulting in NSPs receiving excessive returns for their activities.

The Council strongly urges the AEMC to recommend decoupling electricity volumes from profits for currently price-capped NSPs. The Draft Report notes on page 128 that:

> *"in the Victorian 2006-210 regulatory control period, the AER asserted there was over recovery of revenue of $568 million (in 2010 values) above the adjusted forecast. This represents an over recovery of revenue of 8.28 per cent annually for each distribution businesses".*

Despite this, the AEMC does not recommend decoupling, and does not justify this decision. The Council urges the AEMC to reconsider this position. Similarly, the Council notes that there are well-recognised distortions in the incentives to invest in capex and opex, and these need to be resolved.

Regulating NSP activities

The AEMC recognises that, even if price signals to NSPs broadly encourage cost-effective behaviour, NSPs may not invest optimally due to:

- Unforseen opportunities for gaming
- Cultural biases and skill gaps

In a competitive market, competition would normally ameliorate cultural and skill issues. However, as NSPs are monopolies, so the AER has been established to oversee the current and proposed activities of NSPs. The Council notes that AER will need to have much greater power and resources if it is able to fulfil this function effectively.

The Council is pleased that the AEMC has acknowledged that NSPs have a historical focus on supply-side solutions and lack of interest and expertise in demand-side solutions to rising peak. This creates an *a priori* case for directing NSPs to build their demand-side skills and undertake demand-side activities.

As energy consumers pay the cost of NSPs' historical lack of focus on demand-side activities, it is appropriate that NSPs be directed to undertake demand-side activities through a target scheme. Appropriate targets are already used in the NEM to direct NSPs on matters like reliability, and demand-side targets are used in the US and Europe.

The Council notes that the AEMC considered a number of options for a demand-side target, but did not consider the options that have been recommended by the Council. Specifically, the Council recommends one of two options, and prefers the latter:

- Reduction by a specified percentage of the forecast growth in network system peak demand.
- Reduction by a specified percentage (e.g. 15 per cent) of the capital that is forecast to be spent on augmentation projects driven by increased peak demand. In other words, if an NSP had a total capital expenditure proposal of $500 million over a five year period, and $250 million of that was driven by peak demand, with a 15 per cent target the network would need to use demand-side activities to reduce supply-side investment by $37.5 million.

The Council recommends that the target be set below the economically efficient level of demand-side investment to offset supply-side investment, as the main goal is to get NSPs to undertake a minimum level of demand-side activities to force them to develop the skills and culture to undertake further levels of demand-side activities. If NSPs have the right incentives, they will then use these skills to reduce infrastructure spend by far more than the minimum target.

The Council urges the AEMC to reconsider the issue of targets, specifically examining the targets recommended above. We now have over a decade of experience in 'tinkering' to address the

Suite 2, 490 Spencer Street, West Melbourne VIC 3205 ABRN 136 469 291 ABN 63 136 469 291

balance of supply and demand in networks, with limited results - it is clear that there is an urgent need for more directive action.

Opening up the DSP market to competition

The final way to improve economic efficiency in the energy market is to open up the market to competition, through measures such as:

- Requiring NSPs to publish the value of peak-demand reduction on a sub-station by sub-station basis; and

- The AER having oversight of dealings between NSPs and demand-side providers, to ensure that NSPs don't exploit their monopoly power.

The Council strongly opposes the AEMC proposal that NSPs be allowed to sell the output from distributed generation to energy users or the wholesale market. This proposal is entirely contrary to the principle that the electricity market should be competitive where possible, and would introduce distortions whereby monopoly companies could use their regulated returns to support activities in non-monopoly markets. This is a very substantial issue, given that the penetration of distributed generation could grow rapidly in coming years, and therefore NSPs would be able to own a growing share of the generation market.

Network Service Providers can adequately foster distributed generation where it provides network benefits by offering network support payments to third parties that could install distributed generation and sell electricity output.

Suite 2, 490 Spencer Street, West Melbourne VIC 3205 ABRN 136 469 291 ABN 63 136 469 291

5. Distributed generation

The Council does not support the AEMC proposals to:

- Allow NSPs to sell the energy from distributed generation (see Section 4).
- Not introduce a distributed generation connection incentive.

In addition, the Council recommends:

- A review of the system for charging generators to connect to, and use, the network, to ensure the system is fair and cost-effective. A well-designed system will result in better investment decisions, ultimately saving end-users money.
- Immediately establishing an interim system to reward the first 3,000 MW of cogeneration in Australia through either a simple 'network support payment' or energy efficiency certificate schemes. This interim measure is necessary as it will take some time to address the multiple barriers to distributed generation, including reforming the way that generators connect to the network and receive network support payments.

Background

Cogeneration systems are a type of distributed generation, and this submission focuses on cogeneration. However, many of the principles that apply to cogeneration apply more broadly to distributed generation.

Connecting cogeneration units to the grid can deliver benefits to the network and improve the economics of cogeneration projects. While cogeneration can deliver benefits to the network, there are genuine technical issues and costs for connecting cogeneration units, particularly where fault levels need to be addressed. The costs and benefits of connecting a cogeneration unit to the network will vary on a case-by-case basis, and so need to be set on a case-by-case basis.

Currently, when a proponent wants to connect a cogeneration unit to the grid in a particular location they have to negotiate with a single distribution businesses that has monopoly power in relation to grid connection. The incentive structure and culture of many network businesses discourages them from actively supporting grid connection.

The monopoly power of distribution businesses is a *prima facie* case for regulating the cogeneration connection process. The Energy Efficiency Council supports the rule change on distributed generation connection that is being considered by the AEMC. This needs to be combined with:

- Establishing a distributed generation ombudsman within the Australian Energy Regulator. The ombudsman would ensure adherence with a standard connection process and enforce rules about who pays the costs of any upgrades to the grid.
- Requiring annual maps of the costs and benefits of connecting cogeneration at different points on the grid, including potential payments for offsetting infrastructure investment. The pre-emptive analysis of the costs and benefits of connecting to the grid at different points would provide greater information transparency, opening up competition in the market.

However, for these systems to work, there have to be clear rules around how distributed generation pays for connection to the grid and ongoing use of the grid. The rules for connection costs are quite arbitrary, and can result in first-mover disadvantage or advantage.

Similarly, distributed generation systems typically only use a fraction of the grid, as their purpose is to supply local (end use) energy, but customers are charged for full use of the grid. Cogeneration can also provide location-specific benefits, saving distributors from having to augment grid infrastructure. Paying cogenerators for these benefits would encourage them to deliver these services, but under the current economic framework rarely happens.

The Council recommends a thorough review on the system for charging generators to connect to, and use, the network, to ensure the system is fair and cost-effective. A well-designed system will result in better investment decisions, ultimately saving end-users money. In the meantime, distributed generators should be provided with an interim support system that reflects both early mover disadvantage and a reasonable figure for network benefits.

Finally, there are difficulties in retailing and distributing electricity, which are set out in the submission to the Victorian Competition and Efficiency Commission (attached).

Suite 2, 490 Spencer Street, West Melbourne VIC 3205 ABRN 136 469 291 ABN 63 136 469 291

Commissioners Dr Matthew Butlin and Deborah Cope
Victorian Competition and Efficiency Commission
GPO Box 4379
MELBOURNE VIC 3001

15 June 2012

Re: Inquiry into Feed-in Tariffs and Barriers to Distributed Generation

Dear Commissioners Butlin and Cope

The Victorian Competition and Efficiency Commission (VCEC) sought comment on the Draft Report *"Power from the People – Inquiry into Distributed Generation"* (referred to as the Draft Report). This submission provides the Energy Efficiency Council's response to the Draft Report.

The Energy Efficiency Council is the peak body for energy efficiency, demand response and cogeneration, and brings together Australia's top expertise in demand-side to support the development of policy and programs.

Unlocking the potential of distributed generation (DG) will be critical to keep electricity and energy services affordable into the future. The costs of DG are falling at the same time that fuel and electricity prices are rising, increasing the economic benefits from the uptake of DG and energy efficiency. In particular, increased penetration of cogeneration and trigeneration systems would significantly benefit energy users over the next two decades. Cogeneration and trigeneration:

- Substantially improve the efficiency of converting fuel into useful services, relative to conventional generation. This improves the energy productivity of the Victorian economy, protecting businesses and households from rising fuel costs
- Are highly responsive energy systems, in contrast to both large coal generators and intermittent forms of renewable energy. This means that cogeneration and trigeneration can help balance supply and demand and allow an increased penetration of intermittent forms of generation.
- At reasonable levels of penetration can substantially reduce the need for network augmentation and improve the security of energy supply relative to systems that rely on a few large generators. Expenditure on network infrastructure, largely driven by growing peak demand, is currently the main factor in increasing electricity prices across the NEM; and
- Are relatively mature technologies in a range of applications, although there are technical, skill and regulatory barriers to early movers in applications like precinct-scale generation.

However, there are substantial barriers to the efficient uptake of DG. The National Electricity Market (NEM) was designed around the ongoing operation of an electricity system that predominantly consisted of large generators in a small number of regions and extensive transmission and distribution networks. As such, the rules, regulations and technology that are in place have created many anticipated and unanticipated barriers to the uptake of DG. These barriers include:

- Impediments to generators capturing the full value created by DG to energy users, networks and other parties
- Barriers in the connection process for DG, including substantial delays, ad hoc processes and inequitable mechanisms for apportioning any costs for augmenting the grid
- Innovation and first-mover disadvantages

Therefore, the Council recommends that an appropriate objective for Victoria's policy on distributed generation would be *"to maximise distributed generation's contribution towards the long-term interests of Victorians".* To achieve this objective the Victorian Government would need to:

- Ensure that distributed generators secure a fair return on the value of their DG.
- Reduce barriers that impede the efficient deployment of DG
- Ensure that distributed generators compete on a level playing field with other generators, taking into account both energy markets, carbon markets and subsidies.
- Play a role in reducing the barriers to innovation and emerging technologies.

Suite 2, 490 Spencer Street, West Melbourne VIC 3205 ABRN 136 469 291 ABN 63 136 469 291

The Council's submission focuses on cogeneration and trigeneration. While many of the points raised in this submission are relevant to multiple forms of DG, VCEC should assume that all references to DG refer to cogeneration and trigeneration. The Council's submission does not comment on the appropriateness of Feed-in Tariffs (FiTs) for PV and other renewable energy systems.

The Council has received informal comments from some members that connecting cogeneration and trigeneration units in Victoria is more challenging than in other states. There could be a number of factors that have driven these Council members' experiences, including the available capacity to accommodate cogeneration in central Melbourne.

The Council has developed a number of recommendations that would maintain investor confidence across the energy market and can be introduced without significant cost or disruption. However, these recommendations would substantially improve the economic efficiency of the market.

The Council recommends:

- A long-term process to set up systems to ensure distributed generators can secure a fair return for the value of DG, including both the energy and network values. This would require:
    - A mechanism to capture the time and location-specific energy value (MWh)
    - A mechanism to secure the network benefits of DG. Given the role of Network Service Providers (NSPs) in identifying and determining the value of deferred network investment, fully implementing this recommendation will require substantial reform to the way that networks are regulated, and could take many years to implement.
    - A mechanism to recognise and commodify the low-carbon value of cogeneration and trigeneration, so that consumers that place a high value on avoided emissions can pay a premium for these forms of generation.
- In the short-term, in some situations distributed generators could capture more of the network, electricity, heating and low-carbon benefits of DG if they are:
    - Allowed to retail electricity as lightly-regulated monopolies; and
    - Allowed to use the public network as virtual private-wire systems.
- However, it will take substantial time to address the multiple barriers to DG and the use of DG in novel applications will face first-mover barriers. Therefore, the Council recommends immediately establishing an interim system to reward the first 3,000 MW of cogeneration for its multiple benefits. In Victoria, these payments could be introduced on an interim basis through the Victorian Energy Saver Incentive.
- Streamlining and regulating the process for connecting cogeneration to the grid
- Improving access to gas supply
- Targeted support for innovative applications of cogeneration and trigeneration

Australians deserve energy markets that serve their interests. The Energy Efficiency Council looks forward to working with the VCEC to ensure that the energy market in Victoria meets the needs of the community. Please contact me on 03 8327 8422 should you require further information on any of the issues raised in this submission.

Yours sincerely

Rob Murray-Leach

Chief Executive Officer

Suite 2, 490 Spencer Street, West Melbourne VIC 3205 ABRN 136 469 291 ABN 63 136 469 291

Contents

Suite 2, 490 Spencer Street, West Melbourne VIC 3205 ABRN 136 469 291 ABN 63 136 469 291

1. Key Policy Recommendations

The Energy Efficiency Council recommends a number of specific but modest changes to improve the operation of the NEM.

1. Develop a long-term system to reward DG owners for the value of DG

1.1 DG owners should be paid a transparent, location-specific network support payment where they reduce or defer expenditure on the grid. This will require a number of reforms to the way that Network Service Providers (NSPs) are regulated, including:

- Amending the way that NSPs are incentivised
- Improving the regulatory process for NSPs
- Improving requirements for the release of annual maps of network constraints
- Providing a minimum target for demand-side activity by NSPs

1.2 Develop a national mechanism to commoditise the low-carbon value of cogeneration

1.3 Set up a simple, transparent system that allows distributed generators in some situations to retail electricity to consumers 'light red-tape' regulated monopolies.

1.4 Develop virtual private wire rules to allow distributed generators to use the public electricity network to supply electricity to local sites (e.g. multiple council buildings) and pay network charges that reflect the cost of using the network for very short distances.

2. Set up an interim system to reward DG owners for the value of DG

2.1 Victoria should advocate for a system to support the first 3,000 MW of cogeneration in Australia to reflect the multiple market barriers and the difficulties in capturing the full benefits of cogeneration in advance of NSP reform.

2.2 In advance of a national system, Victoria could rapidly introduce interim financial support for cogeneration through the Victorian Energy Saver Incentive. The incentive should only be provided to cogeneration that:

- Exceeds a minimum threshold of efficiency (e.g. 50 per cent), with additional incentives for cogeneration units as their efficiency increases beyond this threshold.
- Is below 30 MW and runs for more than 2,000 hours per year.

3. Streamline the process for connecting DG to the grid

3.1 Establish a standard national grid connection protocol in line with the procedure recommended in the ClimateWorks 2011 report *'Unlocking the barriers to cogeneration: Project Outcomes Report'*.

3.2 Require NSPs to provide annual maps of the costs and benefits of connecting cogeneration at different points on the grid. The pre-emptive analysis of the costs and benefits of connecting to the grid at different points would provide greater information transparency, opening up competition in the market.

3.3 Establish a distributed generation ombudsman in the Australian Energy Regulator. The ombudsman would ensure adherence with a standard connection process for distributed generation and enforce rules about who pays the costs of any upgrades to the grid.

Suite 2, 490 Spencer Street, West Melbourne VIC 3205 ABRN 136 469 291 ABN 63 136 469 291

4. Improve access to gas networks

4.1 Invest in the backbone gas supply network and

4.2 Establish clear rules about who pays for minor expansions of the gas network.

4.3 Undertake a national study into competition and accessibility in gas supply.

5. Address innovation and early mover disadvantage

5.1 Establishing a system to provide financial support for the first 3,000 MW of cogeneration in Australia would partly address innovation and early mover disadvantage.

5.2 The Victorian Government should consider a targeted system of grants or direct investment to support innovative application of cogeneration in Victoria.

Suite 2, 490 Spencer Street, West Melbourne VIC 3205 ABRN 136 469 291 ABN 63 136 469 291

2. Objectives for Distributed Generation Policy

In its Draft Report, VCEC recommends that the purposes for a FiT should be to *"ensure distributed generators have access to a fair and reasonable return for the value of their generation" (pxxv).* VCEC's then extends their proposed objective for a FiT to become the goal for all DG policy.

The Council believes that this is too limited as an overarching objective for DG policy. The Council believes that the objective for DG policy should consider both the National Electricity Objective (NEO) and other policy objectives of the Victorian Government. The NEO is:

> *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 –*
>
> 1. *Price, quality, safety, reliability, and security of supply of electricity; and*
> 2. *The reliability, safety and security of the national electricity system.*

Removing the barriers to DG distributed generation would contribute to many of the NEO's goals. For example, appropriately sited, sized and managed distributed generation can:

- Reduce electricity prices by avoiding or deferring investment in supply-side infrastructure; and/or
- Improve safety in regional areas by obviating for the need for long-distance distribution systems that create bushfire and other safety hazards.

While the NEO focuses on just the price of electricity, it is more appropriate to focus on total energy bills. Even in situations where cogeneration and trigeneration deliver more expensive units of electricity than conventional supply, they can still deliver substantially lower energy bills for consumers if the distributed generation:

- Helps consumers reduce the amount of electricity that they need to achieve their objectives; and/or
- Delivers other energy services such as heating and cooling.

However, a number of factors mean that DG is prevented from fully delivering on its potential to the NEO. A number of well-documented barriers and market distortions result in over-investment in networks and supply-side infrastructure and under-investment in distributed generation, energy efficiency and demand-response. As a result, the National Electricity Market (NEM) is failing to deliver the best outcomes for consumers in respect to total price, quality, safety, reliability and total electricity bills.

In addition to barriers within the NEM, there are barriers to DG that lie outside the NEM. For example, there are barriers to innovation and first-movers in situations like precinct-scale cogeneration. While these barriers may lie outside the responsibilities of NEM bodies like the AEMC, tackling these goals would contribute towards the NEO.

Furthermore, cogeneration and trigeneration can play a critical role in reducing greenhouse gas emissions. The Energy Efficiency Council agrees that, if a carbon price is in place, governments should not pay for reduced carbon emissions. However:

- A carbon price needs to be accompanied by other measures to address the range market failures that impede the uptake of low-carbon technologies;
- A mechanism needs to be established to commoditise low-carbon generation for consumers that wish to pay a premium for low-carbon generation; and
- If the carbon price is removed in the future, additional policy mechanisms would be required to internalise the carbon externality.

Suite 2, 490 Spencer Street, West Melbourne VIC 3205 ABRN 136 469 291 ABN 63 136 469 291

Therefore, the Energy Efficiency Council recommends that VCEC adopt a much broader objective for distributed generation policy. The Council recommends that:

> *The Objective for Victoria's policy on distributed generation should be to maximise distributed generation's contribution towards the long-term interests of Victorians. To achieve the objective, the Victorian Government will seek to:*
>
> - *Ensure distributed generators have access to a fair and reasonable return on the value of their generation, including the value of the energy and the value to the network.*
> - *Ensure that market structures and regulations do not disadvantage distributed generation relative to other technologies, either directly or indirectly.*
> - *Play a reasonable role in the barriers to innovation and emerging technologies.*
> - *Ensure that distributed generators compete on a level playing field with other generators with respect to the carbon-intensity of their energy.*

Suite 2, 490 Spencer Street, West Melbourne VIC 3205 ABRN 136 469 291 ABN 63 136 469 291

3. Fair compensation for the Value of Distributed Generation

DG delivers a series of benefits to multiple parties in the electricity market. These include:

- Electricity (MWh) and other forms of usable energy. In the case of cogeneration and trigeneration, DG delivers electricity, heating and cooling.
- Network services, including frequency modulation and reducing or deferring the need for NSP expenditure to augment the grid
- Additional benefits such as reduced externalities like carbon emissions.

While distributed generators can often capture substantial value from DG, they are rarely able to capture the full value of DG, because the benefits are split between multiple parties (split incentives) and distributed generators face barriers in securing fair payment for benefits from one or more parties. Unless this is resolved, investment in DG in Victoria will fall well below the economically optimum level, which will result in lost welfare for consumers.

The Council believes that, ideally, distributed generators would be able to capture the full value of DG through market systems that allow the beneficiaries of the DG to pay the generators for their services. However, the NEM is not a simple, natural market – it is a highly regulated market that includes competitive and monopolistic elements. Therefore, some element of regulation is both inevitable and desirable in enabling distributed generators to capture the full value of DG.

Furthermore, the development of a fully efficient framework to fully support DG could take many years. Therefore, the Energy Efficiency Council recommends an approach that includes:

- Setting up systems immediately to enable distributed generators to capture more of the value of DG through the market where suitable (e.g. retailing directly to consumers as regulated monopolies in some situations)
- Starting the longer-term process to enable distributed generators to capture the full value of DG in a range of situations (e.g. regulating and incentivising NSPs to ensure that distributed generation owners receive appropriate payments for network benefits)
- Setting up an interim system to reward distributed generators for the benefits of DG while these barriers are being tackled. Although a transitional payment system is less efficient than if the NEM fully and fairly recognised the value of distributed generation, it would be substantially more efficient that the current situation where most distributed generators are unable to capture much of the value of their DG.

The value of energy

The benefits of cogeneration come from being able to provide both energy services (heat and cooling) and electricity. The value of these services will depend on the time and location of supply.

However, the NEM does not create a level playing field and consumers do not face electricity prices that reflect the time and cost of supply. For example, in some locations and times the cost of supply could exceed $12 per kWh based on wholesale costs alone, but most consumers would pay a maximum price of 30 cents per kWh. If network costs were factored in, it becomes apparent that the price that consumers face is not at all cost-reflective[1]. Given that the benefits of DG are location specific, this puts DG at a considerable disadvantage in securing a fair price from consumers.

If a DG owner sells electricity into the grid they currently have two options:

- Incur substantial costs to register as a generator and sell into the wholesale market; or
- Negotiate for a price with a retailer or other registered market participant.

These options may not suit every party, and the Australian Electricity Market Operator (AEMO) is currently looking at a framework for smaller operators. If the market works well, parties would be able to secure a price for their electricity that reflects the wholesale price for electricity that they feed into the grid.

However, the wholesale price of electricity is only one part of the electricity supply chain. Whether a generator sells to a retailer or into the wholesale market, as soon as a distributed generator sells into the grid they instantly lose any of the value from reduced losses, reduced use of network

[1] Australian Energy Market Commission 2012, *Power of Choice Review Directions Paper,* AEMC, Sydney

Suite 2, 490 Spencer Street, West Melbourne VIC 3205 ABRN 136 469 291 ABN 63 136 469 291

infrastructure, reduced network investment and any premium that consumers put on the low-carbon value of the generation.

In the case of cogeneration and trigeneration, distributed generators also need to capture the value of heat and other services created by DG. Capturing the value of heat and other services from distributed generation is complex. Heating and cooling typically need to be sold to local customers using purpose-built distribution infrastructure. This means that generators typically need long-term contracts for heating and cooling with a particular proportion of energy users in an area in order to justify investment in both the generation equipment and the distribution infrastructure.

The value of network services

There are two issues that are relevant for capturing the value of distributed generation and networks. Firstly, there are currently rules that rules prevent cogenerators from using the distribution network to move energy between sites (e.g. two council offices) at a cost that reflects the actual cost of using the network to move energy such short distances. These rules are being addressed in some jurisdictions. Secondly, and more substantially, distributed generation can deliver savings by substantially reducing the need to augment network infrastructure.

The cost of providing network infrastructure varies between locations, and network losses vary between locations. However, the NEM rules require 'postage-stamp' pricing, so that energy prices are heavily smeared between regions. Without significant technological and corresponding regulatory intervention, it would unreasonable to expect that widespread nodal pricing will be implemented within the next two decades. Therefore, energy prices will continue to fail to reflect the cost of use at specific locations.

As a result, while distributed generation can reduce costs to consumers by avoiding or deferring the need to build network services to meet peak demand, distributed generators can generally only secure this value through negotiation with Network Service Providers (NSPs).

NSPs are regional monopolies, and generators face significant power asymmetries in securing a fair value for reducing the need for network augmentation. Furthermore, recent work by the AEMC[2] confirms that in many situations, while reducing network augmentation may be in the interest of consumers, it may not be in the interests of NSPs.

Network businesses have substantial incentives to over-invest in network augmentation, and therefore a negative incentive to invest in DSP that reduces the need to augment the network. Furthermore, the historical focus of NSPs on network augmentation has left them critically under-skilled in understanding both the potential for DSP to reliably reduce peak demand, and the options for using DSP effectively. Like any business, if NSPs are presented with two options that have similar returns on investment (i.e. DSP and network augmentation), and they have a poor understanding of DSP, they will inevitably favour network augmentation.

While some NSPs have made some effort to improve their DSP skills, the culture and skills sets of every network business in Australia still substantially favours network augmentation over DSP. This means that network business are likely to both under-invest DSP directly and under-invest in DSP services from other parties.

Therefore, setting up a system to pay distributed generators a transparent, location-specific network support payment where they reduce or defer expenditure on the grid will require substantial reforms. This reform could take several years, and will require:

- Aligning NSP incentives with consumers' interests. NSPs need to have the right incentives to invest in demand-side activities when they are more cost-effective than supply side options for consumers.
- Improving the transparency and sufficiency of the regulatory and planning process to ensure that NSPs investment decisions are efficient.
- Addressing critical skill and culture issues in networks. Many NSPs have limited capability to estimate the reliability and costs and benefits of demand-side options or implement those options. This means that, even if NSPs faced appropriate incentives, they would likely under-invest in demand-side activities. To overcome this barrier, it is critical that NSPs be required to invest in a minimum level of demand-side activity.

[2] Australian Energy Market Commission 2012, *Power of Choice Review Directions Paper – Supplementary Paper, Demand Side Participation and Profit Incentives for Distribution Network Businesses,* AEMC, Sydney

Suite 2, 490 Spencer Street, West Melbourne VIC 3205 ABRN 136 469 291 ABN 63 136 469 291

- Opening up the market for demand-side activities that offset network investment to competition. At a minimum, this means that:
    - NSPs should be required to provide robust data on upcoming network constraints; and
    - Contracts to address constraints as contestable service should be put out to tender, with NSPs ring-fenced businesses allowed to bid for that work.

The Energy Efficiency Council strongly advocates that this type of system should be established. However, given the time to establish this type of system we believe that setting up imperfect transitionary measures will be critical.

Carbon value

While a carbon price is in place, DG will not need additional support for its public carbon value. However, some consumers will place a higher value on the low-carbon value of cogeneration and trigeneration than the carbon price. If a cogenerator is selling this directly to a discerning consumer they may be able to capture this low-carbon value. However, if the electricity is exported to the grid then commoditising this value will be critical, in the same way that Green Power commoditises the low-carbon value of renewable energy.

Short and medium-term mechanisms for securing the value of DG

Distributed generators face considerable barriers to capture the electricity value, network value, heating value, cooling value and low-carbon value of DG.

Where distributed generators currently sell all these services to an off-grid user (either themselves or another client) they can capture most (but not necessarily all) of these benefits in a long-term contract.

Where distributed generators sell all these services to a small number of clients directly they can capture much (but not necessarily all) of these benefits. However, there are a number of regulations that impede these transactions, such as requirements for competition in electricity supply. While the intent of these regulations to protect consumers is laudable, the Council recommends that this intent can be met more appropriately by allowing distributed generators to sell as lightly regulated monopolies. A system has recently been introduced in the UK that allows distributed generators to operate as monopoly retailer as long as the price is charges is within the bounds of the prices charged by local retailers.

Where distributed generators can sell directly to consumers using the public network, they should be allowed to use the public network as virtual private-wire systems with appropriate charges. The network costs of supplying DG to consumers is substantially lower than the costs for centralised generation, and private wire rules would allow distributed generators to pass on these lower costs to consumers. Furthermore, this would allow distributed generators to retail directly to consumers, allowing them to capture some additional benefits. This would not allow distributed generators to capture the full benefits of the DG system, but it would allow them to capture more than they currently can.

However, it is clear that in most of these cases distributed generators will only be capturing a fraction of the benefits of their DG systems, particularly network benefits. While the Council believes that these benefits should ideally be rewarded through location-specific network support payments, we believe that it will take some years to introduce this type of scheme.

Therefore, the Council recommends a transitional scheme that provides financial support for the first 3,000 MW of cogeneration in Australia. While this would be less reflective of benefits than a location-specific network support payment, it would be significantly more cost-reflective than no payment at all. As a result, this type of system would increase the overall economic efficiency of the NEM.

In advance of a national system, Victoria could rapidly introduce interim financial support for cogeneration through the Victorian Energy Saver Incentive. The incentive should only be provided to cogeneration that:

- Exceeds a minimum threshold of efficiency (e.g. 50 per cent), with additional incentives for cogeneration units as their efficiency increases beyond this threshold.

- Is below 30 MW and runs for more than 2,000 hours per year.

Suite 2, 490 Spencer Street, West Melbourne VIC 3205 ABRN 136 469 291 ABN 63 136 469 291

4. Connecting to the grid

The Energy Efficiency Council welcomes VCEC's recognition of the significant barriers to connecting cogeneration.

Connecting cogeneration units to the grid can deliver benefits to the network and improve the economics of cogeneration projects. While cogeneration can deliver benefits to the network, there are genuine technical issues and costs for connecting cogeneration units, particularly where fault levels need to be addressed. The costs and benefits of connecting a cogeneration unit to the network will vary on a case-by-case basis, and so need to be set on a case-by-case basis.

Currently, when a proponent wants to connect a cogeneration unit to the grid they have to negotiate with a single distribution businesses that is given monopoly power in relation to grid connection. The incentive structure and culture of many network businesses discourages them from actively supporting grid connection.

The monopoly power of distribution businesses, particularly privatised distribution businesses, is a *prima facie* case for regulating the cogeneration connection process. While some distribution businesses have been reasonable in negotiating connection to the grid, the unjustifiable behaviour of other distribution businesses makes it clear that regulation is essential. The current process for connecting a cogeneration unit to the grid is extremely arbitrary, and can include:

- Uncertain and often completely unjustifiable timeframes for negotiating an agreement. In Victoria, the connection approval process is typically more than 6 months with many taking 12 months or longer.
- Uncertain and often unjustifiable costs for studies to determine the costs of connecting to the grid.
- Uncertain and often unjustifiable costs for connecting to the grid.
- Inequitable rules about who pays for network upgrades to facilitate cogeneration. Currently, the last cogeneration unit that wants to connect to the grid before an upgrade is required to pay the full cost of the upgrade, despite the fact that other units may connect before or after the upgrade. In contrast, the cost of upgrades to the grid to address rising energy demand are generally smeared across all energy users.

These issues are exacerbated by the low numbers of appropriately skilled technical experts that can assist in grid-connection. Some jurisdictions have developed guidelines on cogeneration connection, but there is still no NEM-wide regulated process for cogeneration connection. A number of processes are underway that could partially address these issues, like the AEMC's 'Comprehensive Technical Standards Review', but even if these deliver on their potential there will still be major gaps.

Recommendations:

- Establish a distributed generation ombudsman in the Australian Energy Regulator. The ombudsman would ensure adherence with a standard connection process and enforce rules about who pays those costs of any upgrades to the grid.
- Annual maps of the costs and benefits of connecting cogeneration at different points on the grid, including potential payments for offsetting infrastructure investment. The pre-emptive analysis of the costs and benefits of connecting to the grid at different points would provide greater information transparency, opening up competition in the market.
- Establish a standard national grid connection protocol in line with the procedure recommended in the ClimateWorks 2011 report *'Unlocking the barriers to cogeneration: Project Outcomes Report'*

Suite 2, 490 Spencer Street, West Melbourne VIC 3205 ABRN 136 469 291 ABN 63 136 469 291

5. Issues with gas infrastructure

In some regions gas infrastructure is inadequate to support cogeneration. If a proponent wants to develop a project they are often required to both pay for the full cost of augmentating the gas network and then charged a service fee for the ongoing use of the network. Subsequent cogeneration developers are only required to pay the ongoing service fee. This creates a 'first mover disadvantage', as discussed in Chapter 19 of the Garnaut Review (2008).These issues will become increasingly critical if there is a major expansion of both centralised and distributed gas-fired generation.

Recommendations

- Invest in the backbone gas supply network
- Set clear rules about who pays for minor expansions of the gas network
- Undertake a national study into competition and accessibility in gas supply.

Suite 2, 490 Spencer Street, West Melbourne VIC 3205 ABRN 136 469 291 ABN 63 136 469 291

6. Innovation and first-mover disadvantage

There are substantial barriers to the entry of novel technologies, or the use of technologies in locations and contexts that they have not been used, including:

- Regulatory barriers
- Access to skills
- Increased technology risk

These issues are covered extensively in Chapter 18 of the 2008 Garnaut Review[3].

The Council believes that financial support for the first 3,000 MW of cogeneration and trigeneration in Australia (as discussed in section 3 of this submission) would provide some support to address first-mover disadvantage. However, the Council recommends that this is accompanied by either grants or direct investment in cogeneration and trigeneration projects in novel applications.

[3] Garnaut, R. 2008 *The Garnaut Climate Change Review*, Cambridge University Press, Melbourne.

Suite 2, 490 Spencer Street, West Melbourne VIC 3205 ABRN 136 469 291 ABN 63 136 469 291