

Renewable and Distributed
Generation Working Group
Secretariat Ministerial Council on
Energy GPO Box 9639
CANBERRA ACT 2601



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ATTENTION: Renewable and Distributed Generation Working Group Secretariat (RDGWG)

BCSE Submission on Impediments to the Uptake of Renewable and Distributed Energy

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The Australian Business Council for Sustainable Energy (BCSE) is an independent member-based industry association representing the broader sustainable energy industry in Australia. The BCSE has over 260 organisations as members covering renewable, gas and distributed energy generation equipment suppliers and installers, energy retailers and generators and energy service and efficiency providers. The common feature of our membership is their interest in meeting Australia's energy needs with lower greenhouse emissions.

The BCSE appreciates the effort by the Ministerial Council on Energy (MCE) to investigate impediments to renewable and distributed energy and seek comment on how these might be resolved. The draft code of practice is a positive development that is welcomed. But it is a far step from addressing the two primary failures in the Australian energy market that hold back renewable and distributed generation. These are:

- the social costs of greenhouse gas emissions are not internalised; and
- the regulation of network provision and pricing fails to adequately signal and reward the value of demand-side options in meeting energy needs.

Internalising the social cost of greenhouse emissions is being progressed via the National Emissions Trading Taskforce and the BCSE does not expect the RDGWG to be able progress this issue. However we would note that current Australian emissions trading proposals fall well short of the abatement task that is ultimately required. There is a need to supplement such a scheme with a program to provide a market for ultra low emission energy generation technologies, in order to drive learning in these technologies and develop a domestic industry in this fast growing, high export potential area.

On the issue of network regulation, the BCSE is concerned that the broader energy reform agenda in this area is delaying any attempt to address what is an immediate and well-recognised barrier to demand-side options including distributed energy. This is an immediate problem costing the economy several hundred million dollars every year. Evidence includes Queensland's network businesses intend to undertake over \$7 billion worth of upgrades over the next 5 years – this is almost equivalent to the value of the entire pre-existing asset base! In NSW it is expected that within ten years 18% of the systems capacity will only be utilised for 1% of the year. Network businesses in this jurisdiction plan on spending \$6 billion within the next 5 years. In Victoria another \$4 billion will be spent. When issues surrounding network reform were highlighted by the then Australian Co-generation Association (now BCSE) back in the late 90's, air conditioner penetration in households was around 30%, by 2010

it is forecast to be 60%. The present cross-subsidy to owners of air conditioners from non-owners has been estimated at \$500m annually in the NEM¹.

In addition to the above, the delay in addressing these problems is leading to the annual release of thousands of tonnes of greenhouse emissions that could be avoided, and holding back an industry with considerable commercial and employment potential.

While the BCSE supports the institution of a national regulatory regime that will provide more accurate pricing with better signals to all participants in the energy market, this will take many years to come to fruition. We ask that the MCE look at an interim set of measures to better recognise and reward the benefits of distributed energy options (including distributed energy, demand-side response and energy efficiency). We believe a program of standing offer tariffs or an economy-wide fund for distributed energy projects would be an excellent step forward that would provide an overwhelmingly positive cost-benefit return. Our submission has chosen to concentrate on this issue in particular, as we believe it is the area that is well accepted as requiring reform and is an area in which the MCE has a high level of discretion to address.

Yours sincerely

Original signed by

Ric Brazzale
Executive Director

¹ George Wilkenfeld and Associates (2004) *A Demand Management Strategy for Small Airconditioners: the role of the National Appliance and Equipment Energy Efficiency Program*, available from www.energyrating.gov.au

Australian Business Council for Sustainable Energy

Submission on Impediments to the Uptake of Renewable and Distributed Energy Discussion Paper

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4.1 Network pricing and pricing regulation

Noting the range of work currently underway, particularly the development of a national framework for distribution regulation by 1 January 2007 and the draft COPEG, comment is sought on the merit and form of further work to examine of distribution network price issues which could serve as input into future reviews of distribution network pricing.

Comment

The Discussion Paper has provided an excellent summary of the weaknesses of current network regulation and pricing that discriminate against distributed generation and demand-side energy options more generally. These have been recognised in countless analyses and reviews, including:

- the Parer Energy Market Review;
- IPART's Inquiry into Demand Management;
- Submissions from the Australian Consumer and Competition Authority;
- Submissions from the Australian Federal Government; and
- Productivity Commission Inquiries.

While there are a number of elements within the current regulatory regime aimed at recognising avoided network benefits associated with distributed generation, these have a number of major inadequacies, including:

- Avoided TUOS payments have been undermined by transmission companies that have moved their pricing away from usage components to fixed components even though the amount planned to be spent on future augmentations is a considerable proportion of the overall network asset base in many regions.
- Avoided DUOS is determined by the network service provider (NSP), yet there is a blatantly obvious conflict of interest.
- While there is an obligation for network businesses to seek alternatives to network investments, they have a conflict of interest in undertaking this process. The process for seeking tenders is often too short for potential demand management (DM) providers to develop suitable proposals, but most of all such a process subject to the whims of NSPs does not generate sufficient confidence amongst DM providers to undertake the considerable amount of work involved in developing a tender. Also it does not provide the kind of environment conducive to initiating discussions with potential customers essential to developing a DM proposal. Imagine approaching a customer to get them to sign onto a project but the terms of the offering are highly contingent on the interpretations of a third party who would prefer the deal did not go ahead. Experience of our members is that it is already very difficult to engage customers on their energy use, without introducing a further complicating factor. Compare this to the operation of the Greenhouse Gas Abatement Scheme where businesses can offer energy saving services and products with a very good understanding of the likely return from the abatement certificates.

We acknowledge that MCE has a series of work streams intended to examine the basis for network regulation and pricing. However we are concerned that the broader energy reform agenda in this area will take many, many years to be resolved and implemented. Meanwhile any meaningful near-term progress in overcoming barriers to cost-effective distributed energy options (includes distributed generation, demand-side response and energy efficiency) will be stalled. This issue has been investigated, discussed and acknowledged since the 1998 NECA Review of Transmission and Distribution Pricing, where the Commonwealth Government submission stated that:

“Current arrangements which restrict transmission charging to generators to shallow entry costs, while leaving the bulk of costs to be recovered from customers, provide a substantial subsidy to remote,

usually coal-fired generation to the competitive disadvantage of more greenhouse friendly natural gas and renewable generation typically located closer to loads. Pursuit of demand management options is also acutely disadvantaged.”

It is now 2006 and we are not particularly well advanced in addressing these fundamental issues. This is a problem costing the economy several hundred million dollars every year, leading to the annual release of thousands of tonnes of greenhouse emissions that could be avoided, and holding back an industry with considerable commercial and employment potential. As an indicator of these costs Queensland’s network businesses intend to undertake over \$7 billion worth of upgrades over the next 5 years – this is almost equivalent to the value of the entire pre-existing asset base! In NSW it is expected that within ten years 18% of the systems capacity will only be utilised for 1% of the year. Network businesses in this jurisdiction plan on spending \$6 billion within the next 5 years. In Victoria another \$4 billion will be spent. When issues surrounding network reform were highlighted by the then Australian Co-generation Association (now BCSE) back in the late 90’s, air conditioner penetration in households was around 30%, by 2010 it is forecast to be 60%. The present cross-subsidy to owners of air conditioners from non-owners has been estimated at \$500m annually in the NEM².

While the BCSE supports the institution of a national regulatory regime that will provide more accurate pricing with better signals to all participants in the energy market, this will take many years to come to fruition. As an illustration, the roll-out of interval meters alone will take several years, with the most advanced jurisdiction - Victoria, aiming to still be rolling them out by 2011.

We also note that the implementation of the principle of ‘beneficiary pays’ was agreed to several years ago but very little meaningful progress has been made in implementing this measure, and it will probably not be implemented until several years from now. This has also been an area where incumbent centralised power stations have enjoyed a significant and inefficient commercial advantage over new generation located closer to loads. In addition, debate still goes on over the feasibility of nodal pricing, even though there is general agreement that on a theoretical basis it provides the best model for efficient investment decisions.

We ask that the MCE look at implementing an interim set of measures within the next 6 to 12 months to better recognise the benefits of distributed energy options. It should be noted that both NSW and South Australia have put in place demand management funding and this needs to be expanded into a national scheme across all other jurisdictions. There are a number of examples available of schemes that could be used for an interim period including:

- public benefit funds such as those operated in many states of the United States as well as NSW’s Energy Savings Fund;
- standing offer tariffs or feed-in tariffs; and
- target schemes (such as the UK’s good quality combined heat and power target and its Energy Efficiency Commitment).

A program modelled on the NSW’s Energy Savings Fund is perhaps the easiest to implement quickly and would constitute a substantial advance if rolled out nationally with equivalent funding from other jurisdictions. Ideally we would prefer a system where there were a set of clear performance hurdles set in advance, which if met would provide a known level of payments. This would avoid the time consuming tendering process where it is often unclear exactly what is required in order to qualify for funding and how much funding will be made available. In addition we would strongly recommend against a scheme that is governed primarily by a subjective assessment of what constitutes “business-as-usual”, as characterised by the Federal Greenhouse Gas Abatement Program (GGAP). This idea of only funding those projects that are financially marginal works against the very principle that governs most businesses, which is to maximise profits by innovating to find the cheapest way to deliver the greatest value. A scheme should encourage such innovation rather than penalise it.

² George Wilkenfeld and Associates (2004) *A Demand Management Strategy for Small Airconditioners: the role of the National Appliance and Equipment Energy Efficiency Program*, available from www.energyrating.gov.au

A review of the evidence and research indicates that there is a sound case for intervention in this area – there is a clear case of market failure and the cost-benefit of a distributed energy scheme is likely to be highly positive judging from other demand management and energy efficiency programs implemented both here and overseas. This was the finding of the IPART Inquiry into Demand Management, the most thorough and open Australian investigation undertaken to date in this area.

Importantly, we believe schemes to facilitate demand management should not be administered by NSPs, as occurs in South Australia where ETSA has control over the fund. Rather the aim should be to open up the scheme to all comers, thereby facilitating potential competitors to NSPs. As IPART observed in their Inquiry into Demand Management regarding the role of NSPs:

“To a large extent, one of the major obstacles continues to be a culture which favours traditional 'build' engineering solutions and which pays little more than lip service to alternative options.”³

Also a report co-authored by David Nemptzow (current secretary of NSW Department of Energy, Utilities and Sustainability) on demand management in the NEM observes that:

“..while NEMMCO and NSPs have a vital demand management (DM) role to play, these parties have core business obligations and expertise outside DM that necessarily compete for scarce resources, just as is the case for consumers. NSPs will always have a core competency and business interest in operating, maintaining, and as needed, augmenting highly reliable, economically efficient wires services to meet demand. The commercial interest for NSPs is clearly specified in the NEC, for example, with a regulatory objective for transmission pricing to provide for a revenue stream which includes a fair and reasonable rate of return on efficient investment.”⁴

Lastly, the BCSE also believes the current interval “smart” meter roll-out is an issue of relevant concern to the RDGWG that warrants discussion. Many of the benefits touted as flowing from the roll-out of smart meters are built on assumptions surrounding these meters’ functionality. Unfortunately anecdotal evidence indicates that many of the interval meters currently being installed by NSPs lack much of this functionality and are being selected entirely on price. For example the expectation that interval meters will enable time of day pricing that will then encourage customers to respond to those prices by load shifting is predicated on the assumption that meters will have some kind of display that will inform the customer about prices. Also the installation of small embedded generation requires the installation of a meter that can measure both import and export of electricity, yet many of the interval meters being rolled out presently lack this functionality. This requires a customer to effectively pay twice for a meter if they choose to install embedded generation.

We think it is a matter of considerable importance that MCE undertake an investigation of necessary functional requirements for “smart” meters before NSPs proceed too much further with their roll-out.

³ Independent Pricing and Regulatory Tribunal (2002) *Inquiry into the Role of Demand Management and Other Options in the Provision of Energy Services*

⁴ Next Energy (2004) *Demand Management and the National Electricity Market*, Total Environment Centre, February 2004.

4.2 Network Connection

4.2.1 Connection costs - Incremental connection costs can be potentially prohibitive for new R&DG projects, particularly where projects require network augmentations or provision of major new line.

Noting the range of actions currently underway, comment is sought on the need and form of further work to develop solutions specific to R&DG connection cost issues. This should bear in mind MCE's requirement for a technology neutral treatment of connection costs?

Comment

Firstly the BCSE would like the MCE to announce an unambiguous timetable for the implementation of a 'beneficiary pays' system for network provision for all generators including incumbent generators.

Secondly, until the 'beneficiary pays' system is operational, new entrant generators should not be required to pay for upgrades beyond immediate connection costs.

Once 'beneficiary pays' is operational there is a need for a standardised methodology set by the regulator that sets out how incremental connection requirements are to be determined for new generators and what costs are reasonable for the generator to pay versus network customers as a whole. We have to move away from the current situation which is far too dependent on the judgement of the NSP who, in cases of embedded generation, will have a vested interest in preventing the project from going ahead.

4.2.2 Network services - Distributed generators can have difficulty capturing the value of their network services in connection agreements with network service providers.

Noting the development of a draft COPEG, comment is sought on the need and shape of further work, possibly as input to the development of the national framework for distribution regulation.

Comment

The draft COPEG, while being a useful document, does not address the fundamental problem that determination of the value of network services associated with distributed generation is up to the judgement of NSPs, who have a fundamental conflict of interest and absolute market power. Ideally this would be resolved through a completely transformed regulatory structure based on a more refined pricing model that better signalled costs surrounding location and network congestion. However, as recommended in section 4.1 of this submission, we believe the MCE should look to implement interim measures within the next 6 to 12 months to encourage the cost-effective use of distributed energy solutions.

In addition, immediate action should be taken to address the transfer of transmission charges from usage to fixed, which undermines the value of avoided TUOS. This is not justified when it is considered that many regions have planned transmission investments which are a significant proportion of the overall existing asset value.

4.2.3 Some forms of network use of system charges can be relatively prohibitive for smaller on-site generators which occasionally import or export to the grid

Comment is sought on the need for further analysis of tariff structures for small scale on-site R&DG as input into the development of the national framework for distribution regulation.

Comment

There should be no "use of system" charges for smaller generators whilst 'beneficiary pays' is yet to be implemented for all generators.

4.2.4 Network connection regulations, including technical standards, can be complex, unnecessarily onerous, or non-existent for small and medium scale R&DG.

Noting the development of a draft COPEG and review of technical standards by NEMMCO, comment is sought on the need and shape of further work by the MCE.

Comment

The BCSE supports the concept of standard connection agreements for small embedded generation, but our membership were dismayed by the example set by ETSA Utilities in developing such an agreement. ETSA's first proposed standard connection agreement included highly onerous, open-ended and unnecessary obligations upon the person installing a small embedded generator. These obligations were inconsistent with the impact on network safety and performance posed by embedded generators that complied with relevant Australian Standards. Also the agreement provided little in the way of obligations upon ETSA themselves. If it were not for the intervention of the South Australian regulator (ESCOSA), this standard connection agreement would have been a major step backward for small embedded generation.

It is the BCSE's view that regulators need to be quite prescriptive about what should be contained in a standard connection agreement in light of the considerable market power possessed by NSPs and the example provided by ETSA. Considerable benefit would be derived from MCE developing, in conjunction with the Utility Regulators Forum, a template standard connection agreement for NSPs to follow. Considerable work already exists that could be utilised including work undertaken by Dr Robert Passey commissioned by the Australian Greenhouse Office (Proposed Guidelines and Agreements for Small Grid-Connected Renewable Energy Systems – December 2004) as well as that done in South Australia. Such a connection agreement should aim to work in conjunction with and leverage-off embedded generator equipment standards setting. Ideally the technical requirements for connection of small embedded generation should be embodied within the design of the embedded generator equipment via Australian Standards. That way households and businesses need not have to familiarise themselves with these technical issues in order to have an operational and safe embedded generator that doesn't threaten network safety and reliability. Australian Standards for electrical equipment are already extensively used by electrical safety regulators in Australia without consumers having to learn network technical requirements in order to plug the piece of equipment into a power socket. There is no reason that BCSE is aware of that demonstrates that the same can not be done for small embedded generators.

4.2.5 The non-wholesale electricity market is less mature than the wholesale market. Relatively high transaction costs for individual small generators and lack of generalised business procedures may inhibit opportunities for small and medium renewable and distributed generators.

Noting the development of the draft COPEG and the national framework for distribution regulation, comment is sought on the need and shape of further possible work on the development of generalised business procedures for small and medium R&DG.

Comment

Energy Market Reform to date has focussed on wholesale energy markets and retailer sale of electricity without addressing the delivery aspects of the electricity market. Without this vital component reformed there is lack of formal mechanisms for governing the sale of electricity from small generators. For that reason the BCSE recommends the implementation of standard offer tariffs that reward the benefits of small distributed generation or some form of distributed energy solutions fund.

5. Network Management

5.1 Increasing levels of intermittent and decentralised R&DG in the future may require changes to the way in which the network is managed.

Comment is sought on the need and form of future possible work by MCE or NEMMCO to improve active system management practices and emerging technologies so as to accommodate increasing levels of R&DG.

Comment

The key item to note on this issue is that this is not a technical/physical problem that requires a technological breakthrough to resolve, but rather an administrative problem that is imminently resolvable. Issues faced over dispatch of zero marginal cost intermittent generation are in many respects a product of a market that does not charge generators for use of network capacity. This is as much a problem for fossil fuelled power facing transmission constraints as it is for renewable energy. The problem is that we have a market designed with only one mode of meeting energy needs in mind - augmenting centralised power generation and associated wires.

5.2 There are not sufficient levels of transparency in network planning information, particularly forecast future loads, constraints, and proposed augmentations. As a result, R&DG proposals are limited in their ability to identify business opportunities that could bring network management benefits because the data with which to calculate connection costs and benefits of DG options is not available in most cases.

Comment is sought on the extent to which network planning information may be made more transparent and accessible.

Comment

The BCSE recommends that the national regulator adopt NSW's Demand Management for Electricity Distributors Code of Practice for governing the form and content of network planning information.

In addition this must be supplemented with a system of penalties for non-compliance in terms of timeliness and information coverage. The NSW jurisdiction experiences variable quality with the planning reports provided to it by NSPs, and for this code to work the regulator needs to have some mechanisms at its disposal to encourage compliance.

All NSPs planning reports should be made available from one source, either NEMMCO or the AER's website would appear to make the most sense.

It is worth noting that in a recent effort to obtain annual planning documents, a BCSE staff member was told by one NSP that they did not make their plan available on their website because of terrorist attack concerns. This is a ridiculous reason for lack of transparency, as having knowledge of precise network constraints is hardly a barrier to disrupting the power supply. One only needs to look for a few large transmission lines, which are hardly obscure! Poorly defined rules surrounding disclosure of network planning information with no enforcement mechanism are a recipe for companies to bypass and frustrate efforts to open-up this area to greater transparency and competition.

5.3 Current arrangements support incremental rather than optimised planning of network development. This may lead to sub-optimal deployment of R&DG assets.

Comment is sought on further possible work to identify mechanisms that could better enable the optimisation of shared network assets during the initial design phase as part of the development of a national transmission planning approach already being progressed through the MCE reform agenda.

Comment

It is unacceptable for transmission companies that derive their revenue from the size of their asset base, to be making decisions about transmission system planning, as currently occurs with Powerlink and Transgrid. This is an unacceptable conflict of interest for what are corporatised, profit oriented businesses. Transmission planning should be in the hands of NEMMCO as recommended by the Parer Energy Market Review back in 2002.

Furthermore network planning should be undertaken with a view towards optimising the overall cost of reliably meeting energy **needs**, not just simply taking demand and generators as given and then just narrowly focusing on working the network around these other two items. Central to the success of such an approach is the availability of funds for supporting distributed energy options, as recommended in relation to point 4.1.

5.4 Network service providers' concerns about the reliability of R&DG may be a barrier to active uptake.

Comment is sought on further work to examine the allocation of responsibility for network reliability in service standards and network pricing regulations applicable to R&DG.

Comment

Many parties involved in the area of network regulation continue to misinterpret distributed energy options through the lens of building and operating networks. Instead they need to think in terms of how to reliably meet energy needs in the most cost-effective manner, which may mean that distributed energy options act in competition with networks as well as being in competition with generators. The aim should not be to get network businesses to adopt distributed energy options as part of their overall service offerings, but to use these options to inject greater competition into the overall energy market. This does not mean precluding NSPs from utilising distributed energy options, but distributed energy solution providers should not have to go via NSPs to get recognition for their potential to supply energy needs at lower overall cost (in many circumstances) than the traditional centralised generation and wires alternative.

We do not believe funding for NSPs to undertake trials is a suitable policy response to what is a problem costing the economy hundreds of millions of dollars every year. A great deal of distributed energy technologies have been in operation for many years now (decades in a number of circumstances) and are well understood. In addition there is a large body of case studies and trials undertaken in Australia and overseas examining the use of distributed energy solutions. While there is always room for further improvement and learning, this would be best facilitated through a broad program such as standard offer tariffs in areas facing network constraints or the national equivalent of the NSW Energy Savings Fund. Charles River and Associates has almost built an entire business on writing countless reports analysing network regulatory issues and it is time to move beyond study and towards action.

Some parties seem to think that any single distributed energy option in isolation must be 99.9% reliable to gain any recognition for avoided cost yet no single component of the electricity system meets this criteria. It is only once they are used in a combination that provides a certain level of redundancy that this reliability is achieved. The entire electricity system is built on redundancy. NEMMCO reserve capacity requirements are one example of this. Networks employ redundancy in their components, with use of multiple transformers and several junction points feeding electricity into a given area. Distributed energy solutions should be viewed as part of a combination of components that

provide an overall level of reliability and should be combined with prices that change in response to changes in system characteristics so that demand can also respond. This already happens in the wholesale market where an unplanned failure of a large generator will, in periods of peak demand, lead to a change in the bid price, drawing other suppliers into the market and inducing some customers to curtail their demand (although not as well as could be achieved with appropriate structures and technologies in place).

A program to reward the unrecognised benefits of distributed energy solutions (in lieu of proper regulatory structures), such as standard offer tariffs, can be designed in such a way that it should place little risk upon network reliability and we do not believe this is an issue that requires major attention at the present moment.