Senate Committee on Electricity Prices

Submission by the Alternative Technology Association

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ATA Alternative Technology Association

1.0 Document Information

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Promoting Renewable Energy, Energy Efficiency and Water Conservation since 1980

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2.0 About ATA

Founded in 1980, the ATA is a National, not-for-profit organisation whose 5,500 members are residential energy consumers with an interest in sustainable energy and resource use.

Through the application of our in-house expertise and experience in the energy market to our continuing advocacy and research, and close collaboration with fellow members of the National Energy Consumer Roundtable, the ATA is an important voice for all energy consumers Australia wide.

ATA presents a uniquely two-fold perspective in the energy policy space: as well as directly representing all energy consumers through our support of increasing energy affordability through improvements to the energy market, we speak with authority on behalf of the growing portion of the consumer base who have an active interest in demand side participation.

While ATA's membership is diverse, most members keenly await opportunities for DSP to emerge, and provide more opportunities to bring down the cost of energy. Many ATA members play an important role as the 'early adopters' of new and emerging technology, which in the context of DSP is vital to bring about the uptake and maturation of any new technology.

As a leading consumer organisation in the energy policy space, ATA plays a key advocacy role, working with energy market institutions, energy businesses and state and Commonwealth governments to promote solutions to the problem of increasing energy prices through realising potential efficiencies in the National Energy Market.

ATA's Energy Policy Team is primarily resourced by the Consumer Advocacy Panel and by our members.

3.0 Key messages

3.1 Why are energy bills increasing?

Increased expenditure on poles and wires are the main driver of bill increases

The biggest cost increases in recent times have clearly been caused by increases in the cost of building and managing transmission and distribution networks.

Some of this expenditure has been necessary to replaced aging infrastructure. However, due to:

- overestimation of peak demand growth in recent years;
- overinvestment in more poles and wires and a lack of consideration of cheaper, more efficient demand side infrastructure; and
- excessive reliability standards, particularly for residential consumers,

billions of dollars more than necessary has been – and continues to be – spent on networks.

Uncompetitive retail and generation increase energy bills

Ineffective competition in retail and generation can increase prices and prevent consumers from realising efficiencies in the market.

Uncertainty increases energy bills

Policy uncertainty (for example in relation to investment uncertainty due to the uncertain future of the carbon price); uncertainty regarding the future value of distributed energy; and increased investment in measures to mitigate market volatility are often hidden drivers of higher energy prices.

Green Schemes have a cost, but are they increasing energy bills?

It is a common argument that all Green Schemes drive up costs for consumers. This is not necessarily the case, as the cost reductions provided by some schemes are higher than the costs.

The Renewable Energy Target and former premium feed in tariffs have added to bills previously, however no further increases are anticipated from any of these schemes[1].

All Green Schemes do however lead to lower wholesale price revenue for centralised generators and vertically integrated retailers, which reduces bills for all consumers.

[1] Other than in Qld after the recent closure of the premium feed in tariff resulted in a flood of new installations.

3.2 What opportunities are there to reduce energy costs for consumers?

Opportunities to improve the conditions of the energy market

Some of the changes that can to be made to bring about improved efficiencies and allow some consumers to reduce the cost of electricity for all electricity consumers include:

- Allowing customers to access 'third party' (non-retailer) provided services;
- Mandated demand response targets for distribution and transmission businesses;
- Cost reflective retail and distribution pricing;
- Improved regulatory tests for networks;
- Allow consumers to trade off reliability for cheaper electricity;
- Improve competition in the market between traditional energy market businesses and demand-side service suppliers, at all levels of the supply chain;
- Establish the primacy of the National Electricity Objective at all levels of energy policy making.

Ensure a fair price for small scale renewable energy

On-site renewable energy such as solar photovoltaic systems is one way that consumers may reduce their electricity bills. Basing incentives for small to medium scale generation systems on the actual economic value of the electricity exported means that:

- some customers are able to tackle rising prices by investing in renewable energy; and
- all other consumers realise the broader benefit of reduced wholesale electricity prices that flow from having more distributed generation in the electricity grid (as well as other social benefits).

In 2012, the levelised cost of energy from solar PV systems is now lower than the average cost (at the retail level) of energy from the electricity grid. As such, the primary issue is not one associated with providing a 'subsidy' or 'incentive' to potential solar proponents, but how to remunerate the pure economic value of electricity exported into the energy market.

The key challenge in designing a mechanism to remunerate this value (e.g. through a feed-in tariff) is to ensure that an appropriate level of installed capacity is incentivised that will deliver the largest amount of cost reductions to all consumers at the wholesale level.

3.3 What are the barriers to realising the opportunities?

Barriers to reducing electricity bills include:

- The culture of energy networks;
- Split Incentives;
- Barriers to improved competition from third parties;
- Inability for consumers to trade off reliability of supply for lower cost.

4.0 Factors effecting energy prices

> (a) identification of the key causes of electricity price increases over recent years and those likely in the future;
>
> (b) legislative and regulatory arrangements and drivers in relation to network transmission and distribution investment decision making and the consequent impacts on electricity bills, and on the long term interests of consumers;
>
> *- Senate Committee on Electricity Prices, Terms of Reference*

4.1 Transmission and distribution network expenditure

More poles and wires

The biggest energy cost increases continue to be caused by increases in the cost of transmission and distribution networks.

"Retail electricity prices rose significantly in the past three years … Consistent with the past two years, network costs were the largest contributor to price rises in 2011 – 12." (State of the Energy Market 2011, Australian Energy Regulator, p113).

Some of this expenditure is necessary to replaced aging infrastructure. However, due mainly to:

- overestimation of peak demand growth in recent years,
- overinvestment in more poles and wires and a lack of more efficient demand side infrastructure; and
- excessive reliability standards (noted below);

billions of dollars more than necessary has been – and continues to be – spent on networks.

Consumers wear the cost of this overinvestment in the form of higher network charges which form part of their bills.

Excessive and inflexible reliability standards

As evidenced by recent investigations by the AEMC, the most costly justification for continued and expensive investments in distribution and transmission network assets is the assumption that Network Service Providers must meet exceptionally high customer reliability levels (refer to Section 6.4).

4.2 Uncompetitive generation and retail

Lack of effective retail competition

Despite efforts made to evaluate the competitiveness of the retail market, there is no credible evidence to suggest that the market is competitive enough to have efficient retail prices for consumers.

Generator market power

It has been suggested that some generator businesses with expansive portfolios may game the energy market by reducing capacity to cause an increase the spot price of energy - and hence their returns - in another area of their portfolio.

"The AER has noted evidence of such behaviour in its reports on extreme prices in the NEM, and in State of the energy market reports. It reported, for example, systemic economic withholding by Macquarie Generation in New South Wales in 2007, by AGL Energy in South Australia between 2008 and 2010, and by Hydro Tasmania between 2009 and 2011." (State of the Energy Market 2011, Australian Energy Regulator, p38).

This entirely unacceptable, anticompetitive practice has been estimated to cost consumers significantly in recent years.

4.3 Uncertainty

The most cost effective investments in energy generation infrastructure are timely investments with long term certainty.

Currently, there are a number of factors that are seriously hampering investor certainty in relation to all types of generation assets, be they from fossil fuel or renewable resources, and at all scales.

Policy uncertainty in relation to the Carbon Price

The Coalition's current policy is to repeal the carbon price if elected at the next election. Until this threat is removed, the prospect of investing in any type of generator, renewable or traditional carries a high degree of risk. This drives up energy prices in three ways

- The dispatch of more costly generation in the National Energy Market to meet demand that would have been met with lower cost generation (including non-scheduled generation that effectively bids into the market at $0).
- The resultant delay in investment will drive up future energy prices as future generation may be installed with shorter lead times to meet shorter term needs.
- The cost of financing and/or required return on generators built today may carry a risk premium.

Lack of a fair price for small scale renewable energy

Lack of support for a fair price for renewable energy by some state governments. The NSW, government, for example, has removed previously compulsory feed in tariffs for renewable energy, replacing them with a non-binding recommendation to retailers to offer a tariff. As a result, many retailers in NSW now offer less than the recommended amount, and some offer nothing at all.

As a result, homes that wish to install solar systems to reduce the impact of rising energy prices on their bills are uncertain of being able to capture the full benefit over the 25+ year life of their solar system. The negative impact of this is that:

- those homes are less able to tackle rising prices for themselves
- all other consumers are not realising the broader benefits that flow on from more distributed generation.

Increased hedging arrangements and vertical integration between retail and generation to deal with market volatility

While in principle retailers and generators are separate parts of the energy market, in practice, most of the energy retailers either own, or have off-market hedging arrangements with, generation infrastructure. These arrangements provide greater certainty for retailers and consumers than the alternative of purchasing all energy through the volatile spot market.

While hedging arrangements reduce the risk of large fluctuations in energy prices for consumers, it comes at cost, which is passed through to consumers. ATA understand that the overall portion of energy sold that is hedged has increased markedly in recent years, and in our view this is highly likely to be a factor in higher energy prices for consumers.

By way of example, from around 2008/09 until 2011/12, as a result of reduced demand due to energy efficiency programs, milder weather conditions and increased renewable energy on the market, the average wholesale price for energy generally dropped markedly across most NEM regions (State of the Energy Market 2011, Australian Energy Regulator, p34).

In the absence of hedging instruments, this drop in wholesale energy prices would have placed downward pressure on bills for consumers, however the increasing hedging arrangements naturally prevented these savings being passed on to consumers during the same period.

In Victoria the potential cost impact of hedging was touched on in the AER's 'State of the Energy Market 2011' report (when considering high increases of bills from 2010 to 2011 in the absence of other factors):
"Victorian standing electricity price rises in 2011 varied significantly across distribution networks, ranging from 4 per cent in the CitiPower network to almost 24 per cent in the SP AusNet network. Because prices are unregulated, limited information is available on underlying cost drivers, including reasons for these diverse outcomes. But distribution network costs were not a major driver, accounting for retail price changes of between – 1.9 per cent and 2.5 per cent in 2011. Charges for the introduction of smart meters ... impacts were negligible in 2011. Compliance costs associated with government climate change policies would have had some retail impact. Limited information is available on the impact of wholesale energy costs (including hedge costs in futures markets), retailer costs and retail margins on Victorian retail prices." (State of the Energy Market 2011, Australian Energy Regulator, p114)

ATA are not arguing that hedging arrangements are a bad thing per se. Hedging is viewed as necessary for dealing with the underlying issue of market volatility. We are simply noting that the increase in the use of hedging:

- is one of the factors placing upwards pressure on bills; and
- limits the ability of retailers to be adaptable or pass though potential energy market savings to consumers.

4.4 What effect do Green Schemes have on bills?

'Green schemes' is a broad term used to refer to a range of different instruments that are in place largely to encourage the deployment of less carbon intensive generation and promote energy efficiency.

It is a common argument from centralised generation businesses and the retail businesses that own, or contract off-market, with them, that Green Schemes drive up costs for consumers. This tends to be inaccurate, and should be viewed within the context that reductions in energy demand at the wholesale level caused by Green Schemes causes a reduction in generator / gentailer profits.

Renewable Energy Target has a small impact on bills

The National Renewable Energy Target currently comprises about 7% of bills, but this amount will reduce to 4% next year.

State based energy efficiency schemes

Energy Efficiency/ Savings Schemes generally reduce energy prices. ATA understands that schemes like the Victorian Energy Efficiency target have a net benefit across the consumer base insofar as the overall benefits of the scheme have outweighed the costs.

Current feed in tariffs do not cost increase the bills of other consumers

The premium feed in tariffs that were previously available to homes, communities and businesses in most states, caused increases to electricity bills. In most states this was generally limited to under $10 per home per year, (which is still negligible compared to increased network and retail costs). The state that experienced more severe cost increases due to its feed-in tariffs scheme was NSW, where the overly generous 60c gross FiT introduced by the former government has had an unacceptably high impact on the bills of all consumers.

In 2012, the levellised cost of energy from solar PV systems is now lower than the cost (at the retail level) of energy from the electricity grid. As such, the primary issue for FiT design going forward is not one associated with providing a 'subsidy' or 'incentive' to potential solar proponents, but how to remunerate the pure economic value of any solar electricity exported into the energy market.

All states have now removed premium feed-in tariffs, and some - the NSW, Qld and Vic governments in particular - have reduced feed in tariffs for renewable energy to a rate that is below the actual value of the energy produced. As a result, homes that now wish to install solar systems to reduce the impact of rising energy prices on their bills are unable receive a fair price for the excess energy they supply to other consumers via the grid.

The negative impact of this is that those homes are less able to tackle rising prices by installing solar[2].

The purpose of feed-in tariffs ultimately is to remunerate distributed generation for the economic value of the electricity that it generates. The purpose of distributed generation, from a society-wide

[2] Conversely, as a result, every new solar installation that occurs now results PV owners cross subsidising all other consumers through greater downward pressure on energy bills for all other consumers on the grid.

perspective, is to utilise a form of generation that overcomes some of the inefficiencies that exist in an electricity market that is dominated by centralised power generation that is located at great distance from the majority of electrical demand.

In this context, properly designed feed-in tariffs can be used by policy makers to drive investment into distributed generation assets that provide a cost benefit to all electricity consumers through the development of a more efficient electricity system.

Green schemes reduce wholesale energy prices and the need for network expenditure
Energy efficiency schemes, targeting measures such as building envelope improvements, efficient heating and cooling and lighting have a reliably high impact on reducing peak demand, which in turn lowers bills for all customers through less expenditure on new poles and wires. In some parts of the networks, solar PV also makes an – albeit small – contribution to deferring network augmentation.

The upward pressures on energy prices are generally well known, but the measures that place downward pressure on bills are generally less well understood, and these material benefits are rarely factored in to the simple appraisal of the cost of green schemes undertaken by the general media or vested interests.

ATA are of the view that governments have a role in delivering the message that, where the benefits outweigh the costs and are shared equitably among consumers, many green schemes reduce energy bills for all consumers.

This includes clearly communicating to consumers that the gross cost associated with a particular green scheme (e.g. the overall cost of payments made to consumers under a a feed-in tariff) does not provide an accurate picture of net costs (or benefits) to other consumers.

For example wholesale price reductions in the spot market, caused by the demand reductions provided by both distributed generation and energy efficiency schemes, is the benefit side of that equation that needs to be considered and factored in, when talking about the net cost (or potentially net benefit) of green schemes on all electricity consumers.

5.0 Opportunities to reduce peak demand and energy costs

(c) options to reduce peak demand and improve the productivity of the national electricity system;

(d) investigation of mechanisms that could assist households and business to reduce their energy costs, including:

(i) the identification of practical low cost energy efficiency opportunities to assist low income earners reduce their electricity costs,

(ii) the opportunities for improved customer advocacy and representation arrangements bringing together current diffuse consumer representation around the country,

(iii) the opportunities and possible mechanisms for the wider adoption of technologies to provide consumers with greater information to assist in managing their energy use,

(iv) the adequacy of current consumer information, choice, and protection measures, including the benefits to consumers and industry of uniform adoption of the National Energy Customer Framework,

(v) the arrangements to support and assist low income and vulnerable consumers with electricity pricing, in particular relating to the role and extent of dividend redistribution from electricity infrastructure,

(vi) the arrangements for network businesses to assist their customers to save energy and reduce peak demand as a more cost effective alternative to network infrastructure spending, and

(vii) the improved reporting by electricity businesses of their performance in assisting customers to save energy and reduce bills;

- Senate Committee on Electricity Prices, Terms of Reference

5.1 Demand side options for reducing peak demand and improving productivity

Regardless of one's view on which market arrangements are best suited to the Australian context, there are material market-wide efficiency gains that could be made by implementing any of a range of demand side participation based solutions that place significant downward pressure on the cost of supplying energy to consumers.

These solutions have the potential to improve efficiency and reduce costs along all or part of the energy supply and demand chain - household and business energy use, distribution and transmission, generation and retail, yet usually no single National Energy Market party can make a sound business case to promote any one of these based on the gains or improvements to their business alone. Broadly, these options include:

- Distributed generation;
- Demand response;
- Distributed energy storage;
- Appliance and plant efficiency;
- Smart networks;
- Behaviour change.

Technically, practically, and economically, all of these measures could be implemented to the extent where the long term interests of consumers of electricity (with respect to price, quality, safety, reliability, and security of supply) would outweigh the costs incurred.[3]

ATA therefore considers that it is in keeping with the NEO to make changes to the NER to realise these benefits. The following section identifies some of these changes.

5.2 Support changes identified by the AEMC to facilitate more effective consumer participation

The problems relating to peak demand, over-investment in networks and more expensive supply side generation are fundamental in nature and therefore require consideration of fundamental market design and regulation in order to capture the significant opportunities that exist on the demand-side of the network.

Given the now overwhelming evidence in regards to the inefficient cost increases occurring in the NEM, as part of their Power of Choice review, the AEMC has identified a number of changes are necessary to remove barriers to effective DSP, so serving the long term interests of consumers and lowering energy costs.

These changes would create improved efficiencies at the wholesale market, distribution, transmission and retail level by placing downward energy prices from their current steep incline by:

- creating a level playing field between DSP service providers and existing market participants through the creation of the new DSP market participant that can participate in all markets of the NEM (not just the ancillary services markets).
- allowing third parties such as load aggregators (i.e. those businesses that commercially contract loads to respond to specific wholesale market prices and network conditions) to provide energy services directly to consumers.
- unbundling services at the connection point and so allowing more than one party to provide services to, or facilitate provision of services to the market by a customer via the network
- the creation of service provider roles to facilitate competitively neutral access to consumers, particularly in the context of services enabled by smart metering and related DSP products, for retailers, distributors, and third parties.

[3] 'Non energy market centric', and often non-technological solutions such as building envelope efficiency improvements have comparable or even greater benefits than those noted above, but are a step further removed in that they are services traditionally not delivered by NEM entities.

ATA suggest that the above draft recommendations of the AEMC in the Power of Choice review will be effective in reducing energy costs for all consumers. However, public consultation of these draft recommendations is still underway, and so support of these recommendations by governments would be helpful.

ATA feel that while the AEMC should be supported for their excellent work in relation to the above issues, they have failed to act sufficiently one key issue; the need to overcome the cultural barriers that inhibit energy networks implementing efficient DSP. The AEMC have said that they do not support introduction of incentive schemes that set a minimum level of adoption of DSP by networks (or other parties in their stead) as alternative to more expensive poles and wires solutions to network constraints.

ATA suggest that the lack of support for DSP targets by the vested interests for networks requires political will to overcome. The following section outlines our recommendations for the design of such a scheme.

5.3 Introduce targets for efficient spending to meet peak demand

With many billions of dollars worth of new and replacement network infrastructure being built each year, the current level of investment in non-network solutions is widely agreed to be inadequate[4], and the level of expenditure on poles and wires to meet peak energy needs for just a few hours per year is grossly inefficient, resulting in higher costs that are not in the long term interests of consumers.

It is also generally agreed that network businesses achieve higher returns by investing in infrastructure that grows their regulated asset base, and so implementing demand side solutions to dealing with networks constraints is unattractive.

The regulations of the NEM are intended to serve the National Electricity Objective (NEO) and supply electricity to consumers through efficient investment, however the current uptake of demand management fails to achieve this and does not meet the long term interests of consumers.

This is partly because the regulatory structure of the NEM inhibits demand-side participation and biases supply-side solutions such network augmentation and centralised supply; and the NER does not include appropriate incentives for NSPs to invest in demand management projects.

In addition, existing incentive schemes have had little success in overcoming these issues as they have not led to efficient levels of demand-side participation in the NEM. The jurisdictional nature of such schemes can also be problematic.

In the absence of major regulatory change to ameliorate these issues, a demand management target and supporting scheme could be established

[4] Even the Energy Networks Association, the peak body for distribution and transmission businesses, has publically described the current levels of demand side participation as 'less than (that which is) socially optimal'

Incentives for Networks - Demand Management Target

A demand management target or obligation would be a regulatory instrument designed to reduce peak demand on transmission and distribution networks and could be configured in any of a number of different ways. Targets, for example, could be:

- based on a reduction of peak demand:
  - when compared with:
    - forecast; or
    - historical demand;
  - as a proportion of:
    - network wide peaks (e.g. 5% of forecast maximum demand); or
    - peak growth (e.g. 75% of the forecast increase in maximum demand);
- applied to all or part of transmission and/or distribution networks. To ensure it delivers cost-effective reductions in network augmentation, an average target could be applied to a network with the business able to nominate the areas of most effective deployment of DSP, based on the areas of emerging constraint on transmission and distribution networks;
- set annually or in line with five yearly distribution pricing reviews; an
- derived from independent modelling to estimate projected peak demand increases.

Importantly, ATA believe, any such incentive scheme should be designed in such a way that the businesses are only penalised for failing to reach their targets and are financially rewarded for reaching or exceeding their targets.

If designed properly, a demand management target will facilitate investment in DSP where it is more cost effective than network augmentation, therefore having a net cost benefit and so placing downward pressure on bills for consumers.

5.4 Allow consumers to trade off reliability and cost

Opportunities as Direct Load Control, voluntary Supply Capacity Control/Limiting and other pricing and demand side solutions offer potential for consumers to save money through demand side participation, however under current reliability requirements placed on networks, their ability to do so is limited.

There is an opportunity to reduce electricity bills for all consumers allowing consumers to trade excessive reliability standards for energy costs bills.

Valuing reliability of supply is a double-edged sword with some consumers not in a position, or unwilling, to forego reliability regardless of an economic trade off, and naturally these customers' needs must be accounted for when developing any approach to reliability.

5.5 Incentivise distributed generation with equitable prices for exported energy

Distributed generation (DG) technology such as solar photovoltaic (PV) has effectively reached 'grid parity' with the retail price of electricity. Grid parity is defined as when the levellised (i.e. average) cost of energy from a DG source equals (or is lower than) the levellised cost of electricity purchased

from the grid over the lifetime of the DG system. This has been the basis for the reduction in feed-in tariff and Small-Technology Certificate (STC) support for solar PV and other DG over the past two years.

The debate regarding feed-in tariff and other DG incentives has now therefore switched from providing short term, premium incentives to establish the solar PV market in Australia, to now focusing on the long term fair and reasonable economic value of electricity fed into the grid from a DG system.

There is significant misunderstanding regarding the value of distributed energy, and disagreement about the role of feed-in tariffs and other pricing measures. The same applies to the use of demand side generators participating in the energy market (and ancilliary services market) and as a more cost effective alternative to network augmentation.

The value of energy used on site by the consumers

The benefit gained by a consumer for the portion of electricity they generate and use on site can be considered to be whatever they are avoiding paying a retailer[5]. Notably, there is still a benefit to all other consumers, in the form of the demand reduction that places downwards pressure on wholesale spot market prices, most significantly at times of peak demand on the NEM[6]. This is known as the Merit Order Effect.

The value of energy exported to other consumers

The electricity exported to the grid from a DG system has an inherent value in the energy market and therefore to all consumers - just as electricity traded in the wholesale market from centralised generators has a value (the the pool price at that time).

As an example, if a consumer purchases one (1) kiloWatt hour through their retailer from a centralised generator receiving a wholesale price of 8 cents per kiloWatt hour (or $80 per megawatt hour, as traded on the spot market) then in terms of wholesale energy cost this is no different to that same consumer purchasing a kilowatt hour through their retailer from a neighbour's solar system.

In simple terms, at the time the solar electricity is purchased by a non-solar consumer through a feed-in tariff arrangement, it has the same wholesale energy value as any other kilowatt hours being traded on the wholesale market. On top of that, other energy market supply chain values that go into making up the retail price add further to the value.

The value of electricity from DG is for the most part based on the avoided costs and improved efficiencies that it brings to the market and hence all consumers who are buying energy from the market, including

- the avoided wholesale energy cost
- avoided distribution and transmission losses
- some avoided Network Use of Service and other fees

[5] This assumes a net metering arrangement

[6] The value of this component that DG brings to all consumers can reach many thousands of dollars per megawatt hour on the wholesale market, by preventing the more expensive energy from peaking generators from being purchased in the wholesale market.

- the downward pressure it places on wholesale spot market prices particularly at times of peak demand on the NEM[7].

Given that greater investment in DG under the right circumstances is of greater benefit to all electricity consumers than continued over-investment in centralised generation, at a time when most governments are implementing policy that reacts strongly to the false perception that feed in tariffs are inherently inequitable, it is necessary that a robust and consistent set of national principles are developed for valuing the exported electricity to the NEM from household, community scale and SME-scale distributed generation (DG) systems.

5.6 Improve competition in the energy market and for non-network alternatives to peak demand

Third party (parties other than retailers, generators and distributors) energy service providers could potentially offer a range of services to consumers, which would lead to reduced energy costs for participating consumers, as well as improved market efficiencies and potentially reduced network expenditure, to the benefit of all consumers.

Refer to Sections 5.2 and 6.3 for further discussion on issues relating to third parties

5.7 Introduction of cost reflective pricing designed for consumers

ATA are concerned that across Australian energy markets, the design of tariffs is being led by business interests and political reactions, when it should actually be based on considered principles that reflect the needs and interests of consumers by balancing the risks and the opportunities of more efficient energy pricing for all consumers.

ATA proposes ten principles for basic or 'vanilla' tariff offerings.

1. Single rate tariffs will be available for all consumers.

More cost reflective pricing across the NEM will result in significant market-wide efficiency benefits for consumers, but of course this creates winners and losers and the availability of single rate (or non-time-variant) tariffs will help protect those who would be placed at risk by ToU tariffs.

2. A two rate tariff will be available when replacing extant controlled load tariffs

Consumers currently on a controlled load tariff need to be accounted for.

3. Three part time of use pricing will be available to all consumers.

Three part Time of Use tariffs are an example of time-variant (or, in Victoria, 'flexible') tariff, which is anything whereby the rate varies according to when a unit is consumed. All consumers should

[7] The value of this component that DG brings to all consumers can reach many thousands of dollars per megawatt hour on the wholesale market, by preventing the more expensive energy from peaking generators from being purchased in the wholesale market.

have the opportunity to reduce their energy bills though access to ToU pricing, should they choose to do so.

The remaining principles relate to the design principles of three part ToU tariffs.

In considering the design of time of use tariffs, it is important that as well as being broadly cost reflective, they allow consumers to benefit from shifting loads from times of higher price to times of lower price. To this end, we feel that the principles that guide the setting of ToU tariffs should include the following features

4. Retail ToU tariff rates should be broadly cost reflective both of energy generation and network costs structures.

While network peaks are a large contributor to household energy bills, so is the wholesale cost of energy, particularly during times of high demand on the national energy market. While sometimes these peaks occur simultaneously, they usually don't.

Importantly, the pattern of costs and cost triggers of networks are very different to those of generation.

- The bulk of networks costs are based on the capex of building parts of the networks to the highest level of forecast demand (power) in a number of years.
- Generation costs, however, are based on energy consumption (not peak power) and supply constraints/contingencies in a given region (jurisdiction), and range from minus $1,000/MWh to plus $12,500/MWh at any given time.
    - Much of the time they are under $100/MWh (10c/kWh)
    - for a few hours on may days of the year they get into the $hundreds/MWh, and
    - for a few hours of a few days per year they get into the $thousands.

So, just aligning ToU tariff design with only network peaks, or with only generation costs, is not very cost reflective and may not send the right sort of price signal, so runs the risk of not fixing 'the problem'. At best, this could restrict an individual's ability to monetise a cost saving brought about by managing their energy use, and at worst it can send a perverse signal to use more energy at a time that places more load on the NEM.

Some stakeholders are of the view that ToU implementation should occur at the network tariff level, The resulting discussion around peak time so far is largely focussed on network peaks alone.

5. The shape of tariffs for homes should be based on network and energy market load profiles for that residential customer class. Or should they be based on 'average' network and market loads across all consumer types? This question requires some consideration because the best case for consumers is not clear.

Household load profiles are different to commercial and industrial load profiles. In parts of the network where less of the total load is domestic, the load profiles, and particularly the peaks, of the networks may not resemble the domestic load shape. Across the NEM, only 25% of energy is used by households (the portion across distribution networks would be higher due to some larger energy users being transmission connected, and of course some parts of networks are entirely residential) Many stakeholders, including most consumers, are of the view that ToU tariffs for households should be based on household load profiles.

However, where the network load profile does not match the house load, basing the tariff shape on the house load runs the risk of sending a perverse signal to households to use

- less energy at a time where doing so provides little or no benefit to the NEM
- more energy at actually network / market peak times.

From a consumer perspective, this may artificially

- Reward a consumer for adding to the peak
- Penalise a consumers for using more energy at a time when this does not cause a problem

Basing a ToU tariff on network/market wide peaks may also give households more opportunity to shift load and remove a cross-subsidy (from households to other customer types) in parts of the network that aren't mostly residentially loads.

6. Off-peak periods for ToU tariffs must be sufficient for households to be able to access cheaper energy

Consumers suggest that a weeknight off-peak period of at minimum 8 hours duration per night (eg, 11pm to 7am, which is consistent with current practice) is the minimum to allow most households access to cheaper energy for loads such as water heaters, in-floor slab heaters, and emerging technology like electric vehicles.

Having a broad window for the off-peak period is also important for network stability, as if it is too restricted there is a higher risk of simply shifting the peak to night time, rather than reducing it, in areas with a lot of controlled loads, as has happened in parts of SA where time switches for off peak hot water services have been adjusted to remove night time peaks.

7. Peak periods for ToU tariffs must be of a duration that allows households move some loads to avoid higher energy costs

Consumers suggest the weekday peak period should be of a **maximum** 4 hours duration per day (eg, 3pm to 7pm), and ideally less, thus allowing more households to avoid using high consumption appliances such as washing machines, dishwashers, and clothes driers during times of higher demand and prices.

Consumer advocates have been concerned by ToU tariffs that include 16-hour weekday 'Peak' period as these do not allow many consumers to respond to ToU pricing as intended.
There is a trade-off between the length of the peak and the ability for that period to apply cost reflectively to all areas.

With regard to section 5 (above), if ToUs are aligned with customer types of 'single fuel' and 'dual fuel' (see 10 below) and there is no seasonal change (see 8 below) then a two or three hour peak window, during which the majority of 'peaks' fit, will be suitable for each of these classes.

8. A standard ToU pricing offer may not include significant seasonal variation (unless the current standing offer at that residence already has such a seasonal element)

A seasonal ToU is where, for example, an area of the network that is winter peaking has higher tariff charges in the winter months. Seasonal pricing is already done on in gas and electricity, but could vary more (and hence be more confusing for consumers) when incorporated into ToU pricing.

Generally consumer advocates are of the view that seasonal variations should be allowed as long as the seasonal differences are not so great or confusing that it places consumers at unacceptable risk.

9. A standard ToU pricing offer may not include critical peak pricing

Critical peak pricing is where cheaper energy is provided at a cheaper rate all year round, except for a few hours on a few critical peak days where it effectively costs a lot more to supply. On critical peak days, the price for energy is considerably higher, and consumers are notified the day before to allow them to take action to reduce their load on these days if they so choose. The general idea is that the average consumer has lower bills and greater opportunity to save more through load curtailment on peak days, but they carry higher risk.

The strongly held view by consumer advocates is that critical peak pricing should not be allowed as part of any standard offer long as the risks to some consumers are not acceptable.

10. Consumers should be provided with the option of a common ToU tariff based on their fuel mix

In Victoria as part of the staged introduction of 'flexible' pricing, stakeholder considered what a common ToU shape (eg. with 'the same' peak, off-peak and shoulder periods across the state) would look like, on the basis that a common standard ToU would help consumers make informed decisions about which energy retail products to choose and how best to use energy.

In most locations, there are two distinctly different average household load profiles at a network level: Dual fuel (where gas, or in some cases wood, is used for some or all heating and cooking loads) and single fuel (electricity only, with or without solar hot water)[8].

Dual fuel and single fuel households' load profiles are so different that a ToU tariff that is common to both household types can not meet all of principles 5, 7 and 8 above at the same time: the peak duration having to be longer than four hours, and many single fuel houses in Vic are winter peaking while some dual fuel houses are summer peaking.

According to industry it is not practicable to offer electricity tariffs to specific households based on whether or not they also use gas, so the logical way to distinguish between the two household types is to generalise between city (largely dual fuel) and rural (mainly single fuel), or by postcode.

5.8 Establish the primacy of the National Electricity Objective at all levels of energy policy making

The NEO is intended to be considered at all stages of NEM policy development and implementation, and so should underpin every high level decision made in the NEM, but all too often it is lost in the noise of implementing policy and market design.

In a number of energy market related committees and processes in which the ATA has been involved, for example in relation to smart metering, we have to push to have the NEO considered as

[8] There are differing profiles for different classes of customers within those broad categories but in the context of network-level price setting that's likely not to be material.

a guiding principle, and sometimes without success where vested interests have prevailed or where the Terms of Reference directly contradict the NEO[9].

ATA is of the view that as a result of the failure of the NEO to be considered, particularly at the level of policy design and implementation, the energy market has failed in many ways to achieve the objective. Resultantly, in our view, the NEM has often been more successful at protecting the long term interests of a number of market participants and network service providers than it has of protecting the long term interests of consumers.

[9] By way of example, for a recent review undertaken by IPART on behalf of the New South Wales government, the Terms of Reference effectively required that the short term value to retailers be given precedence over the long term interests of consumers.

6.0 Barriers to reducing peak demand and energy costs

> (e) investigation of opportunities and barriers to the wider deployment of new and innovative technologies, including:
>
> (i) direct load control and pricing incentives,
>
> (ii) storage technology,
>
> (iii) energy efficiency, and
>
> (iv) distributed clean and renewable energy generation; and
>
> (f) any related matter.
>
> - *Senate Committee on Electricity Prices, Terms of Reference*

There are a host of demand-side technologies and associated services that, particularly when aggregated, could more cost effectively meet NEM needs regarding networks and wholesale/retail market operations than equivalent supply side solutions. There are a number of barriers to these benefits being realised. (Some have been touched on in previous sections)

6.1 The culture of energy networks

As mentioned previously, networks have a deeply entrenched bias towards building more poles and wires, and are generally not in the habit of supporting the more efficient demand side solutions that are in conflict with their business models.

6.2 Split Incentives

The disaggregation and privatisation of our energy market into regulated monopoly poles and wire businesses and competitive retail and generation has created spilt incentives which are working against the long term interests of consumers.

The way businesses in the NEM profit can generally be summarised as follows:

- Generators: Sell more energy at higher unit cost.
- Retailers: Sell more energy by volume to their customers, and reduce risk (achieved mostly through vertical integration and off market agreements with generators which, also reduces their adaptability to market conditions).
- Distribution and Transmission: Build, own and operate more poles, wires and associated infrastructure. While network businesses would also potentially profit in the short to medium term through efficiency gains from implementing cost effective DSP to avoid planned network augmentation, and such gains would eventually flow through to consumers, history tells us that growing their regulated asset base is the preferred outcome for distribution businesses when faced with choices about investment. Currently, distribution businesses tend only to deploy DSP as a contingency measure to defer capital expense for short periods of time.

Consumers, who provide the revenue for all the above, are the only party that has a vested interest in the efficiency of all parts of the NEM supply chain.

Under current market arrangements, retailers and network businesses could, theoretically, work together to overcome some of the split incentives through providing demand side services to consumers. While the energy market arrangements continue to evolve in most NEM regions, the markets are arguably reasonably mature. If existing market arrangements could be relied upon to deliver DSP and resultant efficiency benefits to consumers, then this would have occurred by now.

In the absence of strong policy measures, extant NEM parties clearly cannot be relied on to deliver the potential benefits of DSP. In most cases, DSP is in direct conflict with their business models.

The introduction of measures that overcome split incentives though DSP, such as those proposed by the AEMC in Section 5.2, is critical to realising lower electricity bills for consumers.

6.3 Barriers to improved competition from third parties

As mentioned earlier, third party energy service providers (other than retailers, generators or distributors) can potentially offer a range of services to consumers, which would lead to reduced energy costs for participating consumers, as well as improved market efficiencies and potentially reduced network expenditure, to the benefit of all consumers.

Currently there are numerous barriers to these parties operating in the NEM. How these parties interact with consumers, access the market and the networks, and monetise the potential benefits of the solutions they can provide, remains generally unresolved, and market participants and network businesses currently act as gatekeepers to most forms of NEM participation. Over recent years, various NEM processes and reviews have begun to consider, for example, the issues of access and contestability for third parties to offer energy services to consumers.

Some apparently irreconcilable differences of retail and distribution businesses, along with reluctance to resolve these issues (the vested interests of these businesses are conflicted by the entry of third parties that would likely be competitors) have been key barriers to the resolution of those issues. Further, these third party providers are disparate and not well represented in the NEM.

Given the resistance of existing market participants to resolve these issues of their own accord, this is an area that requires intervention by government[10].

The limitations of extant consumer protections – the actions and relationships of these third parties generally fall under Australian Consume Law the but are generally not covered by NECF or the NER – and how these shortcomings need to be addressed, presents issues that are yet to be concretely addressed by policy makers and market institutions, and that consumers advocates are yet to develop a detailed agreed view on.

6.4 Inability for consumers to trade off reliability of supply for lower energy cost

[10] The AEMC (Power of Choice review) and SCER (Consumer Protection and Safety Work Stream) are both investigating some issues relating to third party service providers.

The treatment of all residential consumers as equal in terms of their ability to compromise supply reliability in return for a financial trade off makes it highly difficult to assess the value of both demand side and supply side investments.

While 100% reliability of supply at all times is critical for a small number of consumers, this comes at a high cost, and the reliability incentives for distributors and market participants are inflexible and place artificial barriers on the participation of those consumers who are in a position to be more flexible in their energy use.

Such opportunities as Direct Load Control, voluntary Supply Capacity Control/Limiting and similar pricing and demand side solutions offer much potential for consumers to save money through demand side participation, however under current requirements on networks, their ability to do so may be limited. As a result the inability of informed customers to effectively 'opt-out' of more expensive continuous supply in return for cost savings is a barrier to efficient demand side participation.

The over-emphasis on inflexible, broad-brush measures (such as System Average Interruption Frequency and Duration indices and the energy-based common Value of Customer Reliability across consumer classes[11]) as a means of valuing the need for continuous supply leads to over-investment in many parts of electricity networks to meet demand.

Further, the reliability incentives placed on networks are based on network-wide SAIDI and SAIFI figures are structured in such a way as to be inefficient and create inequity between rural and urban consumers.

[11] Through AEMO's recent Review of the Value of Customer Reliability and related processes, the over-emphasis on metric used for VCR became apparent. In spite of a range of flaws being put forward and acknowledged by the reviewing body, there have been no apparent advances in the treatment of Consumer's reliability needs in the market.

One of the flaws in VCR is use of an energy-based absolute value which does not allow correct valuation of the many 'partial supply' options which could be available to those consumers who do not require unrestricted access to energy at all times, that could otherwise be put in place to benefit those individuals as well as all electricity consumers through reduced network expenditure or wholesale market prices.