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Ms Anne Pearson  
Acting Chief Executive  
Australian Energy Market Commission  
PO Box A2449  
Sydney South NSW 1235

Dear Ms Pearson

### **Consultation Paper – Local Generation Network Credits**

The City of Sydney welcomes the opportunity to respond to the Commission's consultation paper on local generation network credits.

The City's submission is enclosed. A copy is also being sent uploaded to the Commission's website.

Through its three Decentralised Energy Master Plans (Trigeneration, Renewable Energy, Energy Efficiency) the City is strongly focused on roll-out of decentralised generation to reduce emissions from electricity. However, in the City's view, there are insufficient regulatory incentives for decentralised generation at the current time.

The introduction of local generation network credits via changes to the National Electricity Rules would improve these incentives.

Local generation should receive a network credit that is economically reflective. This provides a signal that network costs to deliver electricity from local generators to customers are significantly lower than from large remote power plants.

The City's submission clarifies a number of points about the rule change proposed by the City, the Total Environment Centre and the Property Council of Australia.

In particular, the submission notes:

- the concept of local generation need not be restricted to small scale plant
- availability at times of peak demand should be a key consideration
- both new and existing local generation should be eligible for network credits
- both transmission and distribution charges should be taken into account
- network credits should be subject to public scrutiny via the tariff-setting process.

As well, the submission responds to the Commission's questions about:

- how the Commission should evaluate the rule change
- perceived issues with the current rules

- benefits of the rule change
- how to calculate network credits
- costs to administer network credits.

The proposed assessment framework may be sufficient to identify some benefits to networks from local generation, however, it may not fully capture all the benefits. In particular, the Commission will need to ensure that networks apply an adequately long-term horizon when assessing future avoided costs.

The Commission should take account of the effects of incumbency. Were the system of electricity supply being designed today, it would involve more local generation than is evident in the National Electricity Market. An orderly transition to “networks of the future” can be facilitated via the proposed rule change.

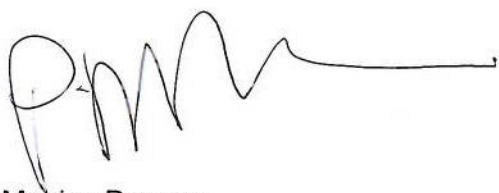
The submission makes specific comments about how to calculate network credits:

- Transmission costs embedded in consumption tariffs should be fully remitted, as local generators do not use the transmission network to supply consumers.
- A cap should be placed on the maximum applicable discount rate, to better recognise benefits from future avoided network costs. This helps mitigate the long-term economic risk of an electricity grid which is oversized.
- The method of calculating generation credits should not be overly complex. Voltage level and time of day are used to calculate consumption tariffs, so should be used when calculating generation credits.
- Current investigations on the network benefits of local generation (such as the research project by the Institute for Sustainable Futures) should be taken into account when devising a methodology for network businesses to implement.
- The network credit should be designed to keep costs of administration manageable.

Finally, the City encourages the Commission to undertake an extensive and detailed program of industry and stakeholder consultation on the rule change proposal.

Additional information is available from Chris Barrett on (02) 9265 9004 or by email at [cbarrett@cityofsydney.nsw.gov.au](mailto:cbarrett@cityofsydney.nsw.gov.au)

Yours sincerely



Monica Barone  
Chief Executive Officer

Enclosure: Submission to Australian Energy Market Commission - Consultation paper on local generation network credits

**SUBMISSION TO THE  
AUSTRALIAN ENERGY MARKET COMMISSION**

**CONSULTATION PAPER –  
LOCAL GENERATION NETWORK CREDITS**

**This submission responds to an initial consultation paper  
by the Australian Energy Market Commission on the  
proposal for local generators to receive payments  
that reflect reduced use of networks to send  
locally generated electricity to consumers**



**Part A - Introduction**

The City of Sydney welcomes the opportunity to make this submission to the Australian Energy Market Commission (the Commission).

The submission responds to the Commission's consultation paper on local generation network credits. The system of network credits has been proposed (via changes to the National Electricity Rules) by the City of Sydney, the Total Environment Centre and the Property Council of Australia.

Through its Decentralised Energy Master Plans (for Trigeneration, Renewable Energy and Energy Efficiency) the City of Sydney places strong focus on roll-out of decentralised energy to reduce emissions and electricity bills for our residents and businesses. However, in the City's view, the current rules do not reflect the economic value of decentralised energy.

The City, the TEC and the Property Council propose that an economically reflective network credit should be paid to local generators. This will signal that the costs for networks to deliver electricity to customers from local generators are significantly lower than from large remote power plants.

The proposal will be relatively inexpensive to implement and administer, it will lead to increased investment in and output from local generators and it will lead to lower network tariffs for consumers over the long term.

The City's submission on the Commission's consultation paper clarifies a number of points about the rule change. In particular, the submission notes:

- the concept of local generation is not restricted to small scale plant
- availability at times of peak demand should be a key consideration
- both new and existing local generation should be eligible for network credits
- both transmission and distribution charges should be taken into account
- network credits should receive public scrutiny as part of tariff-setting processes.

As well, the submission responds to the Commission's questions about:

- the evaluation framework
- issues with the current rules
- calculation of future avoided costs and network credits
- benefits of the rule change and costs to administer network credits.

The Commission's proposed assessment framework may identify some of the benefits to networks from local generation, however, this framework may not fully capture all the benefits. In particular, the Commission must ensure that networks apply an adequately long-term horizon when assessing future avoided costs.

The Commission should take account of the effects of incumbency. Were a system of electricity supply being designed today, it would involve more local generation than is evident in the National Electricity Market. An orderly transition to "networks of the future" can be facilitated via the proposed rule change.

The submission makes specific comments on how to calculate network credits:

- Transmission costs embedded in consumption tariffs should be fully remitted, as local generators do not use the transmission network to supply consumers.
- A cap should be placed on the maximum rate at which future network costs are discounted, to better recognise the benefits from avoiding such costs where feasible. This will help mitigate the long-term risk of an oversized electricity grid.
- The method of calculating generation credits should not be overly complex. Voltage level and time of day are used when calculating consumption tariffs, so should be used when calculating generation credits.
- Current investigations on the network benefits of local generation (such as the research project by the Institute for Sustainable Futures) should be taken into account when devising a methodology for network businesses to implement.
- Network credits should be designed to keep administration costs manageable.

Finally, the City encourages the Commission to undertake an extensive and detailed program of industry and stakeholder consultation on the rule change proposal.

## **Part B – Background**

The rule change will improve financial rewards to local generators – ranging from sugar mills making electricity from waste heat, to office buildings with generators in the basement to residents with rooftop solar installations – when they export power to the public electricity grid. It will do so while also reducing consumer electricity prices (by comparison to what they would otherwise be) over the longer term.

The rule change proposes a system of local generation network credits. These credits should reward local generators for benefits that they provide in supplying electricity during peak demand and for reducing the need for demand-related augmentation (and potentially reducing costs of network replacement). This will lead to lower network tariffs over the long term.

Network credits are intended to be relatively inexpensive to implement and administer, and to increase the number and output of new and existing local generators. While the payment is made to generators, generators are able to pass the credit on to consumers through pricing.

It is important that the Australian Electricity Regulator should develop detailed guidelines that networks must follow when calculating network credits. This includes networks publishing the schedule of network credits. The structure of network credits should be included in the public consultation on each network's tariff structure statement. This will also assist in integrating the application of network credit with tariff setting and network planning.

### ***History of the proposal***

In early 2014, the Total Environment Centre and the City of Sydney commissioned the Institute for Sustainable Futures to prepare a report on options for calculation of benefits of local electricity generation and consumption.

The report investigated different options for network payments to reward local generation and/or local consumption of electricity. These options included a credit payable to local generators because they make more limited use of network infrastructure and contribute to mitigating peak demand events. This is called a local generation network credit (LGNC).

In mid-2014, the City commissioned the Institute for Sustainable Futures to prepare an issues paper setting out key issues in relation to local generation (copy available on request). The issues paper served as the basis for extensive engagement with key stakeholders. This engagement established that, overall, stakeholders were receptive to the concept of a local generation network credit.

The rule change proposal was submitted in July 2015.

## **Part C - Clarifications**

It is important to clarify some elements of the rule change which received comment in the Commission's consultation paper.

### ***Choice of term - "local generator"***

The term "local generator" was chosen after careful consideration by the proponents.

This is not short hand for small scale embedded generation. Not all small scale generation is embedded; not all embedded generation is small scale.

Lack of appropriate network support for investment in and operation of embedded generation may be most evident in small scale installations, however, the logic of the rule change also applies to embedded generators that are larger scale. Essentially, a local generator is a generator that is located within a distribution network and serves local demand within the distribution network; it does not contribute to centralised supply. Such a generator can be expected to make a reduced call on network infrastructure compared to centralised generation, which calls on both transmission and distribution networks. Hence, the term "local generation" is used.

The Commission may wish to consider upper or lower thresholds for "local generation". However, following further investigation, the Commission may agree with the rule change proponents that a broad definition is desirable. What is

important is that as far as practicable embedded generators should have the choice to be treated as local generators.

### ***Availability***

The importance of availability is explicitly recognised in the submission that accompanies the rule change proposal. Most obviously, the proposal distinguishes between the rate of network credit that is payable in peak periods and the rate of network credit that is payable in non-peak periods.

This distinction can further refined (as already happens in some jurisdictions) to distinguish between summer and non-summer peak periods or to distinguish between peak, shoulder and off-peak periods (or more).

The rule change anticipates that, in addition to the volume-based payments described above, the network credit could include a supply availability payment. This would reflect how much local generation is supplied at particular times (typically but not necessarily, a number of half hour intervals of high demand).

The practicability of a supply availability charge would depend on the particular network and its tariff structures. For example, the existence of peak demand charges for electricity consumption would seem to be a prerequisite.

### ***Inclusion of both existing and new generation***

As presented to the regulator, the rule change does not distinguish between new and existing capacity. The issue is local generation.

Existing local generation capacity which lies idle, or which operates at a much reduced rate because it is not rewarded appropriately, is as much a missed opportunity as lack of investment in new local generation capacity.

It may be desirable to review the scale and scope of payments over time, however, both ongoing operation and new investment should have access to network credits. Network efficiency will be enhanced by a system of cost-reflective network charges that both encourages new entrants and incentivises higher output by existing local generators where this is economically efficient.

### ***Inclusion of both distribution and transmission elements***

During the development of the proposal, the main focus was on how distribution businesses could avoid future network costs and share these cost savings with generators. At a minimum, this requires significant amendments to Chapter 6 of the Rules (Distribution Services), which has been included with the proposal.

Initially, avoided transmission costs were simply treated as part of overall avoided network costs. It was considered feasible to leave it up to distribution and transmission businesses to determine how to allocate avoided costs. However, this process may not provide the necessary rigour, and avoided transmission costs may be diffused within a single rolled-up payment between transmission and distribution businesses.

The proponents acknowledge that amendments are needed to Chapter 6A of the Rules (Transmission Services) to ensure the rule change achieves its full intent.

It is not an oversight that changes to Chapter 6A have not been drafted by the proponents. Our view is that transmission providers should play a role in negotiating the necessary changes. In the interest of timeliness, this is better done as part of the rule change consultation process.

### ***Choice between operating expenditure and control service***

For the purpose of the rule change proposal, the system of local generation network credits has been proposed as a control service and not as a network operating cost.

The Commission's consultation paper comments that the proposed amendments to Chapter 6 may lead to a result that is inconsistent with the intent of the proposal. Without reflecting on this assessment, the City restates the intent of the proposal.

The structure of the local generation network credit should be part of the public consultation on each network's tariff structure statement, which is associated with periodic regulatory determinations (for up to five years) by the Australian Energy Regulator. This will assist in integrating the application of network credit with tariff setting and network planning. It should also be subject to scrutiny as part of the annual tariff-setting process.

If there is a better way to fashion the rule change and still achieve this goal, the City welcomes such refinements of the proposal.

## **Part D - Responses to questions in consultation paper**

<b>Question 1</b> <b>Assessment framework</b>
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### **1. Would the proposed framework allow the Commission to appropriately assess whether the rule change request can meet the NEO?**

It is important, in responding, to identify some broader principles:

- users should pay a fair charge for different levels of use of electricity services (equity should be a consideration);
- total system cost should take more into account than network costs, and effectiveness involves more than technical efficiency;
- assessment of the proposal should be robust enough to take into account likely future changes in both production and consumption of electricity.

The framework in the consultation paper is as follows:

*“Promoting the long-term interests of consumers means that network quality, safety, reliability and security of supply requirements are met at efficient long-term cost, taking into account both network and non-network (including embedded generation) options.*

*“This will be achieved if*

- Demand is met at the **lowest total system cost** (given reliability standards): the NER should incentivise DNSPs to provide network services at the lowest total cost by using an efficient combination of network and non-network solutions.
- **Prices reflect those costs**: customers should face tariffs that reflect the underlying costs of supply so that consumption and, subsequently, investment is not inefficiently deterred or encouraged.
- There is **efficient investment in new assets** over time: the NER should provide DNSPs with incentives to make the right investments in network and non-network solutions at the right times and in the right places.”

This framework should be sufficient for a network benefit from local generation to be recognised, but it may not be sufficient to address all the issues which have given rise to the rule change proposal.

### **Evaluating long term costs**

The recent round of public consultations on network tariff structure statements have shown up some challenges that may exist in determining long-term marginal-costs.

In particular, the City observed an apparent reluctance on the part of the NSW distribution networks to consider long term costs (essentially, anything beyond the next regulatory period was excluded from consideration). This observation was shared by a number of participating consumer groups.

If this approach persists, it may prove challenging to assess long-term avoided costs from local generation, which lie at the heart of the proposed rule change. As the City has previously commented (in its submission on cost-reflective pricing for distribution networks), it is essential that networks have clearer guidance on the term for which long-run marginal costs are assessed.

More generally, there is a lack of strategic guidance on the overall shape of the national electricity supply system in the long term. This makes it challenging for even the best informed network engineers to be certain about future long-run marginal costs. As the work of the CSIRO Future Grid Forum has shown, different scenarios lead to different outcomes for future network investment and operating costs.

In the absence of clear guidance on the future of the grid, a more manageable starting point might be considered. This is to apply the historic pattern of network investment and operating costs to estimate network costs that could be avoided in the future by making more use of, and suitably rewarding, local generation.

### **The incumbency effect**

A further challenge in assessing future system costs is the impact of incumbency. The current system is set up to meet the needs of very large fossil-fuel-powered generators.

Little consideration was given historically to including alternative forms of power in the electricity supply system in an efficient and effective manner. Were we starting from scratch, there would be more smaller-scale decentralised generation in our networks. That is the case in other advanced markets.



In this respect, the very high centralisation of Australia's system of supply by global standards is itself a risk for electricity customers in the future. Also, there is the uncertainty and risk that future electricity consumers will face if a continuing subsidy is offered to heavily-depreciated highly-centralised coal fired power stations at the expense of investment in new higher-efficiency low-carbon generation (e.g. trigeneration) and local renewables.

In major Australian markets e.g. NSW, pre-eminence has been given to equalising costs of supply to consumers, irrespective of where the energy comes from. Thus, a consumer in Sydney typically pays the same cost to have energy transported from the Snowy, Gunnedah or Broken Hill as from the house (or office block) next door. The current system of tariffs does not acknowledge the differences in costs of delivering electricity or at the very best differences in costs are heavily disguised.

#### ***Taking account of location in new investment***

An investor is looking to invest, and has a choice of two locations. One is a very large roof top in a regional city with good insolation characteristics. Multiple commercial customers are located close by, and the area has good growth prospects. The other is a remote field far from customers but close to the site of a power station that is close to end of life and a very old transmission line.

The cost of connection may be identical. In fact, they may be lower for the remote location because there is spare capacity in the short term.

From the point of view of future network costs, it is clearly preferable to locate generation closer to the customers (and the load growth). But there are no signals to generators that the remote location is much more expensive to service in the long run. By perpetuating the current model, future network costs are higher than a system of charges that includes a credit for local generation.

The overinvestment of yesteryear provides yet more incentive to soak up short-term spare capacity by adding or replacing capacity where it stands, rather than taking a fresh look at how a modern electricity supply system would be best configured.

#### **Preparing for the future**

At some stage, the current balance between cost of production and cost of supply (transmission/distribution) will change. International pressures and national policy are likely to lead to a rapid phasing out of existing high-emissions generators (most obviously, old coal plants). Large chunks of transmission network could become stranded assets, and gaps may emerge in transmission-based generation capacity. Consumers are likely to have to pay for such changes; the less that they are obliged to pay, the better. In the City's view, the best time to begin this is now, and the assessment framework for the rule change should take account of this.

#### **2. What is the relevance, if any, of reliability and security for the purposes of assessing the proposed rule (or a more preferable rule)?**

As argued above, the inclusion of more local capacity will stand the future electricity supply system in good stead in terms of reliability.

Recent events throw into relief the potential benefits of having a larger proportion of local generation as part of individual networks. For example, the current restrictions

on electricity supply in Tasmania owing to the temporary failure of the Basslink interconnector have thrown into high relief the importance of local generators smaller scale plant such as gas generators and more generally having a robust network of local solar PV and distributed storage.

Local generation also plays an increasingly important role by improving security of supply as the percentage of large-scale intermittent generation grows, and reducing the risk and costs from large-scale network defection if network charges are not modernised.

### **3. What changes, if any, to the proposed assessment framework do you consider appropriate?**

There needs to be an injection of equitability into the treatment of generators into the assessment framework. Not matter how the explanation is couched, it is not equitable that a local generator that does not use the transmission network and makes much reduced use of the electricity network is compelled to experience the same cost to deliver electricity to the consumer as very large remote generators.

#### **Example**

Two circuits sit side by side on a major switchboard in a large CBD office building.

On one circuit sits a trigeneration plant that operates below capacity. On the other circuit is a customer that wishes to purchase electricity from the in-house generator. Perhaps it is the same customer.

The electricity network charges full network charges to transport electricity through a short strand of cable between customers.

To reduce network charges the customer on the trigeneration cogeneration circuit must spend substantial funds on a change in switchboard circuitry to bring the other customer (again, it may be the same party) on to the same circuit.

There are commercial and technical challenges in doing this but, if the customer takes these on, the network loses an ongoing source of revenue. A better outcome would be to provide the trigeneration customer with an appropriate local generation network credit.

This way, the benefits from local generation will be shared between the network and its customers.

The network enjoys an ongoing (if smaller) stream of revenue and the trigeneration customer avoids spending scarce capital to duplicate existing infrastructure.

#### **Question 2**

##### **Perceived issue with current NER**

**1. Are the current NER provisions (including changes that have been made but not yet come into effect) likely to provide appropriate price signals for efficient embedded generation? That is, do the NER provide incentives to individually or collectively (including through small generation aggregators) invest in and operate**

**embedded generation assets in a way that will reduce total long-run costs of the electricity system?**

In the view of the City, the existing NER provisions do not provide sufficient effective price signals for efficient use and installation of local generation.

It is acknowledged that the National Electricity Rules do include some provisions that could potentially incentivise efficient investment in local generation such as:

- the recent change to the National Electricity Rules which is intended to increase cost-reflectivity in distribution network pricing over time
- the availability of network support payments where local generation represents the least cost means of balancing supply and demand for a period of time
- avoided TUOS payments that are accessible for some local generators; and
- regulatory investment tests that require network businesses to undertake a systematic assessment of the market for non-network solutions when considering some investments in infrastructure.

In practice, for a variety of reasons that are covered in more detail in the rule change proposal submitted by the City and others, these incentives do not adequately incentivise efficient local generation.

In particular, the avoided TUOS charge regime, at least in NSW, provides a limited pricing signal for efficient local generation. The avoided charge is retrospective and narrowly focused on the highest half hour in a monthly period. Generators and consumers are unable to respond prospectively. This is quite the opposite of what a price signal should provide.

The avoided TUOS approach has other limitations in terms of designing a system of network credits for local generation:

- It is cumbersome to administer in any system that is large or complex. It is impractical to reach down to the level of individual bulk supply points and transmission connection points to work out avoided costs for a large number of local generators.
- It is at odds with the way that transmission charges are treated for most small market and large market customers. They experience rolled-up network charges, not separate TUOS and DUOS charges.
- It only deals with the variable component of transmission charges and not the fixed component. This means, the scale of the signal is much diminished as compared to traditional volumetric approaches.

There is a simple model that could be applied and which has obvious merit.

This model involves remitting transmission costs (this means the sum of both variable and fixed transmission charges) on the basis that local generation makes no use whatsoever of the transmission network. Local generation could exist (indeed, once upon a time, did exist) in the absence of transmission networks.

**2. Do the current NER provisions (including changes that have been made but not yet come into effect) appropriately incentivise network businesses to adopt both**

**network and non-network solutions to achieve efficient investment in, and operation of, the electricity system that minimises long-term costs?**

The discount that is applied to future avoided costs for the purpose of the rule change should be reviewed.

In the long run – all other things being equal - the preferred methodology of avoided cost can provide the appropriate pricing signals to efficient local generators. However, “in the long run” can be a very long time off, and the need to adjust in a changing world of electricity supply may be more urgent.

The Commission should address this by imposing a maximum on the discount rate that can be applied to discount future network costs (and hence avoided future network costs) for the purpose of the rule change. Because the rule change will reduce the likelihood of overinvestment in future network capacity and hence reduce consumer risk, the maximum discount rate should be set at below the applicable rate of return (the WACC rate).

**3. If your answer to questions 1 or 2 is 'no', what is the specific area in which the current NER provisions do not achieve these outcomes – for example, is the issue with the current provisions only related to embedded generators of a certain type or below a certain size, or is there an issue for all embedded generators?**

Specific comments are made under parts 1 and 2 of Question 3. Small generators that connect under part 5A are likely to face the greatest disadvantage but they are not the only local generators that are at a disadvantage.

<p><b>Question 3</b> <b>Determining avoided costs</b></p>
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**1. What are the factors that influence the long-run network costs that can be avoided through embedded generation? For example, do these cost savings depend on the location, voltage and type of generation?**

This is a complex issue which in the City’s view requires more investigation. Clearly, the level of avoided future costs will be affected by the level to which existing infrastructure is not replaced in the future, and the extent that future augmentation can be avoided.

It is possible to develop a methodology that adequately describes and allocates rewards for local generation. Such a methodology has been in place in the United Kingdom electricity market for some time.

It has been argued that the thinking behind the United Kingdom methodology (based on a system experiencing growth) is not relevant to the current market situation in Australia (where demand is relatively stable) and that some of the overarching considerations in the UK regulatory framework (for example, concern with environmental benefits) are not relevant to the Australian regulatory framework.

However, electricity market rules should not be set on the basis of prevailing circumstances but to encourage efficient behaviour across investment cycles.

Irrespective of whether the rules incorporate an environmental objective, Australian networks will need to adjust their pricing to efficiently incorporate the growth of distributed generation. The modelling undertaken by CSIRO for the Future Grid Forum makes this clear.

If network pricing does not adjust to the growth of embedded generation, there is a high risk of grid defections. This will have negative impacts on grid efficiency and on costs for grid users. The UK has demonstrated that it is possible to develop a methodology for local generation credits that is simple and effective, and the same considerations which led to their implementation are relevant for Australia.

#### **Lack of consideration of environmental benefits**

The City recognises that climate change is not a head of consideration in the Australian electricity regulatory framework. However, the City contends, environmental costs should be recognised as part of the total costs associated with electricity supply or, to use the language of the Commission's own consultation paper, "total system cost".

If environmental costs are not included, the City contends, it should form part of the AEMC's considerations for minimising the risks and costs to future consumers. Future electricity consumers will have to pay for the environmental consequences of their choice of fuel. Economic modelling has consistently found it is cheaper to reduce greenhouse gas emissions earlier, and warned against the costs of infrastructure 'lock-in' due to pricing frameworks which do not incorporate a cost for carbon – especially if rapid cuts in emissions are required in the future.

## **2. Can embedded generation materially reduce DNSPs' ongoing operating and maintenance expenditure? If so, to what extent do these cost savings depend on the location, voltage and type of generation?**

Local generation can substantially reduce the long run marginal costs of networks (not just distribution networks) both in terms of capital costs and in terms of operational costs.

Greater precision in answering this question can only be provided by reviewing the operation and maintenance costs (as to the equipment and other capital costs) of representative networks and how the timing of expected savings are affected by the life expectancy and remaining life of existing network elements.

The Commission should take account of the findings of the local network charges project that is currently being undertaken by the Institute for Sustainable Futures with the assistance of funding from ARENA, the City and other institutions.

Other pending investigations of the quantitative benefits of local generation should be noted.

For example, the Essential Services Commission of Victoria is may take a study of network benefits as part of its inquiry into the true value of distributed generation.

### **Example**

Under the current rules, full network charges are applicable even if a local generator in an office tower in a large metropolitan CBD exports electricity to the office tower next door or to a large public institution across the street.

This is despite the generator in the office tower helping to keep network costs down in two ways.

First, the generator only uses a tiny fraction of the poles and wires needed to bring electricity from major power stations that are currently located in distant areas like the Hunter Valley, the Latrobe Valley or Central Queensland. That keeps down ongoing network maintenance and replacement costs.

Second, by mitigating the build-up of peak demand over time, local generation reduces the need for (and defers the timing of) future investment in very large remote generation plant and in massive high voltage transmission and sub-transmission infrastructure to supply electricity to consumers in areas of growth like central Sydney, central Melbourne and central Brisbane.

### **Question 4 Specificity of calculations**

**If LGNCs of some form were to be introduced:**

**1. What is the appropriate degree of specificity in the calculation of avoided network costs and, if relevant, operating and maintenance costs? For example, should different calculations be made for different voltage levels and/or geographic locations and, if so, what would be the criteria for distinguishing between levels/locations?**

The City considers that the level of reward should take account of the extent to which local generation makes reduced use of networks, both now and into the future. This approach is both common sense and equitable.

This is also reflective of the way that most networks currently set tariffs for electricity consumers.

Electricity consumers connected to the low voltage loop pay higher tariffs because they make more use of the network - low voltage, distribution, sub-transmission and transmission networks. Electricity consumers connected directly to the high-voltage system pay less, often much less, because they make less use (on average) of electricity services.

The City is not best placed on how to calculate avoided network costs at this point in time. However, the City does consider that the Australian Energy Regulator (AER) should set detailed guidelines for distribution networks.

The AER should take into account the findings of the local network charges project that is currently being undertaken by the Institute for Sustainable Futures with the assistance of funding from ARENA, the City and other institutions.

The AER should also take into account other pending investigations of the quantitative benefits of local generation. For example, the Essential Services Commission of Victoria is currently considering whether to undertake a study of network benefits as part of its inquiry into the true value of distributed generation.

### **Remitting transmission charges**

In the City's view, the minimum level of relief for local generators should be full remission of transmission charges embedded in consumption network tariffs.

This differs from the current rules which applies to embedded generators connected under Chapter 5 (which may be eligible for relief from some transmission charges) or Chapter 5A (which generally are not eligible for relief from any transmission charges).

Under Chapter 5, generators may receive relief from so-called avoided TUOS charges. These are generally charges that are variable and over which distribution networks have some control, such as usage charges or demand charges (the name and type of variable charges varies between jurisdictions). Fixed charges such as daily exit charges, common service charges and general charges (again, the names and types vary) are generally not part of avoided TUOS charges.

The City's own survey of avoided TUOS charges indicates that variable (avoidable) charges may comprise only a modest proportion of total transmission charges. In any case, the way that avoided TUOS charges may be determined (in retrospect, based on highest half hour demand in a particular month at a particular connection point) provides a very limited form of pricing signal for local generation.

Relief from transmission charges could be offered either on a time-of-use basis (this seems preferable from a signalling point of view) or unadjusted pro rata (this may be useful as an interim arrangement).

*See also comments under response to part 2 of Question 2.*

<b>Question 5</b> <b>Potential benefits of the proposal</b>
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#### **1. Compared with the current NER provisions, would the proposal:**

- (a) Provide superior or inferior price signals to embedded generators (including small-scale embedded generators) to incentivise them to invest in and operate those assets efficiently, thereby reducing long-term total system costs?**
- (b) Provide superior or inferior incentives to DNSPs to adopt efficient network and non-network solutions (including small-scale embedded generation) so as to reduce long-run total system costs?**
- (c) Have any potential beneficial or detrimental effects on any non-price attributes of the service, such as network reliability and/or security of supply?**
- (d) Reduce or increase the prices consumers pay for electricity?**

Clearly, the proposal provides better price signals provided for local generation, both in terms of operation of existing assets and in terms of investment in new assets.

Currently, price signals for efficient generation are virtually non-existent for local generators connected under Chapter 5A and price signals for local generators

connected under Chapter 5 are largely limited to avoided TUOS charges. Collectively, these do not represent the full value of local generation.

The proposal will reduce future network charges. This will occur by reducing investment in both replacement and augmentation, and by reducing operating costs.

Consumers will benefit if networks share responsibility for supply with other players such as local generators that can program their investments according to shorter time horizons and which do not impose a system cost if they are no longer required.

Distributors that have a smaller (rather than a larger) investment in network infrastructure will be better placed in the medium and long term to cope with changes in consumer expectations about how electricity is generated, stored, supplied and used.

The City acknowledges the merit of the Commission's proposal that networks should share in the efficiency benefits arising from local generators. This will ensure that they have an incentive to facilitate local generation, and will ensure that benefits of local generation are shared between local generators and the wider consumer base.

This could be done by providing some reward for distributors and transmission providers for facilitating efficient investment in and operation/use of local generation capacity.

This could be by way of a margin on the cost of operating a system of LGNC payments, or alternatively by deducting a small proportion of network credits before they are paid to local generators. Either way, electricity consumers benefit.

## **2. To what extent do your answers to 1(a) to (d) depend on:**

**(a) To whom LGNCs are applied (eg whether it is applied to all embedded generators or whether there are criteria based on a generator's capacity, availability and/or location)?**

**(b) The degree of specificity in the calculation of avoided network costs (ie whether separate calculations are made for different voltage levels and/or locations) and how often it is updated?**

**(c) The proportion of the estimated avoided network costs that are reflected in the LGNCs paid to embedded generators?**

The proposal recognises that that timing and availability of local generation is a key consideration. However, the degree of specificity of calculation should be broadly the same as the degree of specificity of calculation for consumption tariffs.

There may be advantages in the medium term (both to local generators and to network providers) in distinguishing between different locations (or more precisely, between areas serviced by different network elements) in setting the value of network credits. However, this should apply equally to network consumption tariffs.

## **3. If you do not consider that the proposed rule would enhance the NEO, are there potential alternative approaches that may do so?**

Not applicable.



**Question 6****Potential costs of design, implementation and administration**

**1. What changes would DNSPs and other parties need to make to their existing systems and processes to enable the design, implementation and administration of LGNCs? To what extent does this depend on:**

- (a) To whom LGNCs are applied (ie whether it is applied to all embedded generators or whether there are criteria based on a generator's capacity, availability and/or location)?**
- (b) The degree of specificity in the calculation of avoided network costs (and, in turn, LGNCs) – ie whether separate calculations are made for different voltage levels and/or locations?**
- (c) How often the calculation is updated?**
- (d) How often the LGNCs need to be paid?**

The proposal was designed in a way that should ensure that the administrative load is minimal. Any changes to the proposal should have the same considerations in mind.

This can be done in a number of ways:

- existing consumption tariff structures should be taken as a starting point
- calculations should be kept relatively simple (this tends to argue in favour of existing time-of-use and voltage categories and against locational specificity, unless this is already built in to a schedule of tariffs)
- payments should be less rather than more frequent (for example, quarterly or half-yearly not monthly)
- the Commission should give consideration as to whether there should be a minimum size for registration as a local generator, and what the cost of registration as a local generator should be
- electronic processing should be utilised as much as possible
- it may be practical to make payments via intermediaries such as retailers or third-party payment providers

**2. What are the likely costs associated with undertaking the changes described above and how are these likely to vary depending on the factors set out in 1(a) to (d)?**

To gain greater precision in answering this question, the Commission should take account of the findings of the local network charges project that is currently being undertaken by the Institute for Sustainable Futures with the assistance of funding from ARENA, the City and other institutions.

It may be that there are some co-ordination services from which the overall electricity supply system does benefit and that a discount should be applied to avoided costs on this basis. However, the City's essential contention remains. The providers of locally generated energy should not be burdened with the cost of paying for services that they do not use.

### **3. How do these costs compare to the expected benefits of the proposed rule change?**

Based on the discussion under part 1 of question 6, it is unlikely that the administrative costs will be significant compared to the expected benefit.

### **Part E - Conclusion**

The City of Sydney welcomes the opportunity to make this submission to the Commission.

The City believes the proposal will lead to lower network tariffs for consumers over the long term; that it will be relatively inexpensive to implement and administer; and that it will increase the number and output of local generators.

The City would welcome the opportunity to discuss this submission further with the Commission and supports a full, open and comprehensive assessment of the proposal by the industry, stakeholders and the wider community.

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3 February 2016

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