

**Response to AER Request for Submissions**  
*Regulating Innovative Energy Selling business models under the  
National Energy Retail Law*

**Response submitted by:**

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**VIRTUAL ENERGY**

# 1 Introduction

Virtual Energy would like to respond to the AER's call for submission on *Regulating Innovative Energy Selling business models under the National Energy Retail Law* (November 2014).

We are responding to the issues presented in the call for submission:

- *What difference, if any, should storage and/or other emerging technologies have on how the AER proposes to regulate SPPA and other alternative energy selling models?*
- *What are stakeholders' views on the AER's proposed options? Are there other options to which the AER should have regard?*
- *In relation to Option 2 (exemption, rather than authorisation), what, if any, **conditions** should be placed on an individual exemption for an alternative energy seller?*
- *Should the AER include a **'trigger point'** for review of individual cases if it proceeds with Option 2?*

We aim to respond directly to the AER's issues, and present additional thoughts for consideration regarding the future energy market.

We have additionally reviewed the AER's *Final Statement of Approach* (June 2014) and derive the following high-level points:

- Retail authorisation, and the scope for increased regulatory compliance, is most important when the provision of energy to a consumer is the 'primary' source.
- The retail exemption applied to Solar Power Purchase Agreements (SPPA) is appropriate because these business models do not expose the consumer to supply-risk, among other factors.

Some previous responses to this statement approach from stakeholders indicated the retail exemption framework presented a disadvantage to Authorised Retailers, for such reasons as: the use of an identical network connection was a cost not borne by the alternate business models but we do not agree with this position, typically since the Authorised Retailer passes on the network cost to the end customer.

Therefore we believe the SPPA framework provides a good basis for extension in support of more novel business models.

## 1.1 Review of the AER's call for submission

We are encouraged by the AER's description of a potential future energy market in which new models are "likely to result in a dynamic two way relationship between energy users and energy sellers", as we see this as a natural outcome of new technologies and their falling prices.

We also concur with the potential for radical changes to the current grid when battery storage and the ability to accurately control a consumer's load is afforded to individuals and small businesses alike, for example, through the adoption of Smart Meters, or the integration of customer data into a *Smart Grid*.

The AER paper intimates that the retail exemption has, in part, been applied to businesses for which the sale of energy was "incidental", potentially forming a small part of an end consumer's energy needs.

We believe there is scope for new business models falling between a SPPA and full-fledged retailer authorisation, in which the possibility for the 'exchange' of energy is in fact the primary service offered, although the business model may not participate in the Wholesale Energy Market as the *Financially Responsible Market Participant (FRMP)* and might not in fact sell energy. This new business model could potentially offer, as a product, services known as **Virtual Net Metering**, which we discuss in section 2.

To date the AER's position has been that:

*"a retailer authorisation will likely be required if the seller meets the following criteria: they provide the primary source of energy to the premises of a small customer and sell a particular fuel across multiple sites; the seller is registered in the wholesale market for the particular fuel source and is the financially responsible retailer for the particular grid connected premises."*

## 1.2 Addition of Storage to regulate a SPPA

In response to:

***Q: What difference, if any, should storage and/or other emerging technologies have on how the AER proposes to regulate SPPA and other alternative energy selling models?***

We believe the addition of storage to regulate a SPPA should only trigger a review of the SPPA if the original alternative energy selling model **did not include** storage as part of the model.

Otherwise, if the approved selling model included an option to add storage for a customer, and some time later the customer exercised the option for the addition of storage as part of the SPPA agreement, we do not see the need to trigger a SPPA review.

We believe this distinction is necessary in the former case, because the sophistication of the energy service provided where storage and load-control is involved is distinctly different from an original *non-storage* system.

In addition, the provision of a battery storage system might be exercised under the assumption that it would significantly change a customer's imported base load. Since we believe this exposes the consumer to the potential of system non-performance, and potential cost exposure (high capital cost, with unknown Return-On-Investment) we believe the battery storage and load control system would need to be installed to a specified standard, which the original exempt user may be unable to guarantee.

Furthermore the ability to flexibly meet the consumer's energy demand using storage will further allow alternate [solar] energy system to comprise a larger proportion of the end customer's energy needs, such that the SPPA might approach a level of *primary supply*. Since the AER has indicated this as one of the distinguishing features of an Authorised Retailer, the addition of an **unplanned** battery storage component warrants a review.

For the latter case, where the original SPPA made clear provision for a battery storage system (i.e. fitted *for* but not *with*) we do not think a review is fair; as this original SPPA including the battery option was reviewed and approved as an exemption. Furthermore, the exempt user may rely on this *upgrade option* as a marketable feature in their business model/ service. Allowing the original SPPA with storage option to persist aligns with the AER's comment in the Call for Submission of not "picking winners".

### **1.3 Virtual Energy's views on the AER's proposed Options**

#### **1.3.1 Response to option 1 – authorisation for all models outside of SPPAs**

We agree that authorisation as the starting point to *market entry* is a sound principle.

However we believe that full authorisation as it applies to retailers who participate in the wholesale market, is likely too costly and onerous for new business models that might build on the recent SPPA models and not have a need to participate in the wholesale market. This may negatively impact on innovation.

*Option 1* lists a number of consumer protections and regulatory requirements for an authorisation, such as: reporting requirements, the protection of customers with life-support equipment, fulfillment of *Retailer of Last Resort* obligations, timely bill provision and negotiation, participation with the energy ombudsman, etc. We note however that certain future business models may not actually include any sale of energy, per se. Instead the services might relate to data provisioning and processing- although these services would *affect* the sale (net cost) of energy between a retailer and consumer. In that case, this new business would be required to meet certain reporting requirements (typically flowed down from the authorised retailer) as well as furnish correct data in order to allow the retailer to provide timely bills – but would not need to comply with RoLR provisions or protect consumers with life-support equipment, etc.

In short, we believe a subset of the full authorisation conditions and requirements may be appropriate for the new business models. For these new business that provide services to authorised retailers; only the necessary *flowed down* requirements should be regulated by the AER.

#### **1.3.2 Response to Option 2 – trigger point**

We agree with the SPPA/ exemption framework as being important due to the flexibility it affords to new, dynamic business models.

We believe that the individual exemption for the business model that is originally approved by the AER should be accompanied by a copy all relevant commercial contracts that will be used in conjunction with the SPPA. The AER will then approve the exemption for the business model and the related commercial contract for use with the SPPA.

We note that *Option 2* does not indicate the accuracy requirements for any necessary metering equipment utilised in the service of an exempt user.

We believe the energy meter provided by the exempt person should nonetheless, be approved by the *National Measurement Institute* and be listed with a current approval at the time of installation (Reference 1).

We further suggest these devices should also be compliant to *Australian Standards for Energy Meters*. Thus retailers and exempt businesses are held to the same level of accuracy and requirement for meter interrogatability, performance, warranties, etc. This is consistent with the AER's Annex A, Condition 4 which calls for "best effort" estimation of bills.

We see that in some cases the exempt person may need to apply a pricing model that would be in excess of the relevant local area retailer rates for new customers, thus challenging Condition 7 of *Option 2* ("pricing models"), as the exempt customer may require an upgrade to the network infrastructure which the exempt customer would be charged for upfront. The SPPA in this case would nonetheless be a more cost effective option, even with its higher rates.

We see that new SPPA providers might put in place a commercial contract that may be unfair or breach retail law conditions, consumer protections etc. This would be prevented if the exempt operator can only use certain approved commercial contracts for the purchase of energy as part of the SPPA. The AER could develop, in proper consultation, a standard contract template that SPPA operators would use. This would be similar to the retail estate industry (as well as other sectors) which has a standard contract for use in sale of property.

### **Should the AER include a 'trigger point'**

Including trigger points for review of individual exemptions could present the AER with a large administrative overhead, especially as the exemptions might need to vary depending on the individual exemption. As such trigger points should be kept to a minimum and only where a large change in the exempt user's business model occurs.

Possible trigger events include:

- Change of contract terms and conditions, in order to protect the exempt customer,
- Change of rates, if SPPA rates became disproportionately higher than general, 'retail' rates,
- Change of ownership of the exempt individual (in the case of a company) and;
- Non-compliance to the rules of exempt individual authorisation.

### **1.3.3 Alternative Business Model – Proposed Option 3**

The AER should also consider an additional alternative option/ selling model that could be operated by either an exempt person or an authorised retailer.

Up until now the two options being discussed have been relating energy use and alternative generation located at the same NMI, or metering point.

The application of *Virtual Net Metering* as a service of a business would enable either authorised retailers or exempt person to produce and supply alternative generation which is not located at the same physical location as the energy consumption.

The concept of Virtual Net Metering (VNM) is not new, and has been employed in the USA for some time. Langham, Cooper and Ison (2013) note two specific instances of VNM in Australia, which currently operate in compliance with retail laws.

The potential for this *intermediate* energy service, and the various business models that might arise from its application are discussed further on, for the particular case of a business offering VNM as a service, which we have referred to as a *Virtual Net Metering Agent*.

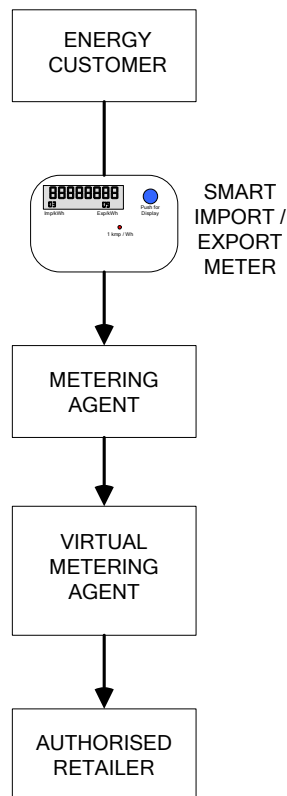
## 2 Virtual Net Metering

Virtual Net Metering (VNM) is a metering arrangement that overcomes the physical barriers that stand to limit the uptake of alternative / distributed distribution. VNM allows an electricity customer with generation at one site to assign their exported energy to another site.

The resulting virtual net is determined at any instant in time by the combination of data from both smart electricity import / export meters.

The provision of VMN as a new service, would work in conjunction with metering agents and authorised retailers. One possibility is shown in Figure 1 for the metering data flow direction.

Since this possibility is not wide-spread, the language involved with VNM is potentially new. Please refer to reference 2 for additional description and explanations in needed.



**Figure 1 – Virtual Net Metering – Possible Data Flow**

## **2.1 Role of a Virtual Net Metering Agent (VNMA)**

An authorised Virtual Net Metering Agent would be responsible for processing the real-time data received from the metering agent to calculate the virtual net for all instances in time over the billing period on behalf of the authorised retailer.

The resulting net peak and off peak consumption / generation data would then be supplied to the energy retailer so they can then bill their energy customer.

The VNM service would be offered to all electricity retailers so that they can in turn offer this service to their energy customers. Thus a new energy market place could potentially be brought directly to the consumer, allowing the consumer to trade energy between themselves by proxy of authorised retailer(s).

The VNMA would not be the supplier of energy (this would remain the authorised retailer or FRMP) and is only responsible for processing the virtual net between generators at one site and consumers at another.

### **2.1.1 Consumer Privacy**

The Virtual Net Metering Agent will have access to detailed consumption and generation data from a large number of energy consumers. As discussed later in this submission the information about relationships between energy consumers would also be known by the VNMA. Given this potential we would suggest the VNMA be in a separate class to current authorized metering agents and should be subject to stricter supervisory and authorisation processes.

### **2.1.2 VNMA Data / Processing Accuracy**

The processing of VNM data has the potential to be extremely complex, as each virtual net will be calculated using real-time interval data and could comprise the following relationships:

- One-to-One
- One-to-Many
- Many-to-One

The resulting net interval data will be then sent to the retailer for billing.

While errors in one-to-one relationships would be possible to reconcile, one-to-many and many-to-one relationships would grow in complexity by the number of customers that are involved in calculating the virtual net.

Thus the systems that are used by the VNMA would require additional engineering and quality control to ensure the virtual net is calculated correctly every time.

### **2.1.3 Consumer Protection under VNM**

The rights of the consumer could be protected similarly to the current protections through the FRMP if the energy ombudsman were to have access to the virtual net metered data, to resolve any dispute between the energy customer and their authorised retailer.

The VNMA would therefore be required to keep the interval data along with the trade relationships at the time so that consumption / export interval data could be re-constructed for each calculated virtual net. A suggested 14 months would be an appropriate time period to retain the complete data set. The resulting consumption / export data would be retained for a further 14 months.

It would be difficult for these data requirements to be satisfied with an individual authorised retailer, since the virtual net *may* be formed by customers with *different* authorised retailers. Therefore solely the VNMA business would need to comply with the additional requirements specific to the VNM business model. These subtleties would require some level of novel Regulation or framework, which we do not believe has been formalised.

### **2.1.4 Consumer Disconnections under VNM**

The VNMA upon receiving a disconnection authorisation for a NMI would cease any VNM arrangement associated with that NMI. The data for that NMI would continue to be delivered



to the retailer if the metering agent did not resume the responsibility for data transfer. The disconnection authorisation as well as requirements of Retailer of Last Resort would be borne by the authorised retailer and not the VNMA.

## **2.2 Varieties of VNM**

It may be helpful to provide context of how VNM services might be deployed, therefore we offer the AER that the relationship between the generator and the consumer in general fall under three main VNM arrangements. Each arrangement may have a number of possible billing options, these will be discussed below.

### **2.2.1 One-to-One**

The one-to-one VNM arrangement involves a one-to-one trade between an alternative energy producer and customer. The producer and the customer may be one and the same.

#### **2.2.1.1 Producer and Customer are different parties**

The VNM arrangement could consist of a long term arrangement between the different parties, such as a Solar Farm and a large energy consumer. Alternatively the arrangement could be a short term arrangement for use of supply of energy only during peak periods. Short term arrangements could last for only one interval period (15 min).

The VNM arrangement could also be for non-profit reasons, such as a charity providing support for energy consumers that are struggling, or providing a credit to a family member.

#### **2.2.1.2 Producer and Customer are the same party**

The VNM arrangement could consist of a long term arrangement between the same party that operates two physically separate metering points. The alternative generation equipment would be located at one physical address and the consumer would be located at a different address. In this VNM arrangement the location of the consumer is not suitable for the installation of alternative generation equipment, as such without VNM the consumer would have no option to implement alternative generation.

#### **Some possible scenarios:**

1. A customer owns a house in the country, suitable to install Solar PV, but works in the city and rents a small unit in a large apartment complex. The customer would not be allowed to install solar due to no physical location to put the alternative generation equipment and the landlord also will not allow it. A VNM arrangement would provide the customer with a possible solution to offset their energy use at the apartment.
2. A vineyard operates a pump-house to pump water for the vineyard. The vineyard and the pump house are physically separated by a large physical distance. It is not economically feasible to install the infrastructure required to transport the energy

between the two locations. VNM arrangement would allow the vineyard to offset the energy consumption used by the pumps.

### **2.2.2 One-to-Many**

The one-to-many VNM arrangement would involve an alternative energy producer that in general would produce very large amounts of surplus energy on a regular basis.

The consumers would in general be a different party to the producer, but the consumer may hold an interest in the producer.

#### **Some possible scenarios:**

1. A community project develops an alternative generation facility and the investment for the development is derived from the community. The investors enter into a VNM arrangement to use the energy produced by the community project. This project could also involve SPPA agreements for some or all of the investors.
2. A large Solar Farm project is developed, where a percentage of generation is sold or leased to investors, VNM agreements are used so the consumer can offset a portion of their consumption.

In both possible scenarios, the VNM agreement may be operated as long term or short term agreements. In scenario 2, we envisage the VNM agreement would be facilitated by an authorised retailer.

### **2.2.3 Many- to-One**

The many-to-one VNM arrangement would involve many alternative energy producers as the customer's energy consumption is far greater than any one energy producer. The match between periods of generation and consumption may be better served by the use of alternative energy producers.

These VNM arrangements may also involve SPPAs with some alternative energy producers, but in general we envisage the VNM arrangement would be facilitated by an authorised retailer.

## **3 Further points**

As described in the section above, a large part of future innovation is likely to exist around VNM and a two-way relationship between energy producer and energy consumer.

Under the assumption that there is no Regulatory impediment to this possible business model we note that Authorised Retailers might already have the ability to offer a VNM service, perhaps in the form of the "Single Entity" VNM. For households this would consist of a bill credit for energy consumption and production across multiple metering points (properties).

This is supported by the AER's Final Statement of Intent (June 2014) in which a possibility of "wheeling" arrangements (on the same distribution network) is not "expressively prohibited".

This concept is one in which the network tariff component is not *charged twice*, i.e. at both ends of the single customer's multiple metering points.

In cases where VNM services are offered by the authorised retailer, we agree this tariff reduction (“wheeling charge”) would likely require a certain level of sophistication in regard to how alternate energy is metered, and how it impacts on the respective arm of the distribution network (i.e. a calculated network penalty). This sophistication would be supported by requirements surrounding data collection and integration, and metering accuracy.

Third party VNM might be offered as a service through an authorised retailer or exempt user by merely offsetting customer accounts. And where this is a ‘minor’ portion of the overall consumption, we do not see this as differing in kind to the SPPA framework as it stands. However the use of battery storage might allow this proportion to increase substantially.

The financial feasibility of *profitably* offering a VNM service relies on data accuracy, data consistency and timeliness as well as various forms of system modeling (solar systems, distribution arms etc). This complexity might be offered by a new business as its primary service, i.e. producing the Virtual Net on behalf of an authorised retailer or exempt user. In this potential case, we don’t see the calculation of the Virtual Net as a sale of energy, since for the case of the an authorised retailer (FRMP) it would not, as the Virtual Net figure would merely be used to offset the customers’ accounts.

### **3.1 Guiding Principles of Applicable Laws**

As described by the AER in the call for submissions:

*National Energy Retail Objective (s.13 of the Retail Law) when granting exemptions (or authorisations), that is “to promote efficient investment in, and efficient operation and use of, energy services for **the long term interests of consumers of energy with respect to price, quality, safety, reliability and security of supply of energy.**”*

(our emphasis added)

Thus, we see VNM and similar services as being critical to the long term interests of consumers as described in the section to follow.

### **3.2 Consumer interests and Community Benefits**

The possible benefits that VNM brings to the community are almost limitless. Increasing pressures being placed on individual consumers and businesses due to raising energy costs is prompting consumers to look for options to ease the financial burden.

The current solutions consist mainly of installing alternative generation equipment on individual customer premises, meaning the take-up of this technology has occurred at a phenomenal rate, outstripping most original predictions. Due to this adoption, some network operators are struggling to control the stability of their networks and turning to implementing zero-export restriction on new entrants (Energen).

With the continuing rising cost of electricity beyond CPI, along with the implementation of battery storage technology becoming more commonplace, the opportunity for consumers to leave the grid entirely is becoming more viable. Research by CSIRO (reference 3) and others indicates that the “death spiral” of the grid is distinct possible outcome for the future energy market.

Much akin to the installation of Solar PV on homes and business across Australia, what started off as a niche market has quickly grown into large industry. In many cases the decision to install Solar PV was no longer economically based but based on emotion.

As consumers leave the grid, the costs of maintaining the grid will be shared by an ever decreasing number of those that remain behind, thus putting more pressure on consumers by further increasing energy costs. In the end we see that this may leave two classes of people in Australia, the Have's and the Have Not's.

The Have Not's will not be able to afford to be connected to the grid, and yet will not be able to afford to install an alternative energy system.

Virtual Net Metering as a business model will encourage consumers to stay connected to the grid, ensuring the grid survival and profitability.

## **4 Conclusion**

In conclusion we believe the AER should maintain the flexibility of the SPPA framework which properly acknowledges that certain business models should not be subject to the full regulatory rigours of retail authorisation.

However we believe there is room to develop the SPPA framework to achieve the following:

- Support Virtual Net Metering business models
- Allow the SPPA to evolve to encompass arrangements of shorter timeframes and a multiplicity of parties.
- Develop framework for specific Virtual Net Metering Agents, and regulation of their services
- Protection of customer rights to facilitate their options to adopt new energy products, while remaining connected to the grid.

## 5 Selected References

AER, Regulating Innovative Energy Selling business models under the National Energy Retail Law (November 2014).

AER – Final Statement of Approach (June 2014)

### Reference 1

[http://www.measurement.gov.au/Publications/CertificateOfApproval/OtherInstruments/Electricity\\_utility\\_Meters/Pages/default.aspx](http://www.measurement.gov.au/Publications/CertificateOfApproval/OtherInstruments/Electricity_utility_Meters/Pages/default.aspx)), accessed 15/1/2015.

**Reference 2** Langham, E.Cooper,C. and Ison, N. (2013). Virtual net metering in Australia: Opportunities and barriers. Report prepared for Total Environment Centre.

**Reference 3** CSIRO Energy Change and choice, The futur Grid Forum's analysis of Australia's potential electricity pathway to 2050