



**Global NRG Ltd**

"Turning Today's Waste  
into Tomorrow's Green  
Energy"

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**Global NRG**  
**Renewable Energy**  
**Technology**

Australian Energy Market Commission  
PO Box A2449  
Sydney South, NSW 1235

3rd April 2012

**ERCO1441**  
**National Electricity Amendment**  
**(Small Generation Aggregation Framework) Rule 2012**

To whom it may concern,

Global NRG Ltd wishes to make a submission to the consultation process for a rule change to create a new category of market participants to be called "Small Generation Aggregator".

Global NRG Ltd is an international WTE and renewable energy leader and is keen to deploy some of its patented renewable energy technologies and equipment into the Australian market.

The present rules and options are a disincentive for a small generator to participate in the NEM, because of the necessity for each site to be individually registered with the AEMO and the cost to do so. The administration costs that follow on are not worth the cost and time considering that there are alternative ways using new technology to sell the generated power to customers without using the grid.

Under the present system and rules it is more cost effective to use the electricity generated for alternative purposes or off-grid sales direct to the customer. The returns are considerably higher than selling power into the NEM, less bureaucratic and easier to manage.

There can be little question that there are potentially numerous small generators who can provide low cost electricity to the market. AEMO estimates fifty small generators may enter into the market in the first 3 years, but Global NRG believes this number would be closer to 216 if the rule were implemented.

New technologies developed by Global NRG and other international organisations using abundant biowaste feedstocks, wind and energy storage can provide green electricity at a fraction of the cost of generating power from coal, gas or nuclear.

These generator units could make a valuable contribution to the National RET. They can provide electricity close small towns and cities requiring little distribution over the grid, minimal power loss through distribution, reduce CO<sub>2</sub> and GHG emissions as in many cases they generate none, and create employment and business opportunities in rural and outer regions, that might not otherwise attract such investment and opportunities.

The nature and demographic distribution of biowastes and suitable wind areas dictates that by nature these small generator units are multiple and spread over wide areas. The present rules and costs are an impediment to the development for most small generator projects.

The current price obtainable by selling electricity into the NEM at a wholesale rate of around \$30/MWh versus the retail price of \$200 to \$240/MWh is an incentive to avoid the NEM.

Global NRG owns technologies that allow the individual consumer and medium sized electricity user to bypass the NEM and grid, saving considerable costs and creating a more lucrative market for the energy generated.

The creation of a Small Generation Aggregator framework might encourage some small generators to supply electricity to the NEM via an aggregator such as Global NRG.

The effect of a number of such small generators participating in the NEM would assist in diminishing power spikes in times of high demand and may result in the aggregator being able to strike more competitive prices with local retailers.

From Global NRG's preliminary investigations it seems most likely that a number of new retailers with considerable customer bases and financial muscle may soon enter the retail market, as they have overseas, as a further integration with their existing business. Through various devices not available to the present retailers electricity prices through these new retailers is likely to be considerably below the present marketplace.

However the evolvement of these new retailers may be reliant on them in some cases having access to the NEM or being registered as a generator small or large and in other case working off-grid. The advent of these new retailers selling cheaper power will have a significant impact of electricity generation and future planning in Australia.

Large and medium sized industries are going to find it cheaper and more reliable to generate their own power from wind and biowastes when added to the volume potentially to be sold via new retailers with massive customer bases, Global NRG is forecasting that in excess of 119,836,800 MWh of electricity could be removed from the grid and NEM.

Global NRG itself is already well advanced with 4 large Australia companies with view to installing WTE plants that will remove their need to draw power from the grid. With the introduction of the carbon tax numerous other big users will take the same route.

By allowing the registration of Small Generation Aggregators it is possible some of the excess power from these stand-alone power plants could be fed into the grid.

This will only occur if the existing systems and administrative processes allow Small Generation Aggregators to enter the market at a lower cost.

The advantage of creating a Small Generator Aggregator is a possible reduction in peaks and a reduction in expenditure on network infrastructure if the small generators are located close to the demand centres.

## **Global NRG technologies designed for the home and industry use without the NEM.**

### **The home and small business power user**

Global NRG has developed several technologies for powering the home and small business without reliance on the grid using its low cost biowaste gasification, energy storage technologies and micro wind power.

Our LMB storage technology allows the installation of a small energy storage unit into the home or small business capable of holding 3,600 KWh of electricity, enough to power the average home using 28KWh a day, for 128 days of continuous power use. In most cases the installation will be accompanied by a 2KW or 3 KW micro wind turbine which will continually recharge the energy storage unit, potentially extending the unit's ability to supply the home out to 170 days.

A built-in monitor warns when the power is down to 10 days supply. At that time or at a set interval it simply needs replacing the electrolyte with freshly charged electrolyte, which can be accomplished in a matter of 10 minutes. These systems are already in use in a number of countries.

The electricity to recharge the electrolyte is generated via micro wind farms and biowaste gasification power plants costing less than 1.5¢/KWh to generate, including delivery costs.

As the site is free and there are no grid, distribution or service charges, charging the electricity out at 10¢/KWh results in a satisfactory return on investment. The NRG Economizer has a life of 25 years. The system can withstand extreme power spikes without any problem because it has sufficient built-in storage.

Given the attraction of half price electricity and no outlay for the system it should not be difficult to find market share in Australia with its high cost electricity.

### **Large Energy users**

Global NRG has patented a Flash Volitization process which allows any biowaste to be converted into syngas in less than 50 milliseconds, with a 99% conversion rate and up to 45% moisture content. The reactors are auto-thermal so require no outside power.

They have a small footprint depending on the reactor size and can be made portable. There are no GHG or CO<sub>2</sub> emissions.

The syngas is used to power banks of IC gas engines coupled to alternators to generate electricity which can be varied according to demand, or used to drive gas turbines.

When the power is not required the reactors continue making syngas which is sold into the home and commercial markets.

These units can supply up to 60 MW of electricity via a single reactor, sufficient to power most manufacturing plants and mines. If additional power is required an additional reactor or reactors are added.

This results in the manufacturer being able to cut power costs and be independent of the grid and NEM creating further savings.

As previously outlined using syngas based on biowaste it is possible to generate electricity for 1.5¢/KWh. On the other hand if MSW pellets are used, diverting the MSW from landfill, and therefore capturing some of the gate fee normally paid to send MSW to landfill, the electricity can have a zero generation cost due to the input of the gate fee to the financial model

Global NRG has several plants working on large scales in various countries and with more on order.

### **Micro Wind Farms**

Micro wind farms can be installed in areas not normally suitable for large wind turbines, but where high annual average wind velocities occur. These can include home, small business and high rise building roofs, parks, sports grounds, schools and universities, along roads and railway tracks, farms and mines. By building matrixes of a multiple number of micro turbines it is possible to cumulatively generate substantial amount of power for a designated area of anywhere of between 3 MW and 20 MW enough to power between 2,400 and 16,000 homes.

Using micro wind farms backed by biowaste gasification power it is possible for wind power to support base load to the grid, with gas generation power used to smooth out wind variances and any resultant power drops. At other times syngas to being manufactured for sale to the market making the backup power unit a profit centre in its own right.

Alternately Global NRG's energy storage technologies can be used to store off-peak power generated by the micro wind farms and using it to cover any troughs in the wind power generation during peak periods.

### **Conclusion**

Global NRG wholly supports the creation of Small Generation Aggregators and believes that they could play a valuable roll in the NEM as well as assisting in reaching the RET, and reducing CO<sub>2</sub> and GHG emissions.

We have pointed out some of the alternate options, so as to assist AEMC in reassessing potential new generation sources.

Yours sincerely

*MJBartlett*

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Global NRG Ltd