

# **A Renewable Energy Grid: Distributed Primary Production**

We are at crisis point where steps must be taken immediately to mitigate climate change to avoid a disastrous impact on humanity. Energy production using fossil fuels is a major cause of atmospheric pollution. Changing our system to renewable energy can progressively reduce our reliance on fossil fuels and be a productive change.

The current energy system has evolved from older technologies, centralized power stations and mined fossil fuels. In resource rich Australia mining is traditionally subsidized by the government in return for royalties. Fuel for our current energy system is therefore closely entwined with public funding systems. Until very recently energy production has been restricted to big producers. Most of these have now been privatized. Distribution has evolved around large power stations as poles and wires are managed by public or private utilities. Privately produced RE is already entering the grid stimulated by government subsidies for installation and input prices for small domestic producers. This set of relationships between government, business and energy production is central to the current political paralysis.

We are now at crisis point in stopping further CO<sub>2</sub> pollution of the atmosphere. It is becoming clear that Australia will be severely impacted by climate change. We are currently suffering a serious drought, agriculture is under pressure for innovation and water resources stretched. At the same time, our energy needs are increasing. As a developed nation our economy is dependent on reliable energy supplies, our population is growing and with climate change temperature extremes are increasing energy demands for heating and cooling in both cities and rural areas.

The proposal below is one way we can more quickly use our abundant low cost renewable energy resources, build on existing infrastructure, more simply regulate the existing energy market, stimulate higher levels of investment in and use of solar and other lower cost sources of renewable energy, increase domestic participation in primary production of renewable energy, and speed up the adoption of new technologies and innovative systems to provide more efficient weather responsive and reliable energy distribution systems.

## The Case for Distributed Renewable Energy

Premise: If half of any number generate an average of twice as much Renewable Energy (RE) as they need, the other half is catered for.

Distributed Renewable Energy (DRE) has the cumulative capacity to provide base load power, reduce power costs, stimulate investment by small producers and reduce power wastage through localized sharing. This proposal will also enable the Federal and State governments to meet international obligations for climate mitigation, reduce power costs, and transition to a sustainable economy. Distributed RE does not require government or corporate funding that will drive up retail power prices. The reduction of subsidies for mining, production, installation and input of renewable energy will reduce government costs as the economy and population grow.

The small systems required to generate small domestic RE inputs are easily financed by primary producers from income from the sale the energy generated that would be available immediately.

A guaranteed wholesale or "feed in tariff" (between 70% and 80% of the spot retail price charged by the local energy retailer) will provide the incentive for primary producers including farmers, households, and businesses to invest in and generate RE for the grid.

Primary producers could decide how much energy to produce based on their budget and available resources.

Primary producers would include businesses, homes and farms.

There are six categories of RE;

- wind - small 500 watt wind turbines are quite cheap and unobtrusive.
- solar - 1kW can be produced with 5 or less solar panels.
- hydro - small 1kW to 2 kW systems can be set up in streams and below farm dams.

- geothermal - domestic geothermal systems can use refrigerant gasses to directly heat water and provide heating and electricity when the heat is used to pressurized gas.
- wave - small wave generators are already available that can be moored close to shore.
- tidal – currents and inlets of all sizes and can be utilized to generate power.
- all can be utilized and developed to contribute to ‘baseload’ power when a nationally guaranteed wholesale is established.

A guaranteed wholesale price provides a commercially realistic profit margin (20 – 30%) for suppliers and resellers of "clean" electricity to the retail market.

Resellers of electricity (power companies) will have the choice to buy from any generators they choose but will be required to buy all their customers contributions.

All sales of RE to the power companies will appear as credits on the customers / prosumer’s account.

Payments of amounts owing to the customer / prosumer will be settled electronically on a monthly or three monthly basis.

There will be large savings in transmission costs as all power consumption will be close to its source. Currently transmission losses are typically in the range of 5% to 15%.

All land owners will be entitled to generate power from any water that flows through their property.

Wave and tidal generators can be employed by any person or business as long as they don't interfere with boating, shipping and recreation.

Retail price rises will be curtailed because any price increases would proportionately cause an increase in the wholesale price paid for DRE.

The number of contributors can be expected to increase exponentially as people realise they can reduce their power bills whilst generating income as soon as they start generating RE.

Demand for RE generating equipment and services will soar and be a boon for small business.

## Conclusion

This proposal is for your serious consideration. It is a productive regulatory change that can be implemented quickly and without disruption to reliable energy distribution. It will lower prices and produce a large positive impact to mitigate climate change. Existing data collection will enable modelling of the impact. It will be inclusive and cost benefits will flow to most sectors of society. It will stimulate the Australian renewable energy industry and investment in further innovation.