

## **Submission to Senate Enquiry into Retirement of Coal Fired Power Stations**

Dear Sir / Madam

Coal-fired power stations represent some of the most expensive capital investments in Australia. These power stations are also invariably the starting point of our power transmission systems, which represent another class of major capital investment in Australia. They also represent key employers in regional Australia.

While transition from coal to renewables is necessary, the abolishment of these major capital investments and loss of regional jobs should be minimised. The key to this problem is the biomass resource present within regional Australia. Australia has the potential technological solutions for this problem and needs to have the right policies to accelerate commercialisation of these technologies.

### **About Renergi**

Renergi Pty Ltd is a privately owned Australian company established in late 2012 to commercialise renewable energy technologies originally developed in Curtin University. Renergi aims to be a leader in commercially competitive and environmentally friendly renewable energy technologies that can be widely deployed across Australia and other parts of the world. Renergi's existing technologies have enjoyed the support of ARENA and some are now ready for their first commercial deployment. More information can be found at [www.renergi.net](http://www.renergi.net)

### **The Technologies**

- The pyrolysis of biomass into bio-oil and bio-char using Renergi's patented Grinding Pyrolysis technology.
- The Gasification of biomass into a product gas that can be directly utilised in a gas engine or gas turbine using Renergi's patented Gasification technology.
- The production of drop-in biofuels (miscible with petrol/diesel) using Renergi's Biorefinery technology.

Biomass sources for our technologies can include forestry/green waste or purpose grown tree crops such as mallee, which can combat salinity in Australia's agricultural regions. Pyrolysis products can be transported as high density fuels to coal-fired power stations for co-firing with coal at proportions of up to 100% renewable energy. Revenue will then accrue from both electricity and Large-scale Generation Certificates (LGCs) under the Renewable Energy Target (RET).

Renergi's relocatable Grinding Pyrolysis technology allows for various sources of biomass to be utilised in an opportunistic fashion from across the applicable regions, which are often rich in waste and other biomass resources. Renergi's Gasification technology can also be utilised to replace power stations at the end of their useful life with facilities using clean burning gas engines or gas turbines.

## The Problems

- Electricity retailers are otherwise likely to contract their large scale liabilities under the Federal RET with variable output sources such as solar and wind.
- The electricity market is already over-supplied nationally and these new sources of power generation are likely to strand existing power generators.
- Significant local economic disruption in towns supported by these facilities is likely as a result, as outlined in the terms of reference to this enquiry.
- Solar and wind are highly capital intensive technologies and the off-take agreements required to support them are onerous for retailers.
- Previous co-firing trials with biomass had technical problems in milling the wood to enable it to burn in a coal power station. Renergi's technologies overcome these problems.
- Biomass itself is the cheapest form of (solar) energy storage available. A dispatchable form of renewable energy like this is desperately needed to ensure security of supply in a renewable energy future.
- There are abundant biomass resources around Australia, many in the vicinity of coal-fired power stations, which are currently used for low value purposes, or not utilised at all.

## The Solution

Renergi's Grinding Pyrolysis products can be readily co-fired in existing coal-fired power stations, fulfilling relevant renewable energy obligations and extending their life. This technology overcomes technical impediments to co-firing biomass. Off-take agreements for these technologies are far less onerous than other renewable energy options as their cost base is predominantly in variable operating costs (and the resulting employment of people) rather than capital/construction charges.

## The Reality

- Global imperatives for the deployment of renewable energy and storage solutions are now embedded and will not abate.
- The economic pressure on coal-fired power station towns will therefore continue to grow in the absence of alternative options.
- Existing electricity networks across Australia are still fundamentally designed to export energy from central nodes located near coal power stations.
- Incumbent forms of renewable energy are ill suited to deployment in these locations.
- Real, industrial development needs to be secured to replace the economic activity otherwise lost by removing existing power stations, to capitalise on the labour and skills inherent in these communities.

Renergi's Grinding Pyrolysis and Gasification technologies are ideal forms of renewable energy, designed to extend the life of existing coal fired power stations, as well as provide a replacement for them at the end of their life.

## **The Current Situation**

Renergi has just developed and demonstrated the performance of these technologies at the 100kg/hour scale in our own facilities, with support from ARENA. Now further support is required to demonstrate the performance of our first commercial scale plants to capitalise on the opportunities our technologies bring to the regions surrounding Australia's coal fired power stations.

## **Summary**

In the short term, Renergi's technologies allow the 100% replacement of coal with renewable energy:

- Using existing coal fired power station infrastructure.
- Using existing transmission network infrastructure.
- Contributing to power system supply reliability and security; and
- Providing valuable employment to the people in these communities.

In the long term, they provide a viable pathway for the replacement of coal-fired power stations with efficient biomass fired power stations.

Policies are desperately required to provide a path through the "valley of death" and quickly commercialise technologies such as ours, which offer so much to the effected communities. In their absence, it is likely that this Australian developed technology, designed to solve Australian problems, will be forced to look overseas for its deployment.

If you have any questions on this submission, please do not hesitate to contact the under-signed.

Regards

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**Business Development Manager**

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