Climate Change in Western Australia – Issues Paper

Submission by Tim Bateman

1. Transforming Energy Generation

One of the most effective ways to overcome Western Australia's energy decarbonisation and cost challenges is to fast-track the rollout of micro-grids and standalone power systems across the state. Western Power and Horizon Power have already commenced this in regional and remote WA, and in the process have reduced costs by avoiding the need for new 'poles and wires' to connect these areas. As a result, Western Australia is currently leading the nation in the rollout of micro-grid infrastructure.

Within more populated parts of the South West Interconnected System (SWIS), the 'mesh' network model may be effective, as it allows consumers to remain on the grid whilst reducing their electricity costs via access to solar panels, battery storage, battery banks etc. However, the mesh network model will only be effective if it proves affordable for consumers to remain connected to the grid. This will require a concerted focus by electricity service providers to significantly reduce connection costs, energy costs and 'service' costs to the consumer. Failure to do this will result in more consumers defecting from the grid.

2. Industry Innovation

One of the most effective ways to decouple energy use and emissions in the resources and heavy industry sectors is to utilise the Environmental Protection Authority's *Greenhouse Gas Emissions Guidelines* to ensure that major polluters offset their emissions. Under this model, companies that are able to reduce their emissions below a prescribed baseline may create credits and trade with companies that exceed their baseline. Companies that exceed their emissions baseline would be required to purchase offsets for any emissions above the baseline. Offsets would be purchased from a range of sources, including carbon farming, and organic waste bioenergy/biogas production.

One of the most effective ways to foster clean industries and technologies in WA is to promote public and private-sector investment in these industries and technologies. Current examples of industry investment incentivisation include the *Renewable Hydrogen Strategy*, the *Future Battery Industries Strategy* and the *Energy Transformation Strategy*, whereby the Government provides funding to stimulate private sector investment in emerging clean energy sectors in Western Australia, such as hydrogen, electric vehicle, wind, wave, solar, bioenergy, pumped hydro and battery storage micro-grid technologies.

An example of cleantech investment is the future battery metals industry, whereby the Government is able to promote – via the Department of Jobs, Tourism, Science and Innovation - international investment in Western Australia's emerging electric vehicle and battery energy storage industries, including in the critical minerals sector and all stages of the lithium-ion battery value chain. By doing so, Western Australia's resource industry would expand beyond its traditional mining and processing capacity into emerging areas of battery cell manufacturing, battery pack assembly and electric vehicle manufacturing, with this capability being developed locally in regional Western Australia, thereby creating new industry sector jobs and upskilling Western Australian workers.

3. Future mobility

One of the most effective ways to facilitate the uptake of electric and other low-emission vehicles in Western Australia, and to ensure that WA is not left behind in the transition to cleaner transportation is to promote and facilitate international investment in the establishment of these industries and technologies in Western Australia. This is currently being realised via new programs such as the *Renewable Hydrogen Strategy* and the *Future Battery Industries Strategy*.

Another is to incentivise the purchase of electric and hydrogen vehicles via reductions in state fees and charges. An example is reduced vehicle registration charges for low-emissions vehicles. When coupled with autonomous vehicle technology, electric and hydrogen vehicles will significantly reduce on-road costs (e.g. road accidents, emergency vehicle responses, accident insurance, hospitalisations, road repairs, traffic congestion etc.). This in turn will ultimately allow for a reduction in road user charges such as vehicle registration and insurance, as government transport costs decrease.

Facilitating private-sector investment in low-emissions transport, including electric vehicle charging infrastructure, will also help ensure the long-term viability of the SWIS mesh network, as the grid would continue to be used extensively to charge electric vehicles, both at home and via public charging stations.

4. Regional Prosperity

Carbon farming provides an enormous opportunity for farmers, land managers and Aboriginal groups to both build resilience and prosperity, and to participate in Western Australia's low-carbon transition. This can be done via various approaches, including:

- Develop and implement a state-wide *Carbon Farming Strategy*;
- *Aboriginal Rangers Program* to be made permanent in Western Australia;
- WA Environmental Protection Authority's *Greenhouse Gas Emissions Guidelines* to incorporate Carbon Farming as an approved emissions offset activity;

- Establish Soil Carbon Centres of Excellence in regional WA.

Carbon farming involves land management activities that reduce greenhouse gas emissions from agricultural practices or sequester carbon dioxide in the landscape. Carbon farming offers an opportunity to help improve air quality and address global warming whilst also providing economic benefits to primary producers, including enhanced farm productivity and sustainability and diversified revenue streams (carbon credits).

The WA Government can play a pivotal role in facilitating the uptake of carbon farming in regional Western Australia via the EPA *Greenhouse Gas Emissions Guidelines.* The WA Environmental Protection Authority is currently preparing draft guidelines that will require major polluters in Western Australia to completely offset their emissions. The Guidelines would ensure that major polluters offset their emissions, with offsets to be purchased from a range of sources, including carbon farming. This outcome would create significant revenue stream opportunities for farmers, land managers and Aboriginal groups, in turn incentivising widespread carbon farming/regenerative agriculture adoption in WA.

The resilience and prosperity of the primary industries sector can also be supported by promoting investment in renewable energy micro-grids, protected cropping (e.g. agri-innovation precincts), digital technology (e.g. smart sensors, drones, robotics etc.) and regenerative agriculture. Agri-innovation precincts also provide opportunities for the aquaculture and aquaponics industries to flourish, utilising technology solutions to help alleviate an impending shortage of ocean seafood stocks as a result of climate change.

Regenerative agriculture involves adopting agricultural practices that enable all landscape functions to return to health. Specifically, it involves restoring healthy landscapes via five key landscape functions; solar energy function, water cycle, soil mineral cycle, dynamic ecosystem communities, and the human-social aspect.

The Soil Carbon Centres of Excellence concept is broadly based on the WA Government's 'Innovation Hubs' model, and would involve the establishment of purpose-built facilities in regional WA that would facilitate interaction between farmers, government agencies, researchers, practitioners and scientists, where farmers and land managers could obtain advice, support, monitoring, measurement and certification of regenerative farming and carbon farming practices.

5. Waste Reduction

One method of reducing greenhouse gas emissions from waste is to incentivise private-sector investment in bioenergy/biogas plants to capture greenhouse gas emissions from waste that would otherwise go to landfill. This could be achieved by ensuring that the EPA *Greenhouse Gas Emissions Guidelines* include bioenergy production from organic waste as an approved offset activity.

Rather than mandating a three-bin kerbside collection system in order to reduce organic waste emissions (which would add significant costs to local governments), it is recommended that the WA Government instead incentivise private-sector investment in bioenergy/biogas plants that divert organic waste from landfill whilst providing emissions-free energy to micro-grids. In conjunction with this, it is recommended that the WA Government incentivise/subsidise household adoption of home composting and mulching equipment, thereby diverting organic waste from kerbside bins and landfill.

6. Climate Change and Food Security

In response to numerous challenges to Western Australia's capacity to address climate change and ensure future food security, six broad objectives have been identified. Linked to these objectives are six strategies based on the development and implementation of a range of State-level strategy documents. Underpinning these strategies are 18 specific actions aimed at achieving Western Australia's climate change and food security goals.

<table>
<tr><th colspan="7">Climate Change and Food Security Plan for Western Australia</th></tr>
<tr><td>Objectives</td><td>Address Climate Change and Global Warming</td><td colspan="2">Ensure Food and Water Security
Enhance Agricultural Productivity and Sustainability</td><td>Protect our Biodiversity and Improve Land and Soil Health</td><td>Promote Regional Growth and Industry Diversification</td><td>Avoid and Reduce our Waste Output</td></tr>
<tr><td rowspan="2">Strategies</td><td>Develop State Climate Policy</td><td colspan="5">Promote Regenerative Agriculture adoption across Western Australia</td></tr>
<tr><td>Promote renewable energy investment – implement Western Australian Renewable Hydrogen Strategy, Future Battery Industry Strategy, and Energy Transformation Strategy</td><td colspan="2">Promote Agricultural Innovation – develop Primary Industries Strategy</td><td colspan="2">Promote Carbon Farming adoption in Western Australia – develop Carbon Farming Strategy</td><td>Promote the Circular Economy – implement Western Australian Waste Avoidance and Resource Recovery Strategy</td></tr>
<tr><td rowspan="5">Actions</td><td>Implement Renewable Hydrogen Fund to promote investment in hydrogen industry</td><td colspan="2">Implement Western Australian Agribusiness Innovation Fund to stimulate investment in agricultural innovation</td><td rowspan="3">Introduce permanent Aboriginal Rangers Program - traditional land management, caring for country, indigenous carbon farming, traditional patchwork burning</td><td>Establish Soil Carbon Centres of Excellence in regional Western Australia</td><td>Australian Government to introduce national waste export ban on recyclable products</td></tr>
<tr><td rowspan="2">Promote investment in Western Australia’s electric vehicle and battery energy storage industries (e.g. critical minerals and all stages of the lithium-ion battery value chain)</td><td colspan="2">Promote investment in Western Australian regional agri-innovation precincts</td><td rowspan="2">Australian Government Climate Solutions Fund to invest in carbon farming across Australia</td><td>Mandate remanufactured goods procurement at all levels - national, state, local - of government</td></tr>
<tr><td>Reform state waste levies</td></tr>
<tr><td colspan="2">Promote investment in new desalination technologies and innovative water production and harvesting infrastructure</td><td rowspan="2">Promote investment in Western Australia’s native foods / bush tucker industry</td><td>Western Australian Climate Policy to invest in carbon farming in WA</td><td>Promote investment in Western Australia’s remanufacturing and recycling industry</td></tr>
<tr><td>Promote investment in wind, wave, solar, bioenergy, pumped hydro and renewable micro-grid developments</td><td colspan="2">Utilise the Fourth Industrial Revolution (smart sensors, IoT, robotics etc.) to help grow Western Australia’s agricultural productivity</td><td>WA EPA Greenhouse Gas Emissions Guidelines to include carbon farming as an approved emissions offset activity</td><td>Promote partnerships between primary producers and food retailers to reduce food waste</td></tr>
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31 October 2019