

# REGENERATING OUR LANDSCAPE TO TRANSITION AUSTRALIA TO A LOW CARBON FUTURE

## Purpose

1. Australia needs to transition to a sustainable but effective low-carbon future. To achieve this Australia's political leaders need a unified approach to reduce Australia's national emissions whilst protecting and enhancing Australia's food integrity, water and energy security, and ultimately, social stability. The following offers a blueprint to achieve this practically and profitably for the benefit of all.

## The imperative for change

2. The climate change debate to date has centred on international efforts to reduce human emissions of greenhouse gases (GHG) to mitigate future climate changes projected in International Panel on Climate Change models. Whilst little abatement has been achieved, the reality is that Australia and other regions are already being impacted by climate extremes, including increased aridification and more severe floods, bushfires and cyclones.

3. Consequently action is needed urgently if we are to manage the risks from these dangerous climate extremes and abnormal changes. Effectively, our only practical large scale mitigation option is to rebuild the resilience of our landscape and natural systems so as to enable them to tolerate, adapt and even influence these changes and extremes. Unless we do, we risk critical water, food and bio-system dysfunction.

4. Rebuilding this resilience will require coordinated national leadership and strategic long term vision and a focus on effecting appropriate ground action and change. Above all resilience must be based on proven best farming and land management practice and supported by urgent scientific validation.

5. The technical key to a resilient landscape lies in restoring the structure and health of our soils which have been degraded severely by 200 years of often inappropriate land and water management practices. To do this, relies on restoring the former naturally high organic matter levels of most of our soils, as this governs the capacity to:

- a. Infiltrate, retain and supply more water within the soil from our more extreme and often declining rainfalls.
  - b. Sustain active plant growth to enable the substantial draw down of carbon dioxide from the atmosphere via photosynthesis and its bio-sequestration into stable biomass or soil carbon sinks leading to the sustained production of essential food and bio-materials.
  - c. Restore the natural hydrological systems in these landscapes leading to a cooler landmass, a more even distribution of precipitation and a reduction in flood, fire and drought severity.
6. Effectively we have no choice but to urgently *regenerate our landscape* over large areas to enhance its biodiversity and its capacity to photosynthesise, so as to draw down carbon dioxide into biomass and soils.

## Australia's low carbon challenge

7. Australia's landscape pre European settlement had been characterised by soft spongy soils which often had over 10% organic matter contents. These organic soils provided 'in soil reservoirs' which along with many reed covered billabongs, meandering waterways and functioning floodplains sustained our highly diverse and productive bio-systems despite our often extreme, dry climate.

8. Our land management practices have altered this significantly by oxidising soil organic matter to often less than 1% thus collapsing soil structures and significantly lowering the infiltration, retention and availability of water. This has led to aridification, salinity, reduced resilience and increased vulnerability of large areas to climatic extremes. Of interest globally, human use of fossil

fuels has released some 360 billion tonnes of carbon, whilst United Nations Environment Program data indicates that humans may have released some 20,000 billion tonnes of carbon (bil tC) since 'civilization' via our clearing of forests, soil erosion and the oxidation of its organic matter.

9. We must reverse this soil degradation and oxidation of carbon so as to regenerate green cover and reverse the massive impairment of the earth's natural photosynthetic capacity to draw down carbon dioxide into soils. Only by returning this carbon back into the stable biomass and soil carbon sinks from which much of it came, will we be able to restore the structure and health of soils, their ability to hold and supply water, their capacity to retain and make available essential plant nutrients and their bio-productivity and resilience. In so doing, we will meet on a sustainable basis our essential water and food needs, in spite of our now more extreme climate.

10. We must regenerate our landscape urgently. The regeneration of even 20% of Australia's 550 million hectares (mil ha) of rural land at a conservative but confirmable rate of up to 10 tC/ha/an, could bio-sequester up to 1 bil tC/an<sup>1</sup>, or some 500% of current carbon dioxide emissions. This would greatly surpass our Kyoto target meeting our direct, indirect and historic emission liability, whilst securing a more resilient landscape and a safer climate.

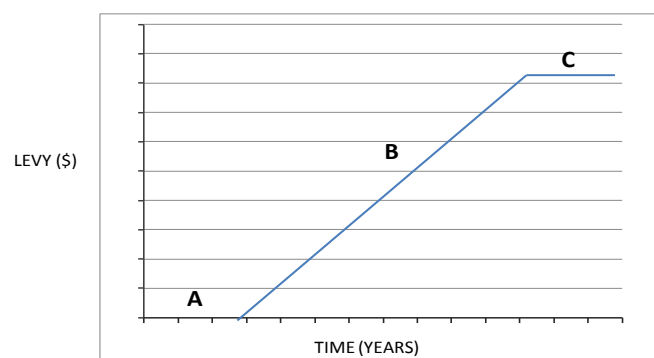
### The Transition Blueprint

11. To change we need to first be honest about the real externality costs of our current land management practices including the widespread use of fossil fuels. Whilst our historic and present practices have played a major role in providing for Australia's prosperity, they have also generated real costs in a degraded environment and a changing climate which we now need to address and repair.

12. Because of the scale and urgency of this imperative, these essential changes can only be addressed commercially by responsible cost effective industry and land managers investing in proven effective options to reduce emissions and draw down carbon to regenerate the health and resilience of our landscape and transition to a safe, cost effective low carbon future.

13. However for industry to be able to do this they need to have certainty in their investment environment and clear incentives; specifically the regulation by Government of a clear forward carbon price signal, such as provided by a **Net Emissions Reduction Incentive (NERI)**. As illustrated below a NERI would involve Parliament agreeing to a simple forward price mechanism that would not be a tax and thus of minimal cost to the government and consumers. We see a NERI as being essentially non inflationary.

#### The Net Emission Reduction Incentive (NERI)



A – FORWARD NOTICE OF NERI TO AID PLANNING AND AVOID THE NEED FOR EXEMPTIONS.  
B – DEFINED PROGRESSIVE PRICE SIGNAL AND INCENTIVE FOR INNOVATION AND OFFSETS.  
C – PLATEAU AT GLOBAL CARBON PRICE PARITY

<sup>1</sup> 1 bil tC/an target offsets current (160 mil tC/an + over 300 mil tC/an from coal and gas exports) and planned emissions (increase coal and gas exports of over 350 mil tC/an)

14. Such a forward carbon price would provide the clear incentive for the major emitters to:
  - a. Invest in innovations to achieve internal efficiencies that reduce their emissions and lower their costs relative to competitors who do not invest in such efficiencies.
  - b. Invest in verified offsets to reduce their emissions liability under NERI.
  - c. Pay the nominated carbon levy on their residual emissions to a public 'Carbon Transition Trust' which will re-invest proceeds in other efficiencies or offsets to reduce Australia's net emissions and aid our transition to a just low carbon future.
15. While Parliament needs to regulate such a forward carbon price signal, it is critical that it not impede firms from deciding when, how and to what extent they will respond to this new commercial reality in their own strategic and competitive self interest. Unlike the introduction of a defined tax, this should ensure that entities do not simply pass on the NERI levy via inflated prices but plan investment and innovation strategies to instead:
  - a. Achieve efficiencies and cost reductions relative to status quo competitors which if passed onto customers will give lead firms key price and market share advantages.
  - b. Encourage all firms in that sector to innovate to match this price or lose market share, ensuring that the sector rapidly reaches the emissions reduction innovation and efficiency targets; and
  - c. Create new jobs and opportunities based on these innovations, efficiencies and competitive advantages to benefit regions, communities and the transition to a viable low carbon future.
16. By regulating a defined forward carbon price signal a NERI can also:
  - a. Remove current subsidies and protection of our inefficient use and real externality cost from 'dirty' fuels to help induce the needed transition; and
  - b. Reduce the real cost of effecting change as well as any inflationary effects from that change.
17. Constructive government policy, by fostering lead innovations, can also help catalyse the more rapid transition to secure food, water, and energy essentials. Exemplar projects include fostering:
  - a. **Soil carbon** farming practices to drive more productive and resilient farms, the better use of water, healthier food and additional income from Bio-Carbon Capture and Storage (Bio-CCS) credits.
  - b. **Forestry projects** to lock up extra carbon in wood products and remove more carbon from the atmosphere as new trees are planted.
  - c. **Algal systems to convert** carbon dioxide from power stations into oil, food and biomass.
18. Such approaches can help governments in transitioning Australia's existing energy infrastructure into that required for a new low carbon future. Support for industry research, farming practice development and scale up in key low-emissions technologies should ensure Australia takes full advantage of its natural benefits in abundant land, sun and access to natural energy. Technologies that can be supported include: wind, solar, hydro, wave, geothermal, bio-sequestration, coal to oil and biomass.

### **Outcomes and benefits**

19. The above blueprint has the capacity to foster not just the rapid draw down of carbon dioxide but could facilitate the transition of the Australian economy equitably to a more efficient, more effective low carbon future. It would have minimal inflationary effects whilst creating major new regional jobs and innovation opportunities. By facilitating the regeneration of Australia's soils and landscape, a NERI should also contribute significantly to our capacity to sustain essential high

quality water and food supplies to meet Australia's needs and that of key markets despite our more extreme climate. The introduction of NERI can deliver *major economic savings* and benefits by:

- a. Inducing savings and efficiencies in industry resulting in significant cost, material and emission reductions and major strategic and competitive advantages for such leaders.
  - b. The generation of new on farm income from the production of carbon offsets.
  - c. The revitalisation of regional economies through supply chain and economic multipliers.
  - d. Increased taxation income from these new on farm and regional economic activities, and
  - e. The increased international competitiveness of associated products and services.
20. The introduction of NERI may also be of *direct benefit to governments* in generating:
- a. Savings from the reduced subsidies and *protection of current externality costs*.
  - b. Savings from the reduced need for exceptional circumstances and disaster assistance as a result of the more resilient landscapes better able to adapt to climatic extremes.
  - c. Savings from the minimum need to exempt or subsidise industries from the carbon price due to their clear forward notice of the NERI and commercial options to respond to it.
  - d. Savings from a minimal need for administrative overheads to implement NERI and by not conflicting the Government's policy and performance management roles with attempts to manage potentially less productive programs, and
  - e. Savings by limiting the need for structural water buy-backs due to the increased resilience and 'in soil reservoir' water retention within the Murray Darling Basin.
21. The introduction of a NERI should also *benefit industry* significantly by:
- a. Providing a certain forward investment environment.
  - b. Maximising commercial freedom for when, how and to what extent firms can respond to the NERI price in their strategic and commercial self interest.
  - c. Driving innovation and efficiencies in energy efficiencies, emission reduction and offsets.
  - d. Creating new market opportunities, and
  - e. Removing price distortions via the current protected and 'externalised' costs.

## Conclusion

22. Australia must urgently regenerate its landscape through proven soil carbon and revegetation initiatives to buffer climate extremes and to sustain key water, food and bio-systems essentials. The NERI blueprint for action provides a unified national vision to foster this through:

- a. Commercial self interest critical to drive investment in innovations and efficiencies to adequately reduce our emissions and transition to a safe low carbon economy, and
- b. Widespread commercial draw down of carbon dioxide into stable biomass and soil sinks at rates adequate to regenerate our landscape, to secure water and food essentials and to buffer the inevitable increasing climate extremes.

23. Early urgent action within Australia to draw down at least 1 bil tC/an will provide global leadership to help reduce global carbon dioxide levels back to below 350 parts per million and restore the natural hydrological and cooling processes critical to securing a safer climate.

24. If managed wisely, NERI should stimulate new economic opportunities and have minimal, if any, inflationary impact on the Australian economy.

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