

Resources Energy & Industry

Innovation Forum

7th August 2024



Renewed Carbon

Who is Renewed Carbon:

- Renewed Carbon is a specialist manufacturer of Biogenic products and services for sale to the major “hard-to-abate” industrial sectors, such as Big Oil, the petro/chem sector, Big Fertilizer and miscellaneous metal smelting sectors.
- All such Renewed Carbon biogenic products are supplied so as to alleviate the customer’s foundation dependence on “fossil” as their only alternative other than “off sets”
- Renewed Carbon avoids manufacturing pure “poles and wires” power since this market does not represent the higher and best use of the available biomass resources and looks to implement Business Models that do not rely on carbon credits or off-sets of any sort



Mark Glover

Founder / CEO

Specialist project developer & consultant in sustainable resource use applying industrial ecology & product stewardship disciplines.

Key achievements:

- Developed circular economy strategies for industry and all levels of government & in S.E. Asia.
- Conceived & delivered the plant & capabilities to recycle used lubricants as Southern Oil Refineries. Partnered with Laing O'Rourke to deliver plants globally for BP/Castrol.
- Researched & developed the strategic role for a sustainable bio economy.

Sources of Biomass to Support the Renewed Carbon Business Model



To fully service the needs of most of the main, “hard-to-abate” industrial sectors, the suitable Biogenic, fossil alternative products need to meet the following criteria – as a minimum

- **Fundamental biomass characteristic** – the source biomass needs to demonstrate certifiable sustainability of origin and be fit-for-purpose
- **Basic Commercial Necessities:**
 - Be available in a sufficiently consistent quality and quantity as to be able to satisfy perhaps a 10-15 year supply contract with the customer;
 - Perform as well or better than the incumbent “fossil” product; and
 - Be available at a price and reliability of supply that can match the same or similar criteria of the fossil incumbent.

In brief, biomass may seem ubiquitous, plentiful and renewable but there exists a techno/economic hierarchy that needs to be closely observed if the purported benefits for the industrial customer are to be realised.

In short, the primary functions of all biomass on earth must include functions such as:-

- Eco system services;
- Maintenance and support for biodiversity;
- Public amenity;
- Food, feed, fibre, building materials etc. etc.

But, within this hierarchy a point can be reached where a source of biomass can be assessed as – **“having no higher resource value than to be applied for the manufacture of Biogenic/fossil replacement products”**

How Biomass Presents as a Feedstock for Sustainable Sourced Biogenic Product Manufacturer



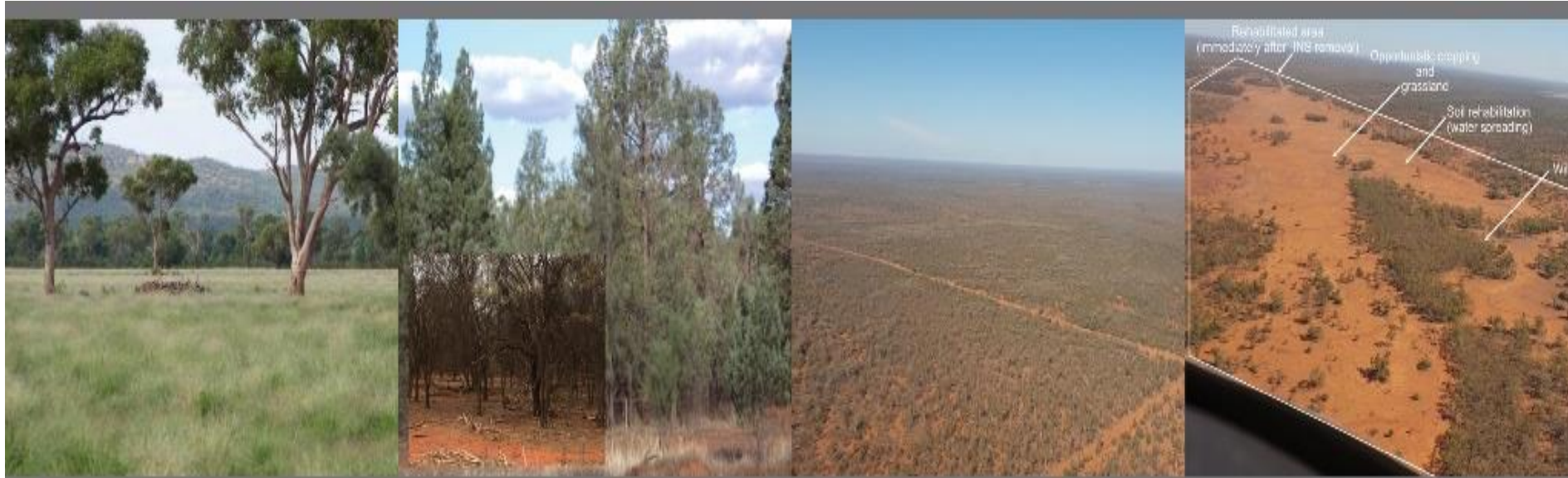
Biomass currently presents as 5 generic sources (defined by commercial circumstances at point of presentation):

- 1. Forestry and Agricultural harvest residues – *Characteristics*:** seasonal or campaign availability but homogeneous by-product of core activity.
- 2. Forestry and Agricultural processing residues – *Characteristics*:** regularly available, homogenous and geographically concentrated but a supply pushed by-product.
- 3. Urban waste streams – *Characteristics*:** end of (first) life arisings to be recovered as reliable, but heterogeneous flows via streaming/cascading systems.
- 4. Land Management & Development Arisings – *Characteristics*:** one off or irregular arisings of potentially high value homogeneous biomass.
- 5. Specially grown or generated biomass – *Characteristics*:** highest quality, reliably available but most expensive as primary production costs to be recovered in sale of materials. Needs cost effective outlet for by-products.

All wastes, residues or by-products of some other primary activity

Still sustainably genetically immature but emerging

Cobar Region - Before & After – The Context



This “open wooded grassland” landscape status is what existed before European settlement and is the ultimate goal & objective of the Renewed Carbon landscape remediation task.

What the currently scrubbed-up properties look like today. The Renewed Carbon remediation starting conditions.

Pictured:
Mulga Country &
Cypress infestations.

The industrial scale of the problem.

The NSW LLS “standard” or “example” of a sensitively restored property.

After recent rains all the bare patches are now lush and verdant.

And this is the reason Renewed Carbon does not give any priority to the production of pure “poles & wires” power



Biomass – the Sustainable Competitive Advantage

Comparison of benefits, features and properties of non fossil sources

Low carbon energy sources	Renewable	On demand supply	Heat	Power	Fossil source replacements			PetroChem industry precursors	Potential to be Carbon negative
					↓ Bio Gas	↓ Bio Oil	↓ Bio Char		
Fossil fuels with sequestration		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					
Hydro	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>					
Wind	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>					
Solar - thermal	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					
Solar - PV	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>					
Geothermal	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					
Wave/Tidal	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>					
Nuclear		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					
Biomass	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

The unique competitive advantage of Biomass

Whilst <100yrs biomass can be converted to fulfil all the roles currently provided by fossil resources, there is nowhere near enough. So what can be sustainably sourced should be applied to highest and best uses, where bioenergy usually presents as a by-product.

Project Video: [Link](#)

A Precis of the Cobar BioHub Project

RDA Orana – The Crucial Role in Making all this Happen



Performance “above and beyond” Renewed Carbon thanks all in the photo, but **Felicity Taylor-Edwards** was the initial spark that ignited the Cobar BioHub when all other levels of community support were “wavering”

The CBHP Story – From “soup-to-nuts”

In this recent interview with ABC Rural, I was asked “what took you so long to actually start building?” – a bit cheeky since no other Government Agency or private party had been able to address, let alone “solve” the problem for >50 years! [ABC Interview: Link](#)

Timeline:

2013 – OEH sponsored “Pre-Feasibility Study” to assess the potential of BioHubs to service the **Dubbo region**

2016 – The RDA/RC/DCC/BAIDA/OEH Study to explore BioHubs in the entire **Orana region**, especially in the **Peneplain region**.



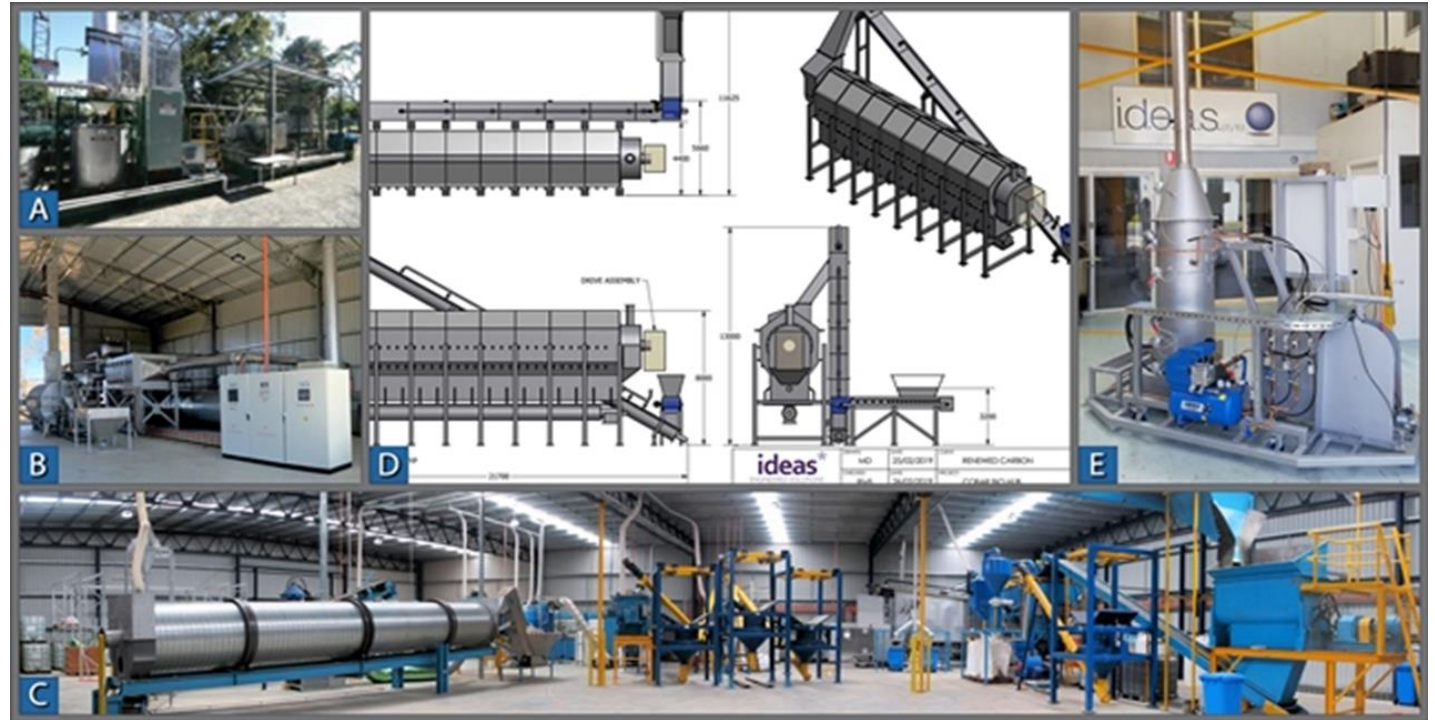
This meeting kicked off everything – at pace!

*I feel the Henry V “St. Crispin’s” speech
coming over me*

2016 – Detailed R&D

The Renewed Carbon team, with technology development partners, have been designing and developing “best of type” biomass conversion and carbonisation technologies in house since 2004, to a proven, commercial ready status

- The resource potential inherent in INS
- Progressively detailed discussions with a selection of vanguard property owners, Forest Corp. LLS, CSC etc, to fully define the problem/opportunity and confirm what “success” would look like for the community and all other related parties
- Progress detailed tech R&D to establish a suite of “bankable” technologies for the emerging project



2016 – Detailed R&D

- Canvas potential off-take customers and define their needs, requirements and appetites:
 - * Biochar
 - * Essential Oils
 - * Speciality Wood Items
 - * Activated Carbons



Timeline Continued:

- 2020 – COVID lost time
- 2023 – Secure final funding platform & commission ultimate construction
- 2025 Q4 – projected Stage 1 commissioned
- 2026 Q4 – projected Stage 2 commissioned

Project Principles & Projected Outcomes



Principles:

Adopt the achievement of Highest Net Resource Value (HNRV) to systematically overcome the initial INS problem

Outcomes:

Property Owners achieve optimally productive properties at no more than half of what BAU (Business as Usual) would have achieved, including:-

- The restored productivity benefit – income
- Increase land values

And more broadly the restored areas will return historical biodiversity benefits, in a format no Government Agency has been able to achieve in the last >50 years.

The community inherit a substantial new industry and employer for the goal of a “family friendly” Cobar.

The industrial, “hard-to-abate” sectors get to make tangible reductions in their emissions profile to improve both their national and international reputation and CO₂ liabilities



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