

Bio CCS

Biological and terrestrial capture and sequestration of point source and atmospheric carbon

Sequestration of CO₂

- 20% reduction of GHG emissions from each region by 2020
- 15M tonnes of CO₂ removed from atmosphere per year per region

Environment

- Reduction of chemical and nutrient escape to waterways
- Better retention of water in soil
- 10M tonnes of oxygen released to improve air quality
- >0.15% increase in soil carbon each year
- Carbon/biology based fertilisers to repair degraded soils
- Salinity reduction

Keynote projects

Soil carbon - *Lawrie Co/Ignite Energy Resources/Plantstone Technology*

Biological farming/fertilisation systems (BFS) . Use of lignite, other nutrients and biology to improve soil and increase soil carbon - enhanced natural fertiliser to catalyse CO₂ uptake by photosynthesis and increase agricultural productivity and resilience

CO₂ to energy - *MBD Energy*

Collection of CO₂ at coal-fired power stations for sequestration by algae. Photosynthesis produces bio-oil /diesel and animal feed/fertiliser material -

Forests - *CO₂ Australia/New Forests*

Establishment of select area forest/reforestation/native vegetation replanting; transfer of airborne CO₂ to cellulose

Biogas - *Spectrum*

Biological breakdown of organic matter in the absence of oxygen: Production of biogas and concentrated nutrient /fertiliser

Biochar - *Anthrotterra/BEST Energies Australia*

Thermal pyrolysis of natural wastes to create biochar with permanent carbon storage in soil

Grazing land management - *Soil Carbon Australia*

Changing grazing management to restore soil's ability to store carbon via photosynthesis. Additional benefits include improved water retention, greater drought tolerance, increased biodiversity, and decreased costs of production leading to improved profitability and sustainability

Biomass to oil - *Ignite Energy Resources/ Licella*

Uses hydrothermal process to convert low-valued feedstocks [ancient biomass (coal) and modern biomass (plant)] into high-valued oil and coal

National benefits

- Oil/fuel security, 40M barrels of oil pa
- Feedstock security, 3.6M tones pa
- Generation of biogas for production of energy
- Carbon/biology based fertilisers
- >5% productivity increase in farm production
- Healthy soils/food/farmers/community

Jobs – per region

- 2000 – 3000 new green jobs
- Existing jobs protected

Commercial investment

- Greater than \$1 billion AUD investment per regional demonstration project
- Each project commercially viable