



OPPORTUNITIES AND CHALLENGES OF CARBON FARMING

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INTRODUCTION Disclaimer and important notice

This presentation contains forward looking statements that are subject to risk factors associated with oil and gas businesses. It is believed that the expectations reflected in these statements are reasonable but they may be affected by a variety of variables and changes in underlying assumptions which could cause actual results or trends to differ materially, including but not limited to: price fluctuations, actual demand, currency fluctuations, drilling and production results, reserve estimates, loss of market, industry competition, environmental risks, physical risks, legislative, fiscal and regulatory developments, economic and financial market conditions in various countries and regions, political risks, project delay or advancement, approvals and cost estimates.

All references to dollars, cents or \$ in this presentation are to US currency, unless otherwise stated.

References to "Woodside" may be references to Woodside Petroleum Ltd. or its applicable subsidiaries.



WOODSIDE CLIMATE TARGETS

Woodside is committed to becoming low cost and low carbon

We will continue to reduce our net equity emissions.

- We will achieve these emissions reductions by:
 - Avoiding emissions by the way we **design** our projects;
 - Reducing emissions by the way we efficiently **operate** our projects;
 - Originating and acquiring quality **offsets** for the remainder of our target.



- 1. Equivalent to previously disclosed equity reservoir offset target.
- 2. Baseline is set as the average equity Scope 1 and 2 emissions over 2016-2020 and may be adjusted (up or down) for potential equity changes in producing or sanctioned assets, with an FID prior to 2021.



CLIMATE Our gas is helping Asia decarbonise



Valeriepieris Circle, Source: Washington Post

Source: BP 2020 Statistical Review of World Energy

"In Asia, where energy demand will grow ..., it is essential to seek a diverse and realistic energy transition, by utilizing all possible energy sources and technology, while taking into account each country's peculiarity of difference in geographic characteristics and development phase."



- Japan's Minister of Economy, Trade and Industry Hiroshi Kajiyam, 2021

WOODSIDE STRATEGY

CLIMATE CHANGE: WE ARE TAKING ACTION

SUPPORTING PARIS

Aim to be net zero by 2050 SUPPLYING GAS TO THE WORLD

Natural gas is the

natural step to

net zero

LIMITING OUR EMISSIONS

Energy efficiency, improved design, new sources of power

BUILDING OUR OFFSET BUSINESS

One of the largest private investors in Australia in carbon farming

NEW ENERGY AND LOW-CARBON SOLUTIONS

Hydrogen, LNG fuels, research and development



CARBON BUSINESS OVERVIEW Carbon offsets in Woodside

- In 2018, we established an internal business to generate and acquire offsets
- We have built capability in human induced regeneration, environmental plantings and international opportunities
- We have invested more than A\$100 million across Australia through native tree planting over the past 10 years
- We seek:
- Diversified portfolio across methods and geography
- Sustainable model within the rural comminutes



Image: Woodside's Sukey Hill property near Cranbrook, WA - 400 ha



Image: Woodside's Cowcher property near Pingrup, WA – 2,500 ha



CARBON OFFSETTING

ACCUs are created under legislation administered by the Clean Energy Regulator



Independent statutory body of experts **ERAC** assess and endorse Methods

Methods set out the types of activities that are recognised as reducing CO2

- must meet integrity standards
 - Additional
 - Evidence based
 - Measurable and verifiable
 - Eligible
 - Conservative
 - Project emissions accounted for
- prescribe how avoidance/ sequestration is calculated

Methods are then **approved by the Minister** administering the CFI Act

Eligible Project

Regulatory criteria to register a project

Project Registration Application by Project Developer

Declaration of eligibility and registration is made by the **Clean Energy Regulator**

- Project meets the requirements of a method
- Project developer is fit & proper person

Periodic Reporting and Audits

Auditing regime

Reporting on levels of avoidance or sequestration using calculation rules set out in the method

Generally three statutory audits during project issuance period to ensure that the method has been properly applied

There are **enforceable regulatory consequences** for non-compliance

Credits Issuance and Registration

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Government administered registry

Credits issued by **Clean Energy Regulator** on receipt of reports

Issued credits and dealings (transfers and surrenders) are registered in the **Australian National Registry of Emissions Units**

CARBON What is a carbon offset?



Emitted Carbon

Removed Carbon Via Offsets, i.e Restoring Forests No Net Climate Impact



Carbon Footprint = [GHG Emissions – Avoid or Reduce – Offset]



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CARBON BUSINESS Environmental Planting process and Capability Growth



Find suitable land parcels Eligible land Existing assets Environmental risks Heritage risks Existing caveats Negotiate and secure Characterise remnant bush Create a restoration plan (species, areas)

Consider roads, power lines, fire breaks

Create an execution plan (weeding, scalping, seed/seedling sourcing, planting) Integrate planting plans and FullCAM for carbon yield

FullCAM is a tool provided by the CER to estimate carbon sequestration in land systems

Leverage skills in GIS / programming to automate large scale and rapid analysis Obtain approvals and understand community expectations: Local shires Federal Regulator Resource Management Neighbours



DELIVERED PROJECTS 'Sukey Hill' – Shire of Cranbrook

- 5 km east of the town of Cranbrook
- 400 hectares eastern flank of Sukey Hill, rocky with significant areas of remnant vegetation
- Previously a grazing property no permanent residents
- High biodiversity value on basis of Wandoo and Jarrah/Mallee heath systems, which have been identified as a key linkage in the Forest to Stirlings Conservation Action Plan
- Approximately 300 hectares of direct seeding and planting completed in May and June 2020
- This property was planted fence to fence





Images: Woodside's Sukey Hill property near Cranbrook, WA – 400 ha Direct seeding machine and Stirling Ranges in background of top image



DELIVERED PROJECTS

'Manalling Springs' & 'Windy Lane' – Shires of Moora and Dandaragan

A Sustainable Model

- only the marginal land planted with trees
- 20 km north-west of the town of Moora 3600 hectares
- Cropping and grazing property some marginal paddocks
- Farm 'optimisation' demonstrator project up to 50% of the land planted for carbon, shelter and fodder
- The remainder to stay as pasture or cropping land and **leased back to interested parties**
- Approximately 300 hectares of seedlings planted in August 2020
- About 950 hectares was established via direct seeding and seedling planting in Autumn-Winter 2021





Images: Woodside's 'Manalling Springs' property near Moora, WA – 3600 ha 40 m shade and fodder belt – looking east



WA PROJECTS A Diverse Portfolio



CARBON

Carbon and biodiversity stewardship pilot

- Department of Agriculture, Water and Environment is in the process of awarding the Biodiversity Stewardship Pilot funding
- Total funding \$23.5 million to landholders for native tree planting projects
- Successful landholders will be registering their projects
- Woodside support landholders participating in the ERF
- A second tranche of funding from DAWE is planned





CARBON BUSINESS Human Induced Regeneration Process



Find pastoralists that want to consider carbon

Understand their current situation

Hear their ideas for reducing pressure on the landscape Negotiate and secure rights

Characterise the land systems Assess impact of existing land pressures (herd size, feral animals, weeds, water)

Assess the potential for regeneration under changed activity

Obtain multispectral high spec satellite data.

Run machine learning to categorise land by potential to regenerate

Cross check categories with ecological assessment

Integrate FullCAM to estimate carbon yield

Stakeholder Management



Determine land eligibility and land history Work with State Gov. Departments Native Title interests Mining interests Federal Regulator



OFFSETS ARE MORE THAN JUST CARBON Carbon Project Co-Benefits



Biodiversity and Environment

- Restoring habitats
- Rehabilitation, stabilisation of land
- Environmental amenity

Community

- Engagement in planting, property management
- Landscape scale rehabilitation
- Economic opportunity for rural areas





Indigenous and Cultural involvement

- Ranger programs
- Heritage Management Plan

Seed video



THE ROAD AHEAD Challenges and Opportunities



Challenges

- Availability of native seed and seedlings
- Establishment reliability
- Maintenance during establishment period

Opportunities

- Less productive land leased
- Landowner project development for ACCU sale
- Co-development of carbon projects



	Arable Land				Non-Arable Land	
	Cropping Only	Cropping & Grazing	Grazing Only		Limited Agricultural Use	
Typical Land Use						
Grazing Quality	N/A	Good	Good	Marginal	Poor	Nil
Suitability for Native Plantings	Not Suitable	Not Suitable	Potentially Suitable	Suitable	Suitable	Not Suitable



