

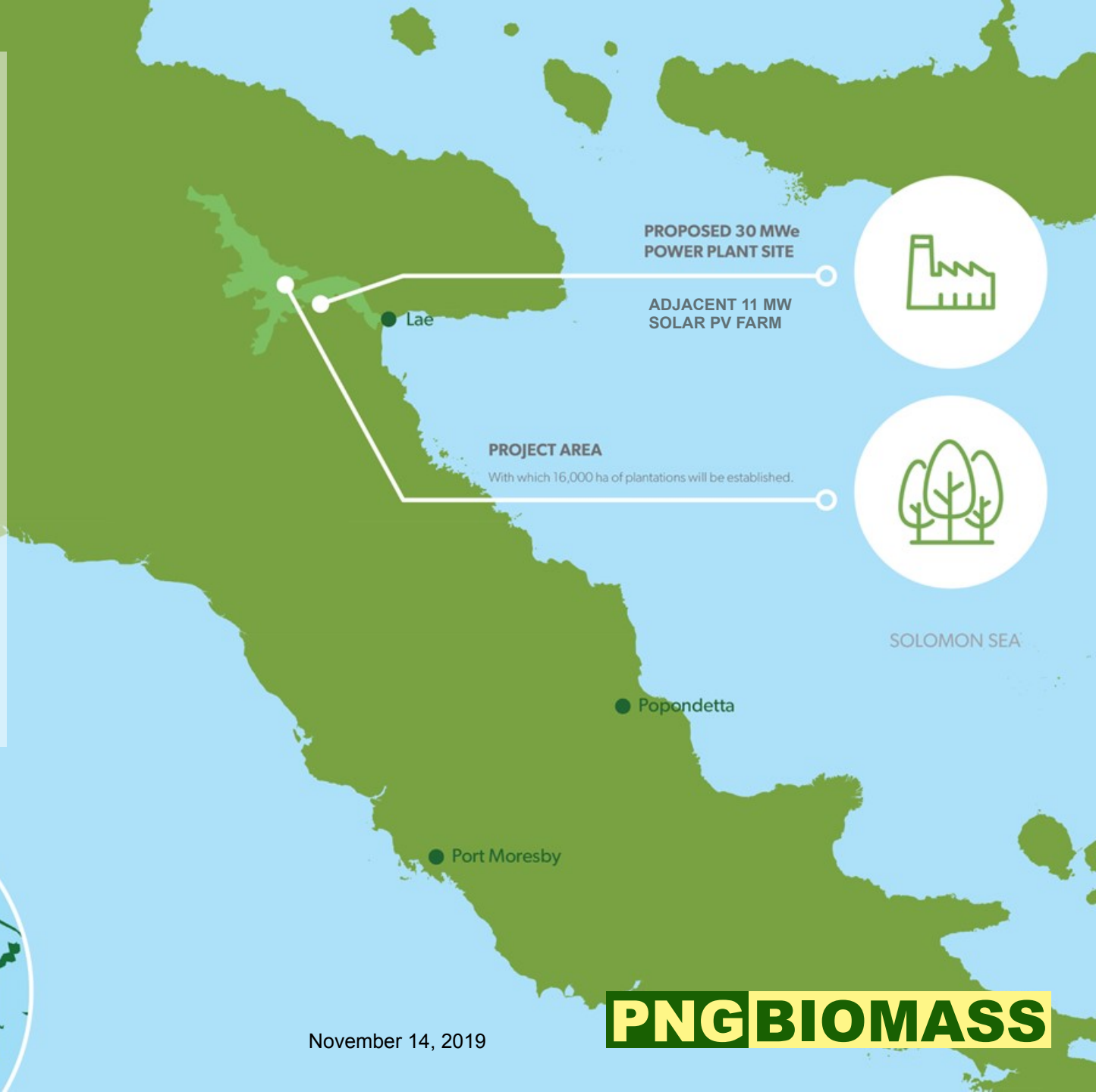
Innovations of PNG Biomass

Innovation PNG 2019, Port Moresby

8 NOVEMBER 2019



PNG Biomass is an integrated renewable energy project consisting of a **30MW biomass power plant** with secure fuel supply from 16,000 hectares of sustainable and certified tree plantations. It will oversee construction, operation and dispatch of an adjacent **11 megawatt solar PV farm** owned by PNG Power. Together, the biomass power plant and solar farm will provide the Ramu grid with up to **40MW renewable energy**.



Deliverables and policy alignment



Key deliverables

- » **Power generation:** adding up to 40MW additional power to the Ramu Grid (30 baseload; up to 11 intermittent)
- » **Renewable energy:** delivering 30MW biomass energy from 16,000 hectares of dedicated and sustainable fuel crop (tree) plantations; and up to 11MW solar energy from 11 hectares solar PV farm adjacent to the power plant
- » **Employment:** creating 500 direct and 2,500 indirect local jobs (25 years) and 400 local construction jobs
- » **Household income:** PGK 746 million – includes wages + PNG business payments + carbon credits + LO rental and crop share payments
- » **National economic value:** PGK 1.5 billion – includes household income + regional value + PNG business value + business services + tax payments

Policy alignment

- » **Climate action:** a visible and tangible contribution by OSL to climate change adaption and resilience
- » **Electrification:** support PNG Government with electrification goal of 70% of population by 2030
- » **Paris Agreement:** support PNG Government to meet renewable energy target of 100% by 2050
- » **Energy portfolio:** de-risk and diversify PNG energy portfolio by adding biomass and solar to generation mix
- » **Local content:** deliver significant local content outside OSL's core operating areas in the rural Markham Valley
- » **Commitment to PNG:** with core business expanded to Alaska, Oil Search remains committed to the realisation of key PNG development goals in PNG
- » **Sustainable Development Goals:** contributing directly toward making progress on 11 SDGs



An aerial photograph of a dense, lush green forest. The canopy is thick and textured, with varying shades of green. The perspective is from directly above, looking down on the treetops.

INNOVATION

The act of introducing something new.

Areas of Innovation

PNGBIOMASS

ENERGY



TECHNOLOGY



FINANCING



LAND USE



LANDOWNERS





Energy

PNG BIOMASS

» Utility-scale renewable energy

- Integrated biomass energy project:
 - Biomass power plant; integrated with
 - Dedicated biomass fuel tree plantations
- Solar farm + utility-scale battery storage
- Potential for industrial steam usage on site

» Firming service

- Baseload power for grid

» Energy self sufficiency

- Domestic resource, local production of energy





» Agriculture:

- Fully automated seedling production system introduced to PNG (only second location in the world)
- World class ploughing and planting equipment
- Specialised strip cultivation equipment

» Knowledge transfer:

- Training, capacity building
- Knowledge and expertise transfer (PNGFA)





Financing

PNG BIOMASS

» Project financing:

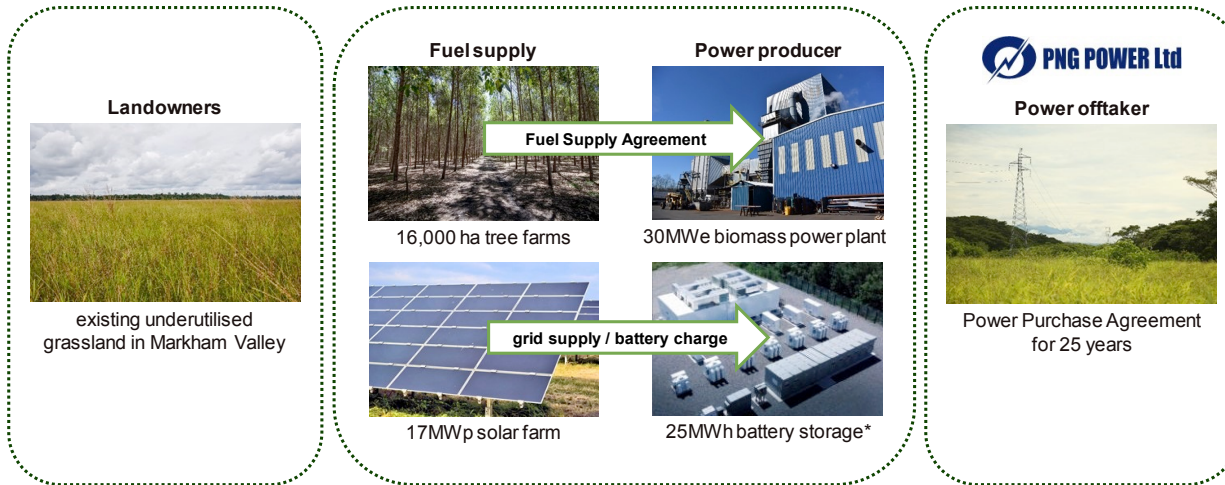
- Demonstrating that project financing of large energy projects in PNG is possible

» National compliance:

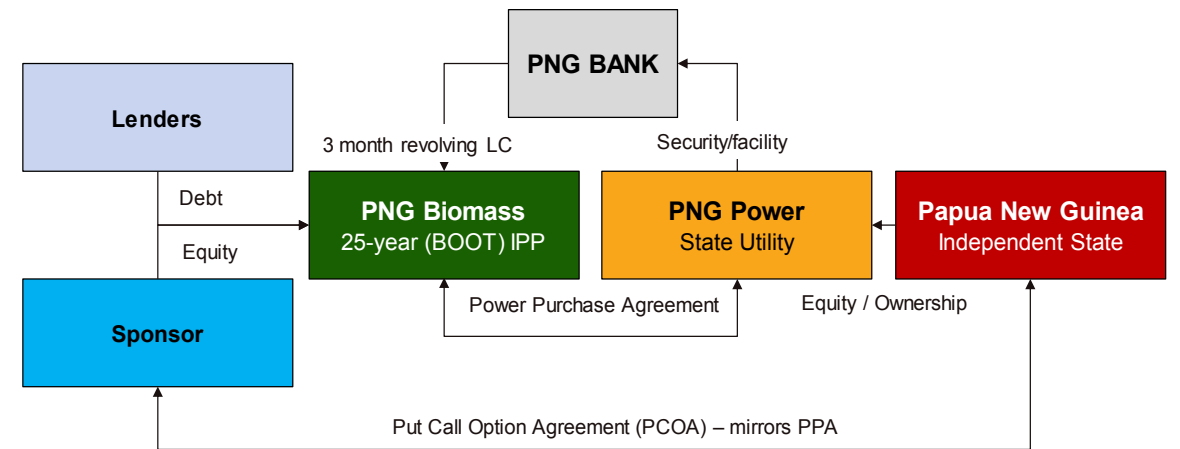
- One of first to comply fully with PNG National IPP Policy; Project has all permits, licences and approvals

» State security package:

- Pioneering unique financial security structure for PNG to de-risk large infrastructural projects for lenders
- Put Call Option Agreement gives lenders security but not a contingent liability on State balance sheet



Put Call Option Agreement (PCOA)





Land Use

PNG BIOMASS

» Agroforestry:

- Plantations have a special design to allow for intercropping (growing cash-crops between rows of trees) by communities to create additional income
- Grazing of cattle is possible on mature plantations
- Landowners decide which areas the Project can plant

» Land access safeguards:

- Developed land access principles to ensure landowners and communities are not divorced from their land

» Reforestation:

- We support the national reforestation policy by planting 20 million trees





Landowners

» Participatory model:

- Plantations have a special design to allow for intercropping (growing cash-crops between rows of trees) by communities to create additional income
- Grazing of cattle is possible on mature plantations
- Landowners decide which areas the Project can plant

» Rural inclusive economic growth

- Developed principles to guide land access to ensure landowners and communities are not divorced from their land



Contact

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#PressforProgress

#PowerToHer

#BeBoldForChange

#SkyIsTheLimit

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