



# **ENERGY SECURITY IN THE REGION**

## **Papua New Guinea and the Pacific Context**

**1st-8<sup>th</sup> May – 2025**

Mr. Ronald Meketa

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### **ASIAN CLEAN ENERGY FORUM -2025**



**ACEF 2025**

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## **Topics:**

- ***Current energy mix and infrastructure gap***
- Demand Forecast
- Risks to energy security
- Policy & Regulatory framework
- The role of renewables and decentralized systems
- Investment opportunities



## Current energy mix:

- **Hydropower** account for ~ **62%** of electricity generation
- The remaining generation **mainly relies on diesel and natural gas power gen**
- Other form of renewables (ie. Solar) are gaining traction but do not represent a significant share of the country generation mix yet

## Infrastructure gaps:

- **Electrification rate:** only around **20%** of PNG's population has access to grid-connected electricity (mostly represented by main cities/towns)
- **Rural disparities:** access in rural areas is very low and many communities relying on back-up diesel generators or lacking electricity
- **Grid limitations:** the national grid is very fragmented and mainly serves the urban centres, leaving several rural regions underserved



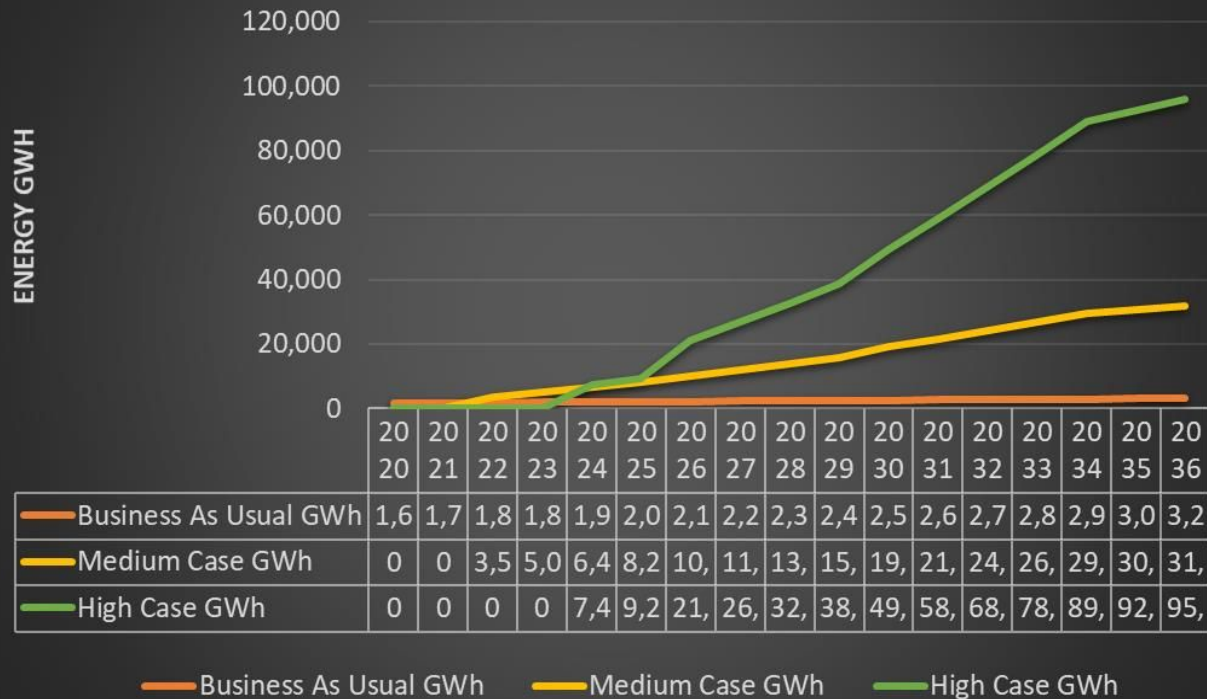
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# Demand Forecast

## Demand Forecast



- ◆ **Business as Usual - Demand**  
Forecast including natural center growth rates
- ◆ **Medium Case – BAU Demand**  
Forecast + connection of new industries and growth in existing Mines
- ◆ **High Case – Medium Case Demand**  
Forecast + connection of proposed new Mines



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# Risks to Energy Security

## Key challenges:

- **Geographical barriers:** PNG presents a very rugged terrain and dispersed population make infra development costly and logistically challenging
- **Financial constraints:** significant investment is required to expand and modernize the energy infra
- **Institutional capacity:** limited technical expertise and institutional capacity available. **NEA** is focused on filling some gaps but more needs to be done.



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# Policy & Regulatory Framework - NEA Corporate Plan 2023-27 - Key Activities

## Accelerate Energy Sector Development

- [Community](#) awareness and outreach.
- [Local commercialization](#) of energy access.
- [Landowner participation](#) in energy projects.

## Strengthen Domestic Energy Sector Regulation

- Develop and administer effective [economic regulatory arrangements](#).
- Develop and administer effective [technical regulatory arrangements](#).
- Develop and implement efficient [regulated tariffs and service standards](#).
- Develop and administer effective economic [licensing arrangements](#).
- Develop and administer robust and efficient [contractual regime for IPPs](#).
- Review and administer [NEA's industry levy regime](#).

## Progress Corporate Development

- Develop and implement effective [corporate governance arrangements](#).
- Develop and implement [effective human resource management](#) policies, processes and practices.
- Develop and implement effective [performance and risk management](#) process and systems.
- Establish effective [IT technology and property management](#) processes and systems.
- Establish effective [internal legal advisory services](#).



# NEA conducting stakeholder consultations on draft policies for right market signals



Enhancing **Energy Security**



Using **Local Resources**



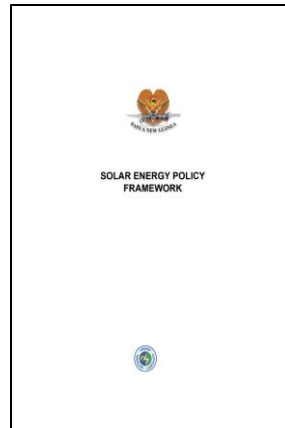
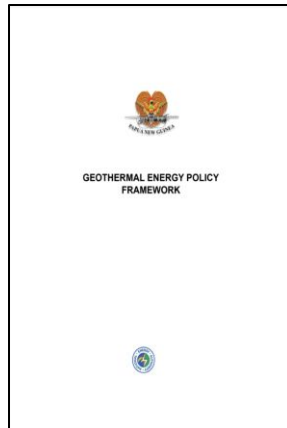
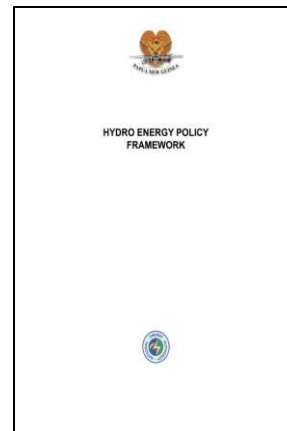
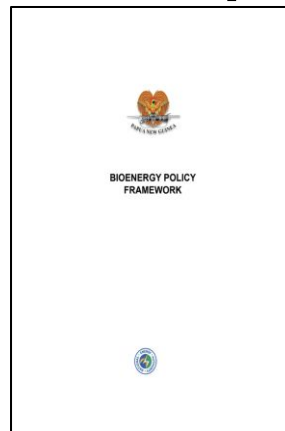
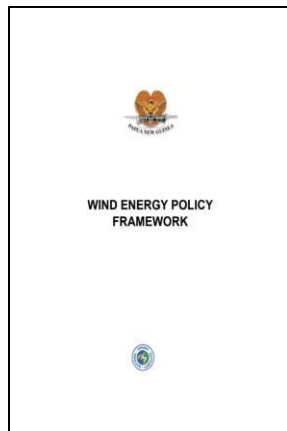
Attracting **Investments**



Promoting **Sustainable Developments**



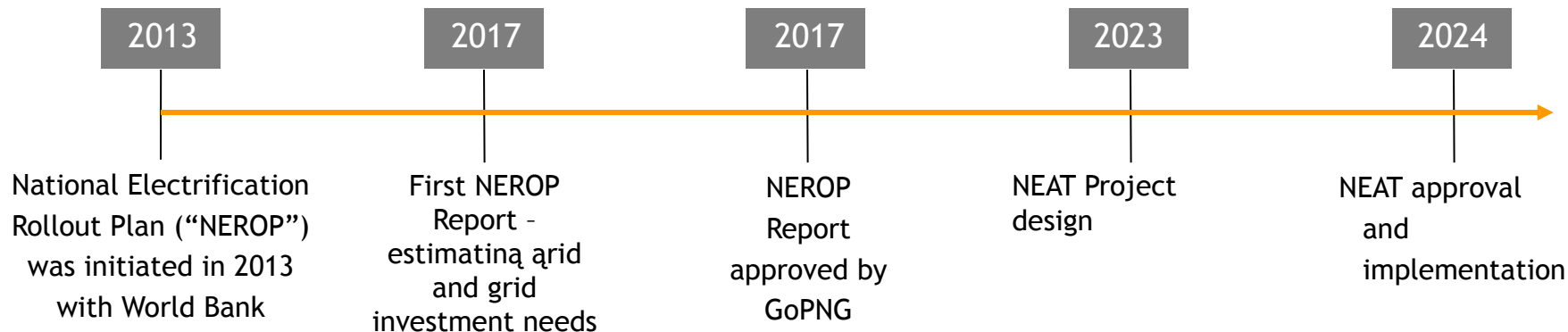
Promoting **Inclusive Growth**



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# NEA is Working with World Bank to operationalize the National Energy Access Transformation (NEAT) Project

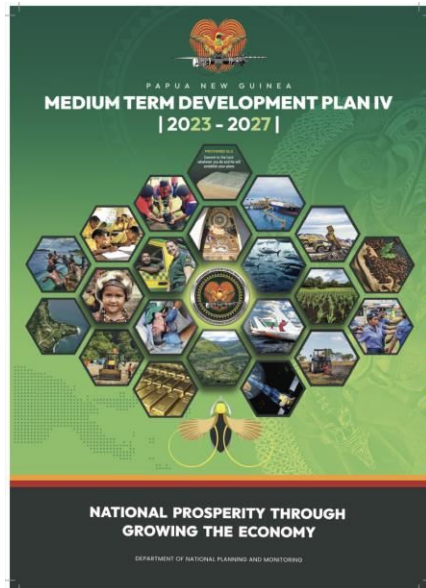


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# NEA is coordinating with GoPNG and Development Partners to secure funding

Government of PNG



Donor Partners



WORLD BANK GROUP



USAID  
FROM THE AMERICAN PEOPLE



AFD  
AGENCE FRANÇAISE  
DE DÉVELOPPEMENT



NEW ZEALAND  
FOREIGN AFFAIRS & TRADE  
Manatū Aotearoa



Australian Government  
Department of Foreign Affairs and Trade

Others



GREEN  
CLIMATE  
FUND



Global  
Green Growth  
Institute

Private sector companies  
(local and  
international)

Support from GoPNG will encourage funding from donors and private sector



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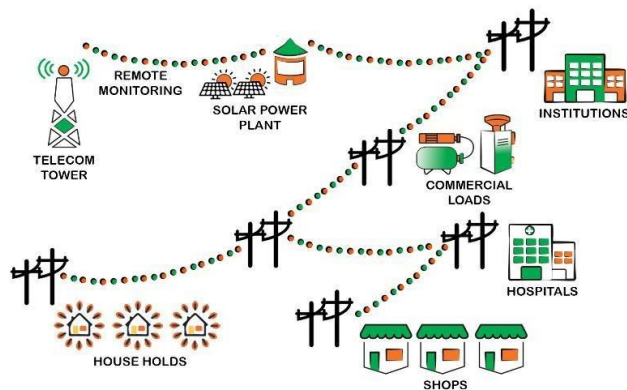
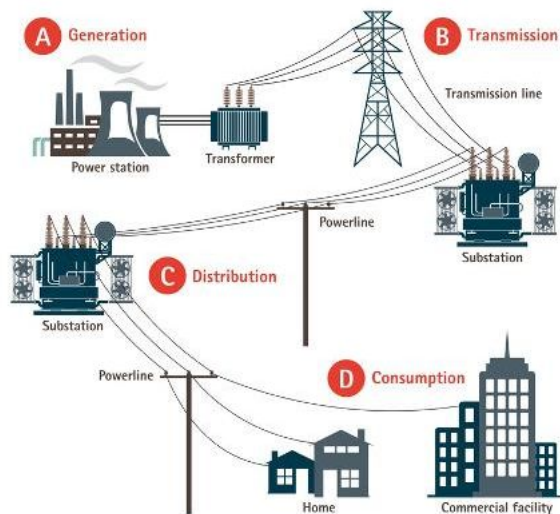
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# Achieving electrification goals requires simultaneous work on different electrification methods

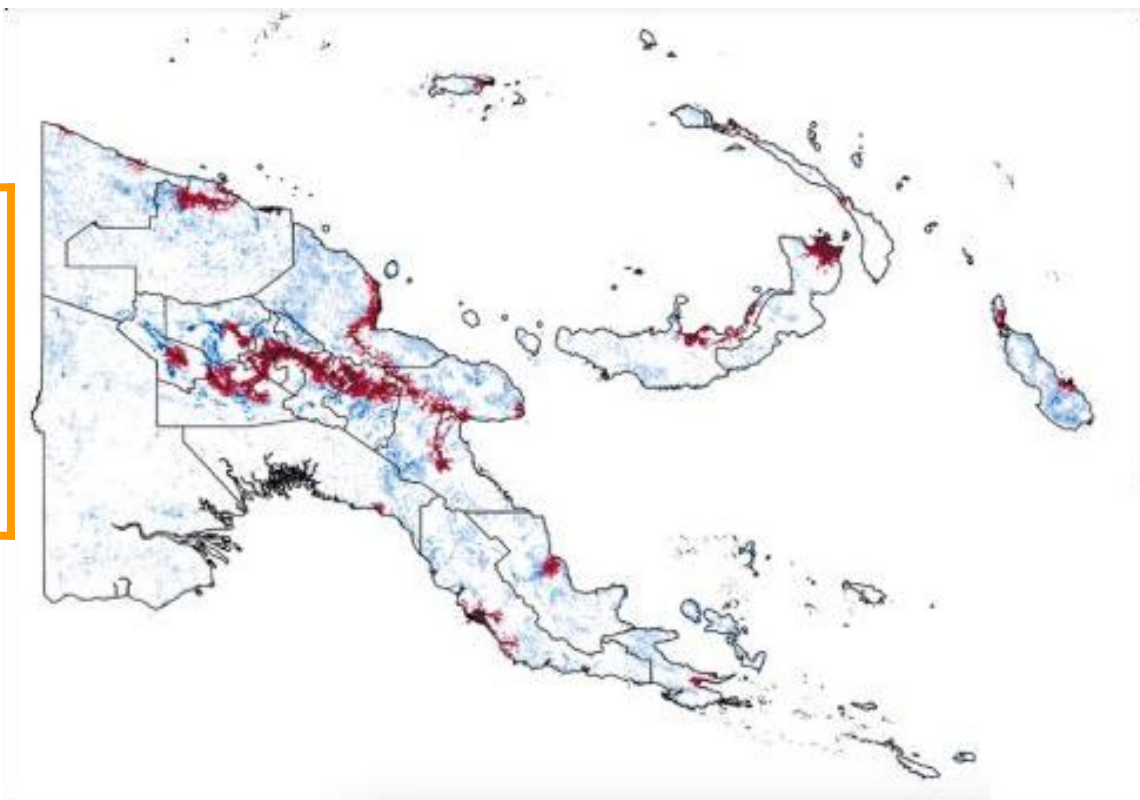
Decreasing population density and increasing distance from existing PPL grid

## Option 1: PPL Grid Extension    Option 2: Mini-grids    Option 3: Solar Home System



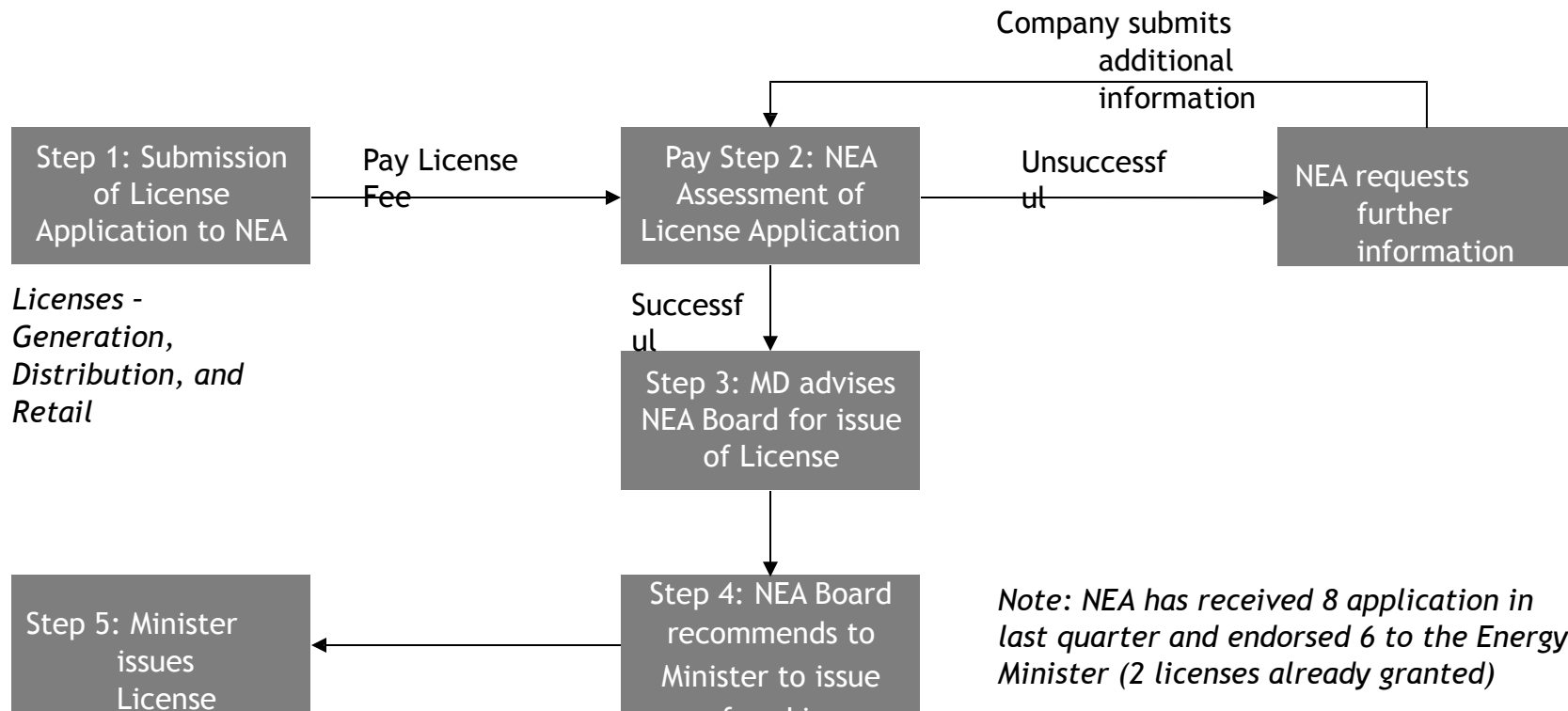
# About ~PGK 16 billion\* needed to meet electricity access goals

Electrification mode	Households / location	CAPEX Requirement
Solar home systems	<100	PGK 1.5 billion
Small mini-grids	100-320	PGK 1.5 billion
Large mini-grids	>320	PGK 1.5 billion
Grid extension	1-10 km from PPL grid	PGK 8.5 billion
Grid densification	<1 km from PPL grid	PGK 1.2 billion
Generation capacity	Grid	PGK 1.5 billion



\*Broadly, high level estimates from NEROP and GIS Platform  
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# Supporting mini-grid licensing for IPPs/private operators



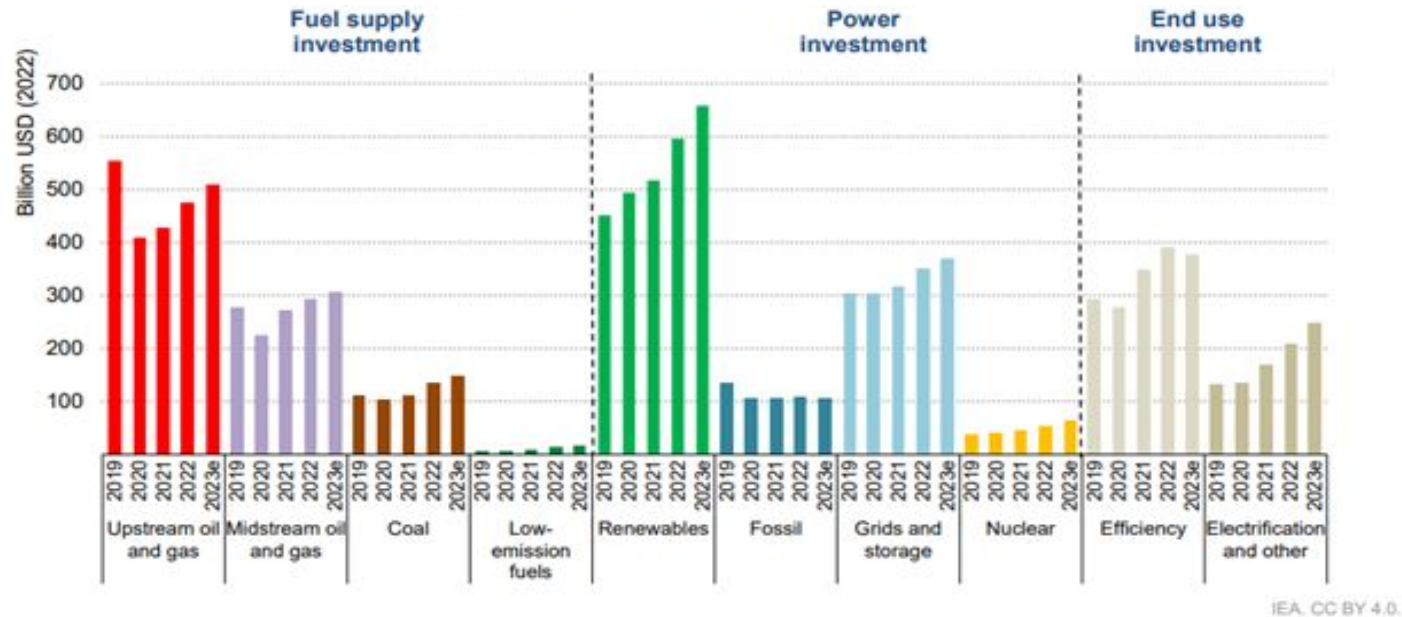


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# Energy - Sector Investment, 2019-2023



Source: IEA

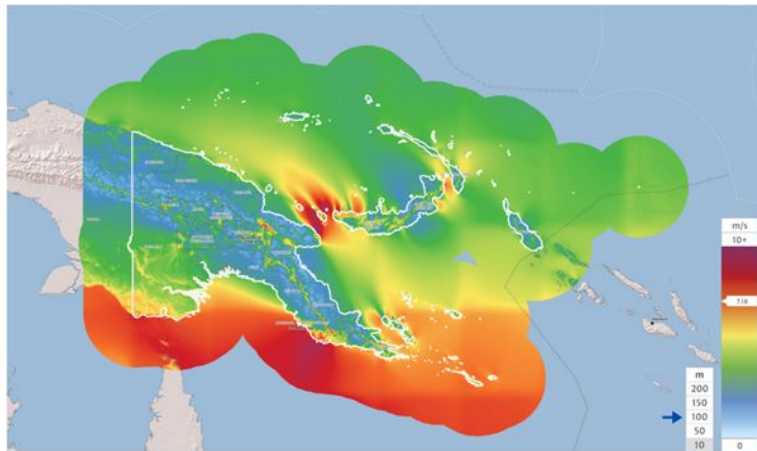
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## An emerging sector – Wind power (onshore / offshore)



Mean wind speed is around 4 – 5.6 m/s. A consistent strong wind with 7-10m/s. Some sites have about 10m/s and above which is like one of the largest Wind Farms in the UK (Hornsea). The potential Fixed Foundation is around 91 - 103 GW, and the potential Floating Offshore is 50 to 56 GW\*. The nominal potential is up to about 160GW.

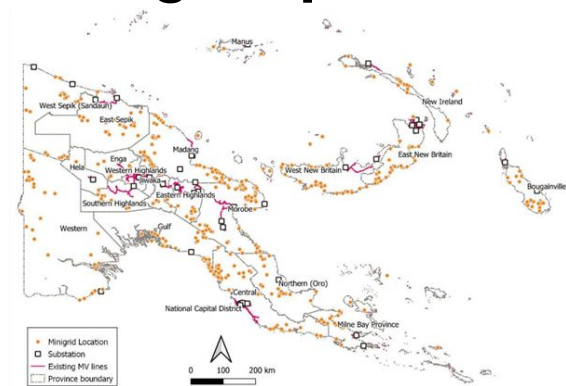


**NEA** is liaising with **Sahul Energy**, a Papua New Guinea-based developer, committed to driving sustainable growth through the development of worldclass energy infrastructure about the **Continent-8** offshore development program.

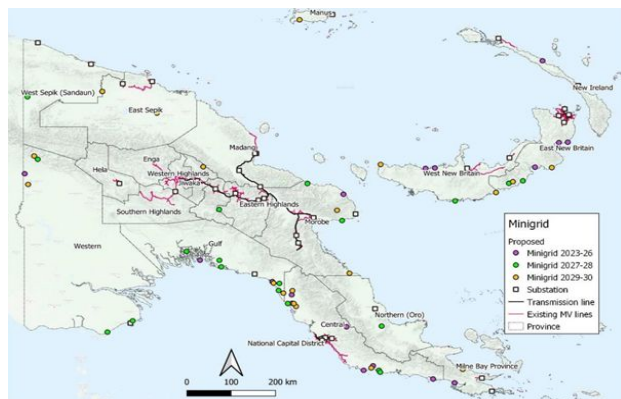
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# Mini-grids potential



About **500** potential Mini-Grid Sites to be developed



**57** viable mini grid scheduled as per the NEROP



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