

**Australasia Carbon Expo**

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**CDM Project Opportunities  
current status and Trends and  
Project Development in  
Papua New Guinea**

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# Outline

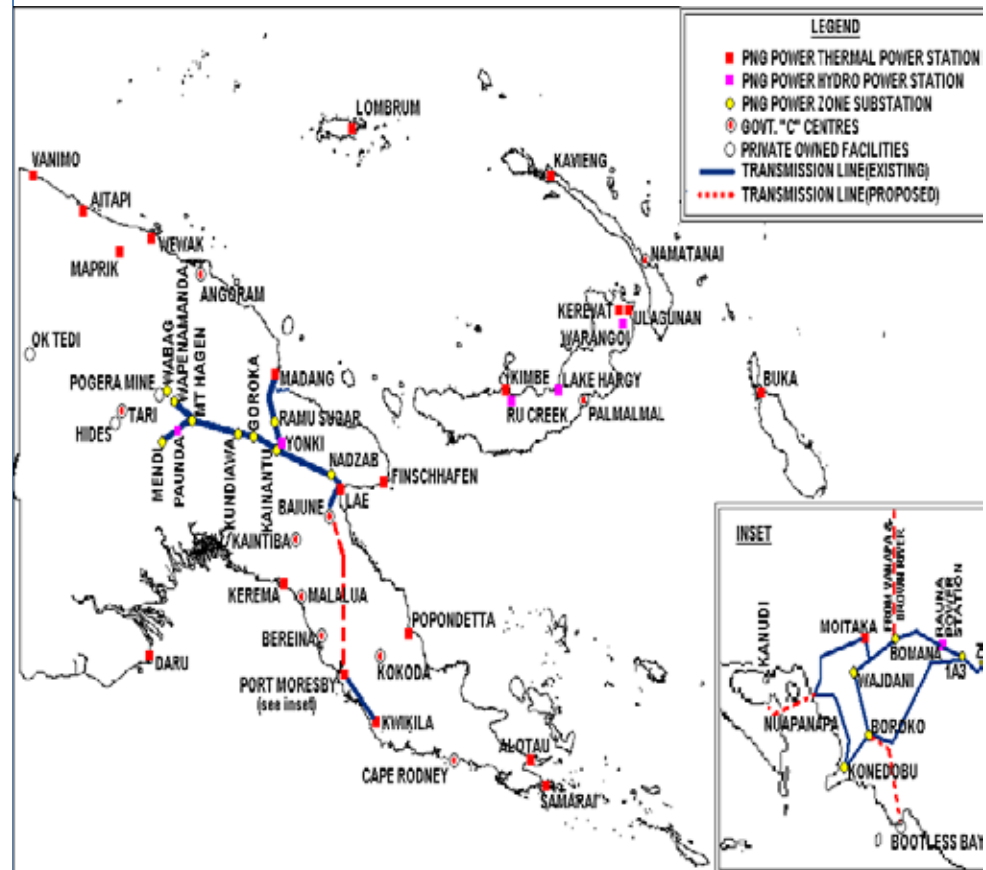
1. PNG Power Limited – An Overview
2. GHG Emissions from main sectors and growth trends
3. Potential CDM project types
4. Potential sectors for CDM
5. DNA Set up and project approval criteria
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8. Progress with CDM and voluntary carbon project development
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10. PNG Power Limited: Where we are!







# 1. PNG Power Limited – An Overview

- Is a state owned corporation with Government ownership held by the Independent Public Corporation.
- Is a vertical integrated utility – generation, transmission, distribution and retail.
- Has major transmission and distribution networks in Port Moresby, Ramu, Gazelle (Rabaul) that are supplied by major hydro power plants.
- Also supplies electricity to 19 regional centres predominantly by diesel powered thermal generation (over 75 generating units)
- PPL currently supplies around 91,000 customers with 756GWh of electricity from 390 nameplate generation capacity.
- Had sales revenue of K535m in 2010.



## 2. GHG emissions from main sectors and growth trend

Historical emissions in PNG have mainly been caused by smallholder agriculture and forestry

Driver of emissions	Emissions Mt CO <sub>2</sub> e	Description
 <b>Smallholder agriculture</b>	20-30	<ul style="list-style-type: none"> <li>Increasing population leads to expansion of cropping area into forest (and shortening of rotation cycle)</li> </ul>
 <b>Commercial agriculture</b>	10-15	<ul style="list-style-type: none"> <li>Clearing of forest for establishment of commercial plantations (predominantly oil palm, mainly on fertile lowland forests)</li> </ul>
 <b>Timber harvesting</b>	50-60	<ul style="list-style-type: none"> <li>Logging results in significant deforestation and degradation, mainly in lowlands and islands</li> <li>Current logging practices are unsustainable</li> </ul>
 <b>Mining, infrastructure</b>	5-10	<ul style="list-style-type: none"> <li>Historically largely from mining, less from infrastructure</li> <li>Includes forest dieback from Ok Tedi spill)</li> </ul>
 <b>Fire</b>	2-3	<ul style="list-style-type: none"> <li>Caused by humans (hunting, spreading from subsistence burning) and lightning</li> <li>Forest degradation makes fires more likely</li> </ul>
 <b>Everything else</b>	<5	<ul style="list-style-type: none"> <li>Oil and gas (LNG fully operational will be 6)</li> <li>Transportation</li> <li>Energy</li> </ul>

CE: Shearman (2008, 2009), Fox (2009)

# 3. Potential CDM project types

- Forestation projects
- Agricultural projects
- Methane avoidance
- Geothermal power development
- New Hydropower development (large & small)
- Capacity upgrade for existing hydropower development
- Efficient power systems
  - Supply – side management projects
  - Biofuels/Biomass
- Energy efficient projects
  - ICLs to CFLs
  - Others
- Fuel switching
- Voluntary market projects

## 4. Potential sectors for CDM

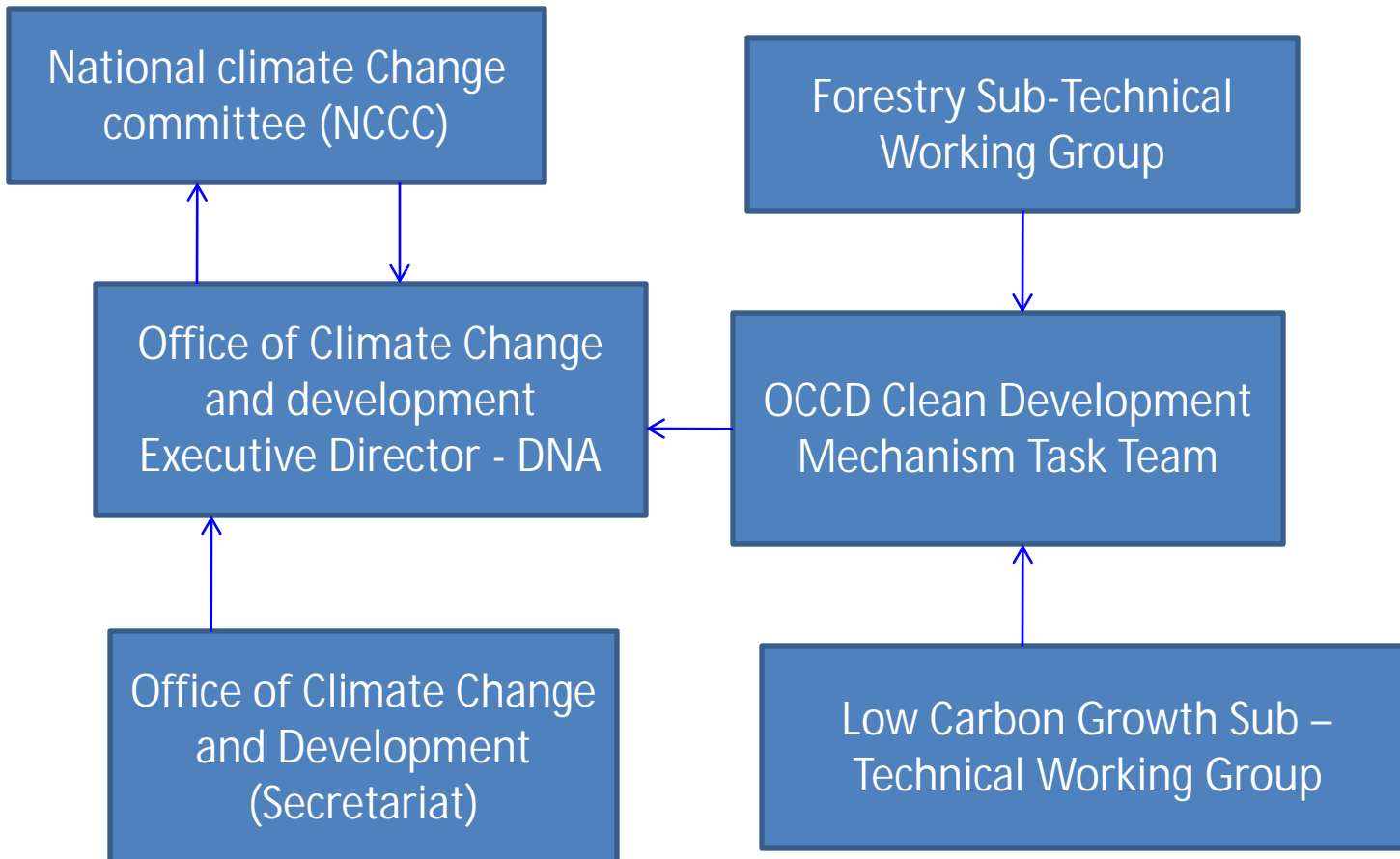
- Opportunities for CDM projects in PNG are abundant, which include the following sectors:
  - Ø Renewable energy
  - Ø Energy efficiency
  - Ø Non-renewable energy
  - Ø Waste Management
  - Ø Transport Management
  - Ø Afforestation and Reforestation
- Currently the leading sectors include:
  - Ø Renewable Energy
  - Ø Waste Management

## 5. DNA setup and project Approval criteria

- Established in March 2007
- Called Office of Climate Change and Development (OCCD)
- To effectively carry out its functions OCCD has strategically developed a Climate compatible Development Plan.
- This strategic plan has three elements:
  - i. **Economic Development:** Achieve GDP per capita of USD 3000 by 2030 as set out in our vision 2050, to meet our people's aspiration for a better life
  - ii. **Mitigation:** Reduce emissions of green house gases by at least 50% by 2030 and becoming carbon neutral by 2050. Over 90% of this reduction will come from reducing reduction from Reducing Emissions from Deforestation and Forest Degradation (REDD+), at an average cost of USD 4/t
  - iii. **Adaptation:** Reduce the vulnerability of Papua New Guineans to the risks associated with climate change, such as coastal and inland flooding, agricultural yield changes and diseases.



# DNA Structure



## 6. The Approval Process

- Submission of PIN in DNA approved format/template:
  - Ø Should accompany a Project Inception Report
  - Ø Initial review will comment and provide information to criteria
  - Ø Letter of no objection is delivered to the project developer
- Submission of PDD
  - Ø Submitted with a Sustainable Development Report, not specifically in the PDD
  - Ø Prove of Environment Permit for Level 3 Activity as stated in the Environment Act 2000
- LoA is Issued
  - Ø Seen as a contributor to GHG reductions
  - Ø Meet the sustainable development objectives of PNG

# 7. The Sustainable Development (SD) Criteria

- i. Have addressed and/or have an environmental benefit
- ii. Contribute to economic development
- iii. Improve social conditions
- SD Criteria addressed in MTDP, PNG Vision 2050, PNGSDP, 4<sup>th</sup> National Goal MGD7

# 8. Progress with CDM and Voluntary Carbon Development

- Talk of voluntary carbon projects, but at the moment nothing as yet
- Not really sure of other projects beside CDM from the energy sector
- Existing CDM Projects:
  - New Britain Palm Oil Limited (NBPOL) 7 CDM projects
    1. Mosa POME Methane Capture Project
    2. Kumbango POME Methane Capture Project
    3. Numondo POME Methane Capture Project
    4. Kapiura POME Methane Capture Project
    5. Warastone POME Methane Capture Project
    6. Methane Avoidance & Biogas Recovery Project in Sangara, Oro Province
    7. Methane Avoidance & Biogas Recovery Project in Hagita , Milne Bay Province
  - Oil Search Limited's Flare & Vent Gas Conservation CDM Project, Gobe Southern Highlands & Gulf respectively
  - Hargy Oil Palm Limited, Barema Methane Biogas Recovery from Waste Water Treatment Project in Hargy Oil Mills in Bialla, WNBP.
  - PPL PoA (Divune CPA & Ramazon CPA)

# 9. Barriers to CDM voluntary project development and suggestions

- Financial
  - Developed nations commitment to fund such projects not as ODAs but funding arrangements fitting to PICs.
- Capacity Building Development
  - PICs yet to fully grasped the nitty-gritty of CDM
  - Programs designed more applicable to PICs
- Practical Experience
  - PICs yet to have that and boost confidence in developing CDM projects
- Post 2012
  - Nothing really concrete on this issue
  - Seems more conservative

# 10. PNG Power Limited - Where we are!

## Current PNG Power CDM Projects

- Renewable Energy Sector:
  - ∅ Town Electrification Investment Programme, Tranche 1 small hydropower projects; captured under the CDM Programme of Activities (PoA) for small scale renewable energy projects – under final stages of validation.
    - i. Project : Divune hydropower project
      - Capacity : 3 MW
      - CERs : 20, 800 per annum
      - Construction Commencement : April 2015
      - Commissioning : June 2015
    - ii. Project : Ramazon hydropower project
      - Capacity : 2.8 MW
      - CERs : 18, 200 per annum
      - Construction Commencement : June 2015
      - Commissioning : August 2015
  - Final stages of validation will apply for registration in December 2012

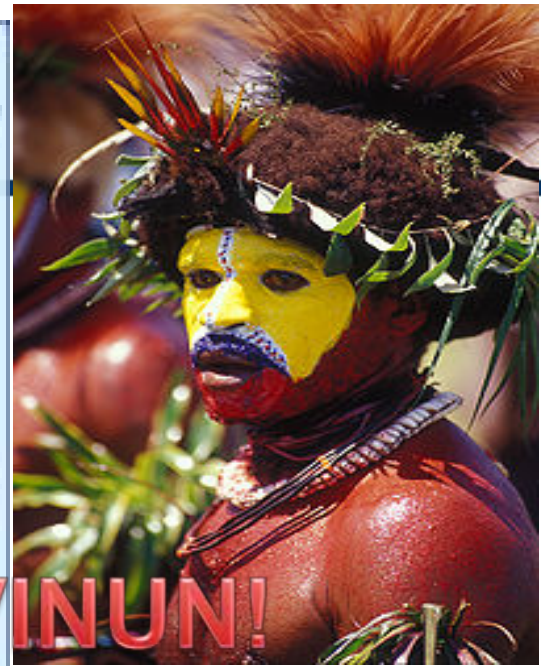
# Cont.....

- PoA has attracted interest from the pacific island countries and can be extended to regional boundaries
- PPL very supportive of its CDM projects
- Develop capex for CDM PoA
- Has plans for CDM investigations. To identify potential CDM projects in tranche two (2) of the TEIP

# Potential PPL CDM Projects

- Renewable Energy Sector:
  - Ø Town Electrification Investment Programme, Tranche 2 small hydropower projects; captured under the CDM Programme of Activities for small scale renewable energy projects.
  - Ø Rural solar PV/ solar-wind hybrid projects incorporating Electric Double Layer Capacitors as power storage in parallel with conventional lead batteries.
  - Ø 80 MW Naoro Brown hydropower project – Central Province
  - Ø 90 MW Mongi/Bulum hydropower project – Morobe Province
  - Ø 80 MW Laluei hydropower project - AROB
  - Ø Capacity upgrade projects for existing hydropower stations
- Energy Efficiency
  - Ø Supply-Side Management
- Fuel Switching
  - Ø Diesel to LNG
- Waste Heat Recovery Generation from thermal power plants





**TENKIU na GUTPLA AVINUN!**

