Fact Sheet - PNG Renewable Energy Project

The governments of Queensland and Papua New Guinea signed a Memorandum of Cooperation with PNG Energy Developments Ltd (PNG EDL) and Origin Energy Limited to support the potential development of a renewable hydro electricity project.

PNG EDL, a 50:50 joint venture between Origin and PNG Sustainable Development Program Ltd, is evaluating the hydro power potential of the Purari Hydro Resource at Wabo in the Gulf Province of PNG, around 350 km north-west from Port Moresby.

Capturing the power of existing river flows, the development under consideration would have the capacity to generate approximately 1,800 MW of reliable renewable power, with a capacity factor expected to be in excess of 90 per cent.

The project would provide a reliable source of electricity for remote villages and rural communities in Papua New Guinea and transform the area’s economic development prospects. It would provide better infrastructure for access to the Gulf Province, greatly enhancing the ability to deliver basic health and education services and creating a range of opportunities for local communities.

Electricity would also be exported using leading-edge transmission technology via Weipa to join the national electricity grid at Townsville.

The project would supply into Queensland approximately five times the amount of renewable power currently generated in the State.

It would be the first project to deliver year-round baseload renewable power energy into mainland Australia.

Project Description

The proposed site is on the Purari River, 198 kilometres upstream and approximately 100 kilometres overland from the Gulf. It is near the village of Wabo.

A series of engineering and environmental studies undertaken over the past 30 years have identified the site as a favourable location for a hydro power project, due to the sparse local population and specific geographic characteristics. The catchment area is one of the highest rainfall regions in PNG, with the Purari River at Wabo having a mean annual discharge of 2,500m$^3$ per second. Rainfall is consistent and, in the area around Wabo, averages around eight metres per year. These features make the proposed site ideally suited for maintaining downstream river characteristics.
The existing studies are being reviewed in light of today’s technical, environmental and social standards in full collaboration with the Gulf and Papua New Guinea Governments. A comprehensive feasibility study is expected to be completed in 2012.

The joint venture will be guided by international environmental and social standards including those endorsed by the Australian and PNG governments, the International Finance Corporation, the World Commission on Dams and the International Hydropower Association.

The PNG project would connect via an undersea transmission cable to far north Queensland and ultimately the national electricity grid at Townsville, via Weipa.

It would use HVDC (High Voltage Direct Current) transmission technology similar to that used in BassLink between Tasmania and Victoria. The undersea element would consist of two segments of approximately 250km each. For comparison, the undersea BassLink cable is approximately 290km long.

Route options undersea and overland will be subject to considerable further work, and a number of such options are in the early stages of being considered.

**Background to Hydro Power**

Hydro power is electrical energy generated when falling water from reservoirs or flowing water from rivers, streams or waterfalls is channelled through turbines.

Once constructed, a hydro power plant emits no greenhouse gas emissions.

Hydro power plants have the ability to be used for either base or peak load generation as the output is flexible and responsive to demand.

Origin has experience in dealing with hydro power technologies, particularly through its 51.8 per cent interest in Contact Energy. For the year ending 30 June 2010, Contact had produced 3,760GWh of hydro energy.

Origin’s LPG gas supply business has been operating in Papua New Guinea for 30 years.
Fast Facts

- PNG Energy Developments Ltd (PNG EDL) is evaluating the development potential of a large hydro resource in Papua New Guinea
- PNG EDL is a 50:50 joint venture between Origin and PNG Sustainable Development Program Ltd
- The Wabo project has the capacity to generate 1,800MW of reliable baseload renewable electricity
- The project would provide low carbon baseload electricity to Papua New Guinea, north and far north Queensland and Australia’s national electricity market (NEM).
- Electricity would be transmitted from PNG to far north Queensland via an undersea transmission cable using the most efficient HVDC (High Voltage Direct Current) transmission technology
- The Wabo site is located in the Gulf Province of PNG 198km upstream from the Gulf and 350km north-west from Port Moresby
- The catchment is one of the highest rainfall regions in PNG, with a catchment mean annual discharge of 2,500m$^3$ per second at Wabo
- Mean annual rainfall varies across the catchment from approximately eight metres near the dam site to two metres in the north east.
- The joint venture will be guided by international environmental and social standards including those endorsed by the Australian and PNG governments, the International Finance Corporation, the World Commission on Dams and the International Hydropower Association.
- The project would provide electricity to villages, rural communities, major cities, townships and resource development projects situated in PNG and Australia
- The project would help supplement emerging intermittent renewable energy sources in Queensland and would provide baseload power and capacity support for minerals and other infrastructure development in the State of Queensland