

**POLICY ORIENTATIONS TO BE DRAWN  
FROM PLANS**

**DELIVERABLE D3D**



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## Deliverable D3D

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## **Policy frameworks and recommendations**

### **1 Targets and Policy Framework**

#### **1.1 Targets**

The Lao PDR government has fixed a target of 90% households to be electrified by 2020, and 100% village electrification; the situation in 2008 is about 70% villages and about 65% households.

In Cambodia, the target set is for all villages to be connected by 2020 and 70% households by 2030. The situation in 2008 is 27% villages and 20% households.

In order to achieve these targets, sector organisation is being reviewed as well as tariff levels and framework conditions.

#### **1.2 Sector organisation**

**In Laos**, the State Utility, EDL had the monopoly for Generation, Transmission and Distribution. Today, there are more than 70 hydropower potential sites in the country, including investors from France, who has already developed a largest hydropower plant in LAO PDR with a total installed capacity of 1,800 MW.

By 2020, out of total installed capacity of 18,000 MW, Laos will be exporting 7000 MW to Thailand and an additional 3000 MW to Vietnam and Cambodia. Electricity exports are the second revenue earner of the country.

Sector organisation is today undergoing clarifications:

- A new Electricity Construction and Installation Company has been separated from EDL with the same name but has main objective to stand and run the business by their own capacity.
- Regarding transmission system at this moment still in the EDL
- Regarding rural electrification, a Rural Electrification fund managed by MEM secretariat exists and its operating modalities are being clarified
- The modalities under which private sector investments in generation and distribution especially for mini grids for rural electrification and promoting access in remote areas are currently being formulated

**In Cambodia**, the sector is organised in a utility, EDC, which provides electricity, essentially fuel oil based to the capital city and to Provincial capitals. The transmission network which is currently being constructed will be managed EDC. A regulator, the EAC (Electricity Authority of Cambodia) has been set up which manages the licensing of EDC and some 500 private companies, which have either generation, transmission or distribution licenses, given for 2 to 10 years, depending on the quality of installations and management performance of the Rural Electrification Enterprise. Tariffs are also regulated by the EAC and depend on the costs of the REEs for generating electricity.

Further, an independent Rural Electrification Fund (REF) has been set up to provide financial support to the REEs. The objectives of REF for the initial years of operation are to:

- 1- provide grant to Rural electricity enterprises (REEs) for 50,000 new connections;
- 2- provide grant to firms for supplying 12,000 Solar Home Systems (SHS) for households in rural areas;
- 3- provide grant for development of 850kW of micro hydro; and
- 4- provide grant for development of 6 MW of mini hydro.

During the year 2007 and first half of 2008, good progress has been done for objective 1 stated above, whereas the progress for the other three objectives is not encouraging. Consequent to mid-term review by World Bank team during May 2008, there are proposals to revise the scope of the two objectives as follows:

- 1- Instead of providing grant assistance for SHS, REF will bulk purchase the SHS, and directly sell on credit to the rural household with the payback period of five year terms. The project will be managed and implemented through consultants/firms/REEs for related services;

Instead of providing grant assistance for development of generation project; (i) the REF may engage consultant to only do the feasibility study, which will facilitate the development of the project in the future or (ii) construct mini/micro hydro projects and lease out to a REE for operation with payback in installments.

### **1.3 Tariffs**

In Lao PDR, there is still a single tariff system throughout the country, which is very much justified for the interconnected grid and given the low cost of large hydro power. Average tariff for domestic consumers in the lowest tranche (under 15kWh /month) works out to 2 cents / kWh. However, connection costs remain high: 80 to 100\$ per households, which is a hindrance to achieving high connection rates.

Regarding village level systems (under 20kW) the tariff can be negotiated with local villagers. PPA levels practiced to date, essentially for hydro power, are 10 to 15 cents / kWh.

In Cambodia, there are cross subsidies only in Phnom Penh, where the domestic tariff is in the range of 15 cents / kWh. Outside Phnom Penh, as there is no cross subsidy and no other form of government investment support, tariffs have to reflect costs and are hence in the range of 1800 and up to 3800 Riels: 40 cents to close to a dollar, with generation being diesel / fuel oil or in some marginal cases, gas based.

## **2 Planning, framework measures and incentives**

### **2.1 Planning**

In both countries, planning of the backbone electrification of the country – high voltage transmission lines and large scale generation has been studied and a number of projects decided with funding under mobilisation and construction on going. Laos has secured funding for Northern and Southern Laos and by 2015 a North – South interconnected grid will exist. At the macro level, demand supply gap is widening due to growing demand in particular from the mining sector – bauxite and aluminium production. With the commissioning of Nam Theun 2 and Nam Nguen, the gap is expected to be bridged by 2012. Regarding Cambodia, the much awaited connections to Viet Nam are under construction which are a necessity to supply the backbone transmission line which will be the beginning of network expansion.

However, regarding access, i.e. achieving the goals described above, planning is still in the making and using a tool such as GEOSIM will be very useful:

- To assess the cost of achieving the global objectives set;
- To detail these objectives and costs on a provincial basis;
- To compare the supply options, and time frames under various scenarios;
- To take decisions as to which investments to prioritise and what kind of framework / support measures would be needed in order to possibly encourage private investments

## 2.2 Framework measures and incentives

- **Investment** support to private investors is currently not implemented in Lao PDR for rural electrification size investments – eg up to 20 MW. However, a different scheme for remote rural areas is currently being successfully implemented, which consists in undertaking the bulk purchase of thousands of SHS (15 000 will be achieved by end 2009) which are then “leased” to end users under a higher purchase scheme for 10 years; private operators are contracted to ensure maintenance and operation. In Cambodia, the REF had envisaged output based investment subsidies (45\$ per new household connection, 100\$ per SHS and % of hydro / biomass investment) but the output base (subsidy disbursed only upon commissioning) proved to be a barrier and REEs were not capable to produce business plans acceptable to REF, also mobilising bank financing. Hence, the REF is now considering to implement the bulk purchase scheme as in Laos and to fund micro and mini power plants to be leased out to private operators. Detailed financing modalities remain to be worked out, in particular with the idea that leasing contracts should be terminated within 5 years and achieve reasonable levels of investment payback.
- **Fiscal** support measures need to be very actively considered, as experience worldwide – eg in India and in Europe, show that they have a very important leverage and high immediate impact on mobilising private investments – in particular for renewable energy investments which have high upfront investment costs. Hence it is recommended to actively look into this tool and in particular regarding renewable energy investments for rural electrification, which are the most sustainable options in the long term:
  - Wave import duties on renewable energy equipment and distribution equipment, which is 30 and 35% in the two countries, which is very high investment premium in the context of capacity to pay of the rural populations of these countries ;
  - VAT exemptions should also be considered ;
  - Tax incentives are currently not being considered : however regulations such as accelerated depreciation, reduced profit tax rates, deduction of a certain proportion of investment from taxes payable have proven to be very high impact measures for the development of renewables, with India for example now being one of the 3 top countries worldwide regarding wind turbine installations – along with Germany and Spain.
- **A stable and transparent framework for grid connection** must be speedily formulated and implemented in order to reassure private investors – be it for renewable energy investment for rural electrification or for rural electrification investments such as bulk purchase from the grid and MV lines + distribution to a cluster of villages. All countries where private – public partnerships have developed

and where banks have engaged in such long term investments started with the implementation of such a framework:

- Off take agreements have to be long term: at least 8 to 10 years, and if possible renewable;
- Purchase tariffs have to allow for returns to the private investor in line with the risks they are asked to take; either a cost-plus formula, regulating the return investment or a minimum purchase tariff per kWh has to be formulated – the range of 8 to 12 cents for attractive hydro power sites is an international benchmark
- Take off obligation from the utility for all renewable energy generation under a certain capacity is often very helpful
- Experience shows that banks will not engage before a few such contracts are signed for Rural Electrification, unless guarantees are provided – the long term PPA and attractive business plan is a requirement, and starting first investments through a dedicated revolving fund can be an interesting option if properly managed.