

Cambodia Outlook Brief*

2010, N° 04

Strengthening Key Sectors for Cambodia's Return to Growth, Sustainable Development and Poverty Reduction: Energy and Rail Infrastructure¹

“Infrastructure [is] the basis of future development in Cambodia.”

Mr David Kerr, CEO, Toll Cambodia Ltd.

“Challenges [to power infrastructure development include the] timely implementation of development plan 2009-2013, seeking additional concessional funding for expanding transmission and distribution, [increasing the] capacity to absorb electricity supply on the National Grid, and putting in place risk management [measures].”

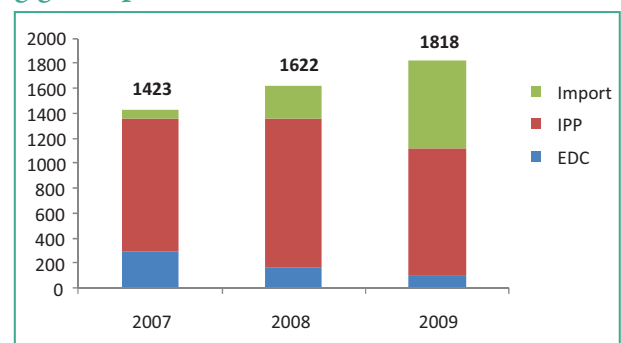
Mr Hav Ratanak, EDC State Controller

Power Infrastructure: The EDC at Present

More than four decades old now, Electricité du Cambodge (EDC) is the state-owned enterprise responsible for the generation, transmission and distribution of electricity in Cambodia. Its installed generating capacity has consistently increased, reaching 516 megawatts in 2009 from 386 megawatts in 2007. Over the same period, maximum output averaged about 90 percent of the total installed capacity. Total domestic energy production rose by more than 25 percent to 1,818 gigawatts per hour (Figure 1).

A huge but declining share of the company's power supply is actually sourced from independent power producers (IPPs). This share stood at more than one-half of the total in 2009 from about three-fourths in 2007. Meanwhile, imported power, specifically from Vietnam, has come to figure more prominently as a source of electricity for EDC. As EDC-generated power decreased, imported power increased from 69 to 705 gigawatts per hour between 2007 and 2009. This enlarged its share in the total power supply from only about 5 to 39 percent. In terms of fuel source, a declining majority of the total power

Figure 1: EDC Power Generation by Source, gigawatt per hour



Source: EDC

¹ Outlook Brief 4 summarises the presentations and discussions in session 3B(i) of the 2010 Cambodia Outlook Conference. Presenters for this session were: Mr Hav Ratanak, EDC State Controller, Deputy Secretary General, Supreme National Economic Council and Mr David Kerr, CEO, Toll Cambodia Ltd. This Brief also incorporates relevant sections of session 1, presented by Dr Hang Chuon Naron.

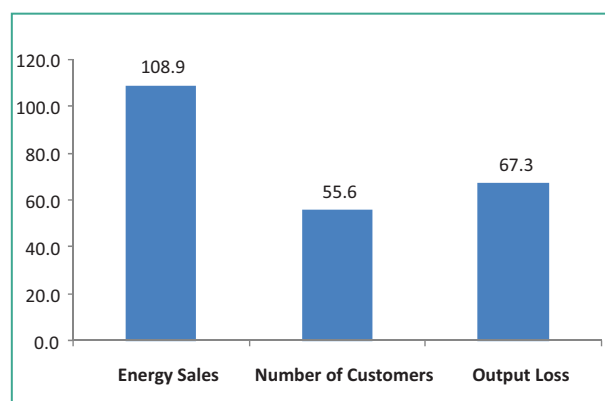
supply has been domestically generated using heavy fuel oil. From 85 percent in 2007, this share fell to 54 percent in 2009. Though much smaller, the share of power domestically generated from diesel oil also dwindled from 7 to 2 percent. These decreases were compensated for by the increase in the share of imported electricity. Hydropower continues to be just a minor source of energy. Its share stayed put at 3 percent in the past three years.

Electricity in Cambodia is one of the most expensive in the world. The total production cost for Phnom Penh can reach USD0.18 per kilowatt hour (kWh). Of this, USD0.12 represents the production costs while the remaining represents service costs. Even with government subsidy, electricity tariffs remain very high. For Phnom Penh residents, the subsidised tariffs per kWh of electricity are 610 riels for up to 50 kWh consumption per month and 720 riels for up to 100 kWh. The tariffs for commercial and industrial use vary. Added on to the average cost of mixed production are the following charges: about 114 riels per kWh for small-sized customers; about 112 riels per kWh for medium-sized customers; and about 96 riels per kWh for large-sized customers. Because of the lower costs of imported power and oil, electricity rates in 2009 were at least cheaper compared with the rates in 2008.

The increase in consumers and reduction in power leakages boosted energy sales by more than 100 percent between 2005 and 2009. As percent of total production, the rise in total electricity sold was about 2 percentage points. Over the same period, the total number of EDC customers went up by more than 50 percent. This increase was mainly accounted for by the rise in residential and commercial users of electricity. Meanwhile, power leakages have been successfully contained in the past years. Output loss in 2000 was very high at roughly 16 percent of total output. Gradually, this trimmed down to about 12 percent by 2005 and to 10 percent by 2009 (Figure 2).

Reforms in customer service as well as human resource development have helped widen EDC's customer base and enhance its operational efficiency. A 24-hour hotline was finally installed in all EDC systems in 2009. In the same year, electronic payment of electricity bills at ATMs and online also became possible. EDC's human resource development consisted of both staff additions and capacity building. Its number of employees increased

Figure 2: EDC Energy Sales, Customers, and Output Loss, Percentage change, 2009 vs. 2005



Source: EDC

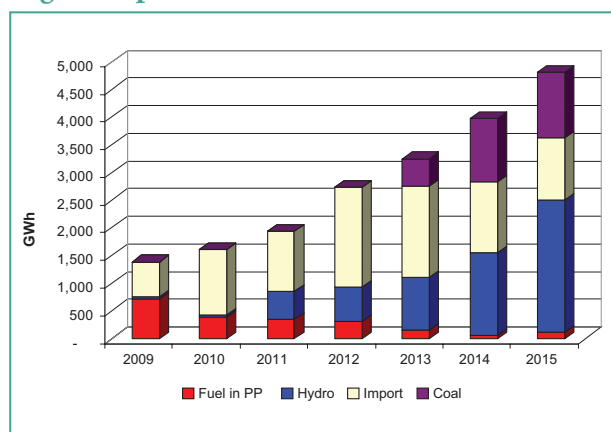
about 7 percent in 2009 relative to 2007. The company also started sending officials abroad for further study and training and enrolling employees in local schools for them to earn relevant bachelor degrees.

Power Infrastructure: The Future of EDC

The government has its sights set on improving electrification in the country, particularly the rural areas. This aim is central to the achievement of Cambodia's Millennium Development Goals. Supporting this aim are the two key energy development targets for 2009-2013, namely the reduction of production costs and increase in the scope of supply. Supporting these targets in turn are the following strategies: promotion of energy imported from neighbouring countries; construction and operation of major power sources; connection of major urban areas to the national power grid; and construction of transmission and distribution lines all over the country. According to the Master Plan of the Ministry of Industry, Mines and Energy, Phnom Penh and all of Cambodia's 23 provinces will have been connected to the national power grid by 2018. Based on the National Grid Development Plan 2009-2013, such grid connections as those from Vietnam to Phnom Penh and from Phnom Penh to various provinces in the country would have been already made.

Total energy generation is expected to keep rising. Between 2010 and 2015, it is expected to climb from about 2,000 megawatts to more than 4,500 megawatts (Figure 3). Based again on the National Grid Development Plan 2009-2013, some 200 megawatts of power would be imported from Vietnam each year from 2010 to 2013. Electricity imported from

Figure 3: Projected EDC Power Generation, Gigawatts per hour



Source: EDC

Thailand would amount to 60 megawatts in 2012 and 2013. With regard to the fuel mix, hydropower is envisioned to become a dominant source of electricity by 2015, lessening the need for imports and power generated using heavy fuel oil. The use of coal as a power source is also anticipated to intensify. Most of the contracts with the IPPs would have already been phased out by 2013. The remaining valid power supply would be priced at the minimum.

Investments in power generation are counted on to be mainly financed by the private sector through build-operate-transfer mechanisms. For 2009-2013, close to USD1.9 billion worth of such capital investments from the private sector and donors are expected to be made, from which about 1,320 megawatts of installed capacity and 1,070 of available output are expected to be generated. Investments in the national grid are expected to be funded in part through build-operate-transfer arrangements and in part through foreign bank financing. For 2009-2013, said investments are projected to reach USD570 million. Donor and private bank loans on the other hand are expected to finance the infrastructure expansion for rural electrification. AusAID, World Bank, KfW, and China EXIM Bank are among those currently involved in the initiative.

A lot remains to be done for EDC to realise its goals. The major challenges confronting public enterprise include timely implementation of the energy development plan 2010-2013, the acquisition of more concessional funding for infrastructure building, the expansion of the absorptive capacity of the national grid, and the enhancement of risk management practices.

For each aspect of the power infrastructure, several priority activities need to be undertaken. Concerning generation, the construction of hydropower and coal-powered plants must be continued. Priority must also be given to low cost investments that could help bring down production costs. Concerning transmission, major transmission lines connecting Phnom Penh to other provinces must be already completed. The Transmission Loop Line Project covering Phnom Penh and Kompong Speu and Kandal provinces, would further enhance the attraction of these areas to business. The construction of the national grid transmission centre is also a priority. Concerning distribution, it appears necessary for EDC to take over and rehabilitate distribution systems in some provinces and reduce bulk purchases of power. The distribution system in Phnom Penh must also be reviewed to gain insight as to how its stability and the quality of power supply could be enhanced. It also goes without saying that efforts aimed at reducing power leakages must be continued and strengthened. Concerning EDC itself, the working efficiency of all its branches must be increased. A functional review needs to be undertaken in order to find out exactly how this could be actualised. Further reform of customer service is certainly needed.

The Railway Infrastructure: Present State

The government has outsourced its railway operations. It now depends on the private sector and the country's donors for the much needed development of the domestic railway infrastructure. Transport logistics in Cambodia in general are largely immature, fragmented and in dire need of overhaul. On the upside, the country has been one of Asia's fastest growing economies and significant reforms have been underway to promote development. These attract the interest of the private sector in investing in its infrastructure development.

In 2009, the government awarded a 30-year concession for the operation of the country's railway network to Toll Royal Railway, a joint venture between Australia's Toll Holdings and Cambodia's Royal Group. Meanwhile, ADB and AusAID have provided funds for upgrading the railway infrastructure, specifically the following railway lines: the 254 kilometre South Line running from Phnom Penh to Sihanoukville; the 340 kilometre North Line running from Phnom Penh to Serei Saophoan; and the 48 kilometre "missing link" running from Serei

Saophoan to Poipet. Some funds have also been devoted to the construction of new freight terminals on the outskirts of Phnom Penh.

Thus, while donors fund the rehabilitation of railways, the concessionaire maintains the infrastructure and operates the trains. Toll Royal Railway plans to build a transport solution across the Mekong region and recognises that Cambodia and its railway network are critical to the Singapore Kunming Rail Line Project. The ideal aim is to design and deliver a fit-for-purpose, safe, economical and viable rail freight business that has the capacity to self-fund in the medium to long term. Confidence is high that this plan is doable on time and within budget. The first train to be operating on the newly renovated lines is set to be launched in the last quarter of 2010. Another objective is to establish the connectivity of railways and ports to the intermodal terminal in order to have a seamless logistical supply chain. This in turn will reduce the magnitude of road construction needed to be funded by the government. One other objective is the opening of free cross-border trade zones which will allow containers to travel quickly, safely and economically between a number of Asian countries.

The Railway Infrastructure: What the Private Sector Needs

Several needs ought to be addressed in order for private sector involvement in railway infrastructure development to be successful. At the top of the list is direct port rail access. The government needs to approve direct rail access from the Sihanoukville port container terminal. Another priority need is the introduction of tier 2 emission standards under ISO 8178. Further, the private sector needs more efficient and faster customs clearance. Containers must be able to travel by rail under bond. For road transport operators, vehicle registrations on a “user pays” basis could be considered. Fuel subsidies for the concessionaire are also requested. There is also a need for a more robust legal and regulatory framework. Rules on truck registration and fuel emissions for instance must be clearly laid out. Additionally, road

safety standards should be introduced, monitored and enforced. International standards for the roadworthiness of vehicles must be adopted. Non-compliant operations have to be stopped. With regard to cross-border customs and taxation of rail freight, agreements with neighbouring countries ought to be negotiated now. As for public relations, the government has to engage different sections of the public, particularly those that will be directly affected, into understanding the benefits of the rail project. As it currently stands, the concession agreement with Toll Royal Railway focuses on the transport of rail freight, not passengers. An agreement will have to be worked on in relation to passenger services.

Human capacity development is vital. Competency-based trainings have to be provided, including those that will enable better compliance with environmental best practices. Worker safety must also be a priority. Rules on the provision and use of personal protective equipment have to be introduced and enforced, so do those on pre-employment and periodic medical examinations to check on the health status of employees.

With each train that is introduced and efficiently operated, about one hundred truck journeys on Cambodia’s highways and arterial roads could be eliminated. With each railway wagon that is used, about 64 tonnes of freight on the southern line and 44 tonnes on the northern line could be transported. The benefits of developing Cambodia’s railways are obvious and huge. Now that the government has transferred the burden of railway development to the private sector, it is left with the assignment of settling the policy issues that bar the private sector from doing its part and the donors from seeing the fruits of their financial assistance. Unless urgent action is taken by the government to address these issues now, the private sector and donors would have spent over USD200 million dollars rebuilding a railway network that might never operate a commercially viable and sustainable rail freight train. Needless to say, immediate action is in order.

CDRI – Cambodia’s leading independent development policy research institute

📍 56 Street 315, Tuol Kork, Phnom Penh, Cambodia ✉ PO Box 622, Phnom Penh, Cambodia

☎ (855-23) 881-384/881-701/881-916/883-603/012 867-278 📠 (855-23) 880-734

E-mail: cdri@wicam.com.kh, Website: <http://www.cdri.org.kh>