CEB's COMMITMENTS	ACHIEVED
Reliability of Electricity Supply	
Quality of Electricity Supply	
Sustainable Electricity Supply	
Security of Electricity Supply	
Affordable Electricity Supply	

What is the Importance of an Integrated Electricity Plan?

The achievement of an Integrated Electricity Plan is measured with respect to key objectives set by a utility. The achievements of the Plan are weighted on the delivery of secure, reliable, quality, sustainable and affordable electricity supply.

CEB, so far, has indeed lived up to that promise!

A REVIEW OF THE IEP 2003–2012

Chapter 3

The Integrated Electricity Plan (IEP) 2003–2012 made it clear that *"in Mauritius, we do not have an abundant supply of natural energy resources; therefore we must plan carefully to ensure a reliable electricity supply that is also affordable and sustainable"* so as *"...to guide Mauritius to a more stable electricity future."*

The cornerstones of the IEP 2003–2012 were *"to optimise the use of the existing power system, to keep electricity prices as low as possible through least-cost capacity expansion, to encourage our customers to participate in energy efficiency and conservation, and to provide for continued private sector opportunities in the electricity sector."*

CEB prepared the IEP 2003-2012 on the assumption that by 2012, the demand for electricity would grow to about 1.6 times of its 2002 level, while, at the same time, the capability of its existing generation resources would be diminished, both in Mauritius and Rodrigues, as it would retire its older generating units. Below is an overview of the targets set in the IEP 2003-2012 and the achievements made over that planned period.

It was forecasted that by 2012, the demand for electricity would reach 2436 GWh. Table 3.1 below provides an insight into the demand evolution over the period 2002–2012.

TABLE 3.1: Annual Electricity Demand (Growth Rate and Quantity)

	PLANNING PERIOD 2002–2012	
	TARGETED	ACTUAL
Annual Demand Growth Rate (%)	5.0	4.5
Average Approx. Increase in Annual Demand (GWh)	90	80

The 0.5% (targeted 5% less actual 4.5%) shortfall in the expected growth of the electricity demand could have been the result of a combined effect of slow economic growth, energy saving and *technical efficiencies**.

To accompany the forecasted annual demand, an action-plan was prepared. How far the initiatives/projects, earmarked in the action-plan, have been achieved is explained below.

It is important to point out that in response to emerging changes, which occurred during the period 2003 to 2012, new or modified initiatives/projects were thus implemented.

INITIATIVES/PROJECTS	DESCRIPTION	ACHIEVEMENTS
DEMAND		
DEMAND-SIDE MANAGEMENT	Launch pilot project in each customer segment for time-of-use pricing.	A comprehensive study was carried out in 2012. The introduction of the *time-of-use** tariff will be considered in the next tariff review.
ENERGY EFFICIENCY PLANNING	Conduct sensitization campaigns to motivate energy efficiency, conservation, and shifting demand from peak to off-peak hours. Continue to work with UNDP and stakeholders on energy efficient building design. Collaborate with other institutions to identify market barriers to energy efficiency.	Sensitization campaign started in 2005 with the support and collaboration of the MEPU. Much progress has been made under this item. With the setting up of the EEMO, most of the initiatives are now being handled by them.

* *See glossary*

INITIATIVES/PROJECTS	DESCRIPTION	ACHIEVEMENTS
DEMAND		
DOMESTIC ENERGY SAVINGS	Continue to support Rodrigues' pilot project for energy efficient lighting, extending project reach, if cost effective. Promote use of good quality energy saving lamps.	An energy savings booklet was distributed to every household for free in 2006. In total, one million CFLs were distributed in Mauritius and Rodrigues in 2008/2009.
TARIFF STRATEGY	Continue with development of 5-year tariff strategy for release in mid–2004. Develop wheeling and stand-by supply tariffs based on Cost of Supply methodology.	A fully-fledged tariff restructuring study was completed in 2008. Implementation has been kept on hold for the time being.
NETWORK LOSSES*	Proceed with loss measurement program. Identify and implement viable loss reduction projects.	Started, but still in progress.
GENERATION		
NEW RESOURCES	Issue a Request for Proposal in December 2003 for 60 MW to 70 MW of new generating capacity fired by 'bagasse' and complementary fuel. First 30 MW to 40 MW to be developed for the earliest in-service date in 2006 and the second 30 MW to 40 MW for January 2008.	Request-For-Proposal (RFP) was launched in 2003 for a 30 MW capacity power plant. 'Compagnie Thermique Du Sud' (CTDS) Power Plant at Saint Aubin was subsequently commissioned in 2005. CTSav coal-'bagasse' power station was commissioned in 2007.
SAINT-LOUIS POWER STATION	Continue with feasibility assessment for the addition of 30 MW to 40 MW of heavy fuel oil-fired units. Apply for *Environmental Impact Assessment** (EIA) licence by November 2003.	Re-development of the Saint-Louis Power Station made. Three medium speed diesel engines of 13.8 MW each were commissioned in 2006.
PORT MATHURIN POWER STATION	Develop a retirement strategy for MWM units and spare holdings.	Still under consideration. Operation of the units will be minimised. They are being kept for emergency purposes.

** See glossary*

INITIATIVES/PROJECTS	DESCRIPTION	ACHIEVEMENTS
GENERATION		
POINTE MONNIER POWER STATION	Continue Phase 1 development for late 2004 in-service date. Prepare for Phase 2 development, with next new unit for late 2005 in-service date.	Phase 1 (2x1.9 MW) completed in 2004 and Phase 2 completed in 2012, with addition of one 2.5 MW unit.
FORT VICTORIA POWER STATION	Develop a retirement strategy for Mirrlees units and spare holdings.	Re-development of the Fort Victoria Power Station carried out. Mid–2012 saw the commissioning of 90 MW (6x15 MW) medium-speed diesel engines. The coming into operation of these new engines has enabled the retirement of the old less efficient FIAT and Mirrlees engines and would help in meeting the demand until 2014.
RENEWABLE TECHNOLOGIES	Commission wind farm at Trèfles for supply to Rodrigues' grid starting in December 2003.	Completed. Four additional wind turbines were installed at Grenade in Rodrigues. The total installed wind capacity has reached 1.28 MW.
TRANSMISSION		
TRANSFORMERS	Increase power transformer capacity of Rose Hill and Combo substations in the second half of 2004.	Power transformer capacity of Rose Hill substation (now referred to as Ebène) has been increased from 60 to 105 MVA. Increase in transformer capacity was not necessary at Combo substation.
	Add 66 kV-to-22 kV transformer at Nicolay by the end of 2005.	*Load** growth in the region has been supplied by nearby substations. As such, the third transformer was not required.
TRANSMISSION BACKBONE	Commission Champagne-Union Vale 66 kV line by the end of 2004.	17.5 km line has been constructed linking Champagne and Union Vale substations and commissioned in 2003.
	Combo-Le Morne and Henrietta-Le Morne 66 kV lines in the second half of 2005.	98% of the construction completed.

** See glossary*

INITIATIVES/PROJECTS	DESCRIPTION	ACHIEVEMENTS
TRANSMISSION		
TRANSMISSION BACKBONE	Achieve security of supply by closing the ring Champagne-Union Vale-Combo in mid-2005.	Completed in 2005.
	Begin the commissioning of the back-up 66 kV Amaury-Sottise line.	Due to right-of-way problems and higher investment cost with undergrounding system, this proposal was revised. Instead, the back-up transmission line will be constructed from Belle-Vue.
	Continue to monitor transmission system performance reliability requirements, investigating possible need to upgrade sections of line from 66 kV to 132 kV operations.	Regular studies of the transmission network are performed in-house to ensure *reliability**.
SUBSTATIONS AND BULK SUPPLY POINTS	Commission Dumas and Sottise substations in December 2003	Dumas and Sottise commissioned in 2003 and 2005 respectively.
	Amaury and Union Vale in 2004, and Le Morne in late 2005.	Amaury substation was commissioned in 2002. Union Vale substation was commissioned in 2008 with only one power transformer. A second transformer will be commissioned in early 2013. The proposed Le Morne substation has been relocated to Case Noyale. Delays have been caused due to right-of-way issues associated with the transmission lines*.
	Prepare to commission Beau Champ substation in 2006.	Now known as Anahita, the substation was commissioned in mid-2009. Power transformers commissioned in 2012.
CAPACITORS*	Install capacitor banks at Henrietta and La Chaumière substations by mid–2004.	12 MVAr and 9 MVAr have been installed at Henrietta and La Chaumière respectively. The Amaury, Sottise, Wooton and Ebène substations were also equipped with capacitor banks.
COMMUNICATION AND PROTECTION	Implement fibre optic cables for data communications in place of microwave.	The southern and western sections of the network are at the implementation stage.

** See glossary*

INITIATIVES/PROJECTS	DESCRIPTION	ACHIEVEMENTS
TRANSMISSION		
COMMUNICATION AND PROTECTION	Establish links between 66 kV substations for *tele-protection relaying** . Introduce unit protection for the short transmission lines between Dumas, Fort George, and Nicolay substations by end 2003 and between Saint--Louis, Rose Hill, and Wooton substations in 2004.	Only Dumas, Fort George and Nicolay have been equipped with *unit protection** on their transmission lines.
RIGHTS-OF-WAY	Identify property, servitudes, and rights-of-way needs to ensure availability for future substation and network development.	Riche Terre, La Tour Koenig and Le Morne (Case Noyale) are at implementation stage, while the Amaury, Union Vale, Beau Champ (Anahita), Sottise and associated transmission lines have been commissioned.
MAJOR SUBSTATIONS	Commission new 22 kV switchboard at Rose Hill-Ebène and Saint Louis, with additional feeders, in 2004.	New 22 kV *switchboard** with additional *feeders** already commissioned in 2004.
	Complete the replacement of the 22 kV switchboard at the Nicolay substation with extension for new feeder in 2005.	CEB retrofitted the 22 kV panels, instead of replacing them.
	Reconstruct Wooton 22 kV substation with new feeders in 2005.	Completed. An indoor 22 kV substation was constructed and commissioned in 2008.
NETWORK REINFORCEMENT AND REFURBISHMENT	Continue implementation of various projects, including undergrounding, upgrading from 6.6 kV to 22 kV, adding new feeders, and back-up supplies.	Various system reinforcements have been done throughout the medium voltage distribution network around the island. Conversion projects from 6.6 kV to 22 kV are in progress in the regions of Port Louis, Rose Hill, Vacoas, Quatre Bornes and Curepipe.
SWITCHING STATIONS* **(IDENTIFIED FOR UPGRADING TO BSPs)**	Commission switching stations, feeders, and network *reconfiguration** at Pailles, La Tour Koenig, and Riche Terre in 2004 and prepare for commissioning at Phoenix in 2006.	Given delays in projects, the commissioning dates for La Tour Koenig and Riche Terre have been re-scheduled for 2014. Expected industrial development in the region of Phoenix did not materialize. Upgrading of Wooton substation has enabled CEB to meet increasing demand.
DISTRIBUTION		
AUTOMATED METER READING* **(AMR)**	Introduce AMR systems for 2,000 largest customers, starting 3-year phased program in 2004.	As at the end of October 2012, 1025 of CEB's largest customers have been moved onto the AMR platform.

** See glossary*

INITIATIVES/PROJECTS	DESCRIPTION	ACHIEVEMENTS
DISTRIBUTION		
RODRIGUES	Commission two underground circuits linking Pointe Monnier Power Station to Port Mathurin Power Station by late 2004.	Completed in 2004.
	Commission Petite Réserve switching station in 2004, with new interconnector to Port Mathurin Power Station in 2005.	The construction of the switching station has been delayed due to administrative reason. It is now planned for 2015.
ENVIRONMENTAL AFFAIRS		
GREENHOUSE GAS	Continue to monitor policy developments and offset opportunities locally and internationally.	Some strides have been made as part of mitigation measures, such as promoting the use of renewable energies and efficient appliances and lighting.

** See glossary*