

BELIZE FACTS AND FIGURES

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Electricity

Electrical power is transmitted via 3 main distribution lines in the country. The power transmission system consists of 199 miles of 115 kV lines and 132 miles of 69 kV lines. These lines are from:

- Corozal to Ladyville (115 kV)
- Belize City to San Ignacio (115 kV)
- La Democracia to Punta Gorda (69 kV)

There is also a 34.5 kV submarine transmission line that takes power from Maskall to San Pedro.

Power supply to consumers is distributed at 110 Volts. In 2010, Belize Electricity Limited (BEL) serviced close to 77,000 accounts and consumers paid a Mean Electricity Rate of BZ \$0.44 per kilowatt hour of power. By 2013 there were 82,400 accounts and the Mean Electricity Rate was BZ \$0.48 per kilowatt hour of power. Much of the electricity is either imported from Mexico or produced at the 3 Macal River and Rio Grande River hydroelectric power plants. BELCOGEN is another source of renewable electrical energy. There are fossil fuel generators maintained by Blair Atoll Power Company Limited and the BEL's Caye Caulker station.

Imported electricity

Belize imports between 40-60% of its electricity from the Comisión Federal de Electricidad (CFE) of Mexico. This

electricity is fed from power stations in Merida. To access this power, Belize is connected to the Xulha Substation which also supplies Chetumal.

Local hydro-electricity

It has been known from the 1800s that Belize has the natural resources to produce electricity from the energy held in running water. The first facility to produce hydroelectricity in Belize was the dam at the village of Blue Creek in the Orange Walk District.

Starting in 1996, the Mollejon Run-Of-River facility started producing electricity with three hydroelectric turbines powered by the force of the Macal River.



Figure 1: The Vaca Dam, Cayo District.

This was expanded in 2005 with the commissioning of the Chalillo dam facility which has 2 turbines.

In addition to the existing facilities, the Vaca Dam project came online in 2010.

| Facility | Power (Megawatts) |
|----------|-------------------|
| Chalillo | 7 |
| Mollejon | 25 |
| Vaca | 19 |

Table 1: Power rating of the 3 hydroelectric facilities on the Macal River.

Another hydroelectric facility which started operations in 2007 is the HydroMaya facility in the Toledo District. This company also sells electricity to BEL.



Figure 2: Electric generators at the Chalillo hydroelectric facility.

Solar electricity

It has been estimated that sites in Belize are exposed to between 4.89 to 9.50 kWh/m² of solar energy per day and a number of establishments have installed photovoltaic panels for the conversion of this solar radiation into electricity. Two of the leaders in this field have been the University of Belize and the duPlooy's Jungle Lodge/Belize Botanical Gardens which have installed modern systems. The Corazon

Creek High School is another large scale user of solar electricity. It is said that solar power is cheaper than diesel as a source of electricity at off-grid locations in the country.



Figure 3: Solar panel array at duPlooy's Jungle Lodge.

A 350 Kilo Watt Peak solar system produces a power output between 1,000 and 1,400 Kilo Watt hours of electricity per day.

An initiative has been proposed to construct 15 Megawatts of solar electricity capacity at Corozal, Ladyville and Placencia.

Biomass energy¹

The major player in the biomass energy sector in Belize is BELCOGEN. BELCOGEN is located at the Tower Hill Sugar Factory and combusts bagasse (the waste produced when sugar is extracted from sugarcane) as a source of heat to produce steam. This steam is then used to turn 2 large turbines which produce electricity. The capacity of BELCOGEN is 13 Megawatts.

¹ Besides the conversion of biomass to electricity, there is a sector which uses wood to produce white-lime (calcium oxide) from calcium carbonate rocks. This is done by heating the rocks to very high temperatures using firewood. This industry is concentrated in the area of St. Margaret's Village on the Hummingbird Highway.