

## CASE STUDIES

### Mauritius Central Electricity Board

Gilkes have supplied 36 turbines to Mauritius from as far back as 1902 and have since provided a range of plant modernisation service to rehabilitate the installations back to their optimum working levels.

Gilkes turbines have an unparalleled life span. However, at some point during the life of a hydro scheme, there will undoubtedly come a time where plant modernisation will be required and certain aspects will have to be replaced, refurbished or upgraded.

#### Cascade Cecile, Mauritius **KEY STATISTICS**

**Turbine type:** Series III Francis  
**Total Power Output:** 1119 kW  
**Runner Diameter:** 19.5"  
**Net Head:** 73m

**Flow:** 1.867 m<sup>3</sup>/secs  
**Speed:** 1000rpm  
**Installed:** 1961

Located in the southern highlands, Cascade Cecile utilises the water of Riviere des Anguilles, made available at 73m head, to operate a single Francis turbine.

#### Plant Upgrade Services:

2005: Regovernoring of turbine (new hydraulic cylinders on spear valve and deflector, new HPU), new control panel including electronic governor, new 6.6kV Switchgear, new 1MW Generator, new MIV, Head level control equipment

2006: New turbine runner, shaft and bearings

2007: Supply of strategic spares - Control panel & transducers, Hydraulics, AVR, PLC, Excitation equipment.



#### La Ferme, Mauritius **KEY STATISTICS**

**Turbine type:** V.L.H.H.S Spiral Case  
**Power Output:** 1275 kW  
**Runner Diameter:** 24"  
**Net Head:** 111m

**Flow:** 1.391 m<sup>3</sup>/secs  
**Speed:** 1000rpm  
**Installed:** 1957

#### Plant Upgrade Services:

2009: Regovernoring of turbine (new hydraulic cylinders on spear valve and deflector, new HPU), Supply of new MIV (weight to close spherical valve and by-pass), new chamber facings, new runner, new guide vane set, new wearings, new turbine shaft.

2010: Turbine Bearing refurbishment, new panel for control of turbine including electronic governor, 6.6kV Switchgear and New Generator - 1.5MVA 6.6kV



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# GILKES

### Le Val, Mauritius **KEY STATISTICS**

**Turbine type:** 2 x Twin Jet Turgo

**Power Output:** 2125 kW

**Runner Diameter:** 31"

**Net Head:** 181m

**Flow:** 1.403 m<sup>3</sup>/secs

**Speed:** 600rpm

**Installed:** 1956

Le Val is the fourth dam-based station. The station gets its water from Eau Bleue reservoir, which has a storage capacity of 4.1Mm<sup>3</sup>.

#### Plant Upgrade Services:

2009: Regovernoring of turbine (new hydraulic cylinders on spear valve and deflector, new HPU), Supply of new MIV (weight to close spherical valve and by-pass)

2010: Supply of 2 off panels for control of turbines including electronic governor and 2 off New Schneider 6.6kV Switchgear panels.

2011: 2 off wall/side mounted panel fitted with ABB UniTrol AVR

2012: Supply of strategic spares - Generator bearing shells, turbine journal pads, turbine thrust pads



### Tamarind Falls, Mauritius **KEY STATISTICS**

**Turbine type:** Single Jet Turgo

**Total Power Output:** 3206 kW

**Runner Diameter:** 30"

**Net Head:** 273m

**Flow:** 1.438 m<sup>3</sup>/secs

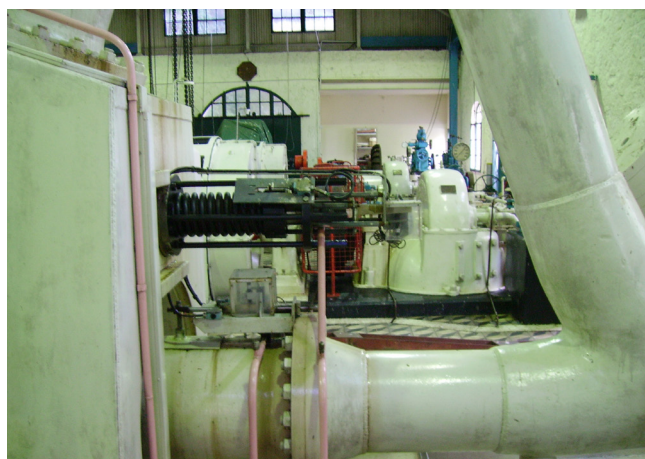
**Speed:** 750rpm

**Installed:** 1948

The station was established with a 250kW turbine, back in the year 1903, in the western part of the country. The dam has a capacity of 2.25Mm<sup>3</sup>. Its water is brought through two 1.4km long penstocks, generating a gross head of 290m. The power house operates four turbines, the two oldest being 2MW Turgo turbines installed in 1945-46. A 3MW Turgo turbine was installed by Gilkes in 1948, and a 4MW Pelton turbine in 1987.

#### Plant Upgrade Services:

2008: New turbine runner and shaft on the Gilkes supplied Turgo machine.



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