

## BRANTAS GBU (PT. PJB – Generation Business Unit)



BRANTAS



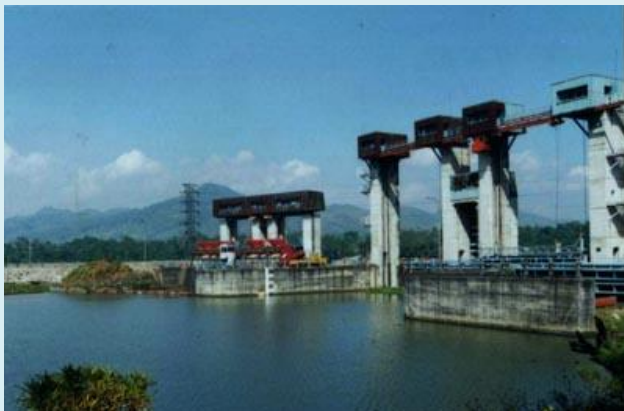
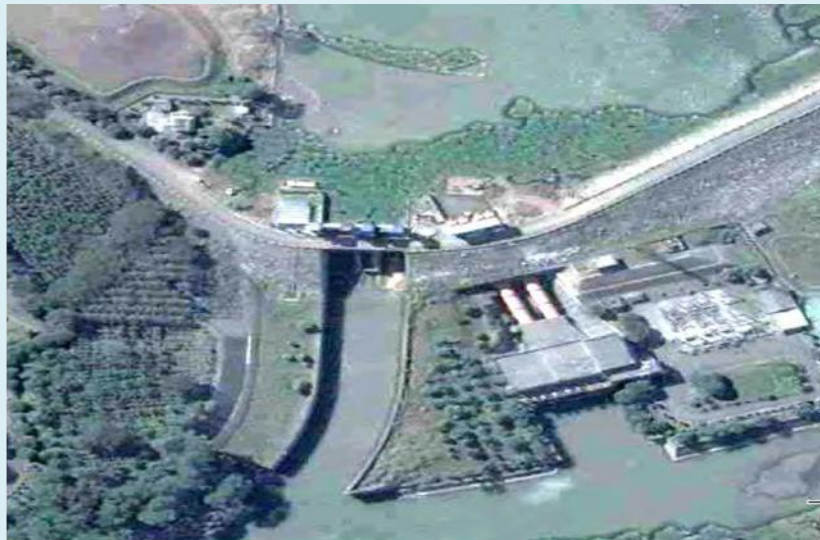
Brantas GBU operates 12 hydro power plant spreading along Konto River and Brantas River in East Java, most of which are of Dutch remnant. Total installed capacity of all existing hydropower Brantas GBU is 281.38 MW. Every year UP Brantas generates electricity energy approximately 1.033,56 GWh, channelized through Extra High Voltage Air Channel 500 kV to Java-Bali interconnection system.

Type	Hydro Power Plants
Area	East Java – Indonesia
Kind of Fuel	Hydro
Power Capacity	<ol style="list-style-type: none"> <li>1. PLTA Sengguruh Unit 1 dan 2 = 2 x 14,50 MW</li> <li>2. PLTA Sutami / Karangates = 3 x 35.00 MW</li> <li>3. PLTA Wlingi = 2 x 27.00 MW</li> <li>4. PLTA Lodoyo = 1 x 4,50 MW</li> <li>5. PLTA Tulungagung = 2 x 18.00 MW</li> <li>6. PLTA Selorejo = 1 x 4,48 MW</li> <li>7. PLTA Mendalan Unit 1 = 1 x 5,60 MW</li> <li>PLTA Mendalan Unit 3, 4 dan 5 = 3 x 5,80 MW</li> <li>8. PLTA Siman Unit 1, 2 dan 3 = 3 x 3,60 MW</li> <li>9. PLTA Giringan Unit 1 dan 2 = 2 x 0,90 MW</li> <li>PLTA Giringan Unit 3 = 1 x 1,40 MW</li> <li>10. PLTA Golang Unit 1, 2 dan 3 = 3 x 0,90 MW</li> <li>11. PLTA Ngebel = 1 x 2,20 MW</li> <li>12. PLTA Wonorejo = 1 x 6,50 MW</li> </ol>
Owner	PT. Pembangkitan Jawa Bali (PT. PJB)
Shareholders	PT. PLN
Activity Since	See below
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## 1. PLTA Sengguruh Unit ( 2 x 14,50 MW)

Sengguruh Hydroelectric Power Plant located in the Sengguruh village, Kepanjen, Malang regency, East Java. Sengguruh dam gets water supply from Amprong and Lesti rivers. At the beginning of the construction of Sengguruh dam it was planned for hydroelectric power plant for peak loads and sediment control.

No. Unit	Turbine			Generator	COD	MW
	Manufacturer	Type	Serial Number			
1	Boving	Vertical Kaplan	n.a.	Ellin	1988	14.50
2	Boving	Vertical Kaplan	n.a.	Ellin	1988	14.50





## 2. PLTA Sutami / Karangkates = 3 x 35.00 MW

Karangkates dam or are now commonly referred as to Sutami dams located in Karangkates Village, District Sumberpucung, Malang regency, East Java. Dam where the water comes from the Brantas River was built by the government between the years 1975-1977 with funding of about U.S. \$ 37.97 million or Rp.10.093 billion to serve as a Hydroelectric Power Plant (HEPP), which has an installed capacity of 3x35 megawatts (MW) and capable of producing approximately 400 million kWh electricity per year.

To be able to reach the Karangkates dam relatively easy (using public transportation), because of its location on the edge of the highway-Blitar Malang, about 35 kilometers south of the city of Malang or 16 kilometers west of the tourism object of Kawi Mount.

No. Unit	Turbine			Generator	COD	MW
	Manufacturer	Type	Serial Number			
1	Toshiba	Vertical Francis	3600420A	Toshiba	1973	35.00
2	Toshiba	Vertical Francis	3600420B	Toshiba	1973	35.00
3	Toshiba	Vertical Francis	3600420C	Toshiba	1974	35.00





### 3. PLTA Wlingi = 2 x 27.00 MW

Located in Jegu village , Sutojayan district, Blitar regency, East Java



No. Unit	Turbine			Generator	COD	MW
	Manufacturer	Type	Serial Number			
1	Toshiba	Vertical Kaplan	3600762	Meidensa	1978	27.00
2	Toshiba	Vertical Kaplan	3600896	Meidensa	1980	27.00



#### 4. PLTA Lodoyo = 1 x 4,50 MW

Located in Serut, Kec. Kademangan Kab. Blitar 66161 Jawa Timur - Indonesia



No. Unit	Turbine			Generator	COD	MW
	Manufacturer	Type	Serial Number			
1	Toshiba	Horizontal Kaplan	3601219	Meidensha	1983	4.50

#### 5. PLTA Tulungagung = 2 x 18.00 MW

The Hydropower plant located in Sidem, Besole Village, District Besuki, Tulungagung - East Java is a hydropower utilizing potential of the water resources of the watershed of the Ngrowo river downstream in Parit Agung channel. Parit Agung channel is coming from the Parit Raya channel, Kalidawir, part of Brantas River and small rivers that channel lead down into the Parit Agung channel.

Currently Tulungagung hydropower is under the management umbrella of PT Power Jawa Bali - Brantas Generation Unit. This hydropower is designed with a vertical Francis type turbines with a maximum installed capacity of 2 x 18 MW. This hydropower is operated by applying a seasonal pattern of run-of-river. The average annual energy generated reaches approximately 184 GWh.

Since the first time operation of the company in 1993, Tulungagung hydropower already has a role as a major supporter of 70 kV power lines in the southern part of East Java, which covers an area of Tulungagung, Trenggalek, Ponorogo, and Pacitan.

No. Unit	Turbine			Generator	COD	MW
	Manufacturer	Type	Serial Number			
1	Voest Alpine MCE	Vertical Francis	MB9-097/1	Ellin	1993	18.00
2	Voest Alpine MCE	Vertical Francis	MB9-097/2	Ellin	1993	18.00







## 6. PLTA Selorejo = 1 x 4,48 MW

The Selorejo dam is located in the village Selorejo, Ngantang district, Malang regency. Location of the dam is at Kunto river, Brantas river, just below its meeting with the Kwayangan river, ± 50 km to the west of the city of Malang. The development of Selorejo Dam is conducted from 1963 to 1970. Implementation of initial development was P.N. Wisata Karya under the Directorate of Irrigation, Public Works Department and Electricity by the supervision of the Department of Irrigation of East Java Province, then in 1965 followed / carried out by the BAPRO BRANTAS (by force account). Kajima Construction Co., Ltd. and Overseas Construction Co., act as mentors in the field / guidance under the supervision of Nippon Koei Co., Ltd.. Work completed hydropower in 1972.



No. Unit	Turbine			Generator	COD	MW
	Manufacturer	Type	Serial Number			
1	Ebara	Vertical Kaplan	R.111019-01	Meidensha	1973	4.48



## 7. PLTA Mendalan Unit = 1 x 5,60 MW + 3 x 5,80 MW

Mendalan Hydroelectric is located about 3 km downstream Selorejo dam, exactly in Pondok Agung village Kasembon district, Malang regency, East Java (about 60 km north west of the city of Malang) at an altitude of  $\pm 427.50$  m above sea level and surrounded by mountains.

This hydropower utilizes water potential Konto river (out flow) from Selorejo hydropower accommodated in water pond, then channeled through the penstock to turn a turbine. Hydroelectric Mendalan founded by the Dutch government in 1927, the building is a legacy of the Dutch called NIWEM (Nederlandsch of Indische Water Kracht Electriciteit Maatschappij) and operational in 1932.

At that time Mendalan have 4 generating units with an installed capacity of 5.6 MW, with the brand Oerlikon. About 1949 Mendalan Hydropower did not escape from a battle that resulted in the destruction of the four units. In 1953 the Dutch made repairs, almost all of the equipment was broken so Dutch merge tools that can still be used from the four units turned out to be one unit with a same capacity that was 5.6 MW, and plus the manufacture of 3 units with a capacity of 5.8 MW, branded Schorch. Because at that time the Dutch recognized Indonesian sovereignty which is then Mendalan hydropower was handed over to PLN dated December 30, 1957. Until now, the four units are operating.





No. Unit	Turbine			Generator	COD	MW
	Manufacturer	Type	Serial Number			
1	Escher Wyss	Horizontal Francis	8261	Oerlikon	1930	5.60
2	Stork Holland	Horizontal Francis	7703	Schorh	1955	5.80
3	Stork Holland	Horizontal Francis	7704	Schorh	1955	5.80
4	Stork Holland	Horizontal Francis	7705	Schorh	1955	5.80

## 8. PLTA Siman = 3 x 3,60 MW

Siman Hydropower is one of the plants in the border of Kediri and Malang district. Siman hydropower capacity is 3 x 3.5 MW. Siman Hydropower is supplying electricity for the around area (Siman, Kepung, Puncu) and Sekar Putih Mojokerto substation.



No. Unit	Turbine			Generator	COD	MW
	Manufacturer	Type	Serial Number			
1	Escher Wyss	Vertical Francis	9565	BBC	1955	3.60
2	Escher Wyss	Vertical Francis	8356	Oerlikon	1931	3.60
3	Escher Wyss	Vertical Francis	8359	BBC	1955	3.60

## 9. PLTA Giringan = 2 x 0,90 MW + 1 x 1,40 MW

Giringan hydropower located in Kepel Village, Kare distric, Madiun regency, East Java.





No. Unit	Turbine			Generator	COD	MW
	Manufacturer	Type	Serial Number			
1	Strok Hengelo	Horizontal Francis	2788	Smith.S	1955	0.90
2	Strok Hengelo	Horizontal Francis	2788	Smith.S	1955	0.90
3	Strok Hengelo	Horizontal Francis	N1.000	Heemaf	1937	1.40

## 10.PLTA Golang Unit 1, 2 dan 3 = 3 x 0,90 MW

Golang Hydro power is located in Kuwiran village, Kare district, Madiun regency, East Java



No. Unit	Turbine			Generator	COD	MW
	Manufacturer	Type	Serial Number			
1	Neyrpic	Horizontal Francis	n.a.	Alstom	1959	0.90
2	Neyrpic	Horizontal Francis	n.a.	Alstom	1959	0.90
3	Neyrpic	Horizontal Francis	n.a.	Alstom	1959	0.90

## 11.PLTA Ngebek = 1 x 2,20 MW

Ngebek Hydropower is located in Wagir Lor village, Ngebek distric, Ponorogo regency, East Java





No. Unit	Turbine			Generator	COD	MW
	Manufacturer	Type	Serial Number			
1	B. Maier	Horizontal Francis	2037	AEG	1968	2.20

## 12. PLTA Wonorejo = 1 x 6,50 MW

Wonorejo hydropower is located in Wonorejo village, Pagerwojo district, Tulungagung regency, East Java



No. Unit	Turbine			Generator	COD	MW
	Manufacturer	Type	Serial Number			
1	Toshiba	Francis, VF-1RS	A 107481	Toshiba	2001	6.50

Sources :

1. <http://www.ptjib.com>
2. <http://www.pln.co.id/>
3. PLN power plant inventory list
4. Other websites