

Through the generation of electricity using a renewable energy source, the project activity will generate Certified Emission Reductions (CERs) by displacing electricity generation (in an equivalent amount) that would occur by existing grid-connected electricity generation facilities within the National Electricity Grid of Brazil and new additions of power generation sources (incl. fossil fuel-fired power plants). The project activity thus generates sustainable and clean electricity for Brazil's increasing energy demands resulting from rapid economic growth.

Environmental aspects and other contribution of the project activity towards Sustainable Development locally and in the whole host-country Brazil:

Electricity generation from renewable energy sources has an important contribution to overall reduction of CO₂ emissions. Brazil's electricity has been supplied mostly by large hydropower plants. The table below shows the distribution of power plants by type as reported by ANEEL, Brazil's electricity regulatory agency.

Brazilian Energy Matrix – Operating plants							
Type		Installed capacity			Total		
		number of plants	(kW)	%	number of plants	(kW)	%
Hydro		870	80,024,790	67.19%	870	80,024,790	67.19%
Gas	Natural	93	11,050,530	9.28%	128	12,341,813	10.36%
	Process	35	1,291,283	1.08%			
Petroleum	Diesel oil	824	3,992,543	3.35%	853	6,516,346	5.47%
	Residual oil	29	2,523,803	2.12%			
Biomass	bagasse	312	5,957,146	5.00%	382	7,605,701	6.39%
	black liquor	14	1,240,798	1.04%			
	wood	40	327,827	0.28%			
	biogas	9	48,522	0.04%			
	rice husk	7	31,408	0.03%			
Nuclear		2	2,007,000	1.69%	2	2,007,000	1.69%
Mineral Coal	Mineral coal	9	1,594,054	1.34%	9	1,594,054	1.34%
Wind		46	835,336	0.70%	46	835,336	0.70%
Imports	Paraguay		5,650,000	4.74%		8,170,000	6.86%
	Argentina		2,250,000	1.89%			
	Venezuela		200,000	0.17%			
	Uruguay		70,000	0.06%			
TOTAL		2,290	119,095,040	100%	1,707	119,095,040	100%

Table 1 – Brazilian Energy Matrix – operating plants

Source: ANEEL, Oct, 2010 - <http://www.aneel.gov.br/aplicacoes/capacidadebrasil/OperacaoCapacidadeBrasil.asp>

At the time of the project design initial conceptualization, even though there was still untapped potential for large hydro projects in Brazil, the remaining potential projects were located in the Amazon region where environmental impacts are relatively large and the locations are extremely far from the grid. In the country's Southeast region, where most consumption takes place, there are no remaining, large (>100 MW) potential sites⁷. Although most of the electricity generated from hydropower plants, the country's electricity matrix expansion includes a larger participation of fossil fuel thermal power generation. At that time, another 72 large plants with 22.4 GW installed capacity would start operating within the next three years. Of these, 51 plants would be fossil fuel thermal

⁷ Source: Plano Nacional de Energia, 2030, EPE - http://www.epe.gov.br/PNE/20080512_3.pdf, pg 15-54

plants (coal and gas) with more than half of the new capacity. Brazil's national energy plan foresees that by year 2030 hydropower will account for 78% of installed capacity compared with 90% today⁸.

The project activity has some positive impact on the environment, introduce economic benefits to the region and contribute significantly to the region's sustainable development by providing:

- Supply of sustainable electricity to meet growing energy demand
- Employment of 300 workers directly and 1,200 indirectly during the construction phase of the project and 20 local workers directly during the operational phase
- Reduction of pollutants such as sulphur dioxide, nitrogen oxides and particles resulting from electricity generation via fossil fuels

The main GHG emission source of the National Interconnected Power System is fossil fuel thermal power plants. In the absence of the project activity, equivalent amount of electricity is assumed to be generated by grid-connected power plants (including fossil fuel-intensive electricity generation sources). It is assumed that the operation of the project activity promotes no GHG emissions and, therefore, contributes to the reduction of GHG emissions and helps on meeting the country's electricity demands for economic growth using sustainable renewable sources.

Central Elétrica Anhanguera S.A. is the project proponent in this CDM-PDD. It is a company created by SEBAND (Sociedade de Energia Bandeirantes) and, at the time of the project design initial conceptualization, it had as partners: Volkswagen do Brasil and Pleuston Serviços Ltda (with the share structure: SEBAND 33%, Volkswagen 40% and Pleuston 27%). SEBAND is a small private group of investors with strong history in engineering capabilities.

GHG emission reductions to be achieved by the project activity during the 10-year fixed crediting period:

The project activity is expected to promote total GHG emission reductions of 357,860 tCO₂ during its 10-year fixed crediting period. This value is equivalent to an average annual GHG emission reduction of 35,786 tCO₂/year.

A.2. Location of project activity

A.2.1. Host Party

Federal Republic of Brazil

A.2.2. Region/State/Province etc.

State of São Paulo

A.2.3. City/Town/Community etc.

São Joaquim da Barra and Guará

⁸Source: Plano Nacional de Energia, 2030, EPE - http://www.epe.gov.br/PNE/20080512_2.pdf, pg 345