

## **Information update of the opportunities of CERs acquisition by CPFL**

### **NOVEMBER 2002**

#### **1. Objective**

Update the diagnoses studies of the opportunities of the opportunities of CERs acquisition by the Companhia Paulista de Força e Luz – CPFL and evaluate the following costs of the next steps.

#### **2. Applied guidelines**

It was applied as assumption; the main concern of CPFL is focused on the potential credits activities subsequent from electricity generation activities starting with hydro power plants, including the small power plants (SHPPs)

#### **3. Preview baseline**

It was applied at the realization of studies those preceded this update that the baseline of Brazilian electricity sector would be based on the expansion perspective of the generation park.

The installed capacity expansion was thou provided between the hydroelectric power plant and thermoelectric.

Based on these assumptions, the eligible actions of CER acquisition should be provided by two basic parameters:

- The expansion proportion of thermal origin related to all the interconnected electricity system expansion (in the opportunities, was identified a proportion of 41.9% for thermoelectric power plants).
- The second issue should be a balanced reducer with the Brazilian thermoelectricity park, admitting that in the period with good rainfall would be reasonable expects that the thermal despatch doesn't be full. It was used 3 scenarios: 90%, 60% and 30%.

This report will reevaluate the finding balance at the initial phase of the studies, keeping the 3-scenario criteria for the average despatch of the thermo power plant.

#### **4. Expansion scenarios and CPFL baseline**

For the proposal analysis development, it was applied the standard official information of the website [www.energiabrasil.com.br](http://www.energiabrasil.com.br).

The Figure 1 demonstrates the expansion evolution of the estimated generation infrastructure until 2004.

Generation Type	Installed Power (MW)		Estimation 2004 (MW)	
Hydro Power Plant	61,555	77%	69,448	67%
Thermo Power Plant	6,944	9%	17,024	16%
Nuclear Power Plant	1,966	2%	1,966	2%
Renewable Sources (wind, SHPP, Biomass)	2,345	3%	5,645	5%
SUBTOTAL	72,810	92%	94,083	91%
Itaipú Importation	5,500	7%	6,200	6%
Other importations	1,150	1%	3,438	3%
TOTAL	79,460	100%	103,721	100%

**Figure 1 – Installed capacity evolution in Brazil**

It should be added to these totals, the emerging contracted thermo power plants installed power to work as emerging capacity reserve, which the totals are detailed in Figure 2 below.

SUMMARY TABLE CONTRACTED POWER / AVERAGE ELECTRICITY			
Region	Contracted Power	Average Electricity 2002	Average Electricity 2003
Northeast (47)	1,554.5	850.6	1,399.1
Southeast (11)	599.1	314.9	539.2

**Figure 2 – Power Plants of emerging reserve**

According to the tables above is possible to verify that, taking out and the expansion from the importation that does not come from Itaipu, the total of the expansion forecast is 24.127<sup>1</sup> MW of capacity to be implemented until 2004. This total, the thermal generation capacity is 12.234 MW or 50.7% of all expansion.

Considering that the official data are updated until half of 2002, and from this currency imbalances, is reasonable understand that some thermo power plants might have its schedule delayed.

Using a conservative estimative, it is considered the applied value in the initial studies as feasible.

<sup>1</sup>emerging Thermo Power Plant included

I.e., keep valid the made conclusions by occasion of the initial report emission. In the opportunity, concludes the area of hydraulic generation had the expansion plan for its units, well concentrated in new works and in repowering of SHPPs. In the next paragraph, the text of report III, that detailed these power plants.

**Generation** – *The CPFL has in its generation assets the total of 19 Small Hydro Power Plants with 361,098 MWh/year of installed capacity. There is a plan of repowering under development, which will grow this total to 569,056 MWh/year, i.e. an additional value around 208,000 MWh/year. Besides that, the CPFL characterizes as a holding company of the investment group a hydro generation potential of 2,803 MW. This total is represented by the power plants detailed in the figure 3 presented below:*

POWER PLANT		INSTALLED POWER (MW)	EQUITY INVESTMENT CPFL (%)	ASSURED POWER (MW <sub>m</sub> )	MWh/year CPFL
Complexo CERAM	Castro Alves	130	100	64	560,640
	Monte claro	130	100	59	516,840
	14 de Julho	100	100	50	438,000
	HPP Barra Grande	708	50	380	1,667,028
	HPP Chapecó	855	40	432	1,513,728
	HPP Campos Novos	880	67	377.9	2,217,970
	SHPP				208,000
TOTAL					7,122,206

**Figure 3 – CPFL Hydro Power Plants**

Therefore, considering just the opportunities strand of CERs acquisition from hydro work, the CPFL would have its companies avoiding the generation of 142.444 GWh in 20 years that could be thermal. For this interpretation become feasible and with international credibility, use the reducer coefficients from the baseline and from the non-whole-despatch of the thermals.

Table - equivalent energy of Thermal Power Plant			
MW/year Storage 20 years	Scenario	Reducer Coefficient	MWh / 20 years
142,444,120	Optimistic	0.377	53,701,433
	Intermediary	0.251	35,753,474
	Pessimistic	0.126	17,947,959

**Figure 4 – hydro electricity that takes place of the thermal electricity MWh / years.**

Table - Credits from hydraulic power plants				
MWh	Scenario	CO2 tonnes	Price US\$ 3/tC	Price US\$ 5/tC
53,701,433	Optimistic	7,518,200	22,544,600	37,591,000
35,753,474	Intermediary	5,005,486	15,016,459	25,027,432
17,947,959	Pessimistic	2,512,714	7,538,142	12,563,570

Most optimistic scenario

Most pessimistic scenario

### Figure 5 – potential credits of carbon

Therefore, it is feasible according with the rules, expect a carbon credit potential for CPFL form only its companies of hydro generation changing US\$7.5 to US\$37.6 millions, always 20 to 20 years.

## 5. Next steps

In case of CPFL decide to initiate an objective process of the potential credits trade, must apply the next steps:

**Monitoring and Verifying Protocol** – documents that are used to guide and permit the validation of the international credibility of the third party. These documents are used to identify the procedures that permit the exactly quantity for the commercialization procedures of carbon credits.

**Stakeholders' engagement procedures** – public audience of social environmental validation, which the CPFL must give publicity to its intentions.

**Bidding for contract from a validation company with international public faith** to validate the number of diagnose and for the baseline itself.

**Acquisition of the Brazilian government authorization** – trade the CERs.

**Sell Process** – trading

## 6. Costs values of the next steps

**Monitoring and Verifying Protocol** – Sinerconsult; Cost: R\$25,000.00 (twenty five thousand reais)

**Stakeholders' engagement procedures** – Sinerconsult and CPFL. Cost-refund of the travels expenses of Sinerconsult.

**Bidding for contract from a validation company with international public faith** – assist of Sinerconsult to the bidding process and to the edictal elaboration, with no costs for CPFL. The hiring of the international validation company should cost around US\$25 to 30 thousand.



**Trading** – Sinerconsult can do these activities based on the risks, involving a prize of 10% of the trade values.