

Energy to Grow - A pilot project for Neoenergia

By Fanny von dem Bussche, Johanna Klein and Maria Elena Puerta Santos

As an important international player in the electricity sector, IBERDROLA is facing the global challenge of satisfying the energy needs of a growing world population and finding solutions to climate change.

With the advancing internationalization of the company, it becomes more and more essential to establish a clear attitude towards the sustainable development of the world. IBERDROLA has anchored Corporate Social Responsibility deep within its core. However, the companies via which IBERDROLA is operating in other countries are not yet as advanced concerning the implementation of CSR.

In Brazil, IBERDROLA is operating via the Neoenergia group.

With the development of a Pilot Project we are intending to advance the existing CSR activities of the Brazilian companies towards a strategic CSR. The pilot project aligns the activities of the companies and unites them under the focus of enabling energy access to remote rural areas and by that improving the quality of life.

Madrid in June 2008

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Abbreviations

ANEEL - Brazil's National Electricity Regulatory Agency
CCEE - The Electricity Commercialization Chamber
CDE - Conta de Desenvolvimento Energético
CDM – Clean development mechanism
CEO – Chief executive officer
CER – Certified emission reduction
CFC – Chloro fluoro carbon compounds
CFL - compact fluorescent light bulb
CGE - Crisis Management Board
CSR – Corporate Social Responsibility
EBITDA – Earnings before interest, taxes, depreciation and amortization
EPE – Energy Research Corporation
ELOS - Energia Local Organizada e Sustentável
FUNAI – Fundação nacional do Índio
GDP – Gross domestic product
GW - Gigawatt
IDB - The Inter-American Development Bank
IDEG - Institute for consumer defence
IEA - International Energy Agency
kw - Kilowatt
LAC – Latin American Countries
LED - light-emitting diode
LPG – Liquefied petroleum gas
MAE - Mercado Atacadista de Energia Elétrica
MDG – Millennium development goals
MW - Megawatt
NGO – Non governmental organization
ONS - The Operator of the National Electricity System
PIA - Autonomous Independent Producers
PROINFA – Brazilian Wind energy centre
PPT - Priority Thermal Power Program
RENOVE – National Network of Civic Organization for Renewable Energy
RGR - Reserva Global de Reversão
RPAP - Rural Poverty Alleviation Program
SEBRAE - Servicio Brasileño de Apoyo a Micro y Pequeñas Empresas
SIN - National Interconnected System
SME – Small to medium enterprises
TWh – terawatt hour
UN – United nations
USAID – United States Agency for International Development

1. Introduction

The electricity sector has a very vast impact on the development of global wealth, health, and safety and plays a key role in safeguarding the environment.

All eight millennium goals are directly interlinked with the access to qualitative energy. IBERDOLA is facing the challenge of developing solutions for climate change and at the same time coping with the growing population's rising energy demands.

In our project thesis we have analysed the strategic position of IBERDOLA, the IBERDOLA companies in Brazil, the context and mechanisms of the Brazilian electricity sector, the development targets and opportunities for Brazil and the role of CSR in the context of developing the electricity networks in Brazil.

The integration of Corporate Responsibility in the Brazilian companies directly enhances the possibilities to establish electricity markets and at the same time contributes to creating healthy communities in which the companies operate in.

When we started the project we realized that the efforts of IBERDOLA and its partner companies Neoenergia, Celpe, Cosern and Coelba in Brazil were rather advanced.

We looked at the market position, the possibilities for social involvement of the companies and the effects the companies have in the communities from a bird's perspective. With this approach we were able to identify a strategic focus for future CSR activities.

We used the advanced theoretical approach for CSR as a competitive advantage by Porter and Cramer to establish a strategic project guideline and to derive a project that will help to combine all the existing activities and will give room for further development.

We have developed a project that shows how an integrated approach creates a win-win situation for the company in the sense of discovering new opportunities and for the communities by contributing to wealth development.

With our project we strive to establish a pilot project that can be used as an example for understanding and developing strategic CSR packages for IBERDOLA for other markets.

2. The importance of energy supply for global development

Energy is one of the key factors contributing to sustainable development and poverty reduction. It is crucial to all aspects of development -social, economic and environmental- including the development of livelihoods, access to water, agricultural production, access to health and education, and gender related issues. The use of energy in economic production can improve social welfare and enables people to afford health and other social services.

The fulfilment of the Millennium Development Goals will not be possible without major improvements in quality and quantity of energy services in developing countries. The report “The Energy Challenge for Achieving the Millennium Development Goals” that has been published by the UN Energy programme presents specific recommendations for linking production and access to energy services to poverty reduction programmes and national MDG strategies and campaigns. For example to reach MDG 1, “Halve poverty and eradicate hunger”, much greater access to modern fuels and stoves to cook food and access to energy for modern irrigation technologies to improve agricultural output is required. Energy services greatly enhance food security, increase labour productivity and create employment. Fossil and biomass fuels power motorized transportation of goods between outlying areas and markets – and power agricultural activities that expand crop production.

By providing lighting that extends the workday and by powering machines that increase output, electricity supply enables poor households to engage in activities that generate income.

Electricity supply can increase these incomes by providing telecommunications that help farmers and industrial workers order inputs, market products, and keep track of prices.

An adequate and environmentally sound supply of energy is one of the pillars necessary for economic and social development.

Approximately 1.6 billion people worldwide do not have access to electricity. 2.4 billion cover their energy needs by using traditional biomass, such as firewood and charcoal. The latter are threatened by overuse of forests and deforestation in many areas. It is therefore an important development goal to establish a basic energy supply to improve living conditions and alleviate poverty.

The International Energy Agency (IEA) expects that a cumulative investment of 2.4 Trillion Us \$ until 2010, and an additional 7, 2 Trillion \$ until 2030 will be necessary. More than 70% of the primary energy demand will arise in developing countries. Following this investment

scenario the IEA expects that access to electricity will be expanded to about 2 billion people in developing countries. The electrification rate would in this case increase to 70% with an expected population growth from 4.6 billion to 6.6 billion. Following this set-up, the absolute number of people without access will decline slightly to 1.5 Billion in 2030.

1. Eradicate extreme poverty and hunger – electricity is essential to generate wealth inter alia to generate jobs, industrial activity, commerce and agriculture
2. Achieve universal primary education – electricity is needed for homes and schools; many children do not attend school in order to carry wood and water for the families
3. Promote gender equality and empower women – access to modern fuels eases women's domestic burden and allows them to pursue educational and economic opportunities
4. Reduce child mortality – diseases caused by unboiled water and respiratory illness caused by the affects if indoor air pollution from traditional fuels and stoves
5. Improve maternal health – lack of electricity in health clinics, illumination for night time deliveries, daily burden of fuel collection and transport by pregnant women
6. Combat HIV/AIDS, malaria and other diseases – electricity needed by doctors and nurses to deliver effective health services, media for education on diseases
7. Ensure environmental responsibility – cleaner energy systems are needed to address problems such as air pollution, local particulates, climate change
8. Develop a global partnership for development – partnerships between public, private and civil sector to deliver affordable, reliable and environmentally sustainable energy services

Table 1: Contribution of the electricity sector to the Millenium Development Goals (Own elaboration based on “The Energy Challenge for Achieving the Millennium Development Goals”)

2.1. The role of IBERDROLA in the context of sustainable development

The vision of IBERDROLA shows a clear positioning within the context of global sustainable development in the social and environmental context.

“We want to be the consumers’ company of choice, as a product of our commitment to creating value, improving people’s quality of life and safeguarding the environment.”

IBERDROLA is one of the five world’s leading private energy groups with a presence in approximately 40 countries and with more than 26.000 employees.

It is the leading energy company in Spain and the United Kingdom.

IBERDROLA has multiplied 4.5 times in size over the last seven years and increased its market capitalization from 12,000 million Euros to almost €52,000 million. The company operates in the energy markets of generation, distribution, renewables and engineering with a consumer base of 25 million people.

PRESENCE OF THE IBERDROLA GROUP IN THE WORLD

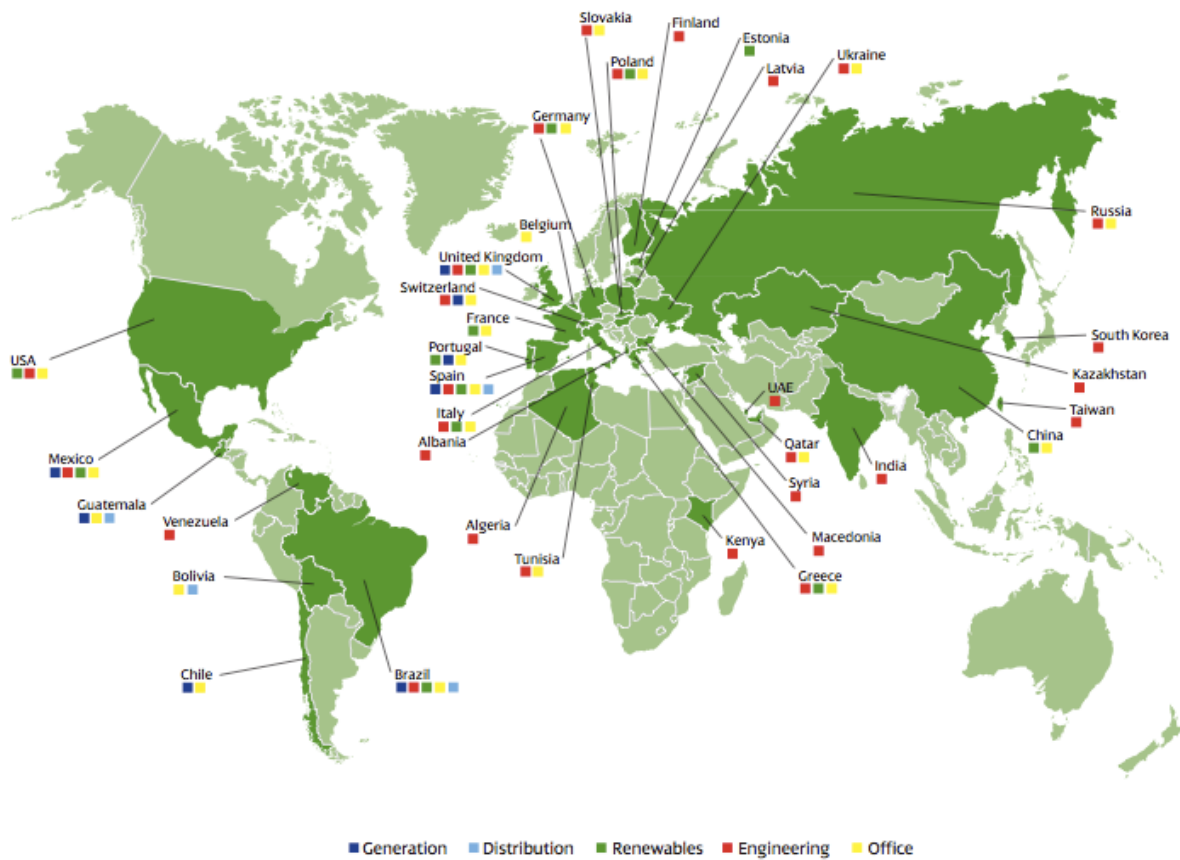


Table 2: Presence of the IBERDROLA Group in the world (from Sustainability Report 2007)

IBERDROLA and renewable energies

The total installed capacity of IBERDROLA is 42,516 megawatt of which 48% are emission free.

The production structure of IBERDROLA is made up of 30.8% combined-cycle, 22.8% hydro-electric, 18.1% renewable energy, 11.1% thermal, 7.9% nuclear, 6.8% fuel-oil, and 2.5% cogeneration.

Renewable energies hereby play an essential role for the future alignment of IBERDROLA.

The renewable energies are produced from wind, mini-hydroelectric, biomass and bio fuels as well as from the emerging technologies such as wave energy and solar thermoelectric.

IBERDROLA is currently the world leader in wind energy.

The strategic objectives and future alignment

The strategic plan for 2008 – 2010 shows a clear motivation to furthermore increase the commitment to sustainable development. In the plan, IBERDROLA allocates more than 24,000 million Euros worth of investments in IBERDROLA's core business, i.e., renewable energy, grids, and traditional generation, with a view to further consolidating its leading position in the energy business.

After stabilizing the existing business over the last years, in 2006 IBERDROLA announced its strategy of internationalization.

With the strong position in the markets Spain and Latin America, the acquisition of ScottishPower in 2007 in the UK, the agreement to acquire the US distributing company Energy East in 2008 and IBERDROLA RENEWABLES shares starting to be traded on the Stock Exchange, IBERDROLA increases its power and impact on the global energy market.

In this global context IBERDROLA is facing challenges from an environmental and a social point of view. Emissions increase rapidly mainly from the developing countries, energy resources become more and more scarce and at the same time the world population is growing at rapid pace. IBERDROLA is facing the responsibility of increasing the quality and access of energy supply at the same time as delivering the solutions to the global climate challenge.

These circumstances will result in increases in electricity prices over the next years.

The main pillars of IBERDROLA to meet these challenges for the next three years will be to increase the environmental and productive efficiency of existing energy supply, improve and expend the electricity distribution and to invest into renewable energies.



Table 3: The strategic guidelines 2008- 2010 (Sustainability Report 2007)

According to the important role of renewable energies for the development of sustainable and sufficient energy supply IBERDROLA will allocate its main investment of € 8.6 bn (48%) in this field over the next two years.

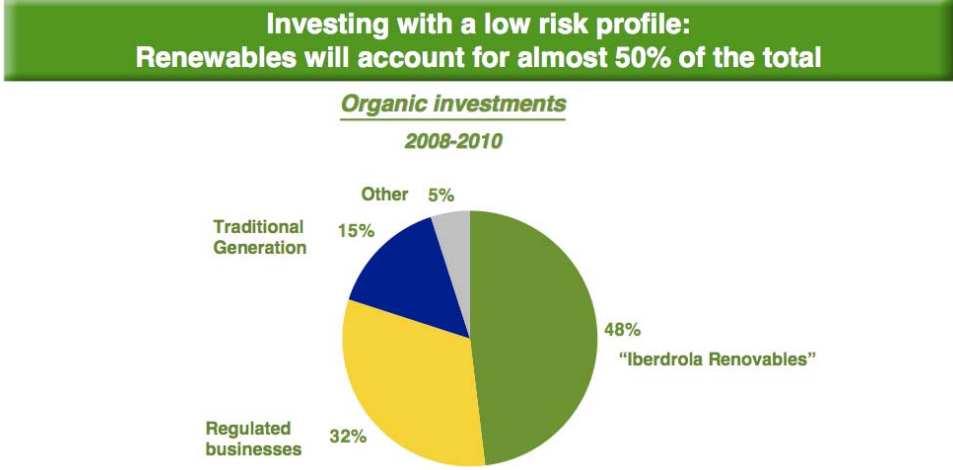


Table 4: Organic investments (Sustainability Report 2007)

The integration of CSR at IBERDROLA

At IBERDROLA CSR is part of the company’s purpose and integrated into a strong corporate governance model.

The Board of Directors has decided, as a general guiding principle, to include in the Company’s governance the principles and rules contained in the most widely recognized good governance recommendations and, in particular, has taken as a reference the Uniform Good Governance Code for Listed Companies [Código Unificado de Buen Gobierno de las Sociedades Cotizadas] approved by the National Securities Market Commission.

IBERDROLA has been a member of the Global Compact since 2002 and is supporting the Millenium Development Goals with the “Conoces a Joana” Programme, a website that promotes awareness about the MDGs and that has been launched by different international companies based in Spain.

The CSR activities of IBERDROLA are focussed on the quality of supply and the improvement of the access to energy. 1,300 million Euros have been invested by IBERDROLA to reach six million new points of supply of gas and electricity and to improve the quality of supply.

The core business of IBERDROLA is directly linked to the challenges of climate change and therefore the responsible treatment of the environment is key to all business decisions and

operations. IBERDROLA was chosen as “Best in Class” in the “Climate Leadership Index” and included in the “Dow Jones Sustainability Index” for eight years, with the best score in the electricity industry.

IBERDROLA has furthermore invested 50 million Euros in initiatives linked to social development and 65 million Euros in research and development.

26,000 people work at IBERDROLA, which implies a strong responsibility. IBERDROLA has invested on the reconciliation of professional and family life and was the first Ibex-35 company to implement compressed work days and flexible working hours. Furthermore it is a leader in training, with 810,000 hours.

The role of CSR at IBERDROLA becomes even more crucial when entering into markets in developing countries and engaging with governments and local communities.

3. IBERDROLA in Brazil

3.1. Market Entrance and current situation

Iberdrola entered the market in Brazil in 1997. It is the first electricity providing company in the North-East of Brazil and is operating via the holding of Neoenergía, where it currently holds 39% of the total shares. Neoenergía controls the following three companies: Coelba (Companhia de Electricidade do Estado da Bahia), Celpe (Companhia Energética de Pernambuco) and Cosern (Companhia Energética de Río Grande do Norte). It is also part of the combined cycle power plants of Termopernambuco and Termoacu, as well as the hydro power plant of Itapebi.

Iberdrola additionally has 6 cogeneration plants that are being operated by Energy Works Brasil, a 100% owned subsidiary.

3.2. General data of Neoenergía

Neoenergia was founded in 1997 and its corporate structure is made up of stakes held by the Banco do Brasil Pension Fund - Previ (Caixa de Previdência dos Funcionários do Banco do Brasil) with 49%, Iberdrola with 39% and the Banco do Brasil with 12%.

CORPORATE STRUCTURE



Distribution		Generation and Transmission		Commercialization	
87.8%	coelba	42%	itapebi	100%	nc energia
84.4%	cosern	100%	termope		
89.6%	celpe	87.8%	afluente		
		100%	goias sul		
		75%	rio pch I		
		51%	Consórcio LIME		
		60%	CORUMBÁ		
		51%	Águas de Pedra		
		34.3%	Termoáçu		

Table 5: Corporate Structure Neoenergia (www.neoenergia.com)

Regarding the total energy sales, the Neoenergia Group is the third largest private sector group in the Brazilian electricity sector. With each successive year, the Group has increased its investments in distribution, generation, transmission and commercialization and is currently active in seven states in Brazil. Main activities are in the states of Bahia, Pernambuco and Rio Grande del Norte where the group currently distributes electricity to 768 municipalities.

In the generation segment, the Group has a current installed capacity of 991.2 MW and is participating in projects (construction in progress) which will increase output by a further 437.4 MW. The quantity of electricity distributed to its customers was of 21,6 GW in 2007, which results in an increase of 6% since 2006.

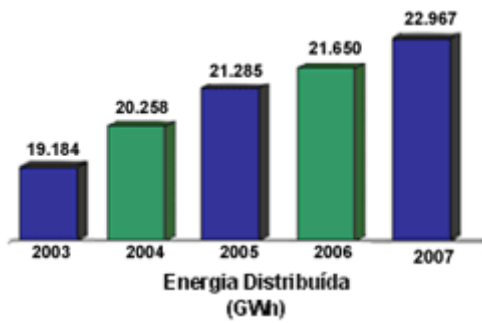


Table 6: Distributed Energy at Neoenergia (www.neoenergia.com)

Neoenergía is currently the Number one in Brazil related to the number of clients. The different group companies provided electricity to 7.8 Million consumers in 2007.

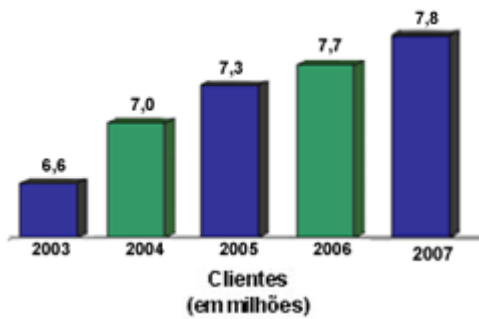


Table 7: Number of clients at Neoenergia (www.neoenergia.com)

The distributors, Coelba, Celpe and Cosern, and the generators, Itapebi, Termopernambuco and Afluenta are publicly held companies under the mandate of Neoenergía.

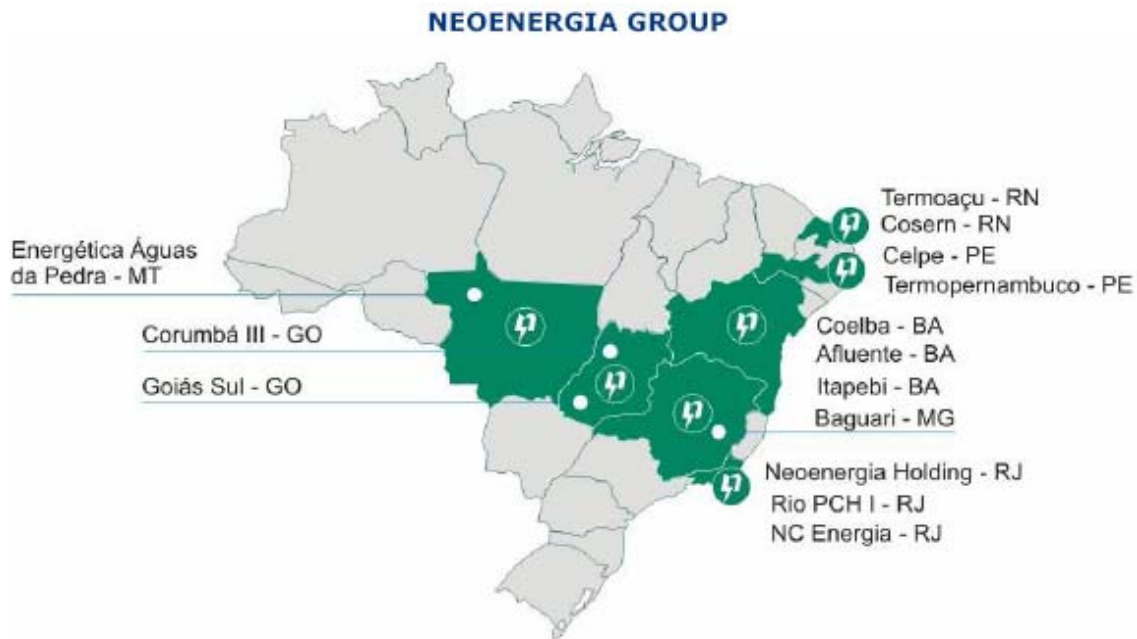


Table 8: The Neoenergia group in Brazil (www.neoenergia.com)

In 2006 Neoenergía controlled a total of 10 companies: Coelba, Celpe, Cosern, Itapebi, Termopernambuco, Afluyente, Goiás Sul, Baguari I, Geração CIII and NC Energia. Additionally Neoenergía acquired authorization to build seven new hydropower companies. It is holding a minority share of 37,6% in a thermic plant of 368 MW, that is being build in Rio Grande del Norte by Petrobás.

Neoenergía is currently employing 21,407 workers at its companies.

The total amount of assets of Neoenergía has been of R\$ 13225158 Million (5.256.876 Million €) in 2006. Investments have been at R\$ 1.171.461 Million (454.255 Million €). EBITDA in 2007 was R\$ 2607 Million (1.035 Million €), which reflects a 18% increase since 2006.

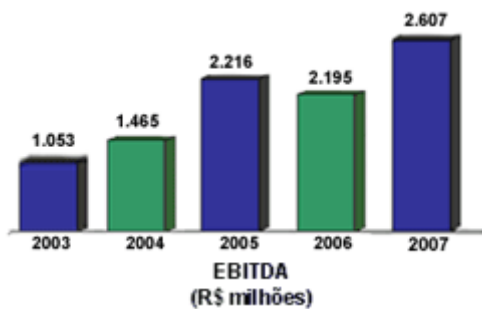


Table 9: Development of EBITDA (www.neoenergia.com)

The increase in EBITDA is reflecting a combination of energy volumes distributed to end consumers and tariff readjustments awarded to the distributors (Coelba, Celpe and Cosern), as well as a 60% expansion in energy sales to the short-term market.

On April 5th, 2007, Standard & Poors announced an increase in corporate credit rating for the Neoenergia Group's companies.

Main source of revenue for Neoenergia are residential energy consumers, followed by commercial energy consumers and industrial energy consumers.

Breakdown of Gross Operating Revenue 2Q07

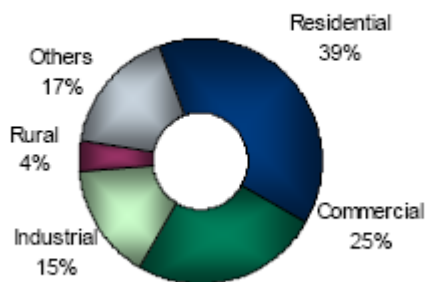


Table 10: Breakdown of Gross Operating Revenue (www.neoenergia.com)

The mission of Neoenergía is to be a reference group in the electrical sector. Neoenergía is constantly improving its profitability, quality, ethic behaviour and corporate social responsibility by at the same time contributing to the development of the country.

Its vision is become one of the forty biggest economic actors in the year 2011.

Basic principles for their ethical behaviour are the following:

- Maximize economic profitability, always considering aspects like corporate responsibility and the environment
- Promote transparency and commitment regarding the information provided about Neoenergía
- Satisfy all needs of the clients
- Continuously improve the processes
- Develop policies that fulfil the personal and professional expectations and stimulate a good working environment that is secure and productive, promoting management practices that enhance motivation, satisfaction and commitment of the workers

4. The electrical sector in Brazil

4.1. The market structure

The Brazilian electricity sector is fully deregulated.

The electricity is distributed via the regulated system in which consumers purchase electricity, at the tariffs defined by ANEEL (Brazilian Electricity Regulatory Agency) from their local distributor who, in turn, purchases electricity by public tender regulated by ANEEL.

And via the liberalised System in which electricity is traded between generating concessionaires, independent energy suppliers, self generators and free consumers. The potentially free consumers with a contract capacity of more than 3MW may choose to change their electricity supplier.

Brazilian generation supply can be sold under four types of markets. The “Old energy” auction contracts, which consist of the existing plants that were already contracted in the 1990s, and which account for 41 % percent of the market. The “New energy” auction contracts which consist of energy produced by plants that have not yet been built, or by existing plants that meet certain criteria.

Furthermore generation can be sold under Free-market contracts and Spot Market Sales.

4.2. The demand

Brazil, together with Chile, is the country with the highest electricity access rate in Latin America. The power sector in Brazil serves more than 50 million customers, which corresponds to about 97% of the country’s households, who have access to reliable electricity.

Brazil has the largest electricity market in South America, with a power consumption of 410 TWh. That is more than double the combined consumption of Argentina, Bolivia, Chile and Uruguay.

The shares of consumption by sector are 34% for residential, 25% for industrial, 22% Commercial, 6% for rural and 13% for public consumption.

Electricity demand is expected to grow at an average of 3.6% in the next few years, leading to a total estimated consumption of 504 TWh and average per capita consumption of 2,527 kWh (around 18% of that of the United States and 45% of that in the United Kingdom).

4.3. Responsibilities and regulatory bodies (ANEEL)

The Ministry of Energy and Mines has the overall responsibility for policy setting in the electricity sector, while ANEEL, which is linked to the Ministry of Mines and Energy, is the Brazilian Electricity Regulatory Agency created in 1996.

The Electricity Commercialization Chamber (CCEE), successor of MAE (Mercado Atacadista de Energia Elétrica), is the operator of the commercial market. The initial role of the operator was to create a single, integrated commercial electricity market, to be regulated under published rules. This role has become more active since now CCEE is in charge of the auction system.

The Operator of the National Electricity System (ONS) is a non-profit private entity created in August 1998 that is responsible for the coordination and control of the generation and transmission installations in the National Interconnected System (SIN). The ONS is under ANEEL's control and regulation.

The role of the private sector

In the last twenty years, Brazil has been one of the main recipients of private capital investment in its power sector. Brazil received about 37 billion Euro in private capital between 1990 and 2003. This represents more than 20 percent of the total private capital invested in the power sector of the developing countries worldwide.

Main private participation has been in the distribution sector (64%). Generation has a 10 percent share of private investment and transmission has mainly remained under public investment.

However, investment, particularly in generation, has slowed significantly. This is due to the lack of available projects.

The investment required in power generation over the next ten years is of €15,6 billion.

The challenge Brazil currently faces is how to bring back the private sector by translating infrastructure opportunities into projects with competitive rates of return. This requires curbing regulatory risk and raising projects' revenues. Two tasks for which the role of the public sector is central: through tariff policies, subsidies and related mechanisms, projects' revenues can directly be influenced.

Turning infrastructure concessions in Brazil into a low-risk/low-return business is the core of the strategy to transform infrastructure needs into private opportunities and revitalize infrastructure investments in Brazil. Furthermore, Brazil needs to enhance the effectiveness of its infrastructure regulators, improving regulatory governance. Without adequate regulatory governance, good sector laws and well-designed contracts will be poorly enforced.

4.4. The sectors

4.4.1. Generation

The Brazil electricity sector has an installed capacity of 96,294 MW and is therefore comparable to Italy and the United Kingdom.

About 80 percent of the country's electricity, and 88 percent of what is fed into the national grid, is from hydroelectric generation. This reduces the country's generation costs relative to countries with more diverse supply mixes but results in Brazil being especially vulnerable to power supply shortages in less rainfall years, as was demonstrated by the 2001-2002 energy crisis.

Natural gas generation is second in importance, representing about 10% of the total installed power generation capacity in Brazil, only 4.6 GW is from gas-fired power plants, 4.8 GW from fuel- or diesel-fired facilities, 2.1 GW from nuclear generators and 1.4 GW from coal-fired plants.

Brazil is still a net importer of electricity (mostly from Argentina), but import dependence is decreasing.

The sector is dominated by government-controlled companies with only 10% of generation capacity in private hands. Federally-owned Eletrobrás holds about 40% of capacity. Private capital participation in the generation business is estimated to rise significantly in the coming years.

4.4.2. Transmission

The Brazilian transmission system, carrying a load of 230 kV and higher, is divided into transmission and sub-transmission networks.

The primary network is responsible for the transmission of electricity to the major consumer centres and for the supply of energy to large consumers. The secondary network is basically

an extension of the primary network, aimed at transmitting electricity to smaller consumer centres and providing energy to large industrial clients.

Brazil's transmission system is gaining growing importance since adequate transmission capacity is essential to manage the effects of regional droughts, allowing moving power from areas where rainfall is plentiful.

Transmission has remained almost exclusively under government control through both federal (Electrobras) and state companies (mainly Sao-Paulo-CTEEP, Minas Gerais-Cemig, and Parana-Copel). However, under the new sector regulatory model, there are about forty transmission concessions in Brazil. Most of them are still controlled by the government.

4.4.3. Distribution

The distribution market in Brazil is made up of 24 private companies, 21 privatized, 4 municipal, 8 state and 7 federal companies. Approximately 30% of companies are public, whilst 70% have private capital.

Public service electricity distribution contracts are granted by tender and define clauses related to tariffs, regularity, continuity, safety, updating and quality of the services and supply provided to consumers and network users. They also set out penalties for any irregularities.

In most states, mainly in the North and Northeast, contracts correspond to specific states. In São Paulo and Rio Grande do Norte the distribution contracts cover areas smaller than the state itself.

The following table lists Brazil's most important distribution companies:

Company	Controlling shareholder	Concession area	Sales (GWh)	Sales (%)
Cemig	MG State Govt	Minas Gerais	20,221	8.0%
Eletropaulo	AES Corp.	Sao Paulo city	31,642	12.5%
CPFL	VBC Group	Sao Paulo countryside	36,135	14.3%
Copel	PR State Govt.	Parana	17,524	6.9%
Energias do Brasil	EDP	Sao Paulo, Rio Grande do Sul	15,863	6.3%
Celesc	SC State Gvt	Santa Catarina	15,157	6.0%
Light	EDF	Río de Janeiro City	19,139	7.6%
Equatorial (Cemar)	GP Investimentos/Pactual	Maranhao	2,793	1.1%
Ampla (Cerj)	Energis	Rio de Janeiro	6,832	2.7%
Others	Mostly private sector		87,594	34.6%
Brazil Total			252,900	100.0%

Table 11: Main Brazilian Distribution Company (Source: Bear Stearns, 2007)

4.5. The tariffs

Due to the great importance of hydropower, the spot price is directly related with the level of the water resources in the dams.

Opposed to the systems of other countries the tariffs are not defined by the operator of the system but by the regulatory bodies.

The prices for the customers in the liberalized system are established by bilateral contracts and determined by negotiation. ANEEL supervises those contracts but cannot influence the prices. In the regulated system the clients pay the prices fixed by ANEEL which are set up regarding the cost of energy.

Average electricity tariffs for the different sectors in 2007 were as follows:

Residential: 9,8 cent/kWh

Industrial: 7,3 cent/kWh

Commercial: 9.1 cent/kWh

Rural: 5,9 cent/kWh

In mid-2006 electricity prices averaged € 90/MWh, varying between € 82/MWh in the South Region and € 95/MWh in the North. Average prices for the domestic sector were € 106/MWh, while in the industrial sector they were € 75/MWh.

At the beginning of 2007 the tariffs for households ranged between 8.6 euro cents and 15 euro cents/kWh. As a comparison, the electricity prices for residential consumers in Spain have been of 9,1 Cents/kWh as of March 2008.

The relative electricity price for domestic households has been one of the highest worldwide, while the industries electricity prices have been one of the lowest worldwide. Home prices subsidize industry prices and there is little incentive for industry to invest in energy efficiency.

4.6. Quality of supply and energy efficiency

Interruption frequency and duration are very close to the averages for the Latin America and Caribbean region. After the last energy crisis the interest in energy efficiency has increased significantly. However, there is little research and analysis regarding the existing market potential for energy efficiency. It has been estimated that the market for energy efficiency could reach a volume of 225 Million Euro annually and would be especially interesting for medium sized companies without own energy management. The missing financing mechanisms and the pricing of electricity in the Brazilian market have been seen as the main constraints for this market development.

4.7. The sector's impacts on the environment

The Ministry of the Environment holds the environmental responsibilities in Brazil. One of its associated institutions is Ibama, the Brazilian Institute for the Environment and Renewable Natural Resources, which is in charge of executing the environmental policies dictated by the Ministry regarding environmental licensing, environmental quality control, authorization of the use of natural resources, environmental monitoring and control among others.

Brazil has a contribution of 7% to the total Greenhouse Gas Emissions of the energy sector. This low contribution to emissions from electricity production in comparison with other countries in the region is due to the high share of hydroelectric generation.

Furthermore, Brazil is host to the largest number of CDM projects in the Latin America region. Registered projects represent 40% of the total in the LAC region and accounts for 45% of Certified Emission Reductions.

Project type	Number of projects	ktonCO2/year
Biomass energy	38	1,860
Energy efficiency industry	1	49
Energy efficiency own generation	1	90
Energy distribution	1	54
Fossil fuel switch	6	139
Hydroelectricity	23	1,013
Landfill gas	17	5,660
Wind	4	170
TOTAL	91	9,034

Table 12: CER projects in the energy sector (Table Source: UNFCCC)

A further impact on the environment comes from distribution losses and energy efficiency problems due to a lack in education on the use of electricity, antiquated transmission lines and a lack of training on maintenance.

The high price of electricity and liquefied petroleum gas (LPG) has negative environmental side-effects, since the poorer population switches to the use of cheaper options for their energy needs, which leads to deforestation from the excessive use of wood fuels.

4.8. The background: Reforms and privatization

The power sector in Brazil was in government's hands until the early 1990s.

By the late 1980s, the state-ownership model was on the verge of collapse.

This was the result of heavily subsidized tariffs and a revenue shortfall in the sector of about €22,5 billion, which led to the delay in the construction of about fifteen large hydro plants due to the lack of funds for investment.

The first reforms introduced in the power sector were aimed to allow the participation of private capital to improve the economic situation.

The reform led to the privatization of State owned utilities and assets and the creation of ANEEL (Brazil's National Electricity Regulatory Agency), a quasi-independent regulatory body in charge of overseeing the electricity sector. Further main restructuring steps were the

creation of an independent operator for the national transmission system (ONS) and an operator for the commercial market.

As a result of the reforms the state-owned generation capacity was acquired by foreign investors. In addition, local investors such as industrial groups, large customers, utilities and pension funds also invested heavily in the national generation sector.

During 1990-99 demand increased much faster than capacity expanded.

The government responded in trying to increase private investment in the electricity sector through a Priority Thermal Power Program (PPT) that aimed at the expeditious construction of more than forty gas-fired thermal plants. Unfortunately, the needed investment did not materialize and an energy crisis became unavoidable.

Brazil was faced with one of the most serious energy crises in its history in 2001-2002.

It was soon clear that strict demand reduction programs would be needed in order to avoid widespread blackouts. In June 2001, the government created the Crisis Management Board (CGE) which received special powers to set up special tariffs, implement compulsory rationing and blackouts and bypass normal bidding procedures of the purchase of new plant equipment.

The government chose to apply a quota system for all the consumers based on historical and target consumption levels, applying bonuses for consumption well below the prescribed level, penalties for over-consumption and some freedom for the large users to trade their quotas in a secondary market.

Generators and distributors experienced a 20% reduction in their revenues due to the contraction in consumption. This situation was eventually addressed by an increase of tariffs approved by the government. The financial situation of distributors was damaged and costumers suffered from the increase in electricity prices.

In 2003-2004 the new government introduced incremental changes to stabilize the electricity sector. The reforms in the short term have led to a greater government role in supply expansion. Notably, the goals of the new model focused predictably on reliability of supply and stabilization of prices for consumers.

The proposed model included some elements, such as the establishment of a single buyer, the end of the role of independent producers, reregulation of the generation business on a cost-plus basis, not allowing competition in the market and other similar features. At first, it seemed to be a setback towards the old days of regulation and government control. The efforts to privatize the generation sector (initiated by the previous administration) stalled. The

pending privatizations of three major generation subsidiaries of the massive state-owned utility, Eletrobrás, which today controls nearly half of Brazil’s installed capacity and most of the nation’s transmission lines, was stopped. Generation assets are overruled, private capital participation in the generation business will likely represent 50 percent of the installed capacity in the years to come.

One of the landmarks of the model is the establishment of energy auctions as the primary procurement mechanism for distribution companies to acquire energy to serve those customers within the regulated system that cannot chose their supplier. This measure helped to enhance competition in the power sector, as well as it addressed some of the market imperfections observed in the past.

All of the previously created institutions, such as the regulator, the system operator and the market administrator were preserved and in some cases their functions were strengthened. A new company, called EPE, was created, with the specific mission of developing an integrated long-term planning for the power sector in Brazil.

Reform

Pre-Reform	Post-Reform
A few state-owned companies	Privatization and a large number of agents
Vertically bundled industry	Vertical unbundling of the industry
Regional/state monopolies for generation, transmission and distribution	Competitive generation and distribution regulated monopolies on transmission systems and shared distribution
Ban on foreign investors	Restrictions on foreign investors lifted
Centralized planning	Indicative planning
Equalization of tariffs	Regulated prices and tariffs
Captive market	Gradual easing of restrictions on consumers

Table 13: The reform of the Brazilian power sector (Source: Januzzi, The reform of the Brazilian Power Sector)

5. The effects of privatization on low-income population

The initial reform process did not focus on expanding access to electricity through concessionaires' actions. In addition, the regulators were not able to protect the prices of electricity tariffs from substantial increase, and as a result, access to electricity by the poorest portion of the Brazilian population has slowed.

Before privatization, the state-owned utilities could supply energy to low-income consumers at extremely low tariffs (or even free of charge) through a policy of cross-subsidies in which the tariffs of the highest consumers are slightly increased.

From 1995 to 2001 residential consumers faced an average rise in electricity price of 30% above inflation. The situation worsened after 1999, when a 70% devaluation of the Brazilian currency occurred. Such price inhibited the access of the population to electricity, especially the lower-income groups. They have placed a heavy burden on the budgets of the low-income sector of the population.

Nearly 31% of the Brazilian rural population, or 6.5% of the total population (12 million people out of 165 million total inhabitants), have no access to electricity services.

These households either have to pay the most expensive electricity (from batteries) or have very poor quality lighting. Power sector reforms have discouraged provision of electricity to rural and low-income areas due to its emphasis on the maximization of proceeds from privatization.

Most of the people who don't have access to energy are found in the poorly developed and remote rural communities, concentrated in the Northeast of Brazil. Within this region, the local economy mostly relies on small scale farming and is frequently threatened by droughts, therefore production is low and of a subsistent nature. The affected communities have the worst Human Development Index in the country. The 2000 census showed that 64% of households without access to electric lighting have a family income below two minimum wages. Considering up to three minimum wages, this figure increases to 89%.

The cost of extending transmission lines is high in the Northeast of Brazil, due to the large distances and the topographical characteristics of the region such as vegetation, rivers etc. Since the expected energy consumption is also very low, conventional electricity sources are not normally considered economically viable. To tackle these problems, the government introduced the Luz para Todos programme to promote universal access to energy for all.

5.1. Luz para Todos

To improve electrification in rural areas the 'Luz para Todos' ('Light for All') programme was launched in November 2003. According to this, all 12 million people without access to electricity are to be supplied with electricity (10 million of these in rural areas). By the end of 2008 it is intended that a total of 1.7 million non-electrified households will be given access to electricity. In the concession areas with an electrification rate of less than 96% at the start of the programme, complete coverage is to be attained by 2013, while in communities with less than 53% this is not expected until 2015. The programme is coordinated by the Ministry of Mines and Energy, handled by Eletrobrás put into practice by the distribution companies under its control and the privatised and federal power supply companies with the participation of regional committees. By November 2006, 4.6 million people had been supplied with electricity for the first time. The programme's activities focused on the Northeast and the Southeast. All in all, by that date over 1932 Million Euro had been tied in through contracts for investment and construction measures.

The funds for the programme, which are estimated to around € 2.5 billion (R\$ 7 billion) up to 2008, originate at least in part (€ 1.9 billion, equivalent to 72% of the total cost) from the concession fees and fines paid by the energy supply companies and collected by ANEEL, which are given as a loan (Reserva Global de Reversão – RGR). Furthermore, funds are drawn from the CDE (Conta de Desenvolvimento Energético), a subsidy fund into which all electricity consumers pay and that is designed to develop the electricity sector in the federal states and to promote power-generation sources that have previously been uncompetitive. The rest is contributed by the federal states and municipalities (14%) and the power supply companies (14%). If the initial electrification rates are very low, however, up to 90% of the total investment made by the supply companies will be subsidised from national funds. Electricity consumers do not have to pay for any network expansions.

The following graph shows the number of households per state that as of 2004 had not been connected to the grid and did not have access to modern energy. It can be seen that the state in which the most households without energy access can be found, is Bahia, the state that Coelba is active in.

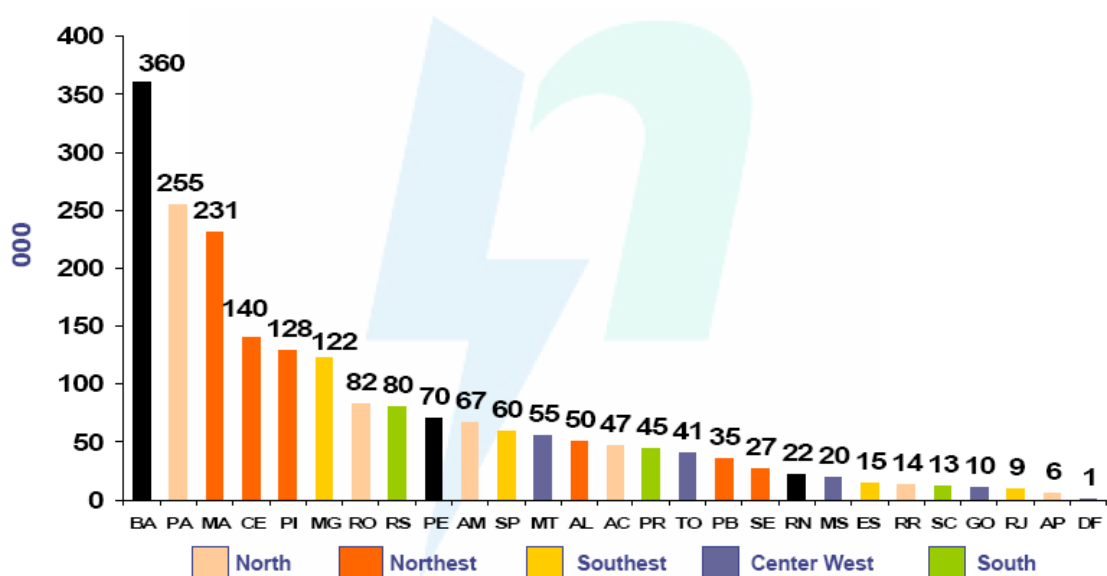


Table 14: Number of households without access to electricity (www.neoenergia.com)

For Neoenergia and its three distribution companies, the Luz para Todos programme is not only interesting under social aspects and as an obligation to be fulfilled under the Brazilian government initiative. The programme is also of importance as it will result in an increase in the number of new clients in the coming years. It is expected that Coelba will increase the number of clients by 10%, Celpe by 3% and Cosern by 4% between 2004 and 2009. In total, an increase of new customers of around 500.000 is expected. This accounts for more than 50% of the whole customer base of Cosern. Such a high number of new clients not used to having access to modern energy and having to pay for it, increases on the one hand the responsibility of the companies, but on the other hand also the risk. It has to be made sure that these new clients will be trained on electricity issues such as how to pay the electricity bills.

Increase of consumers

- Percentage of clients increased based on the Program “Luz para Todos”.

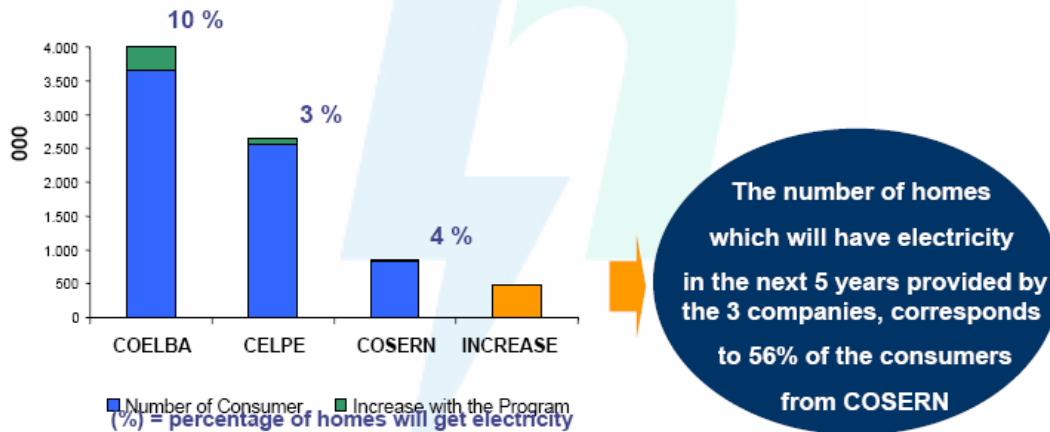


Table 15: Increase of consumers under Luz para Todos (www.neoenergia.com)

The latest available data (2006) for the fulfilment of its commitment with the Luz para Todos programme shows the following results.

Celpe:

The official launch of the Luz para Todos programme in Pernambuco was in 2004. Pernambuco started from a rather privileged situation as the percentage of rural households with access to energy was comparably high. The level of electrification had been at more than 96% in the whole state. With this number Pernambuco had been at the 6th place in the countries ranking and reached almost as good access rates as Rio de Janeiro, Paraná, Santa Catarina, Espirito Santo and Sao Paulo.

Due to this good starting position, Celpe was the first distribution company to reach its objectives set for Luz para Todos. Currently 99,2 % of the total population are connected to the grid, which is an increase of 3,9% in relation to 2005. The state of Pernambuco can be classified as having universal access to energy.

Coelba:

Luz para Todos has been launched in March 2004. The programme has been jointly initiated by Coelba and the government of the Bahia.

Between 2004 and 2009 Coelba is supposed to provide access to 360000 households. The programme will benefit around 1, 5 Million people. Investments for this programme will be around 2 Billion R\$ (800 Million Euro). The Bahia is the state with the highest proportion of rural households in the whole country.

The following graph shows the distribution of funds for implementing Luz para Todos by the different main actors for the Bahia: Coelba, the state government and the national government.

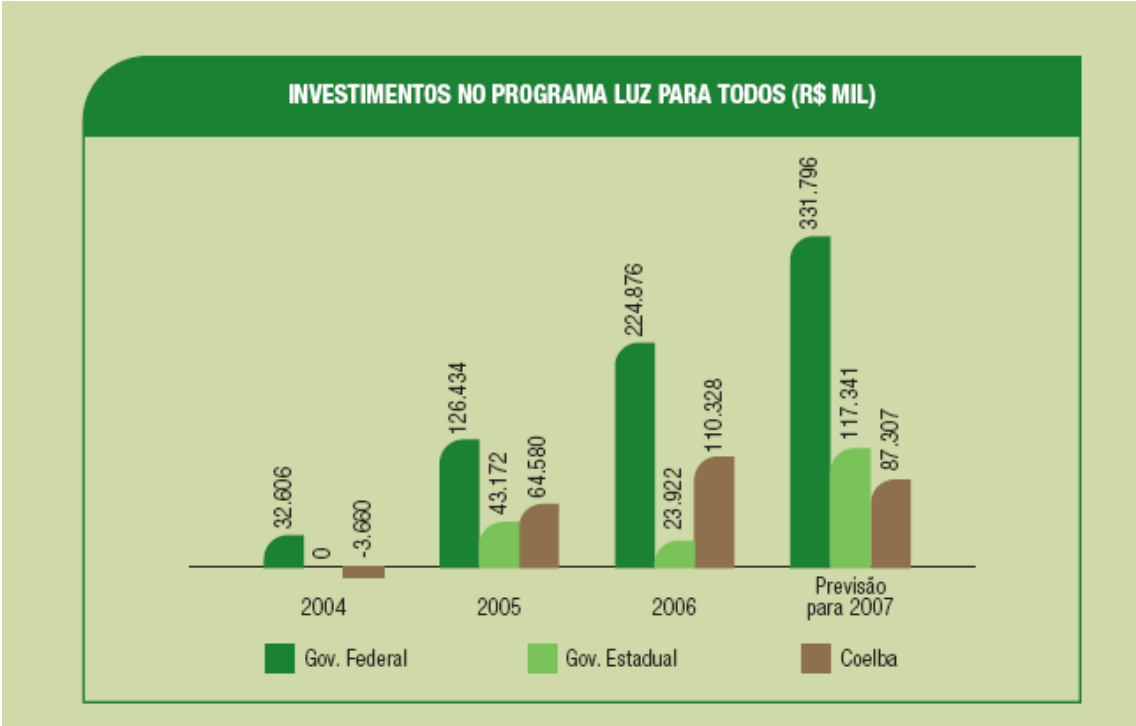


Table 16: Investments for Luz Para Todos Bahia (Coelba Sustainability Report)

In 2006 Coelba managed to provide access to energy for forty new communities or 345000 persons in the Bahia area.

PARA 2007, A COELBA TEM COMO META REALIZAR 91 MIL LIGAÇÕES RURAIS, QUE IRÃO BENEFICIAR MAIS DE 400 MIL PESSOAS.

RESULTADO DO PROGRAMA LUZ PARA TODOS NA BAHIA			
DISCRIMINAÇÃO	2004	2005	2006
Nº de Ligações	5.227	58.010	73.029
Nº de Obras	91	2.427	2.979
Nº de Postes Instalados	10.557	102.176	177.267
População Beneficiada	25 mil	275 mil	345 mil
Potência Instalada (kVA)	9.062	94.476	103.538
Redes Construídas (km)	915	8.610	12.000

Table 17: Results of Luz Para Todos at Coelba (Coelba Sustainability Report)

The goal for 2008 is to bring electricity to 360.000 rural households in the Bahia. A total number of 85% of all beneficiaries that are supposed to be connected under the Luz para Todos programme will be connected by the end of 2008.

In the period of 2004 until 2006 more than 3000 projects have been introduced to implement the Luz para Todos programmes. The access that has been provided has been subject to social and environmental assessment. Out of the 3000 projects, 104 projects or 4% of all projects have been in need for an environmental impact assessment. 96% of all of the projects did not have major impact on the local fauna and vegetation.

Connecting rural areas to the electrical grid has not been proven cost effective in all areas. Rural remote areas with very little need for electricity have been provided with photovoltaic systems instead. Solar technology proves to be more cost economic and viable for rural clients who live too far away from the current distribution network.

COSERN:

In the state Rio Grande del Norte the Luz para Todos programme has been launched in May 2004. The implementation of the programme has been designed in a multistakeholder approach that included the Ministry of Mines and Energy, the government of Rio Grande del Norte, ANEEL, ELECTROBAS and Cosern. A total number of 30000 households or 120000 persons will benefit from the Luz para Todos programme. In 2006 Cosern managed to connect 11328 persons.

A total number of 28000 has been reached by the programme and is now connected to modern energy.

Access to energy has been provided to a total of 39 municipalities since the start of the programme. 10 communities of this total have been connected during 2006.

It is expected that the objective of universal or improved access for the rural population in Rio Grande del Norte will be reached in the last trimester of 2008.

The institute for consumer defence (IDEG) but also other non-profit and development organizations are assessing and supporting the Brazilian Luz Para Todos programme. Although the programme has received some very impressive results in achieving its objective of universal access till 2015, the programme also faced obstacles in some areas. At least two donor countries, Germany and the US are active in supporting the Brazilian government in reaching its objective towards universal access in 2015. The donor organisations are providing technical assistance to selected distribution companies via the development of sustainable models for rural off- grid electrification using renewable energies.

5.2. Non- sectoral Initiatives

Besides of the Luz para Todos programme there are further important programmes that support rural electrification in Brazil.

The amendments included in the National Budget through the Ministry of Agriculture are an important source of funding for rural electrification.

Operating under a different name in each state, the Rural Poverty Alleviation Program (RPAP), established in 1993 and sponsored by the World Bank, has been another important source of investment. The program provides grants to the local associations to finance in projects in Northeast Brazil. Communities make their own development decisions through a process that promotes and depends on community organisations.

The projects include grid-connected rural electrification projects and off- grid solar systems, in addition to a number of other rural development projects.

The Inter-American Development Bank (IDB) is currently supporting several projects and contributing to various technical assistance initiatives in the power sector in Brazil. The most relevant projects are the Renewable Energy Service Delivery Project, a technical cooperation that seeks to implement several pilot projects to provide renewable energy services to isolated communities in Brazil.

The World Bank is currently supporting three rural poverty reduction projects that include the provision of access to electricity services:

The Rural Poverty Reduction Project in Pernambuco, The Rural Poverty Reduction Project in the State of Ceara and the Bahia State Integrated Project – Rural Poverty.

The Institute for Consumer Defence (IDEC), a Brazilian non-profit consumer organization is investing in further issues on energy supply. The main objective of the organization is to contribute to balanced market relationships; to enforce and enhance consumer legislation; to promote a better quality of life, especially regarding access and quality of services and products; to improve the standards of sustainable consumption; and to contribute to the improvement of democracy, by stimulating citizen awareness and participation. IDEC plans to use the EGI indicator toolkit¹ to identify weaknesses in policy and regulatory processes and hopes to build government and regulatory capacity to create the right conditions for the

The Electricity Governance Initiative (EGI) is a collaborative initiative of civil society, policymakers, regulators, and other electricity sector actors to promote the open, transparent, and accountable decision-making processes that are a necessary part of a socially and environmentally sustainable energy future. The EGI is a joint undertaking of the World Resources Institute and Prayas Energy Group (India). The National Institute of Public Finance and Policy (India) was centrally involved in development of the EGI Toolkit and implementation of the pilot phase of assessments in Asia. EGI is a partnership for sustainable development registered with the UN Commission on Sustainable Development.

promotion of renewable energy, efficiency, and social equity, in line with sustainable development and public interests.

Energy efficiency is a further point that is being targeted by international organizations in Brazil. For example USAID designed an energy efficiency programme that targets industrial and commercial companies in Brazil.

Additionally several Public Private Partnerships between international organizations, NGOs and microcredit institutions are being developed for supporting access to energy in rural areas.

5.3. The role of renewable energies in rural electrification

There is significant potential for increasing electricity access in isolated systems through the use of renewable energy. Renewable energy, such as Photovoltaic, biomass, and small hydro, can be provided with local resources to remote communities, can guarantee supply, have much lower environmental impacts, and allow energy independence.

Photovoltaic is of growing importance. Government programs, electricity distribution utilities, private entrepreneurs and a few NGOs are working on the broader dissemination of Photovoltaic technology. The problem with Photovoltaic is the lack of trained operators and the long-term technical assistance.

As a large tropical country, Brazil furthermore has a high potential for the use of biomass. The main modern biomass sources are sugarcane products (ethanol and bagasse) and wood from deforestation. This however has negative impacts on the environment.

In isolated regions, residues from agricultural activities, forest residues (branches, leaves, etc) and sawmill residues (sawdust, wood chips etc) can be used as fuel to generate electricity with technologies commercially available in the country, such as gasification and small-scale steam cycles.

However, there are still some difficulties related to the technical availability of small-scale systems. In Brazil at present there are several prototypes under development aiming to solve this problem.

Another huge opportunity for biomass use in remote villages is electricity generation from in natura vegetable oils. The Amazon region in Brazil has an enormous diversity of native oil plants, as well as favourable conditions of soil and weather for the cultivation of highly productive exotic oil plant specimens.

The use of animal wastes is also a technical and economically viable renewable energy.

There are 297 small hydro plants (less than 30MW of capacity) plants operating in Brazil. According to Eletrobras, small hydro has a potential of 9,456 MW (12% of the total installed power in the country). Properly located, this technology significantly reduces adverse environmental impacts compared to large hydro plants, helping the recovery of areas alongside rivers.

There are several large regions in the country that have favourable wind conditions and are naturally suited for wind farms. The installation of these systems in sites with high annual yield factors would allow them to reach competitive generation costs. At present, there are 21.2 MW of wind power installed. Wind power has recently witnessed an impressive development in Brazil and has potential for large-scale use, however, in grid-connected generation.

However, there are several barriers to the Use of Renewable Energy in Off-grid Power Systems.

Worldwide, the main economic barriers to renewable energy projects include high initial costs and the small-scale production of equipment and systems. To overcome these barriers the creation of a market of minimum size is essential.

The technical barriers for renewable energy use in isolated villages are not significant. In most cases it is a matter of adapting technologies already in use in other developing countries. The important aspects in relation to isolated areas are their small electricity demand, the lack of skilled people, and difficulties in properly operating and maintaining power equipment. In consequence, power systems for these areas must be of small capacity and as simple as possible. Also, technical assistance and training must be provided on a long-term basis.

In 2002, the government of Brazil created a Program to Foster Alternative Sources of Electric Power (PROINFA). The program aims to increase the participation of wind power sources, biomass sources and small hydropower systems in the supply of the Brazilian grid system through Autonomous Independent Producers (PIA). The medium to long-term objective (i.e. twenty years) of the program is that the defined sources supply 15% of the annual market growth until they reach 10% of the nation's annual electric power demand/total consumption. The promotion of renewable energies in Brazil is furthermore supported by RENOVE a Brazilian Renewable Energy Nongovernmental and projects by donor organizations which are concentrating on the implementation of pilot projects that support the access to modern energy by for example supplying regions with Solar home systems.

Additionally they support the Brazilian government on a macro level and help to approve and adapt the regulatory set-up for renewable energy in rural electrification. As part of this programme three different Photovoltaic systems are currently undergoing a field test.

5.4. The challenges to sustainable development in Brazil

Sustained growth is the major challenge for the Brazilian economy. Macroeconomic stability has laid the foundations, but average growth has remained close to half of the global and Latin American averages. Despite some advances in microeconomic and institutional reforms, activity by the private sector remains stifled by various barriers and regulations that prevent the country from achieving its growth potential. Bottlenecks include inadequate infrastructure, poor business climate, high tax rates, high cost of credit and rigid labor markets. The size of the government and its distorting impacts are also an obstacle, and the quality of governmental services in relation to expenditures (which represent about 40% of the GDP) remain relatively low compared to other countries. Current expenditure and tax collection trends could be difficult to sustain. The government launched in 2007 a Growth Acceleration Plan to increase investment in infrastructure and provide tax incentives to encourage faster and more robust economic growth.

Despite expressive social progress, there are still major challenges in the area. Poverty and inequality remain at high levels, and there is still a large gap in access to pre-school and secondary education (especially among the poor). Although education indicators show that enrolments in basic education are nearing 100%, the frequency in pre-primary and secondary education remains low, if compared to other middle income countries. Despite improvements, the educational system still suffers from poor quality at the basic and secondary levels. Brazil also experiences extreme regional differences, especially regarding health, infant mortality and nutrition indicators. Other challenges include the combination of the benefits of agricultural growth, environmental protection and the sustainable development the Amazon.

6. The Status Quo and Role of Corporate Social Responsibility

6.1. CSR in Brazil

The concept of CSR is fairly developed among large companies in Brazil. Lately the administration of President Lula da Silva has created different social programmes and is addressing the vast social inequities in Brazil as a priority. The main aim of the public sector's CSR activities is the mobilization of additional business resources for social and cultural programs that are in line with public interests. The public sector concentrates on tax incentives to foster companies' social investments when talking about CSR programmes. Given the major challenge in Brazil- its large income, social, racial and gender inequalities, the main rationale of public CSR politics is to fill gaps in government capacity and to reduce social inequality by mobilizing business resources, thereby addressing the challenges of socio- economic development in Brazil.

As already stated, one of the major problems in Brazil is the fact that it has one of the highest disparities in the distribution of wealth. Therefore, pressure felt by the private sector to demonstrate social awareness is high. Additionally there was a high international repercussion of Brazil's unfavourable business image, which pushed businesses to prioritize issues such as poverty, violence, child labour, education and environmental protection. In particular the largest firms demonstrated leadership, seeking to fill some of the gaps that resulted from the critical perception towards the public sector.

The CSR movement is particularly driven by the business associations which not only represent economic interests of their members but also address ethical issues, including the relationship of business with society. This relationship is defined by the integration of political parties, NGOs, trade unions, media, local governments, consumers and shareholders. Business associations lead most of the projects such as facilitating compliance, promoting CSR awareness, developing programmes on gender rights, counselling on labour rights and promoting improved labour- employer relations.

They will also play a crucial role in bringing the concept of CSR to SMEs, which will be the next important step to integrate CSR in the business reality in Brazil.

Further important actors in the promotion of CSR in Brazilian are the multinational organizations. They mainly focus on environmental certification, norms and laws on international human rights and further ethical standards.

To understand the main pillars of Brazilian CSR movements the traditional role of business as a financial support to back up social programmes and as an alternative provider of services is essential. To ease the existing inequalities in Brazil, social investments and philanthropic activities are the most frequent CSR actions of the private sector.

Traditionally companies have been focussing outside their walls for their CSR activities. As restructuring intensifies, companies nowadays also direct attention inwards, focussing on social investment to increase skills and working conditions.

The primary goal of social investment related to employees has been the increase in productivity. However, this can lead to the disregard of traditional problems in Brazilian companies such as injury, illiteracy, poor health etc. In 2004, more than 70 percent of firms in the Brazil's Northeast and Southeast regions made such investments, either directly or by donations to community groups and NGOs. Often, such projects are developed in cooperation with state agencies.

Trade Unions are another important actor in the Brazilian institutional landscape. They have an important influence on the social behaviour of the companies. However, many of the Brazilian unions are against CSR since they believe that the government is responsible for the overall conditions of labour relations.

Consumer pressure for CSR issues is not very strong in Brazil. There has never been any consumer boycott on the national level to make corporations change their ethical behaviour. However, also in this area progress is being made and consumer pressure has become more urgent recently. Reasons for weak consumer behaviour can partly be found by the weak performance of the media regarding the coverage of CSR topics. The media coverage of the CSR activities is rather single-edged the reporting focuses mainly on the positive aspects and misses out on the grievances in the system.

The most important weak points that CSR issues are facing in the Brazilian context are related to various forms of corruption and unethical behaviours in both public and private institutions. Even though the level of corruption is perceived as intolerable by civil society, it has been evaluated at more favourable levels than many other Latin American countries. Additional rankings illustrate a lack of security and market efficiency and question the status quo of diversity in the companies. While for the latter educational development and reduction of child labour have been successful, other factors such as employment of women and health and safety must still be improved.

One of the most important players in the area of CSR is the Ethos Institute who awards companies for their social value in different categories. It also coordinates local initiatives between the government and the private sector in order to raise the Human Development Index particularly in the North and Northeast.

6.2. CSR in Neoenergía

In November 2006 the Neoenergía group launched a code of conduct for all group members, which consists of the following core principles:

- Maximize economic profitability, always considering aspects like corporate responsibility and the environment
- Promote transparency and commitment regarding the information provided about Neoenergía
- Satisfy all needs of our clients
- Continuously improve our processes
- Develop policies that fulfil the personal and professional expectations and stimulate a good working environment that is secure and productive, promoting management practices that enhance motivation, satisfaction and commitment of our workers

To facilitate the implementation of the code of conduct, as well as the recently launched mission and vision that is directly related to the basic principles of the IBERDROLA group, an internal communication strategy has been set up in the different group companies. An email address (etica@neoenergia.com) has been installed to answer all questions and complaints of the employees.

Sustainability reports are being published yearly by the Neoenergía Group as well as by the three major distribution companies belonging to Neoenergía, Celpe, Coelba and Cosern. All the CSR reports are audited by the Ethos Institute of Business and Social Responsibility. All three companies cooperate closely with Ethos.

The CSR activities are organized in different ways in the three companies. At COELBA almost 50 people are participating in CSR activities. All CSR activities are organized by the internal communications department and directly report to the CEO of COELBA. Corporate Social Responsibility is one of the 4 main strategies together with customer satisfaction, return for the investors and professional involvement.

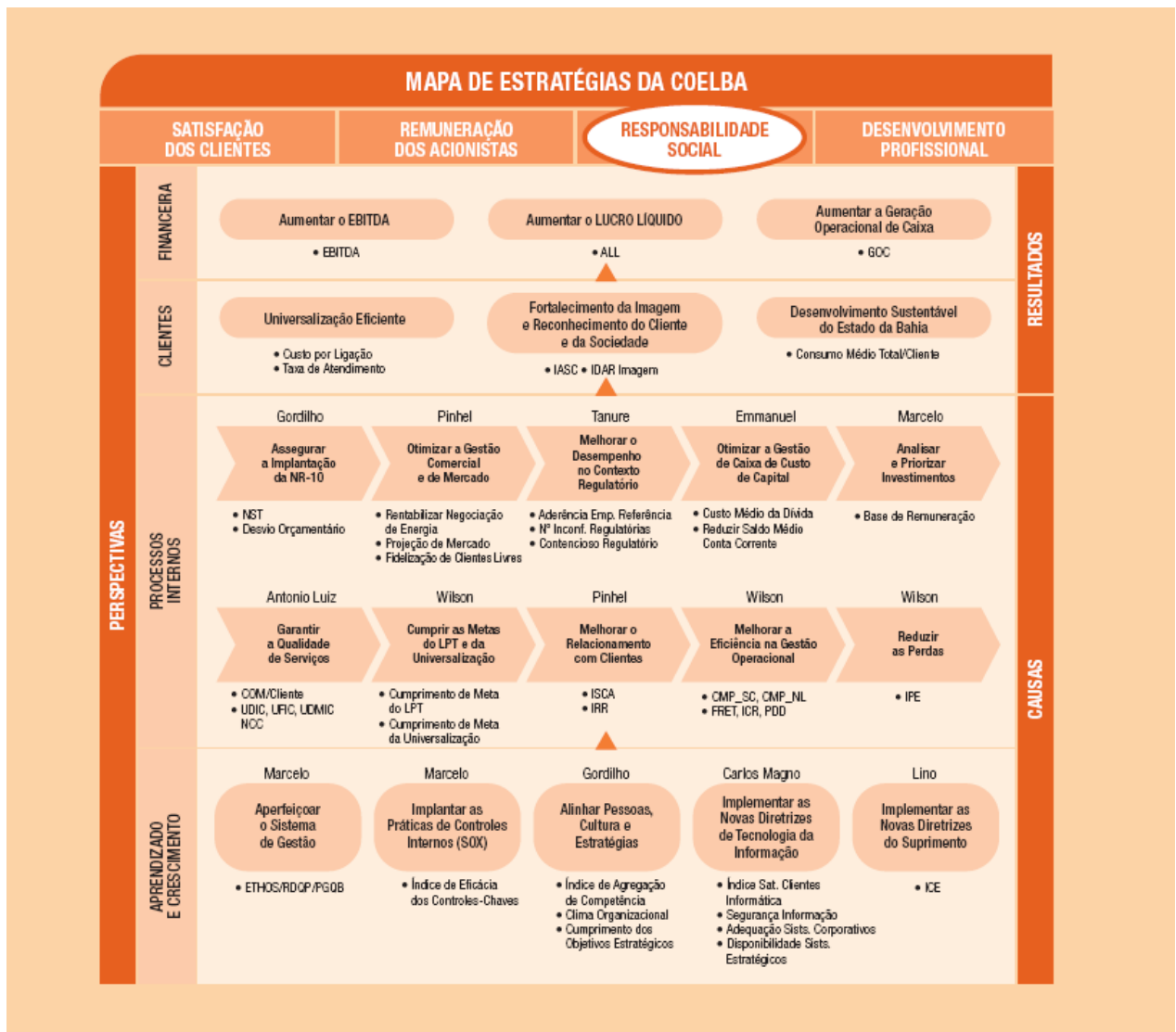


Table 18: Integration of CR strategy into COELBA strategy (Sustainability Report Coelba)

Recently COELBA, COSERN and CELPE followed IBERDROLA and joined the Global Compact and integrated the Millenium Development Goals as an explicit goal of the Energia para crescer programme.

6.2.1. The relation to its stakeholders

The Neoenergía group defined a code of behaviour and main objectives for the relationship with its main stakeholders.

Employees

Neoenergía provides a harmonic, organized working environment and cares for the well being of the employees. Neoenergía fosters trust, respect, justice and a stimulating environment for all employees. Fair and equal hiring procedures are offered and Neoenergía ensures transparency to achieve equal opportunities to all employees. Neoenergía assures that there is no child labour in its company.

In 2006 different measures have been undertaken to improve the working conditions at Neoenergía. Examples are the equipment with new office furniture, the setting up of joint space for the workers, the implementation of a policy to minimize accidents and the implementation of a process to strengthen the sense of belonging to the company. An internal communication programme has been launched to improve communication within the group companies. Different communication channels between the different group companies such as the journal “Neoenergía total” have been established. The Neoenergía Olympics took place for the first time. 400 employees from the manager to the maintenance staff participated at this event and competed in different categories. To guarantee the well being of its employees at the workplace, the distribution companies are offering different medical services such as massages for its employees.

The middle and upper management receive different trainings under an “Improvement for Leadership programme” that is being implemented in the different group companies.

At COSERN a programme for the integration of new employees has been developed. This programme systemizes the reception and the presentation of the organisational culture to the new employees and explains its values and objectives regarding its relationships with its clients and its politics for the Human Resources’ management.

COELBA developed a programme for reinforcing the identification of its employees with the company (Identifique-se) and is implementing an internal energy efficiency programme that is focussing on internal energy efficiency in the office area and furthermore suggests improvement ideas for the employees’ home energy use.

Shareholders

The relationship with the shareholders of Neoenergía is characterized by a precise and transparent communication, which allows upright information to accompany the activities of the Neoenergia group.

MAPEAMENTO DOS IMPACTOS PARA AS PARTES INTERESSADAS		
PARTES INTERESSADAS	IMPACTO DIRETO	IMPACTO INDIRECTO
Acionistas e Investidores	Rentabilidade do investimento	Geração de emprego e renda
Consumidores e Clientes	Qualidade do produto e do serviço prestado e geração de riqueza	Melhoria da qualidade de vida e geração de emprego e renda
Público Interno	Salários e benefícios	Qualidade de vida e qualificação profissional
Fornecedores	Geração de riqueza	Geração de emprego e renda, elevação da qualidade do serviço e da mão-de-obra
Governo e Sociedade	Geração de impostos	Melhoria da qualidade de vida da sociedade
Comunidade	Geração de emprego e renda e realização de projetos socioambientais	Melhoria da qualidade de vida das comunidades
Concorrentes	Melhoria da qualidade do produto e do serviço	Desenvolvimento tecnológico e geração de riqueza
Meio Ambiente	Minimização dos impactos ambientais	Sensibilização das comunidades e da força de trabalho para as questões ambientais
Meios de Comunicação	Transparência e ética na comunicação e no relacionamento	Fortalecimento do mercado de comunicação

Table 19: Impacts of the different stakeholders (Sustainability Report Coelba)

Clients

Neoenergia offers quality services and products, which fulfil all legal standards at the lowest possible price. Neoenergía respects the existing legislation and is always looking to seek the greatest benefits for its clients.

COELBA, COSERN and CELPE developed a great variety of surveys of various segments and participate in the consumer satisfaction surveys conducted by the Brazilian Association of Electrical Distributors [Asociación Brasileña de Distribuidoras Eléctricas].

Neoenergía has a special focus on projects for its low-income customers. This is due to the fact that the region Neoenergía is active in is one of the poorest in Brazil and that the low income customers are an important business segment for Neoenergía. At Coelba for example 54% of all customers belong to the group of low-income customers. On the one hand they signed a contract with the ministry of Desenvolvimento Social on the sharing of registration information to be able to provide government subsidies to those customers that are too poor to afford electricity access.

On the other hand Neoenergía itself is implementing different projects that shall guarantee that low-income customers are provided with adequate energy at a reasonable price. These

programs are especially important for those customers that are newly connected to the net (Luz para Todos) and who are not yet used to pay the electricity bills and are also not aware of security and efficiency aspects related to energy use.

Suppliers

In relation to its suppliers Neoenergía always follows ethical principles, respects the law, contracts and internal norms. The suppliers are selected in an impartial and objective way to avoid conflicts of interest.

Competitors

Neoenergía competes in a fair and legal way. They oblige to publish full, transparent information that is easily and immediately understandable. They neglect to deliberately destroy the image of its competitors, complies with the norms and does not undertake any behaviour that would include abusing its position and leading to an illegal restriction of its competitors.

Public sector

The relationships with authorities, regulatory agencies and administration are characterized by morality, cooperation, transparency and, of utmost importance, independence.

Last year four employees have been fired for incidents associated with corruption. Of these, three went to court, which in the first instance ruled favourably for the Company. In Procurement, no contracts have been cancelled for actions of this nature.

6.2.2. Energía para crescer

To give the CSR activities a more strategic focus the so called Energia para crescer (energy to grow) programme has been launched. Its main objective is to make the CSR activities inside the Neoenergía group more visible and transparent. The CSR activities are supposed to take place in the communities that Neoenergía is active in and focus mainly on education, environment, culture and social inclusion.

6.2.3. Social Action

Apart from the already mentioned programmes that are directly related to the existing customers of Neoenergía, social projects that are being implemented under the umbrella of the Energia para Crescer are versatile. A significant number of projects are aimed at providing cultural knowledge and experiences to young audiences, especially to the underprivileged ones, with the clear purpose of social inclusion. There are also initiatives in collaboration with public institutions. The fields of action include film, theatre, dance etc. The idea is to provide cultural services to those people that could otherwise not afford being trained in arts. The projects are supported by several charitable organizations.

All three companies provide support to the projects implemented by the foundation “Ayrton Senna Institute”. These projects are mainly focussing on the provision of artistic education for the poorest of the Brazilian population.

A further important part of the social actions at Neoenergía is the training aimed at the professional qualification of young people with the specific objective of increasing their possibilities of entering the workforce. In this area Neoenergía is cooperating with FUNDAC, a state owned foundation.

The Brazilian electricity sector is implementing a campaign on the safe use of electricity. This campaign is especially important for educating the customers that have newly been connected to the electricity grid. The campaign is coordinated by the Brazilian Association of Distributors of Electric Energy and 51 electric companies all over the country. The main focus of the campaign is raising awareness for the secure use of energy for 150 million consumers of electric energy all over the country.

The three Neoenergía companies are participating in this programme by disseminating information to their clients. COSERN for example distributed adhesives and protectors to its clients that came to its customer service centres. Additionally 150 public schools and 50 municipalities have been provided with the devices.

Apart from participating in the public campaign the group companies are also providing training about safe and efficient use of energy to a number of communities (forty in the case of COSERN), as well as to public schools and teachers.

An additional programme that is focussing on education is the formation of electricians for the distribution network.

At Celpe the programme Luz no Empreendedorismo is being implemented. This programme's main objective is the combating of social differences, while promoting the setting up of cooperatives and providing incentives for SME manufacturing companies and commercial and cultural activities. 10 communities in different areas have been supported in 2006, the programme is jointly implemented with the Federation of Industries Pernambuco and with the Brazilian Service to support SMEs

One of the most integrated projects that has been developed by the group companies is COELBA's ELOS Project [Energia Local Organizada e Sustentável] in cooperation with private and public institutions such as Banco de Brasil, Servicio Brasileño de Apoyo a Micro y Pequeñas Empresas (SEBRAE), Eletrobras and NGOs.

Its objective is to generate sustainable development in the communities of the state of Bahia that were connected by the Luz para Todos Programme. The programme has been developed due to the fact that the newly connected customers are neither used nor able to pay their electricity bills and experience showed that after a time of two months most of them stopped paying their bills. Therefore the topic access to energy has been accompanied with different side programmes tackling education, the provision of credit lines and training on entrepreneurial behaviour.

The different projects to be supported have been chosen on economic, environmental and social aspects, as well as depending on the Human Development Index in regions recently electrified by the Luz para Todos Programme or in regions that are not yet connected to the grid..

In 2006, different small projects that are supporting the local economy have been supported. One is for example targeting the cooling and commercialization of milk, another is a small company that started to sell native fruits. All projects together have been financed with more than R\$ 105 mil and have benefited 494 families.

Additionally continuous support for the association of Women Entrepreneurs is provided. Coelba founded the award *Premiação do Coelba ELOS Mulher* for women that are outstanding for their example and for their fundamental participation in doing projects and promoting sustainable development and who provide an important benefit for their communities.

6.2.4. Environmental Action

All of the Latin American subsidiaries are taking specific steps to control the loss levels in their networks. These steps include the installation of capacitor banks, network reconfigurations, line changes, and load monitoring at the transformer stations and in the distribution networks.

The loss levels for Cosern, Coelba, and Celpe are within the average for distribution companies in Brazil. In several cases, the loss level for these companies exceeds 20%.

Non-technical losses account for a substantial portion of the loss values for these three companies, largely due to non-standard connections. Because the investments aimed at reducing technical losses have an unfavourable cost and benefit ratio, these steps have been oriented essentially towards a reduction in non-technical losses, such as the performance of inspections, the correction of non-standard connections, the replacement of lines, and the replacement of electromechanical meters with fully electronic meters.

Another very important part of the CSR activities directly related to the companies core business is the investment in energy efficiency.

The programmes implemented on energy efficiency include training of citizens living in the communities the group companies are active in. The project, that is being implemented for the academic community consists of a training course for teachers, lectures and parents of the participating students and for the community in general on energy efficiency. It also includes the distribution of compact fluorescent light bulbs.

Various efficiency projects for hospitals, public institutions and companies are implemented. They concentrate on measures to improve lightning and replace equipment (efficient air-conditioning equipment, high performance motors etc.) as well as awareness raising. Public lighting is also being improved; with the replacement of 600 incandescent light bulbs in the traffic-light signaling systems with high-efficiency lighting sets developed using light-emitting diode (LED) technology.

A project for the donation of efficient equipment to low-income consumers in residential communities, with the goal of replacing 8,497 pieces of equipment with other, more efficient ones, along with the replacement of 65,663 incandescent light bulbs with compact fluorescent light bulbs (CFLs) is currently being implemented by COELBA jointly with ANEEL.

The project is mainly focusing on the replacement of old refrigerators with new more efficient ones.

Coelba's project was recognized as a best practice programme under the Montreal protocol for its project to donate efficient refrigerators to low- income customers. Until now Coelba has recycled around 13.000 refrigerators and due to the fact that the old refrigerators still using CFCs are being replaced to avoid their reselling, around 400 kg of CFC have already been saved by the programme.

Celpe is implementing a similar project in the region of Pernambuco. It is jointly implemented with the Ministry of the Environment and the United Nations Development Programme. The project includes the training of technicians on the handling of the equipment that allows the recovery of the stored gas in the refrigerators.

The investment that has been realized by Neoenergía in this project between 2006 and 2007 has been of 20 Million Real (7,7 Million Euros).

Apart from contributing to the environmental preservation, the initiative has also different socio- economic benefits. The reduction in energy consumption of the households that received the refrigerators and the lamps was of around 28%. The whole project led to an reduction of 5352, 19 MWh/ year.

Neoenergía is not only focussing on projects related to energy efficiency and thus the reduction of greenhouse gases, but also on different conservation projects.

Notable at Celpe is the initiative to identify and address the various different ecological regions of the State in order to draw up specific plans for maintenance activities, as well as an inventory of line information that will make it possible to determine the physical characteristics of the environment with regard to the activities to be performed in connection with each line. Celpe has also participated in the National Conservation and Management Program for Sea Turtles, and is cooperating with the Brazilian Urban Arborisation Society.

Coelba is using insulated cable to prevent the damage of flora and fauna and is implementing reforestation projects with a total of 10.000 trees planted in order to offset the cutting line for the passage of the electric power lines.

Coelba has signed the following agreements:

- An agreement with the Living Forest Institute [Instituto Floresta Viva] NGO, with the goal of maintaining, the recovery of 5 hectares of mangrove trees in the municipality of Mucuri. The agreement is jointly implemented with the local community,
- An agreement with the Beautiful Nature Environmental Group [Grupo Ambiental Natureza Bella] NGO, for the creation of ecological mini-corridors in the basins of the Cariaba and Mucugê rivers and at their intersections. The goal of this agreement is to restore the Atlantic forest areas, thereby cooperating with a national goal of zero deforestation, and to contribute towards the protection of water resources in the southern Bahia region.
- An agreement with the Catholic University of Salvador for the development of the Environmental Education Program of the Coelba Ecological Pathway. The goal of this agreement is to raise the awareness of young people and adults in middle and elementary schools about the importance of the use and conservation of natural resources, which activities are essential to sustainable development.

7. The strategic objective of CSR at Neoenergía

In the code of conduct of Neoenergía it becomes quite clear that the company is aware of the necessity of linking economic growth to social actions and has therefore developed an understanding of the importance of CSR for the companies in Brazil. “Maximize economic profitability, always considering aspects like corporate responsibility and the environment” is the first principle in the code of conduct of Neoenergía. The Brazilian companies are right now in a very important phase of aligning their CSR to becoming a future measure for strategic decision-making. By introducing ethic criteria in all group companies, adjusting the code of conduct, including the global compact and integrating the millennium development goals, Neoenergía has already taken the first important step towards a strategic CSR integration. Therefore, CSR for Neoenergía is not only something that needs to be done because everyone does it or because it may decrease reputational risk but they have started to see CSR as a long term opportunity.

However, what also becomes clear is that there is still a lot to be done to reach strategic CSR. Neoenergía and its partner companies have a very diverse action plan regarding CSR, addressing many different fields from environmental issues over education to economic development of the communities. Although the umbrella concept “Energía para crecer” has been introduced, the individual activities are not yet creating synergies and many of them are carried out isolated. Some of the activities, for example the cultural and art projects don’t show the interconnection with the core business energy.

Overall, it could be said that there is a great infrastructure, many possible routes to follow and roads to prolong; however, they don’t really seem connected quite yet. For example the idea of social inclusion through cultural activities e.g. film, theatre, dance etc. is an important part of the CSR activities of the companies, however, if not connected to training and access to job consulting this will not reach the desired outcome of social inclusion. The main objective for the pilot project will therefore be to build the bridge, the connecting context, between all the projects and the group companies.

Therefore, the next step will be to combine all the existing activities, create synergies, to develop one strategic CSR concept for all the companies and to integrate this concept in the core of all the companies. In order to be able to move the CSR activities into this phase and to actually be able to transform the activities into contributing to gaining a competitive advantage, we need to take a close look at the impact Neoenergia and its partner have and could have in the communities and at the same time look at the external factors that have or could have an effect on the company. This is important to develop a long-term strategy that takes into account all of the issues that could affect Neoenergia now and in the future. The pilot project should be seen as a further step to a more strategic CSR in the Brazil companies.

7.1. Theoretical Background- The Kramer-Porter Model

In order to define and proceed from the status quo from a strategic perspective we have used the approach of Porter and Cramer. By using the approach we were able to evaluate the impact and possible impact of the companies in Brazil. The basic understanding of this approach is that business and society need each other: Successful corporations need a healthy society. Education, health care, and equal opportunities are essential to a productive workforce. Safe products and working conditions not only attract customers but lower the internal costs of accidents. And last but not least, a healthy society creates expanding demand for business, as more human needs are met and aspirations grow. This describes the principle of shared value.

On the basis of this principle, Porter and Cramer developed an approach that helps to identify the link between a competitive advantage and Corporate Social responsibility. It demonstrates the general belief that CSR becomes and creates opportunities once it is integrated into the core strategy of a business and once the activities are gathered and targeted by a commonly agreed strategic development plan. We believe that the Porter and Cramer approach helps us to clearly show how Neoenergia can combine its company's activities to create the greatest impact in the communities and to constantly discover new opportunities for the companies in Brazil. We have applied the following steps to the Brazilian companies to suggest how a pilot project could act as the first step to integrate CSR into the strategic development and to create a unique value proposition.

First we defined the relevant issues for Neoenergia in Brazil; we then looked at them from a strategic point of view and defined the strategic focus for the project, which will guide Neoenergia and the group companies into a future of strategic CSR.

We looked at the companies from two perspectives: Inside-out and outside-in.

7.2. Inside out analysis

The affects the companies' value chains have or could have on the communities.

1. Use economies of scale: As Neoenergia is the number one in size related to clients in the North and Northeast of Brazil, the development of a strategic project can, once implemented, have a very large impact on the Brazilian regional economy especially in the remote areas. The international network of IBERDROLA will be vital to acquire partners for the project.

2. Enabling economic development: By providing access to electricity, remote areas can get in contact with new markets. Enabling telecommunication for the remote areas plays a vital role in developing wealth in the communities.

3. Technological innovation: as the connection to the existing network for many remote areas is not possible, the development and introduction of new energy technologies is vital. This is also interlinked with the following point as using alternative energy for enabling access will also reduce the impact on the direct environment.

4. Danger of increased deforestation: For the development of the electricity network large amounts of forest have and had to be cut. This endangers the livelihoods and natural economic systems of groups of the population.

5. Risk on safety and health: With the introduction of electricity in households that are not yet used to the services via the Luz para Todos programme, severe risks for health and safety may arise. This is due to a lack of education on the use of energy. The education and training of local training will also help to reduce the loss levels of energy of the companies.

7.3. Outside in analysis

The issues from the direct environment that affect or could affect the strategy

1. State of the energy infrastructure: no access to electricity in remote areas, the integration into the electricity network is not economically sustainable. Especially in the North and North East of Brazil the households are lacking access to energy. The affected communities have the worst Human Development Index in the country.

2. Market structure: With the introduction of the single buyer market, the electricity market moves further from publicly held to private investment depending on the regulatory framework. This development increases urgency of establishing oneself in the market.

Especially those clients at the bottom of the pyramid that are currently underserved and who will once developed play a vital role in the allocation of market share.

3. Labour markets: in order to establish the networks, skilled labour in the areas is needed; however, many of the people living in the remote areas do not have access to training and education

4. Education: Many of the children and women spend time to transport wood and water for the families. By giving access to electricity this time could be invested into education and training. This could lead to more people being able to get jobs and therefore increase the wealth of the communities.

5. The wealth of the communities: By providing access to services, information and education, the communities learn to sustain themselves. This will be essential for future market share as the communities will, once established, be important sources of revenue for the companies.

6. Access to health: In the remote areas the access to health services is difficult. This is closely linked to electricity, which is needed for clinics and education possibilities via the media

7. Ease the domestic burden for women: With new household appliances the women can do the daily household much quicker and can therefore take part in education and cultural activities. By integrating them into the labour market, the communities develop much more purchase power. Therefore, a system that fosters economic development in the communities in the long term will be vital to create a sustainable project structure.

7.4. The strategic focus

The strategic focus is the point where the companies and the communities reach a shared value. This point is when the economic development of the communities will in the long term create a new consumer base and therefore new source of revenue for the companies. In order to reach this a common vision needs to be agreed.

This vision is already defined: *Energia para Crecer*. Building up self-sustaining energy systems that will help the communities and the companies to grow. This sums up the need for access to energy in remote areas, the provision of education and training, the establishment of business systems, the access to health services and the social inclusion of young people and women. The social dimension of *Energia para crecer* can therefore easily be embedded in the value proposition of Neoenergia and its group companies. By integrating this vision into the core of the companies, CSR can be moved into the next step of strategic CSR and therefore help to develop a competitive advantage in the long term.

8. The pilot project

The evolution of the Brazilian electricity market through privatization and its impact on the low-income population, the results of the analysis of the CSR activities at Neoenergía and its responsibilities regarding the Luz para Todos programme, the focus of a strategically oriented CSR project will lie on those regions that cannot be reached by the Luz para Todos programme and still do not have access to electricity.

8.1. Project Outline

Although a lot of effort has been undertaken by Neoenergia during the last years, there are still communities in the distribution area of Neoenergia that do not have access to electricity. The Pilot Project will lead to the improvement of the living conditions of local communities in remote areas by providing access to modern and environmentally friendly energy and by supporting education and income generating activities in the region.

The project aims to create a centre for electricity access, education and cultural exchange. The main components of the project are an electricity hub, a community centre with a diverse training and education schedule, the provision of solar home systems and support for small-scale business based on a micro credit scheme.

By providing technical and financial assistance and entering into partnerships with different key actors, the living conditions in a pilot community will be improved by the following actions:

- 1) Provision of access to energy for a rural community → Setting up of a rural electrification scheme based on photovoltaic energy. The system consists of an energy hub (25- 40 KW, depending on the size of the local community) that is powerful enough to serve as a primary source of energy for the whole community. The hub will provide the community with the possibility to recharge different household appliances, lamps and batteries and thus provide them with access to modern energy. Neoenergia will set up the hub and provide the communities with the first appliances. Additionally Neoenergia supports the operation and the maintenance of the photovoltaic system. Apart from providing the possibility to recharge appliances the hub will also support communication, health, education and social activities for the local community. Therefore, the hub will contain a satellite telephone, a refrigerator and depending on the need of the community a water purification system.

- 2) Establishment of a community centre inside the hub. The hub will be used as a local culture and community centre. It provides space for meetings and development of social activities. Depending on the state of the primary school, it can be also used as a classroom.
- 3) Establishment of an integrated training and education centre for the local community to promote development for the region:
 - a. Providing technical training for around 10 micro entrepreneurs in maintenance of solar systems, marketing and sales.
 - b. Providing educational training for different areas depending on the needs of the local communities
 - c. Providing support for the establishment of income generating solutions in the region.

The project is intended to be a pilot project. All results of the project will be properly documented and Neoenergía will support the local government in the replication of the project in other areas of the affected states. The project will be measured by the actual results achieved. This will also define the future replication of the project and the transfer to other Latin American countries, IBERDROLA is active in.

To improve the access to solar energy by the different households inside the chosen local community, it is intended to accompany the project with the provision of micro credits. To make this feasible, Neoenergía cooperates with a financial institution. Loans for the purchasing of those household appliances that go beyond basic needs and for the purchasing of solar home systems will be provided to support income-generating solutions. To make sure that the project is focussing on the communities mostly in need of a rural electrification programme, a detailed assessment of the current situation in the region will be conducted. Stakeholder consultations in different local communities will be a first step to choose the local community for the pilot project. Depending on the interest of local communities to implement the project in their community and the availability of suitable local partners (NGOs and local government) the final project location will be decided upon.

Total duration of the pilot project will be 3 years. The project will develop gradually over the 3 years. While the first two years will be dedicated to set up the hub, and to provide training in different areas, in the third year the project will integrate activities that promote income generation and economic development in the affected area. These activities will consist in supporting the setting up of cooperatives and small businesses, as well as training for already existing cooperatives and SMEs on topics such as marketing or accounting. In the

year the replication of the project in another community will start. The number of replications will depend on the success of the pilot implementation. Up to three replications are foreseen

To guarantee the dissemination and replication of the project results outside of the states that Neoenergía is active in, the Ministry of Mines and Energy will be a partner of the project. Their main responsibility will be the dissemination of project results on a national level.

The project will contribute to sustainable development in Brazil by addressing some of the priorities identified by the Government of Brazil's national strategy for sustainable development. The strategy is being delivered through the federal ministries, which have each identified priority programmes, which contribute to the national strategy. The described project will contribute to the following key areas:

- Provision of sustainable renewable energy to rural communities
- Enhance educational facilities in rural areas

8.2. Scope of the project

When investigating the current focus of CSR activities and the scope of the Luz para Todos programme in the different distribution companies, it was decided to focus the first pilot implementation on COELBA.

COELBA has gained experience in using solar energy to connect rural areas to electricity and is with the ELOS project already working in the area of economic development in poor and rural areas.

These different efforts will now be brought together under the pilot project and serve as a starting point for strategic CSR. The exact location of the communities to be chosen will be investigated as a first step of the programme activities. Chosen communities have to fulfil the following criteria:

- 1) They have to be so rural that it is not economically viable to connect them to the grid.
- 2) The average income of the community is low. At least 50% of the community lives under the poverty line and their Human Development Index was classified as low.
- 3) The number of beneficiaries that can be reached by the solar hub is of at least 1000 households to guarantee that the solar hub can be self sustaining after Neoenergía leaves the project.
- 4) In case that indigenous communities show interest in participating in the project and FUNAI sees them as eligible under the current project focus, indigenous communities will be favoured when choosing the project location.

The project will be implemented following the necessities of the local communities. It is essential to the success of the project, that local culture and way of living will always be respected.

8.3. Detailed description of the different project components

8.3.1. Preparation phase and selection of the pilot community

As a first step Neoenergia will establish a partnership either with Eletrobras or with the Ministry of Mines and Energy to make sure that the project can be embedded in the Brazilian development strategy and to guarantee a further dissemination to other regions in Brazil. Afterwards a partnership with a local government body in the Bahia will be established. FUNAI will be closely integrated into all steps of developing the programme to make sure that all interests of indigenous communities are taken into account.

After having established the partnerships with the relevant government partners, a first study to choose the pilot community for implementing the project will be conducted. The main conclusion of the study should be the election of a limited number of local communities suitable as beneficiaries. The ideal number of suitable communities should be 3. Suitability will be defined by the level of access to energy, size of the community, suitable local NGOs interested in participating in the project, location of the community etc.

As soon as the possible pilot communities have been defined, a first stakeholder consultation will take place in each of the three communities. After the consultation, the first pilot location will be defined depending on the interest of the local communities to participate in the project. Only if the local community is interested in participating in the project and is willing to take over some of the responsibilities for implementing the project activities, the project will be successful in the long run. The local communities have to be willing to adopt the ownership for the project.

If more than one community turns out to be a suitable beneficiary, the others can be chosen as communities for the further replication.

A local NGO, partner of the project, will conduct a detailed baseline study of the community. This baseline study will contain exact data about the local communities (number of households, number of illiterate people, level of education, different sources of income, purchase power of the household, distribution of income in the community, need for energy,

current cost for non-renewable energy like Diesel, kerosene or fire wood, main problems related to energy supply like health problems etc.) as well as qualitative information and expectations of the local communities identified through interviews and focus groups with the households.

The existing projects of Neoenergia and its partners may hereby also serve as a possible source for information.

The partnership with the financial institution has to be addressed from the beginning on. A memorandum of understanding between the two companies should be signed and the different modes of delivery of the micro credits should be discussed and designed according to the needs of the local population in the affected communities.

To be able to implement the project using as much of the internal competences that Iberdrola and Neoenergia can provide to the project as possible, some important parts of the project implementation will rely on employees that are volunteering to implement the pilot project. Implementing the project with internal volunteers guarantees a better commitment of the employees with the company, guarantees quality standards for the implementation of the project due to the possibilities to implement it using IBERDROLA's and Neoenergias knowledge and improves cost effectiveness. For further information on the volunteer programme see 8.6.

As soon as all pre-studies have been conducted and partnerships have been initiated, the setting up of the solar hub will start.

8.3.2. Setting up of the photovoltaic solar systems - the solar energy hub

The solar energy hub consists of a community and training centre that will be build by Neoenergía. This centre will consist of an area that serves as the solar energy hub for the local community. The centre will be equipped with solar panels and powerful batteries that will provide electricity for running the building (including the training venue to be established inside the building), as well as different recharge stations for lamps, batteries etc. Thus the centre will provide the access to modern energy for those households inside the local community that cannot afford their own solar home system. The project will work together with a local distribution company for providing and selling household appliances as well as with Energía sin Fronteras. Relying on the experience of Energía sin Fronteras, a training course will be developed that trains locals in all technical aspects of setting up and running, as well as maintaining solar home systems. Technical training on solar systems will be an

important aspect to guarantee the sustainability of the project. Local business creation for selling solar home systems and solar appliances will be supported by the project.

The land for building the solar hub and the training centre will be provided by the local government. Neoenergía will be responsible for constructing the building as well as for setting up the photovoltaic system. The latter will be done by corporate volunteers from IBERDROLA and Neoenergía (for further information see The IBERDROLA cooperate volunteering programme). These corporate volunteers will later on also be responsible for the maintenance of the system.

At the same time the local cooperative that has shown interest and capacity in running the electricity hub, will be trained. It has to be assured that this training is as in depth as possible, and includes technical aspects on running the centre as well as business skills, such as customer service, marketing, accounting etc.

The training will be implemented by the volunteers of IBERDROLA and Neoenergía and it will consist of two parts: the first part will be a basic technical training to teach the future responsible how the solar system works and the second part will be a management programme so that the future responsible has sufficient knowledge for running the solar hub in an efficient way.

The future responsible of the hub will be selected depending on the applications out of the local community. The decision will be jointly taken by the partnering local NGO. As the NGO has the best access and therefore assessment skill regarding the people living in the community.

The electricity hub will provide solar energy to the local community. It will provide different plug-ins that enables the local people to recharge their appliances. Neoenergía will partner with a local distributor of household appliances to be able to provide household appliances to the local community. Neoenergía will provide a basic minimum living standard for everyone registered in the local community. During the first year solar lamps will be provided with high subsidies by Neoenergía. People will receive the electric appliances depending on their individual needs at a very low price. Other electric appliances such as batteries, refrigerators etc. will also be provided by the distributor. The financial institution will provide micro credits to make it possible for the local population to buy these appliances.

Depending on the results of the baseline studies, the prices for recharging the household appliances will be calculated. While in the first three years Neoenergía will still subsidize the centre, in the following years, the fees that are being collected by the entrepreneur running

the centre, should be sufficient to guarantee the maintenance of the solar system, as well as an income for the business owner.

The building of the solar hub does not only serve as a recharging centre but also as a community centre. It, moreover, includes different appliances that support communication, health, education and social activities.

To improve the living conditions in the community, communication is of utmost importance. The mobile phone network coverage in Brazil is very poor for rural areas. Therefore the only viable solution is the provision of a satellite telephone inside the community centre.

The connection via telephone simplifies communication with other surrounding communities, family members etc. who do not live inside the local community and it helps to improve the competitiveness of the community. Communication services provide the possibility to be in touch with local authorities and for local businesses with their buyers. It also helps local businesses to get real time prices for their agricultural products, making them less vulnerable to agents profiting from rural communities without access to information about real prices.

The satellite telephone will be provided by Neoenergía. The locals will only be charged for the actual phone calls. The phone serves as another source of income for the small entrepreneur who is running the hub.

The community centre will also include a refrigerator. The refrigerator can be used for medicine that cannot be stored outside in the rather humid climate of the region. The refrigerator will serve as an important improvement in the health situation inside the local community. The refrigerator of the centre is not to be used to store the food of the local population. However, with the micro credit scheme of the financial institution, it will be possible for a number of households or small cooperatives to jointly buy a refrigerator for storing food or products to be sold.

When doing the baseline study the water quality in the region will be assessed. In case water quality is not fulfilling drinking water standards, Neoenergía will provide a water purification system. This will improve the health situation in the local community, since bad water quality is one of the main reasons for illnesses in rural areas. In case the water purification system is needed, an accompanying training programme on the importance of clean drinking water will be conducted to make sure that the people in the local community are aware of possible dangers of drinking the contaminated water.

The electricity hub contains a room that can be used as a cultural and community centre by the local community. Different activities will be developed in the cultural centre. Different forms of digital media will provide access to information, cultural education and entertainment

to the community. Depending on the existence or the state of the primary school in the village, the community centre can also be used as a classroom during the day.

To be able to use the solar hub in the mentioned ways, it has to be made sure that it is properly build. Certain basic building criteria have to be considered when building the hub. IBERDROLA is currently implementing a programme in Mexico that is upgrading schools with modern and cost effective sustainable building methods that improve insulation and cooling inside the building. Neoenergía can build on the learnings and knowledge from this project in Mexico when setting up the energy hub.

8.3.3. Distribution of solar home systems to remote areas

To assure that those households that are too far away from the solar hub are also enabled to recharge their appliances and to access to modern energy, several solar home systems will be provided for free. These solar home systems will be provided in the second year of the project.

To make sure that there are clear criteria for choosing the households applicable for getting free or highly subsidized solar home systems, baseline data on those households that are far away from the community but still are part of the chosen pilot region will be collected. Those households that fall under the established criteria can then apply for a free solar home system.

8.3.4. Establishing an integrated training and education centre

As already mentioned when describing the setting up of the hub, the centre will not only serve as a recharge station for electric appliances but also as a training and education centre for the region. Beneficiaries of the training will be those that come to the centre to recharge their appliances as well as other people from the community and the surrounding regions.

Different kinds of training will be offered at the centre. On the one hand, technical training for maintenance of the solar home systems will be provided. A basic training course on how to use solar energy for everyone, as well as more specific trainings (for electricians or other people interested in working with solar energy) on the maintenance of the hub and the solar home systems and on the installation of solar home systems will be provided. The people trained shall not only be able to repair and install photovoltaic systems, but also to sell and distribute them in the region.

An interesting partner for the development of the curriculum for this training is Energías Sin Fronteras. Their experience in developing curricula for similar trainings will be used and the existing training materials will be adapted to the specific needs in Northeastern Brazil. The

trainings will start in the second year and will also initiate first local economic development. While the curriculum will be jointly developed with Energias sin Fronteras, the actual training can later be implemented by the corporate volunteering programme with support of the NGO to make sure that the way of teaching is adapted to the Brazilian background. The trained solar experts will be able to offer their services to the local community, as well as to sell further solar home systems in the regions and to maintain them. It is intended that out of the training around 10 new small businesses related to energy services will arise. In this training not only the people from the local community, but also from the prospected replication communities will be trained. The technical training will only take place once and will not be repeated with the replication projects. However, there will be a helpline at Neoenergia that supports the technicians that have been trained under the project scheme.

This training will be an important part to assure the sustainability of the project, once Neoenergía leaves the area. After an inauguration period of two years, the local communities will be able to proceed without the help of the engineers of Neoenergía.

Apart from this merely technical training, the project will also provide training on different other issues. At the beginning of the second year a first training that will focus on energy related topic will be implemented. The current training programmes for energy efficiency and energy safety that are provided by the Neoenergía distribution companies can be used for this first training slot. The training will be implemented by Neoenergia volunteers.

Simultaneously to implementing the energy related training, the local NGO will start training need assessment in the local community. Depending on the results, different training topics will be defined and partners for implementing trainings on themes such as primary education, nutrition etc. will be elected.

These non-technical trainings will then be implemented during the course of the second year of the project.

The third year of the project will be mainly dedicated to providing support for the establishment of income generating solutions in the region. People interested in setting up their own enterprise will be supported in creating a business plan and will be provided with subsidies related to energy appliances. When the micro enterprises start developing their business plans continuous support by the project manager will be provided. The support will also include technical input for setting up the enterprise, production etc..

Supporting income generating solutions will not only consists on the support of new entrepreneurs, but will also include existing micro enterprises. The existing enterprises will be trained in business skills, such as accounting or marketing. Strategies on how to distribute

the products outside of the region will be jointly developed by the project team and the local entrepreneurs. A special focus will be placed on women entrepreneurs.

8.3.5. Further distribution of solar home systems

Those households inside the local community that are interested in having their own solar home system will have the possibility to buy solar home systems from the recently trained new entrepreneurs. The following system type will be promoted by the project.



Table 20: The solar home system

The provided system consists of the following parts:

- Photovoltaic panel: The produced energy in this module is of 12V.
- Battery: equipment to be able to store the energy produced in the photovoltaic panel during the night or during a few days without sun.
- “Controlador de Carga”– equipment to protect the battery from being overloaded. Guarantees a longer life of the battery.
- Inverter: Equipment that transforms the energy of 12 V into 127V (alternative current at 60 Hz)

Different financing models for purchasing the solar home systems will be established with the micro finance institution.

8.3.6. The micro credit scheme

The project will set up a partnership with a financial institution such as BBVA Brazil. The financial institution will bring important benefits to the programme. The financial institutions will open up credit lines for the beneficiaries of the project. As an initial investment the

financial institution will investigate the possibilities for a new micro credit line for renewable energies and related services. To set up the system and to support the local communities, the financial institution will provide the micro credits at a very low interest rate. As soon as the project is being consolidated, the interest rate for a micro credit will be based on the current interest rate in the market to guarantee the sustainability of the services provided to the local community. The repayment of the loans can be organized via the community centre inside the electrical hub, which will reduce transaction costs and does not make it necessary that a branch of the bank opens up in the village.

All decisions on how to do the financing of the micro credit scheme and how to set up the micro credit scheme in detail are subject to the sole decision of the financial institution. The partnership between IBERDROLA and the financial institution will only consist of a Memorandum of Understanding that considers the time frame of the project and assigns the responsibilities to the different partners. The impacts that will have to be reached by the project will be defined. The planning on how to reach the different impacts is solely up to the partners.

8.4. Expected project impacts

The expected project impacts can be divided into quantitative and qualitative impacts. The replication of the project will depend on reaching the impacts planned for the first pilot application. In case the following impacts are reached during the first application, the other two projects will be implemented.

Quantitative impacts:

Approximately 1000 households will receive access to modern energy during the first year (depending on the size of the community)

10 small electricity service entrepreneurs and social entrepreneurs have been trained.

Around 1500 persons have been reached by training on the sustainable use of solar energy (energy efficiency and energy safety).

Around 1500 persons have been reached by trainings on different topics to be defined during the project

20 new micro enterprises have been established and another 20 have been supported in improving their business activities during the project duration.

Qualitative:

Access to modern energy allows families to upgrade their living conditions

Reduce the percentage of rural populations moving to the cities

Provide access to electricity in an environmental friendly way

Increased quality of life for families in isolated regions in Brazil using income models

Through the productive use of energy, the families will be able to increase their income.

8.5. Project Management

The project will be managed by a full time project manager that will be hired by Neoenergia. His main office will be located at the Coelba head office with another small container office (at the beginning) and an office inside the hub on a later stage of the project at the project location.

Initially the project manager will be hired for 3 years. However his contract will contain an option to be prolonged up to 5 years.

To support the project manager in all financial and budget related questions, as well as in the coordination of the volunteers and general office work, a secretary and personal assistant to the project manager will be hired. The personal assistant will be located at the project location in the local community.

Apart from the project manager, the secretary and the personal assistant (each 36 months), a coordinator at Coelba will be nominated for the project. He will be responsible for providing Coelbas institutional contacts and support in the management of the project (4 months).

Additionally the volunteers will play a crucial part in implementing the project, a total number of two months for international volunteers, as well as around ten months of volunteers from Neoenergia.

Conducting the baseline study, the training needs assessment and different other studies will be the responsibility of the local NGO. They are also responsible for the relations with the local community and are active in supporting the implementation of different practical trainings and activities inside the local community. A total number of 25 months is expected. The representatives of the local NGO will be paid for the work they are doing for Neoenergia. The same accounts for Energia sin Fronteras. Their responsibility is the adaptation of the technical training as well as supporting the implementation of the technical training in the local community. A total of ten months has been calculated for the support necessary by Energia sin Fronteras.

8.6. Partners

The project will not be implemented by IBERDROLA and Neoenergia alone, but in partnership with different actors. These partners have different roles and responsibilities and will support the project in implementing its final objectives and provide an important contribution to the sustainability of the project.

8.6.1. Local NGO

The local NGO is of great importance for implementing the initial stakeholder dialogues and participation in the different communities. The organization will initially be the main point of contact with the local community and will explain the project of Neoenergía to the local communities. The NGO has an in-depth knowledge of the local community and it will be easier to setup the relationship to the local people if the NGO plays an active role in the project. This will furthermore establish a fundament of trust into the project. Initially three NGOs will be contacted, each one operating in the particular area selected in the first step of the project.

Once the area for the pilot implementation has been chosen, a partnership with the NGO operating in this specific area will be established. The main responsibility of the NGO will be a detailed baseline study on the community, integrating aspects like purchase power, illiteracy rate, access to basic services, drinking water quality, number of households, level of education, different sources of income, distribution of income in the community, need of energy, current cost for non-renewable energy like Diesel, kerosene or fire wood, main problems related to energy supply like health problems etc. The study will be the main basis for setting up the project and will provide an overview about the general characteristics of the area. Another responsibility of the NGO will be conducting a training needs assessment in the community.

To guarantee the adaptation of the different trainings to the local conditions, the NGO will support the implementation of the different trainings for the local community.

During the whole duration of the project the NGO will serve as an intermediary between the local community and Neoenergía to maintain the level of trust.

8.6.2. Local Government

In order to obtain the license to operate in the chosen area and in the Brazilian electricity sector in general, Neoenergía will strongly integrate the local government into the pilot

project. The main contribution of the local government will be the provision of the land the hub is build upon.

The benefit for the local government will be improved economic conditions in the area and thus an improvement in the standard of living in the affected communities.

8.6.3. Financial Partner

To make the project sustainable the people inside the village that would normally not be able to afford financial loans will need possibilities to sustainably finance different electrical appliances, solar home systems and need access to finance for setting up small scale businesses. Therefore one important partner will be a financial institution such as the BBVA: Neoenergía wants to involve the financial institution and will set up a partnership for developing a microcredit system that helps the people of the community to start little businesses and push the local area into a true economic development. Additionally, the financial institution will provide microcredits to the people interested in buying household appliances or solar home systems.

The financial institution has to provide a long-term commitment and should stay in the area after the project has been finished. This will be of interest for them, since setting up a micro credit scheme for renewable energy and related businesses can be an interesting approach to open up a Bottom of the Pyramid market in rural areas in Brazil and furthermore to demonstrate strong social commitment.

8.6.4. Energía Sin Fronteras

Energía sin Fronteras is a non-profit organization based in Spain. Its main purpose is to provide access to energy and water to those who don't have access to these basic services. One of its main objectives is to provide energy to rural isolated areas. The NGO implemented several projects related to electrification of rural areas and some projects using solar energy in rural areas. One of its projects was the establishment of a solar classroom in India. The experiences gained during this project can be adapted to the situation in Brazil and serve as a basis for the training course that will be developed for local small electricity entrepreneurs. Due to the experience, Energía sin Fronteras will be an important partner for Neoenergía.

Neoenergía considers the NGO as an external expert that will provide important input for setting up the technical training programmes. The NGO will profit due to the fact that they will be able to disseminate their project results to countries they are currently not active in. The

project will serve as a reference project for them and serve their mission to bring electricity to those living in rural and isolated areas.

8.6.5. Ministry of Mines and Energy

The Ministry of Mines and Energy will be involved into the project from the beginning on. Main responsibility of the Ministry will be the provision of contacts with the local government, as well as the dissemination of project results to other areas in Brazil. Additionally they will serve as a further source for funds and fundraising for the project. A partnership with Neoenergia will improve its relations to the private sector and the different regions. It provides them with interesting and easy to replicate approaches on how to support local development in partnership with the private sector.

8.6.6. Other partnerships

Other partnerships will be implemented in a later stage of the project; they will be defined in detail during the two initial years of the project. These partnerships will be developed according to the necessities defined in the training needs assessment and other possible needs coming up during the two initial years.

Possible partners will be the following:

Partnership with universities and other training centres: Neoenergía will establish a workshop with the different universities and training centres in the North of Brazil to see which are interested in supporting the project regarding educational issues. Interesting topics for the partnership could be issues related to basic health services or hygiene, nutrition or biodiversity.

Depending on the results of the training needs assessment these partnerships could also be set up with other big companies that are interested in opening up their services for the bottom of the pyramid. This could for example imply a partnership with an international pharmaceutical company that can provide needed medicine via the hub to the people in need. Or a partnership with a food company that can introduce products that in size are adjusted to the needs and financial possibilities of the population.

8.7. - Stakeholder engagement

Throughout the whole project from planning to measuring the impacts of the project, Neoenergia will assure stakeholder participation. This will be achieved by a process of stakeholder engagement.

Main important stakeholders are a local NGO with close contact to the local community, Energias sin Fronteras, the local administration and the Ministry of Mines and Energy, the financial institution, different associations that represent interests of minorities, the local communities, suppliers and the employees and volunteers.

The stakeholders will be engaged by jointly conducting several field and baseline studies and workshops to investigate the specifics of the community.

Stakeholder engagement will support in defining on how to embed the project into the Brazilian development strategy. Another example of stakeholder integration will be the selection of the area for implementing the pilot project: After having conducted a first baseline study choosing three possible pilot communities, a stakeholder consultation will take place in each of the three communities.

8.8. The corporate volunteer programme

A corporate volunteering programme that includes IBERDROLA in Spain and Neoenergía will be established as an important pillar for the implementation of the project. The main advantages of a corporate volunteering programme for the programme are the guarantee of certain quality standards when implementing technical parts of the programme or training and the cost effective implementation of the pilot programme.

Neoenergia will fulfil the main activities of the volunteering programme.

However, the integration of IBERDROLA into the volunteering programme makes the replication of the project results and the project structure on an international level easier. Additionally corporate volunteering is a good option to build strong identification with the company, to reduce staff turnover and as an incentive for Human Resources when attracting talent to the company.

Corporate volunteers from IBERDROLA and Neoenergia will be used for the project in different fields and areas.

1. Volunteers for the construction of the hub:

The construction of the hub is divided into two main activities:

- *The construction of the building itself:* a construction company will be contracted for building the hub. A group of volunteers of Neoenergia will prepare the open competitive bidding that will be sent to different construction companies. Depending on the quality and the consideration of the guidelines for sustainable construction, a construction company will be chosen. The Human Resources department of Neoenergia will be responsible for choosing the volunteers that can best develop the open competitive bidding according to their level of experience.

Those elected by the Human Resources department can decide whether to participate in the project later on or not. Incentives will be provided to the volunteers such as an extra free day of holidays, a group volunteering lunch at the end of the project etc.

- *The installation of the technical aspects such as the solar panels:* The solar panels of the hub will be installed by volunteers of IBERDROLA. An internal call for volunteers will motivate the workers of IBERDROLA to participate in the project. The Human Resources department will pre-select the volunteers that are suitable for participating in the project depending on different criteria such as technical experience, languages, working performance, intercultural experience etc. In a second step the pre-selected participants will be drawn by lot. A total of two volunteers will be needed for the first pilot application. They will travel to Brazil for around four weeks during the first year of the project. The four week stay will partly count as vacations and will partly be normal working time. The participants will use ten days of their vacation and ten regular working days for their stay in Brazil.

At the arrival they will have a “one day formation” and a member of the NGO will teach them about the traditions of the community, how to behave etc. The training will enable the volunteers to gain an understanding of the way of life and the culture of the local community. It is very important that they understand the conditions of life of the community and the characteristics of the region to work afterwards in the project.

To increase the intercultural exchange, the two volunteers will stay inside the communities. IBERDROLA is paying the families willing to host the volunteers for food and accommodation. Additionally a welcome dinner will be to establish the dialogue between the volunteers, the locals and the local NGOs.

The volunteer programme is divided into two parts. The volunteers will install the photovoltaic system for the hub and will engage in different cultural activities with people from the local community in order to enrich the experience for both, the community and the volunteers.

Back in Spain the volunteers will have to write a feedback report that will be sent to the project manager. The project report will then be replicated in and presented to the whole company in order to achieve multiplication effects.

2. Training activities during the course of the project

The main activities regarding the volunteering programme will be implemented by the Neoenergia volunteers.

They will provide short trainings on different topics, be responsible for part of the implementation of the technical training for the small scale electricity entrepreneurs and will support the maintenance of the hub during the first years.

8.9. Social, Environmental and Health/Safety Impacts

It is important to point out that the actions proposed in the Project are not likely to generate negative impacts of significant magnitude and importance. The project focuses on improvements of the social and environmental situation in the area and is therefore likely to generate positive environmental and social impacts.

8.9.1. Environmental Impacts and Risks

Positive impacts:

1. The primary contribution delivered by the project is the provision of sustainable renewable energy to the local community.

The project focuses on an environmental friendly source of energy and will focus on solar energy. This source of energy has no environmental impact, and has a positive contribution to climate change. The alternative for provision of energy to the affected communities are small scale diesel generators. These have not proved very successful for rural community based applications due to maintenance issues and the need for regular fuel supplies to be transported to these remote regions. Consequently, the project is also contributing towards the mitigation of climate change by avoiding the production of carbon dioxide emissions and local air pollution.

2. Environmental friendly materials: The materials used for building the hub are carefully selected among those having the least impact on the environment.
3. Saving energy: Insulating materials will be used to maintain a constant temperature inside the hub and avoid the use of air conditioning. Additionally, training will be provided to ensure that people use their solar appliances as efficient as possible.

Negative impacts:

1. Suppression of native vegetation and soil erosion: Depending on the chosen area vegetation suppression will be an important environmental impact. Parts of the vegetation will be removed in the construction phase. Soil erosion is a risk associated to vegetation suppression, mostly important in the river margins. However, it should be pointed out that Coelba makes, as much as possible, use of non-forested areas for the development of the project.
2. Re-suspension of dust and air emissions: Earthmoving activities and traffic of construction vehicles may cause the re-suspension of dust in construction sites. However, these impacts will be restricted to the construction phase, will be localized and of low magnitude. If needed, dust emissions can be controlled with simple measures such as aspersion of water in soil exposed areas.
3. Fauna disturbance: The construction aspects that may cause disturbance to fauna are noise generation, vehicles movement, vegetation suppression, and presence of workers.
 - Noise generation and vehicles movement: they may temporarily drive fauna off.
 - Workers: they have to be trained not to hunt or collect animals or eggs.
 - Vegetation suppression: this is the major impact associated with fauna disturbance. It can cause the disappearance of some species or cause habitat fragmentation.
4. Waste generation: Increased waste generation will be temporarily caused by the construction activities. Additionally old batteries that cannot be recharged or broken household appliances might generate waste streams that cannot be easily disposed of in the village. Neoenergía will take back all waste that is related to electric appliances. People can store it at the hub and Neoenergía will pick up all electronic waste in regular intervals and guarantee a safe and environmental friendly disposal.

8.9.2. Social impacts and Risks

Development of the community:

The main objective of the project is the improvement of living conditions of the local communities. People living in the selected area will improve their living conditions due to the access to electricity. Access to electricity is an important driver for the improvement of basic living conditions. Additionally, the project will provide services related to health, education and communication. The project will also invest in a certain living standard of the whole community by providing solar lamps at a highly subsidized price, giving all people in the community the opportunity to prolong their workday or to do more social activities after dawn. The emerging of entrepreneurs will be supported by the project. People of the community who want to develop a small business or local cooperatives will receive special training programmes to improve their way of living and to bring further income to the local community.

Access to education:

In the course of the project, trainings for the community will be implemented involving several topics depending on the needs of the community. The technical training programme for the maintenance of solar systems will help young people or new entrepreneurs to enter the job market and thus provide better future perspectives for them and their families. Basic education for the local community by different trainings adjusted to the needs of the community will be provided. Not only the people participating in the trainings but also the rest of the local community by using the community centre will profit from the trainings. Literacy will be improved and access to information will lead to improvement of the livelihood of the local community.

Access to basic health service:

By providing training on different basic health related issues, as well as the fact that refrigeration will be provided to the community, the health situation in the community will be improved. Proper storage of simple medication as well as the availability of vaccines can be guaranteed by providing refrigerators to the local community.

Gender equality:

The project will have an important impact on gender equality. The training programmes on small business development will be especially focussing on women entrepreneurs. It will always be ensured that women equally participate in all trainings. Experience has shown that in paying back loans, women are a lot more reliable than men. Therefore also the micro credits will mainly be given to women which will improve their social standing in the local community. The access to modern electricity will furthermore ease their household burden and will enable them to use the time for educational and cultural development.

Consideration of indigenous areas and people:

The state of Bahia has a few indigenous communities scattered mainly along the coastal zone. COELBA avoids to cause any negative interference with indigenous areas and people. For that, studies and workshops with the help of the NGO will be conducted to assure that a fundament of trust with the indigenous is established and that all their concerns are considered in the development of the project. However, the first step of the project, the construction of the hub, will cause some slight and temporary disturbances to the community because of noise, dust and waste generation.

Consideration of quilombola communities:

Communities of former African slave descendants (known individually as quilombolas, and the communities as quilombos), live dispersed throughout the state of Bahia, particularly at or near the coastal zone. According to Brazilian laws and institutional framework, IPHAN coordinates, develops, promotes and supervises the contacts and consultations with quilombolas. In case the baseline study results in the situation that quilombos might be affected by the project (due to proximity of their livelihoods), a similar procedure to the case with indigenous peoples will be followed: studies and workshops will be implemented before developing the project and the project will only be implemented after approval by IPHAN and by implementing specific control measures.

8.9.3. Health and Safety Impacts and Risks

A health and safety programme will be implemented for the workers and the community involved in the project.

Specific training for people living in the community about a good and safe use of appliances will be developed. For further information see training activities of the pilot project. Specific training for the volunteers of Iberdrola about the conditions of life in remote areas of Brazil and how to behave will be implemented. The training will consist of a preparation course for the IBERDROLA engineers from Europe. They will be familiarized with the climatic conditions, specific health threats such as malaria, HIV etc. Additionally they will be familiarized with the local customs of the area to make sure that no problems regarding intercultural conflicts arise.

Risks of accidents: The construction of the hub may increase the risks of accidents involving the population in general, such as as the danger of people falling into trenches and holes excavated at constructions sites etc. These are temporary risks and can easily be prevented by the adoption of safety measures at construction sites. These safety measured will be visibly disposed at all construction sites. Special trainings on health and safety will be obligatory for all workers participating in the project.

8.10. Activities and Timeframe

Year 1	
	Set up partnerships (local and national government, BBVA)
	Preparatory activities (baseline studies)
	Develop the IBERDROLA Volunteer Programme
	Build the hub
	Set up a partnership with a distributor of household appliances and provide them to the local people
Year 2	
	Training for local people on energy efficiency and energy security
	Technical training for maintenance and assembly of solar home systems (solar classroom)
	Start distributing solar home systems to remote areas and interested households
	Conduct a training needs assessment for necessary trainings incl. looking for partners
	Start using the hub for different training and cultural activities
Year 3	
	Start with training and support for income generating solutions
	Start replicating the programme in another community

Table 21: Overview on main activities

Activity	Responsible	Year 1												
		Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dic	
Set up a partnership with the local government	Neoenergia	█												
Set up a partnership with the national government (ELECTROBRAS or Ministry of Mines and Energy)	Neoenergia	█	█											
Set up a partnership with BBVA	Iberdrola	█												
Set up Volunteer Programme at IBERDROLA	Iberdrola	█	█											
Baseline study of the area for choosing three possible communities for the project (includes drinking water quality)	Neoenergia		█	█										
Stakeholder Dialogues in all three communities	Neoenergia				█									
Chose the pilot community and a local partner NGO	Neoenergia					█								
Detailed study for the chosen community	NGO						█	█						
Propose the site for the hub and set up a contract with the local government	Neoenergia/ local government						█	█						
Provide the papers for the offer to choose the construction company	Volunteers of Iberdrola							█						
Choose the company for building the hub	Neoenergia								█					
Choose the volunteers for the assembly of the solar panels	Iberdrola Volunteer programme					█								
Set up the building for the hub	Construction company (responsibility of Neoenergia)								█	█	█			
Assembly of the solar panels	Volunteers of Iberdrola											█	█	
Set up the interior of the solar hub (recharge stations/ satellite telephone/ refrigerator etc.)	Volunteers of Iberdrola												█	█
In case of bad water quality, provision of a water purification system	Neoenergia												█	█
Chose the responsables for the solar hub (local SME or cooperative)	Neoenergia									█				
Training for the local SME responsible for running the solar hub	Neoenergia												█	█
Set up a partnership with a distribution company	Neoenergia				█	█								
Provide first appliances to the community	Neoenergia/Distribution comp.													█

Activity	Responsible	Year 2												
		Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dic	
Training for local people on energy efficiency and energy security	Neoenergia volunteers	█	█											
Adapt training curriculum of technical training with Energia sin Fronteras	Energia sin Fronteras/ Iberdrola		█	█										
Choose possible participants for technical training	Neoenergia		█	█										
Start technical training programme as first income generating activities and for maintenance of solar home systems	Volunteers Neoenergia				█	█			█	█				
Provide training on Marketing and Sales for solar home systems	Volunteers Neoenergia						█	█						
Start providing solar home systems to more remote areas	Neoenergia			█										
Set up an adapted micro credit scheme for selling solar home systems	BBVA	█	█	█	█									
Start selling solar home systems to interested homes in the local community and the region (by the trained local people)	Neoenergia and recently trained entrepreneurs										█	█	█	█
Do a training needs assessment for the local community	Local NGO	█	█											
Look for possible training partners	Neoenergia			█	█	█								
Set up partnerships for different training activities (non technical , e.g. health, nutrition etc.)	Neoenergia						█	█						
Provide training on different topics for the local community (punctual)	Neoenergia and Partners								█	█	█	█	█	█
Activity	Responsible	Year 3												
		Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dic	
Support in developing business plans for entrepreneurs		█	█	█	█	█	█	█	█	█	█			
Give training for Micro enterprises and future entrepreneurs (Marketing)							█					█		
Start replicating the project in another community		█	█	█	█	█	█	█	█	█	█	█	█	

Table 22: Activity plan

8.11. Budget

The project budget is calculated for the first pilot application, as well as the development of all training curriculums. It contains the costs for Human Resources (Project manager, project assistant, secretary, the coordinator at Coelba, the money that will be spent for the working time of the volunteers and the contribution of Energia sin Fronteras and the local NGO).

Additionally travel costs (national and international flights as well as accommodation in the local community and hotel costs) and the costs for equipment and supply are the main budgetary items.

The contribution of the financial institution (micro credits), as well as the local governments' contribution or other partners' contribution have not been calculated.

The total costs for the project (financed by Neoenergia) will be of 950.000 Euro.

For an exact budget specification please see the table below.

Budget specification per activity	All Years			
	Expenses	Unit	# of units	Costs (in EUR)
1. Human Resources				
<i>Subtotal Human Resources</i>				396.500,00
2. Travel				
<i>Subtotal Travel</i>				12.000,00
3. Equipment and supplies				
3.1 Purchase or rent of vehicles	Per vehicle	1	15000	15.000,00
3.2 Furniture, computer equipment	per Laptop	2	1000	2.000,00
3.3 Solar home systems (for isolated regions)	per solar home system	10	700	7.000,00
3.4 Construction of the hub	Subcontract	1	150000	150.000,00
3.5. Solar panels for the hub		1	200000	200.000,00
3.6. Various appliances (fridge, telephone, purification etc.)		1	5000	5.000,00
3.7. Maintenance of the hub	up to	1	30000	30.000,00
<i>Subtotal Equipment and supplies</i>				409.000,00
4.3 Consumables - office supplies	Per month	36	50	1.800,00
4.4 Other services (tel/fax, electricity/heating, maintenance)	Per month	36	250	9.000,00
<i>Subtotal Local office/Action costs</i>				10.800,00
5. Other costs, services				
5.7 Costs of workshops and reports		40000	1	40.000,00
5.8 Visibility actions (Website, Posters)		20000	1	20.000,00
<i>Subtotal Other costs, services</i>				60.000,00
	All Years			
Expenses	Unit	# of units	Unit rate (in EUR)	Costs (in EUR)
6. Other				0,00
<i>Subtotal Other</i>				0,00
7. Subtotal direct costs of the Action (1-6)				888.300,00
8. Administrative costs (maximum 7% of 7, total direct eligible costs of the Action)				62.181,00
9. Total eligible costs of the Action (7+ 8)				950.481,00

Table 23: Budget

8.12. Accountability and Transparency

To ensure the transparency and accountability of the project all meetings and decisions will be documented in written down form and will be visible for all stakeholders at all times. For each decision a responsible is defined who can be made accountable in case of failure. A yearly report will be developed to report the progress of the project and to show the detailed distribution of costs.

The project manager will be the spokesperson for the programme and is entitled to answer the questions of the media.

8.13. Sustainability of the project

The principle of shared value that we have discussed in the part on strategic CSR is our measurement of whether we have reached the target of developing a sustainable pilot project in the long term.

The project, on the one hand has to be sustainable for the local community and on the other hand should be replicable, tackle strategic interests for IBERDROLA and Neoenergia and play a role towards reaching the Millennium Development Goals.

The health of the communities

Regarding the sustainability for the community, the following aspects can be seen as the most important ones:

The project is focussing on self-sustaining itself. The project creates favourable conditions for improving local economic development in the region and fosters the improvement of the living conditions in the affected community. This is being reached by the provision of access to modern energy in an environmentally friendly way, as well as by the provision of trainings that support entrepreneurship in the region. The project is considering the most important sustainability criteria. The triple bottom line is always followed throughout planning and implementation of the project.

The economic wealth of the communities is improved by developing mechanisms that will self sustain the communities in the long term. At the same time the economic wealth generation through the access to energy and the advisory services on small scale entrepreneurship are used to enhance social inclusion by offering training, education and access to health services. The environment plays a key role in all the phases of the pilot project implementation. The use of renewable energy hereby at the same time avoids pollution and proves to be the economically most viable solution.

The project is based on the fundamental sustainability criterion of community participation. By leading a constant dialogue with the communities local action is encouraged and included in decision-making. The training programme is defined by actual needs that are discovered throughout the process of stakeholder engagement.

Regarding community participation it is also an incremental part of the project that local demand is covered by local supply. This is reached by enhancing and developing local business ideas and supporting them via the microcredit financing scheme. Hereby vocational training opportunities are offered which lead to an increase in the employment chances in the long term.

The communities that have been integrated into the project will be able to maintain the standard of living they have reached during the course of the project.

Sustainable growth for the companies

The pilot project serves IBERDROLA and Neoenergia in different ways. On the one hand they are fulfilling the social obligations they have in Brazil. This will guarantee them the license to operate from the communities, the government but also on behalf of the global society.

Moreover, the development of the pilot project and of strategic CSR at the Neoenergia Group companies creates an issues management and long-term basis for risk management. The constant stakeholder dialogue and the contact to local issues help to discover possible threats on the corporate reputation at early stages. This is not only important to the Brazil companies but also for IBERDROLA. With the strategy of internationalization IBERDROLA is expanding its global influence and will get more and more into the ridicule of public awareness. Therefore, a well-designed and sustainable project if reflecting the general business principles of IBERDROLA and Neoenergia may one day be the key to being able to prevent a crisis for the company.

Furthermore, the provision of services to the markets at the bottom of the pyramid may lead to a competitive advantage for the Neoenergia Group companies in the long term. Globally as many markets are saturated the bottom of the pyramid markets are developing to become the markets of tomorrow. Although at the moment companies have to invest more than they receive as a return on investment, the investments will pay out in the long term as the development of community wealth establishes future markets for the companies. This is especially important for the Neoenergia group companies, whose customers in many cases come from the lower income parts of the Brazilian society. The education of the customers on the use of energy will increase demand in the long term and will therefore enable Neoenergia to expand its customer base.

The inclusion of the activities in the government strategy for sustainable development in Brazil will strengthen and establish important relationships with the government, NGOs and associations and may lead to the Neoenergia Group companies to becoming “the companies of choice” for future governmental programmes which again may lead to having a competitive advantage in government bids.

The volunteer programme serves as an internal programme to increase the motivation of IBERDROLAs and Neoenergias employees. It will strengthen the sense of belonging and identification of the employees with the companies. In the long term this has a positive effect on turnover of staff and gives the Human Resource Department a tool to attract high potential employees.

To achieve and maintain this sustainable impact on the communities and on the companies, it is important to establish the sustainability criteria for all the group companies in the long term. This can be achieved by a thorough reporting system throughout the first phase of the project planning and implementation to derive learnings, establish communication channels and to discover synergies in the teamwork with the stakeholders.

The key to the reporting hereby is to assure accountability as far as possible. The reports should be realized on a regular basis and should be accessible by all stakeholders at all times.

8.14. Future replication of the project

Depending on the project implementation at Coelba, it is intended to expand the project focus to other regions. On the one hand the project can be adapted to the regions of the other distribution companies. Slight modifications will be necessary in Pernambuco since Luz para Todos has already reached its objectives in this area.

For the distribution of the project concept to other areas a partnership with the Ministry of Mines and Energy has been set up. They will be able to market the project concept to other areas in Brazil.

IBERDROLA itself will investigate if a replication in other Latin American Countries could be of interest to the company. A possible country for replication would be Guatemala.

The project results will be documented in case studies and fact sheets and will be included in the databases of all the companies. Neoenergia and Iberdrola will be able to promote their

project concept on different international conferences and with different international bodies. They can promote their concept in cooperation with the Global Compact and the World Business Council for Sustainable Development.

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