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EXECUTIVE SUMMARY

CENTRAL ELECTRICA S.A. E.S.P. () is an environmentally friendly renewable energy generation project that incorporates technological innovation in a project with sound financial performance and high growth prospects in the Colombian energy generation market. The project is framed by the 143 Law of 1994 (the electricity law) that reformed and opened the power sector to private participation and promotes a competitive market. The POWER PLANT will be interconnected to the Colombian power grid (SIN) and sell electrical energy via the established commercial channels already in place for the un-regulated energy market.

CENTRAL ELECTRICA S.A. E.S.P. will have an installed capacity of 19.9 MW with a net energy output of 166 GWh per year working with a 95% capacity factor. achieves this high efficiency by utilizing a pioneer and innovative technology known as ECS-SOLAR (Energy Conversion System – SOLAR) that uses stored solar energy to trigger and transfer kinetic energy over a very efficient turbine-generator coupled system. The power plant is expected to be in commercial operation by the middle of 2015, starting construction in February 2014, and having a construction period of approximately 14 months. The power plant main characteristics and costs are summarized in the following table.

POWER PLANT MAIN CHARACTERISTICS AND COSTS

Type of Project:	A Grid Connected Clean Energy Generation Power Plant
Type of Technology:	ECS-SOLAR (Solar with mechanical induction)
Project Location:	Toluviejo municipality rural area, Sucre State (Colombia – South America)
Installed Capacity:	19.9 MW
Net Energy Generation:	166 GWh/year (with a 95% Capacity Factor)
Construction Period:	14 months
Connectivity Substation:	Toluviejo @ 0.45 km distance
Overnight Capital Cost:	US$43,5 million dollars
Overnight Capital Cost Index:	US$2,200 / kW
Generation Cost Index:	US$35 / MWh
Fixed O&M Cost Index:	US$62 / kW per year
Grid Operator Approval:	Granted by Electricaribe on November 20, 2012
Government Connectivity Approval:	Granted by the UPME agency on January 18, 2013
Land Acquisition:	10 hectares of rural land acquired for the project
Environmental License:	Granted on November 8, 2013
Beginning of Construction:	February, 2014
Commercial Operation Entry Date:	June, 2015

Project Location

POWER PLANT is located near the Caribbean coast region which has the highest levels of solar radiation in Colombia, inside the municipality of Toluviejo, a small rural town in the Sucre state in Colombia - South America. The site is 10 hectares of rural land with the following GPS coordinates: 9° 27' 35.94" N and 75° 28' 46.95" W. The local economy is based on cattle grazing and informal and formal mining activities.

The power plant is located in the vicinity of the Toluviejo electric substation, very close to the ARGOS cement plant and over the main road that connects the capital city of Sincelejo and Tolu and important marine port terminal on the Caribbean coast. The power plant will be located about 18 kilometers north of Sincelejo (The capital of the Sucre state) and about 4 kms west of the Toluviejo's main urban center.

The POWER PLANT is just 12 kilometers east the Coveñas oil export terminal on the Colombian Caribbean coast which is currently being expanded to increase the country's export capacity of heavy oil production and representing a potential client for the project's energy sale.

Achieved Milestones

To date the project has achieved the following milestones in its development phase:

- The UPME's phase-1 registry approval corresponding to the pre-feasibility phase (November, 2011)
- The UPME's phase-2 registry approval corresponding to the feasibility phase (February, 2012)
- Selection of the most feasible location in the Caribbean coast (June, 2012)
- Preliminary engineering designs (October, 2012)
- Land pre-acquisition (October, 2012)
- Grid connectivity study (October 2012)
- Connectivity approval by the regional power grid operator (ELECTRICARIBE, November 20, 2012)
- Connectivity approval from the government's main energy agency (UPME unit, January 18, 2013)
- Basic electrical engineering designs (October, 2013)

- On-going detailed electrical engineering designs with a completion date projected by January, 2014
- On-going environmental licensing via an Environmental Impact Assessment (EIA)

With the final connectivity approval by the central government agency (UPME, Planning Unit for The Mining and Energy Sector) which is a division of the Energy and Mining Ministry in Colombia, the project now has the government "technical feasibility" blessing to be successfully executed after meeting all the required permits and licenses.

The land acquisition process has been started with a preliminary sale-purchase agreement executed in October 2012 in which the owners have committed to sell the land (10 hectares) to after the family partitioning/subdivision is concluded in October 2013. The land acquisition is expected to be completed by middle of November, 2013.

Selected Site Advantages

The Project connectivity to the power grid in the Toluviejo municipality (at the Toluviejo electric substation) provides great benefits including the following technical advantages:

1. Availability of 10 hectares of rural land to develop the project with room for potential future expansion phases.
2. High dispatch reliability given the availability of four (4) possible evacuation circuits or transmission lines in the Chinu distribution area.
3. Space availability at the Toluviejo electric substation to allow the construction of the interconnection line bay for the exclusive connection of the project.
4. Minimum transmission line easement distance of about 450 meters from the projects substation to the Toluviejo substation operated by ELECTRICARIBE.
5. Benefits for the regional power grid operator (ELECTRICARIBE) represented in a better voltage profile in their overall service area and reduction in transmission losses representing significantly increased revenue for the grid operator.
6. Several alternative access roads to the project site as redundancy access points during the construction and operation phases.

The Generation Technology

The CENTRAL ELECTRICA project is an environmentally friendly renewable energy generation plant that uses an innovative technology (ECS-SOLAR) that is fed with photovoltaic solar energy stored, controlled and released in the form of pulses to cause hyper expansion levels in a Nano-fluid closed circuit system that is in turned transformed into high pressure to induce kinetic energy over a turbine and generator coupling system. The Nano-fluid decays in time as it is expanded and contracted in the closed circuit system and needs to be replaced at regular periods and frequencies.

To achieve a total capacity of 19.9 MW, the project implements 26 ECS-SOLAR generation units with a power rating of **768 kW** (960 kVA) each and three stand-by units for a total of 29 generation units installed in the power plant. The three stand-by generation units along with the battery bank for energy storage allow for the power plant to achieve a 95% capacity factor.

The Commercial Strategy

The commercial operation of the power plant is based on structuring the project as a minor plant type (with an installed capacity lower than 20 MW) as classified by government regulations (CREG Resolution 86 of 1996) and opting not to be subject to the national central dispatch (CND) to sell its energy outside the energy SPOT market. This strategic operational/commercial scheme provides very important and critical commercial benefits and advantages. The main benefit of this commercial scheme is to allow energy generation and energy sales continuously without having to be subject to a lowest daily-price selection criteria and commercializing the energy via long term contracts to ensure a selling price that is more stable and usually higher than the energy prices of the trade (spot) market for periods of 10 years in average.

The marketing of all the energy produced by the power plant will be done by the well-established marketing agency, GECELCA, playing the role of a commercial agent and selling the power plant's energy according to the CREG guidelines (CREG Law No. 86 of 1996).

Implementation Costs and Revenue

The total budget for the construction and implementation of the POWER PLANT is estimated to be US$43,5 million to be financed in part by equity acquisitions from private investors and in part by debt from international capital sources.

Once in commercial operation the power plant is expected to have annual revenues from energy sales of about US$11 million with annual operational costs estimated at US$1.3 million and debt service payments of US$2.5 million dollars representing an annual profit level before taxes of approximately US$6.2 million during the first 10-year loan payment periods. After the 10-year loan payment period the project is expected to have annual profits before taxes of about US$8.8 million dollars.

PROJECT STRENGTH AND VISION

The increasing demand for electric energy to meet the global development rate, mainly in emerging countries like Colombia, is associated to a growing industrial sector and to the increasing number of people with more access to consumer goods. Along with an increasing energy demand, the escalating trend of energy prices has made energy alternatives an urgent imperative for energy security and sustainability around the world.

The Colombian electricity market relies heavily on hydroelectric (64%) and thermal (32%) power plants. These two major energy sources are subject to frequent generation uncertainties due to climate change (droughts) and timely and limited supply of fossil fuels. Even though the hydroelectric power plants offer the lowest priced energy (cost per kWh) they can be affected by "el Niño" phenomena triggering severe energy shortages like the one in 1992/1993.

The thermal power plants have increased their participation as a back-up system during drought seasons but offer the highest priced kWh in the market and are also subject to fuel supply uncertainties price fluctuations.

By supporting the development of clean and renewable energy alternatives, Colombia will diversify its energy sources to help support its vulnerable power matrix with more reliable sources of energy that are immune to climate fluctuations and limited fuel supplies.

The project's main technological and commercial strengths are listed below:

1. Clean and renewable energy with no environmental and social impacts

2. Average implementation costs in the Colombian market

3. Low and competitive generation costs per kWh

4. Reliable energy generation (95% capacity factor)

5. Short construction periods (14 months)

6. Flexible implementation site locations

The main value proposition of the project lies on the high reliability of the energy generated by the POWER PLANT combined with a very competitive market price which is at the same level of the hydroelectric kilowatt-hour market prices.

Thus, the plant has competitive generation costs and a very high capacity factor (95%) that makes it highly profitable and feasible financially. All the aforementioned leverage points give great strength to the feasibility of the project and make it a great asset for the country's energy matrix and for all the investors of the power plant.

A brief description of these main advantages is presented in the following sections to underline the most important leverage points of the project.

Free of Environmental and Social Impacts

The POWER PLANT does not generate carbon dioxide atmospheric emissions or operational waste that is potentially harmful to the environment making it eligible to be a Clean Development Mechanism (CDM) qualified project with the potential to sell carbon emission reduction certificates (CERs) during its commercial operation for an estimated 40 thousand tons of CO2 offset per year.

Average Implementation Costs

The project's implementation costs are approximately US$2,200 per installed kW which is within the average investment cost for most of the energy projects in Colombia including the thermal power plants being developed to back-up the dominant hydroelectric installed capacity.

Low Generation Costs

CENTRAL ELECTRICA has the ability to operate without any capital costs for fuel (coal, natural gas, fuel oil, etc.) and therefore offer a very competitive market price given its low generation costs represented mostly by operating costs, management costs, and the cost of regular maintenance programs for all subsystems of the generation process plus the legal and royalty costs that are standard in the country.

The average generation costs are estimated in the range of US$0.03 to US$0.035 per kWh making the project highly competitive even against the lowest priced kWh dispatched by the hydroelectric power plants in Colombia.

Reliable Energy Generation

The power plant will provide very reliable energy to the Colombian power grid, a grid which is highly vulnerable to weather fluctuations like the "El niño" phenomena capable of drying out hydroelectric reservoirs and diminish the energy dispatch. The power plant will also be immune to uncertainties in fossil fuel supplies of coal, natural gas, and fuel oil.

Short Construction Periods

Given its modular nature, the POWER PLANT can be implemented in a very short period of time of approximately 14 months. The infrastructure of the power plant includes only three main components: the main generation and control building, the electric substation, and the transmission line for connectivity to the national power grid.

These three main components can be constructed in short periods of time that are only affected by rainy seasons or delays in equipment supplies. Current power plant projects in Colombia are usually being delayed due to environmental and social impacts caused by extensive flooding areas of hydroelectric projects, environmental issues associated with thermal power plants (air emissions and extraction impacts), and social and community reluctance to accept hydro and thermal plants in nearby areas.

Flexible Implementation Sites

Given the nature of the POWER PLANT, it can be implemented almost anywhere with an average solar radiation level of 4.25 kWh/m2 per day. By having this flexibility, the project has been sited at the most commercially advantageous place to ensure continuous and reliable energy dispatch. The project has also been designed to minimize or eliminate the impact of external factors that are out of the power plant's control.

A comparison of the ECS-SOLAR technology implemented by the POWER PLANT with other conventional sources of energy is depicted in the table below. The table shows the average generation costs for the conventional sources of energy as well as the average capacity factors reflecting the percentage of time the power plant is in operation.

Table 1: Comparison of Generation Source Types

As can be seen from this comparison table, the ECS-SOLAR technology provides the lowest generation costs with a high capacity factor, making it a very attractive investment from a financial and growth prospective.

All of the aforementioned characteristics make the POWER PLANT a very high value proposition for the energy market in Colombia and around the world.

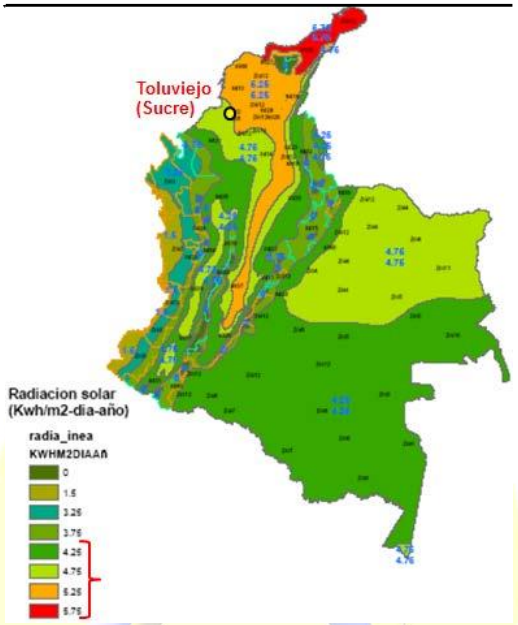
SITE SELECTION AND FEASIBILITY

The POWER PLANT was initially projected to be located in the region with the highest solar radiation levels in the country (La Guajira State) to maximize efficiencies. However, the preliminary engineering considerations for power grid connectivity resulted in very low feasibility and reliability for energy dispatch given other scheduled and on-going energy projects in the area and the limited transmission lines capacities in that region.

Due to its great flexibility, the ECS-SOLAR technology can be implemented in places with medium levels of solar radiation, and with this in mind, the development team searched for a more feasible site for the project. Most locations along the Colombian Caribbean coast in areas with mean values of solar radiation above the 4.25 kWh/m2/day threshold can provide enough solar radiation to sustain the technology.

After exploring different and feasible alternative sites as recommended by the main engineering consultants (GERS S.A.), the Toluviejo (Sucre state) site was selected. The Figure below shows the mean solar radiation map for Colombia and the relative location of the chosen Toluviejo site.

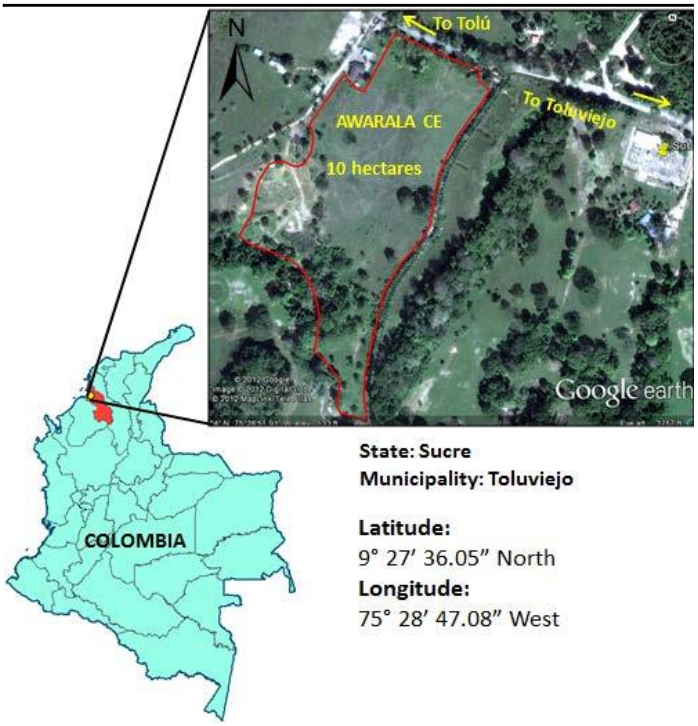
Figure 1: Mean Solar Radiation Map of Colombia



The project connectivity to the power grid at the selected site in the Toluviejo municipality provides all the aforementioned technical and commercial advantages. After the site was clearly identified, the grid operator was contacted to start jointly evaluating the technical feasibility for the project including the possibilities to expand the Toluviejo electric substation and the construction of the connectivity line bay to connect the exit power line of the project.

The proposed line bay at the Toluviejo substation (property of ELECTRICARIBE) will contain all the necessary high voltage switching and control devices and connections from the power line to the Toluviejo substation busbar system. The Figure bellow illustrates the location of the project in the north-west part of the country.

Figure 2: POWER PLANT Site Location



After the site was selected, the connectivity study was developed and completed on October 2012 by the consulting engineering firm, GERS S.A., and submitted to the regional grid operator, ELECTRICARIBE, who issued a positive technical concept approval on November 20, 2012 stating the technical feasibility of the project at the Toluviejo location.

After this technical concept approval, the formal request for connectivity was submitted to the federal government agency, UPME, for the final concept approval which was issued on January 18, 2013 granting the final approval for the project development at the proposed location in Toluviejo.

DEVELOPMENT TEAM

The developing team of the project is represented and led by its president, Dr. Oscar Robayo, and by its chief financial officer, Mr. Peter Oatman, as well as by GERS S.A. (http://www.gers.com.co), the engineering firm in charge of the EPC project contract and the support of its commercial agent, GECELCA S.A. E.S.P. (www.gecelca.com.co). A brief description of the main members of the team is provided below.

Oscar Robayo, Ph.D., An engineer with over 20 years of project management experience in the fields of civil engineering and water resources engineering, and with 5 years of involvement in the development of clean energy projects. Dr. Robayo has been leading the 's project development and structuring since de beginning of 2011, providing all his technical and managerial skills at the project's service to achieve great milestones like the most recent technical approval of the interconnection point by the UPME government agency. Mr. Robayo has a Bachelor of Science degree in civil engineering from the Universidad Francisco de Paula Santander (UFPS), a Master of Engineering from the Universidad de Los Andes, a Master in Hydrologic Sciences from the University of California at Davis, and a Ph.D. in engineering from the University of Texas at Austin.

Peter Oatman, P.E., An engineer with over 25 years of experience in the energy efficiency and renewable industries. Mr. Oatman is currently the Managing Member of Baja Renewable Energy LLC, an international renewable energy project development company. Mr. Oatman has served on the senior management team of three different energy project development companies in both national and international markets with two of those companies going public. He also helped raise the CleanTech Fund, a US$25 million private equity fund focused on clean energy investments in Latin America. Mr. Oatman served for five years as the Senior Consultant to the State of Colorado Office for Energy Management and Conservation. Mr. Oatman has a Bachelor of Arts degree in Biology from Colorado College and a Master of Engineering from the University of Colorado in Energy Engineering and is also a Registered Professional Engineer in the State of Colorado.

GERS S.A. is one of the most renowned electrical engineering firms in Colombia with a very well established and proven track record in the engineering field. Founded in 1981 in Colombia and with current presence in USA and Mexico, GERS S.A. has developed energy projects in more than 30 countries around the world.

GECELCA S.A. E.S.P. is the main energy generator in the Caribbean coast and began commercial operation in the Colombian wholesale electric energy market on February 2007, with a sound financial structure and corporate culture focused on the energy business. GECELCA is a mixed public utility company in Colombia, established as a shareholder corporation, subject to the system of public services and carrying out activities within the scope of private law as a commercial business. As a registered commercial agent and also as the largest thermal generator in the country (with 10% of the country's installed capacity) GECELCA has an established record and solid presence in the Caribbean region in Colombia, serving large non-regulated customers in the mining, oil, and energy industries like Cerro Matoso, Mansarovar Energy Colombia, TRANSELCA and ELECTRICARIBE.

CURRENT STATUS AND SCHEDULE

The major milestone achieved to date by the development team is the connectivity approval from the government's main energy agency, UPME, in January 18,
2013. With the approval of the connectivity point, the project has reached full maturity and is now ready to complete the next following milestones before starting construction:

1. Finalize land purchase (by November 2013)
2. Prepare Final electrical engineering designs (GERS S.A.)
3. Obtain Environmental license (CARSUCRE, by November 2013)
4. Obtain Construction license (Toluviejo municipality)
5. Finalize Civil engineering designs (Civil consultants)

The project has a total implementation period of about 18 months with the general schedule of tasks shown below along with the description of the main development phases. The beginning of commercial operation is projected to be on June, 2015 which plans for delays in construction, and equipment supplies mostly due to weather impacts during rainy seasons (April-May) and (October-November). The current schedule of tasks is planned to be finished by February 2015 if no delays occurred due to equipment supplies and/or harsh weather conditions.

Table 2: Project Master Schedule

MASTER SCHEDULE		2013			2014						2015		
Item	Description	Jul-Aug	Sep-Oct	Nov-Dec	Jan-Feb	Mar-Apr	May-Jun	Jul-Agu	Sep-Oct	Nov-Dec	Jan-Feb	Mar-Apr	May-Jun
1	Final Architectural Designs												
2	Land Acquisition (10 hectares)												
3	Civil Engineering Designs (Geotechnical, Structural, Hydrosanitary)												
4	Electrical and Ventilation Designs for Main Building												
5	**Environmental License (CARSUCRE)**												
6	Power Line Easement Agreement												
7	Construction License (Toluviejo)												
8	Basic Engineering Designs (Substation, Power Line, Control Room)												
9	Land Fencing and Enclosure												
10	**Construction of Access Roads, Main Building and Substation Civil Works**												
11	Bid Process and Selection of Equipment Suppliers												
12	Detailed Engineering Designs (Substation, Power Line, Control Room)												
13	Procurement Contracts Preparation												
14	Control Room Equipment Installation												
15	Installation of Electric Substation, Power Line, and Auxiliary Services												
16	**Installation and Start-up Tests for Generation Units (ECS-SOLAR)**												
17	Start-up Tests for Entire Power Plant Operation												
18	**Beginning of Commercial Operation**												

THE ENERGY MARKET IN COLOMBIA

The energy market in Colombia is regulated by a robust institutional framework that is overseen by the CREG agency (The Regulatory Commission for the Energy and Gas sectors, http://www.creg.gov.co). The energy market is structured around the 143 Law of 1994 (electricity law) that reformed and opened the power sector to private participation to promote a competitive market and to avert energy shortages like the one that occurred in 1992-1993 due to heavy reliance on hydroelectric power during a dry period of "El niño" phenomena. After the energy sector reform of 1994 more than half the generation capacity is now privately owned and a more competitive market has been implemented.

As a result of the 143 Law of 1994, the country now has a more diverse energy matrix with a significant participation of the private sector.

The Table below provides the percent participation per type of energy source. The Table shows a dominant participation of the hydroelectric sources with 63.7% and thermal plants with a 31.5% share and only 0.12% corresponding to new renewable sources with 18 MW of wind farms.

Table 3: The Colombian Energy Matrix Composition

Source: http://www.xm.com.co/Pages/DescripciondelSistemaElectricoColombiano.aspx

Recursos	MW	%	Variación (%) 2011- 2010
Hidráulicos	9,185	63.7%	7.7%
Térmicos	4,545	31.5%	11.2%
Gas	3,053		
Carbón	991		
Fuel - Oil	314		
Combustóleo	187		
ACPM	0		
Menores	635	4.4%	2.3%
Hidráulicos	533		
Térmicos	83		
Eólica	18		
Cogeneradores	55	0.4%	-0.2%
Total SIN	**14,420**	**100%**	**8.5%**

According to the UPME unit projections of March 2012, the energy demand in Colombia will grow at an average rate of 3.6% for the "medium" assumptions scenario, 4.1% for the "high" scenario, and 3.1% for the "low" scenario. These expected growth rates are very attractive for new power plants that are capable of offering a competitive kWh sales price in a well regulated lowest-priced-market. In addition there is great potential for international energy exports to Ecuador, Venezuela, South America, and Central America.

The energy market sector in Colombia is based on the purchase of energy by commercial agents and large size customers in blocks with buying scenarios in terms of power and energy in the existing and very well regulated energy trade market (MEM).

The energy market operates freely based on offer and demand market conditions. To promote a competitive market between power plants, the participation of private and public commercial agents is allowed as long as they are registered members of the interconnected power system.

On the other hand, commercial agents and large size energy users (non-regulated users) may sign energy-supply contracts directly with power plants. For these cases, the energy sale prices are established by free agreement between the acting parties without government intervention.

The operation and administration of the energy market is done by XM (http://www.xm.com.co), agency that is in charge of the National Dispatch Center (CND), the Administration of the Commercial Exchange System (ASIC), and the Settlement and Administrator of the Transmission Charges Accounts for Use of the National Power Lines (LAC). The next Figure depicts the energy market and commercial flow dependencies and interactions.

Figure 3: Energy Market Sectors and Players

A brief description of the main administrative bodies in the Colombian energy sector is presented in the following section.

MEM (Energy Trade Market): The energy trade market represents the commercial overall platform in Colombia for wholesale and buying operations in which generators and commercial agents from the public, private and hybrid companies exchange energy contracts under a very well regulated framework managed by the CREG agency (Regulatory Commission for Energy and Gas Sectors, http://www.creg.gov.co).

XM (a subsidiary of ISA S.A.): **XM** is the main agency in charge of operating and administrating the energy market in Colombia based on the 143 Law of 1994 and the regulations created by the CREG government agency (http://www.xm.com.co).

National Dispatch Center (CND): The National Dispatch Center (for its Spanish acronym) is in charge of operating the National Interconnected Power Grid (SIN) and its daily transmissions to customers.

Commercial Exchange System Administrator (ASIC): The exchange or commercial trade system administrator is in charge of performing and overseeing all the energy transactions in the market and administers the official registry of long term energy contracts as well as the registry of the commercial boundaries or points of monitored dispatch.

- **Short Term Energy Trade Market (SPOT)**: The energy SPOT market or short term energy market in which all the subscribed energy generators or power plants offer their selling prices through daily auctions and officially state their energy availabilities.
- **Long Term Contracts (PPAs)**: The financial long term contract markets in which the agents are covered against the highly volatile energy prices in the SPOT or short term market.

The main public agencies involved in the energy regulatory framework are shown in the Figure below along with their interdependencies and specific roles. From these agencies, the UPME unit and the XM administrator are the main key players for the power plant implementation phase.

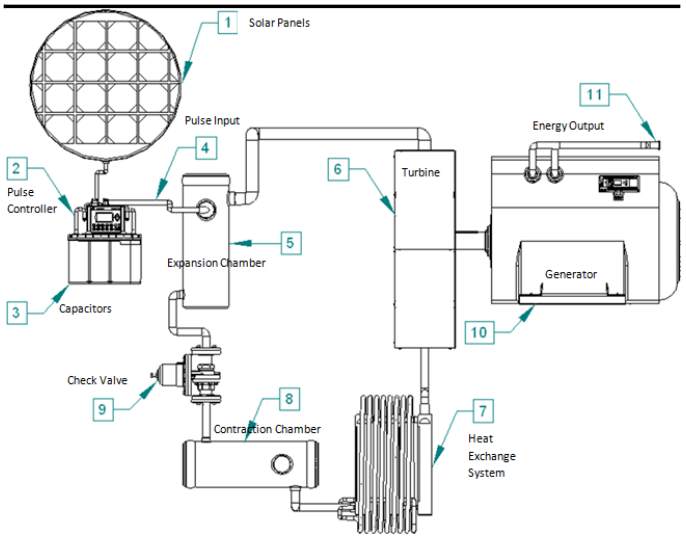
Figure 4: Regulatory and Legal Framework for the Energy Sector

THE TECHNOLOGY

The POWER PLANT implements the ECS-SOLAR technology which uses photovoltaic solar energy as input to trigger enhanced thermal properties in a closed circuit circulating Nanofluid causing a hyper-expansion effect that is transformed into high pressure to induce kinetic energy over an impulse turbine-generator coupling system.

The ECS-SOLAR technology schematic is shown in the Figure below that illustrates the main subsystems, their general sequence and interaction to achieve an efficient and robust system configuration.

Figure 5: ECS-SOLAR Schematics

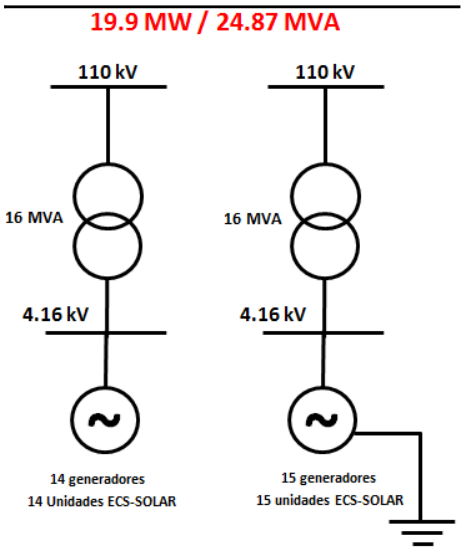


Under the ECS-SOLAR configuration, the solar triggering energy is captured using conventional photovoltaic solar panels (1) that is stored in deep cycle battery banks (3) from which electromagnetic pulses (2, 4) are injected to the circulating Nano-fluid system. The electromagnetic pulses induce hyper-expansion and transfer of kinetic energy over an impulse turbine that is coupled to a conventional alternator (6, 10). After the Nano-fluid is expanded and the mechanical induction exerted over the turbine, the Nano-fluid is contracted via heat exchangers (8) and contraction chambers to start over the cycle. Due to degradation and decay of the nanoparticles' thermal transfer coefficient, the Nanofluid requires 10% volume replenishment every 12 months and a complete Nanofluid replacement and a system overhaul in approximately 10 years. The ECS-SOLAR technology can be classified as a Solar Thermal technology, which is conceptually similar to those implemented in GEMASOLAR (Spain) and Ivanpah (California).

After the energy is generated via the ECS-SOLAR units and its coupling system to conventional three-phase synchronous medium voltage alternators (MarelliMotori alternators, http://www.marellimotori.com), the energy is conveyed to an electric substation to raise the voltage level from 4.16 kV to 110 kV by means of two (2) power transformers having an individual capacity of 16 MVA each.

Once the energy voltage is raised to 110 kV, the energy is then interconnected to the Toluviejo substation via a 110 kV transmission power line with a length of about 450 meters. The main generation/transformation scheme is shown below.

Figure 6: Generation and Transformation Schematics



THE BUSINESS MODEL

The POWER PLANT will be commercially represented by GECELCA S.A. E.S.P. (www.gecelca.com.co), a registered commercial agent (and also the largest thermal generator in the country) with an established record and with solid presence in the Caribbean region serving large non-regulated customers in the mining and oil industries like Cerro Matoso, Mansarovar Energy Colombia, TRANSELCA and ELECTRICARIBE.

The main energy market in Colombia is composed of regulated (residential, commercial, and medium industries) and unregulated markets (large size industries).

The unregulated (an ever growing) energy users correspond to large size energy users having consumption levels above a minimum threshold predetermined by the government via CREG Laws (CREG Resolution 131 of 1998) and defined in terms of power in MW (with monthly mean demand greater than 0.1 MW) or a minimum energy consumption of 55 MWh per month.

The registered non-regulated energy customers can freely negotiate energy prices with commercial agents without following government tariffs and regulations, representing the main clients and the commercial strategy to be followed by the POWER PLANT.

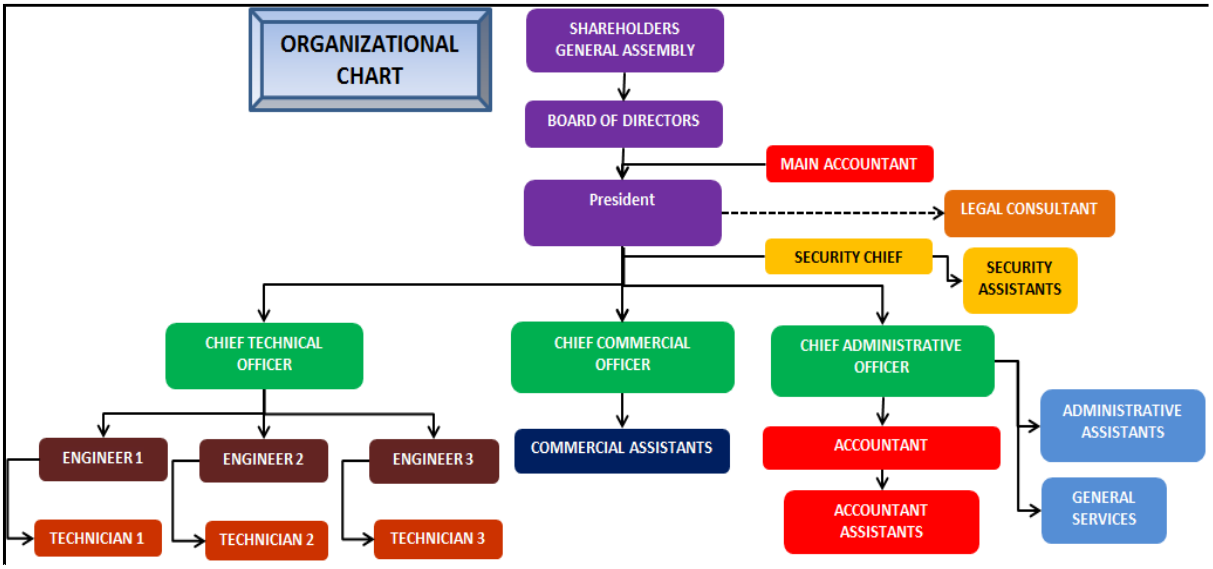
Based on projected levels of annual energy generation outputs and a pre-negotiated sale prices with GECELCA of approximately COP120 pesos per kWh (US$0.07 dollars per kWh) the level of annual revenue via energy sales is shown in the following Table with the values calculated for the estimated energy outputs and their corresponding annual sale figures of approximately US$10,6 million.

Table 4: Energy Output and Associated Annual Energy Sales

Capacity Factors and Energy Output	
Capacity Factor	**95%**
Power Capacity (MW)	**19.90**
Energy Output (kWh/yr)	**165,607,800**
Energy Output (MWh/yr)	165,608
Energy Output (GWh/yr)	165.61
Energy Output (kWh/month)	**13,800,650**
Annual Energy Sales (USD$)	**10,546,602 USD**

The main operational costs for the project stem from the personnel as it appears in the organizational chart of the power plant and as shown in the next Figure and from the maintenance program scheduled for each sub-system.

Figure 7: Project's Organizational Chart



Using the annual energy sales income projections of about US$10,6 million, the operational costs of the POWER PLANT, and the required legal costs, the following table shows the estimated annual profits before taxes for both the debt service period, and for the period after the loan has been paid.

Table 5: Profit Estimates before Taxes

The estimated implementation costs of the project are approximately **US$43,529,948** distributed among the following investment items as depicted in the budget table below.

Table 6: Implementation Costs General Budget

No.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT COST USD	TOTAL COST USD
STAGE 1: STRUCTURING, PERMITTING & ENGINEERING STUDIES					
1	Structuring and Permitting Costs	Global	1	1,400,000 USD	1,400,000 USD
2	Management & Operational Costs	Global	1	650,000 USD	650,000 USD
3	Architectural & Civil Engineering Designs	Global	1	98,000 USD	98,000 USD
4	Power grid connectivity study	Global	1	26,000 USD	26,000 USD
5	Conceptual Design and Engineering Studies	Global	1	25,000 USD	25,000 USD
6	Environmental License	Global	1	26,000 USD	26,000 USD
7	Basic Design and Engineering Studies	Global	1	80,000 USD	80,000 USD
8	Detailed Design and Engineering Studies	Global	1	50,000 USD	50,000 USD
STAGE 2: FINANCIAL STRUCTURING COSTS					
9	Financial Structuring Costs	Global	1	300,000 USD	300,000 USD
STAGE 3: CIVIL INFRASTRUCTURE					
10	Land acquisition	Has	10	26,000 USD	260,000 USD
11	Power line easement agreement	m2	5,500	2 USD	11,000 USD
12	Construction licensing	Global	1	6,000 USD	6,000 USD
13	Property perimeter fence	Global	1	260,000 USD	260,000 USD
14	Preliminary civil works and access roads	Global	1	980,000 USD	980,000 USD
15	Construction of generation building/powerhouse	Global	1	2,000,000 USD	2,000,000 USD
16	Project Insurance Coverage	Global	1	90,000 USD	90,000 USD
STAGE 4: TECHNOLOGICAL IMPLEMENTATION					
17	Installation of power generation units (29@768 kW)	Unit	29	1,000,000 USD	29,000,000 USD
STAGE 5: ELECTRICAL & ELECTRONIC SYSTEMS					
18	Installation of control room equipment	Global	1	1,200,000 USD	1,200,000 USD
19	Construction of electric substation & Connectivities	Global	1	7,000,000 USD	7,000,000 USD
20	Construction of transmission power line (450m @110 kV)	km	0.5	500,000 USD	250,000 USD
21	Upgrade and retrofit of interconnection point (Line Bay)	Global	1	461,948 USD	461,948 USD
22	Systems integration and start-up tests	Global	1	100,000 USD	100,000 USD
STAGE 6: HVAC & SECURITY SYSTEMS					
23	HVAC system installation	Global	1	600,000 USD	600,000 USD
24	Security, access control and monitoring systems	Global	1	320,000 USD	320,000 USD
				TOTAL COST =	45,193,948 USD

CASHFLOW PROJECTIONS

The projected cashflow for the previously outlined income and estimated operational and legal costs over a 25-year period is shown in Appendix 1. The financial projection assumes a funding strategy for the implementation costs composed of private equity investment for about 60% of the project implementation costs, and an internationally sourced debt facility for about 40% of the total implementation costs of the project.

Based on this projected cashflow, the annual average profits of the POWER PLANT (see Table 5) over the 10-year period in which the loan is being paid is shown below, as well as the average profit for the years thereafter. Table 7 shows a financed IRR profitability index equal to **18%** (after taxes), and an average benefit/cost ratio of **2.27**.

Table 7: Profitability Indices (USD)

IRR % (for 25 years) =	**18%**
Benefit/Cost Ratio =	**2.27**

MARKETING AND SALES

The current energy supply/market conditions in Colombia are not optimal due to high reliance on hydroelectric power and a growing stand-by infrastructure of thermal plants (fueled by coal, natural gas, and fuel oil) that makes the market highly volatile and uncertain. Energy prices fluctuate in a seasonal fashion due to climate effects in reservoir capacities and due to dependencies on fossil fuel supplies, with an expensive kWh dispatch during drought periods.

The current climate change impacts affecting the planet and the non-renewable nature of the existing thermal plants fed by fossil fuels, envisioned as thermal support to potential energy deficits (a back-up for hydroelectric energy shortages), provide a great leverage point to the POWER PLANT and all the benefits it provides as a more reliable source of energy that is completely independent of climate change fluctuations and of limited and costly supplies of fossil fuels.

The sale of all the energy produced by the POWER PLANT will be done via a long term contract/commercial agreement (for a 10-year period) with a very well established marketing agency, GECELCA (www.gecelca.com.co), playing the role of a commercial agent in charge of selling the plant's energy according to the CREG guidelines and regulations (CREG law No. 86 of 1996).

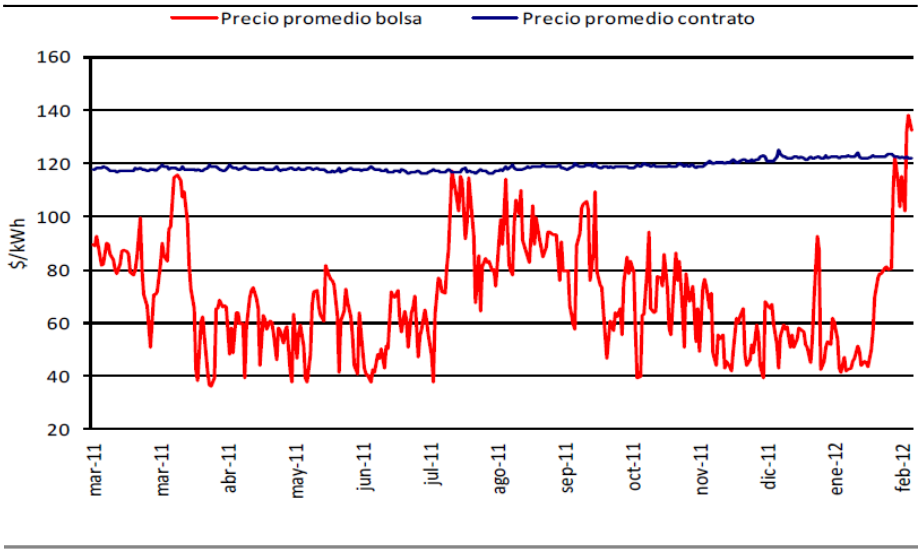
The target market served through GECELCA is composed of the ever growing unregulated market in Colombia with large industry oriented companies like Cerro Matoso, Mansarovar Energy Colombia, ELECTRICARIBE, and TRANSELCA serving the mining, petroleum, and energy industries flourishing all over the country. All these large industry clients with current energy contracts with GECELCA provide a robust financial scheme for selling the energy generated by in a mature, robust, proven, secure and stable commercial market.

By adopting this marketing strategy in which a very well established commercialization company is in charge of selling the energy of the project, the POWER PLANT has a "built in" and worry-free marketing strategy to secure the clients for its energy sales.

This marketing strategy relies on the proven track record and experience of GECELCA to finalize the power sales agreement in the regulated market. The commercial agreement provides GECELCA with a fixed commission and grants with a previously agreed to sale price for its power which is projected to be at about COP120 pesos per kWh or US$0.07 (7 dollar cents) per kWh.

The historic record of the energy prices in Colombia is shown in the Figure below.

Figure 8: Comparison of Long Term Contracts (PPA) and Short Term Trade Market (SPOT) Energy Prices



*Fuente datos: XM – Sistema de información Neón – Consultado Marzo 2012.

The commercial scheme devised and adopted by via a long term contract with an established commercial agent provides a robust framework that ensures sound financial revenue that is more stable (see blue line in Figure 8) than the hour-by-hour "SPOT" market system prices that are subject to large fluctuations in the market (see red line in Figure 8).

Under this commercial scheme, will be able to focus on optimally operating the power plant, gaining generation efficiencies, and lowering the operational costs every quarterly period to increase its operational profits and ensure a more robust and sustainable financial structure.

Once in operation, the project will also be eligible as a Clean Development Mechanism (CDM) project via the Protocol Carbon Fund (PCF) with about 35k tons of CO2 reduction emissions representing an additional annual income from sales of certified reduction emissions (CREs) of about US$174,000 dollars (see Figure 9).

Figure 9: Protocol Carbon Fund Revenue Estimates

Prototype Carbon Fund (PCF/CER) Estimated Income	
Price of Carbon Credits per tonCO2 (USD/tonCO2)=	$5
Project Generation (MWh/yr)=	165,608
Emission Factor (tonCO2/MWh)=	0.21
Baseline Emission (tonCO2/yr)=	34,778
Emission Reduction (tonCO2/yr)=	34,778
Payment per Certified Emission Reduction (USD/yr)=	$173,888

THE COMPETITION

As mentioned before, the key players in the Colombian energy market are the hydroelectric power plants and the thermal power plants. Out of these two main players, the hydroelectric energy is the one with the lowest energy prices with an average generation cost of approximately US$0.04 (4 dollar cents) per kWh.

Table 3 depicts the energy matrix composition in Colombia by types of technology and shows a 64% reliance on hydroelectric power making the supply very sensitive to climate change and drought conditions that can generate energy shortages like the one experienced in 1992/1993.

By having an average generation cost of about 3 to 3.5 dollar cents per kWh, the POWER PLANT is guaranteed to have a competitive edge against the competition in addition to provide higher dispatch reliability that is immune to climate change and uncertain fossil fuel supplies making it a robust renewable energy support to any energy deficit.

Given the "fuel-free" type of operation, can ensure a competitive kWh against the lowest hydroelectric kWh in the market and take advantage of long term prices that can be secured for 10-year periods or longer.

By having a commercial representation by GECELCA, and its previously negotiated long term contracts, the project does not have to directly deal with the competition and just rely on GECELCA to deliver its energy to the secured, ever-growing, and un-regulated market in Colombia.

MANAGEMENT AND OPERATION STRATEGY

The company has been conceived as a private initiative with a stock oriented participatory structure in which the general assembly elects the board of directors and the president of the company. The president will have full authority to make decisions to develop the project and to optimize the financial performance of the power plant. The company society legal documents were submitted in October 14, 2011 and the assigned tax identification number (NIT) is 900.474.530-0 as registered in the Colombian chamber of commerce.

The adopted commercial operation will be done via a minor power plant (with an installed capacity lower than 20 MW) not subject to the central dispatch (i.e., not participating in the short-term energy SPOT market) as following the guidelines of the CREG Resolution 86 of 1996. This strategic operational scheme provides important and critical commercial benefits, allowing energy generation and sales continuously and under uninterrupted operative conditions. To achieve the 19.9 MW of total capacity, the project implements 26 ECS-SOLAR generation units with a power rating of 768 kW (960 kVA) each and three stand-by generation units for a total of 29 generation units installed. The three stand-by generation units along with the tailored battery bank allow for the power plant to achieve a 95% capacity factor.

The POWER PLANT electrical output will be supervised by three (3) main agencies: the National Dispatch Center (NDC) located in Medellin, the local power grid operator (ELECTRICARIBE) located in Barranquilla and the marketing agent (GECELCA) also located in Barranquilla. These three agencies will have access to key electrical and generation signals to measure the power plant efficiency and performance. The National Dispatch Center (CND for its Spanish acronym) computers are used for Automatic Generation Control (AGC) via the Supervisory Control and Data Acquisition system (SCADA) to communicate with remote terminal units (RTUs) in the plant's machine/control room to send and receive orders and signals to the generation unit regulators represented by the power grid operator (ELECTRICARIBE) and the commercial agent (GECELCA). Communications between the plant's control room and the NDC in Medellin (Colombia) will be transmitted over a microwave and fiber optic network.

The system for supervising and controlling the units will be state-of-the-art and expected to provide marginal efficiencies for all the processing, control, and monitoring phases.

FINAL REMARKS

CENTRAL ELECTRICA S.A. E.S.P. represents a groundbreaking technological implementation at a commercial scale that is in harmony with the environment generating clean and renewable energy at competitive costs and a 95% capacity factor. In addition to the technological and environmental benefits, the site implementation of the project offers a robust power grid distribution infrastructure under very well regulated commercialization laws in Colombia.

This project will reassure that solar energy when coupled with innovative technologies (conceptually similar to GEMASOLAR in Spain, and Ivanpah in California) can provide a reliable and economical energy generation source for the world without the need for government subsidies. These types of technological solutions provide uninterrupted electrical energy even during extended hours without solar radiation and so constitutes a very attractive alternative to achieve a renewable solution that is also highly competitive under the current market conditions. is also conceived as a project committed with the development of social projects in its area of influence by supporting social initiatives dealing mostly with education and health programs in the region. The project's main leverage points are summarized below:

1. Technological innovation in the Solar Thermal Energy field with a Nano-mechanical induction technology
2. Clean and renewable commercially competitive energy
3. Low installation costs (US$2,200 / kW)
4. Low generation costs (US$0.035 / kWh)
5. High Power Plant Capacity Factor (95%)
6. Short construction periods (18 months per 20 MW)
7. Flexible site selection with medium solar radiation levels
8. Eligible as a carbon offset project (about 35k tons of CO2 emission reduction per year for a 20 MW capacity)
9. Possible eligibility for tax deductions (As investment in technological innovation)
10. Excellent opportunity to use sales of CER certificates to offset capital costs

APPENDIX 1

CENTRAL ELECTRICA S.A. E.S.P.

CASHFLOW OVER A 25-YEAR PERIOD (USD)
(YEARS: 2012 – 2022) Page 1 of 3

YEAR	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
INCOME | PERIOD	-2	-1	0	1	2	3	4	5	6	7	8
Non-Operative Income											
Equity Investment	$1,400,000	$650,000									
Equity Investment		**$12,188,385**									
Equity Investment (Tek Cost Discount)		$9,135,000									
International Credit Line			**$20,156,563**								
Carbon Emission Reduction Certificates (CERs)	$0	$0	$0	$0	$182,169	$182,169	$182,169	$182,169	$182,169	$182,169	$182,169
Operative Income											
Energy Sales (Annual sales of generated kWhrs)	$0	$0	$0	$5,273,301	$10,546,602	$10,546,602	$10,546,602	$10,546,602	$10,546,602	$10,546,602	$10,546,602
TOTAL INCOME =	**$1,400,000**	**$21,973,385**	**$20,156,563**	**$5,273,301**	**$10,728,771**	**$10,728,771**	**$10,728,771**	**$10,728,771**	**$10,728,771**	**$10,728,771**	**$10,728,771**

EXPENSES | PERIOD	-2	-1	0	1	2	3	4	5	6	7	8
Preliminary Costs											
Structuring and Permitting Costs	$1,400,000										
Land pre-acquisition (10 hectares)	$12,000										
Grid Interconnection Study	$26,000										
Engineering Designs and Construction											
Architectural and Civil Engineering Designs		$98,000									
Land Acquisition (10 hectares)		$260,000									
Conceptual Design and Engineering Studies	$25,000										
Basic Design and Engineering Studies		$80,000									
Environmental License		$32,000									
Power Line Easement Agreement			$11,000								
Construction Licensing		$6,000									
Detailed Design and Engineering Studies			$50,000								
Property perimeter fence			$260,000								
Preliminary civil works, access roads & drainage system			$2,400,000								
Construction of Generation Building			$2,000,000								
HVAC system installation			$600,000								
Project Insurance Coverage			$90,000								
Electrical Systems Implementation											
Construction of Electric Substation & Connectivities			$7,000,000								
Construction of Power Line Transmission at 110 kV			$240,000								
Construction and Retrofit of Connectivity Bay Line			$461,948								
Control Room Installation (SCADA & SAS Systems)			$1,000,000								
Start up & Fine Tuning			$100,000								
Security, access control and monitoring systems			$320,000								
Technology Implementation Costs											
ECS-SOLAR Technology Installation (Tek Costs)		$9,135,000	**$16,965,000**								
Project Registry in Wholesale Energy Market				$20,000							
International Debt Service Payment											
Loan Processing and Broker Fees			$300,000								
Loan-Interest Payment		$0	$0	$907,045	$907,045	$833,231	$756,095	$675,488	$591,254	$503,229	$411,243
Loan-Principal Payment		$0	$0	$0	$1,640,317	$1,714,132	$1,791,268	$1,871,875	$1,956,109	$2,044,134	$2,136,120
Operative Costs											
Operations & Management	$435,500	$214,500	$658,149	$666,047	$674,040	$682,128	$690,314	$727,197	$706,981	$715,464	$724,050
Maintenance Program	$0	$29,600	$296,000	$299,552	$303,147	$306,784	$310,466	$314,191	$317,962	$321,777	$325,639
Connectivity Fees to Grid Operator	$0	$0	$0	$226,636	$461,948	$471,193	$481,032	$491,494	$90,049	$92,164	$94,409
Legal Costs											
Legal Contributions/Royalties	$0	$0	$0	$39,925.94	$82,247	$84,715	$87,256	$89,874	$92,570	$95,347	$98,208
Law 99/1993 Tax - Environmental Protection Tax (4%)	$0	$0	$0	$119,778	$246,742	$254,145	$261,769	$269,622	$277,711	$286,042	$294,623
Property Tax	$0	$6,000	$6,000	$6,000	$6,000	$6,000	$6,000	$6,000	$6,000	$6,000	$6,000
Industry & Commerce Tax	$0	$0	$12,000	$12,000	$12,000	$12,000	$12,000	$12,000	$12,000	$12,000	$12,000
TOTAL EXPENSES BEFORE TAXES =	$1,898,500	$9,861,100	$32,770,097	$2,296,984	$4,333,487	$4,364,327	$4,396,199	$4,457,741	$4,050,635	$4,076,158	$4,102,291
Revenue Tax (15%)	$0	$0	$0	$446,448	$959,293	$954,667	$949,886	$940,654	$1,001,720	$997,892	$993,972
TOTAL EXPENSES AFTER TAXES =	**$1,898,500**	**$9,861,100**	**$32,770,097**	**$2,743,431**	**$5,292,779**	**$5,318,994**	**$5,346,085**	**$5,398,396**	**$5,052,355**	**$5,074,050**	**$5,096,263**

FINANCED CASHFLOW	-2	-1	0	1	2	3	4	5	6	7	8
EBTDA (BEFORE TAXES) =	-$1,898,500	-$9,861,100	-$12,613,535	$2,976,317	$6,395,284	$6,364,443	$6,332,572	$6,271,029	$6,678,136	$6,652,613	$6,626,479
EBDA (AFTER TAXES) =	-$1,898,500	-$9,861,100	-$12,613,535	$2,529,870	$5,435,991	$5,409,777	$5,382,686	$5,330,375	$5,676,415	$5,654,721	$5,632,507

PROJECT CASHFLOW	-2	-1	0	1	2	3	4	5	6	7	8
EBTDA (BEFORE TAXES) =	-$1,898,500	-$9,861,100	-$32,770,097	$3,883,363	$8,942,646	$8,911,806	$8,879,934	$8,818,392	$9,225,498	$9,199,975	$9,173,842
EBDA (AFTER TAXES) =	-$1,898,500	-$9,861,100	-$32,770,097	$3,436,915	$7,983,354	$7,957,140	$7,930,049	$7,877,737	$8,223,778	$8,202,083	$8,179,870

CASHFLOW OF CAPITAL INVESTMENTS	-2	-1	0	1	2	3	4	5	6	7	8
CAPITAL INVESTMENTS =	$1,463,000	$9,611,000	$31,797,948	$927,045	$2,547,363	$2,547,363	$2,547,363	$2,547,363	$2,547,363	$2,547,363	$2,547,363

CASHFLOW OF OPERATIVE COSTS	-2	-1	0	1	2	3	4	5	6	7	8
TOTAL OPERATIVE COSTS =	$435,500	$250,100	$972,149	$1,369,938	$1,786,124	$1,816,965	$1,848,836	$1,910,379	$1,503,272	$1,528,795	$1,554,929

PROFITABILITY INDICES

FINANCED IRR AFTER TAXES (%, 25 years) =	19%
PROJECT IRR AFTER TAXES (%, 25 years) =	15%
BENEFIT/COST RATIO =	2.28

CENTRAL ELECTRICA S.A. E.S.P.

CASHFLOW OVER A 25-YEAR PERIOD (USD)
(YEARS: 2023 – 2033) Page 2 of 3

YEAR	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
INCOME | PERIOD	9	10	11	12	13	14	15	16	17	18	19
Non-Operative Income											
Equity Investment											
Equity Investment											
Equity Investment (Tek Cost Discount)											
International Credit Line											
Carbon Emission Reduction Certificates (CERs)	$182,169	$182,169	$182,169	$182,169	$182,169	$182,169	$182,169	$182,169	$182,169	$182,169	$182,169
Operative Income											
Energy Sales (Annual sales of generated kWhrs)	$10,546,602	$10,546,602	$10,652,068	$10,652,068	$10,652,068	$10,652,068	$10,652,068	$10,652,068	$10,652,068	$10,652,068	$10,652,068
TOTAL INCOME =	**$10,728,771**	**$10,728,771**	**$10,834,237**	**$10,834,237**	**$10,834,237**	**$10,834,237**	**$10,834,237**	**$10,834,237**	**$10,834,237**	**$10,834,237**	**$10,834,237**
EXPENSES | PERIOD	9	10	11	12	13	14	15	16	17	18	19
Preliminary Costs											
Structuring and Permitting Costs											
Land pre-acquisition (10 hectares)											
Grid Interconnection Study											
Engineering Designs and Construction											
Architectural and Civil Engineering Designs											
Land Acquisition (10 hectares)											
Conceptual Design and Engineering Studies											
Basic Design and Engineering Studies											
Environmental License											
Power Line Easement Agreement											
Construction Licensing											
Detailed Design and Engineering Studies											
Property perimeter fence											
Preliminary civil works, access roads & drainage system											
Construction of Generation Building											
HVAC system installation											
Project Insurance Coverage											
Electrical Systems Implementation											
Construction of Electric Substation & Connectivities											
Construction of Power Line Transmission at 110 kV											
Construction and Retrofit of Connectivity Bay Line											
Control Room Installation (SCADA & SAS Systems)											
Start up & Fine Tuning											
Security, access control and monitoring systems											
Technology Implementation Costs											
ECS-SOLAR Technology Installation (Tek Costs)											
Project Registry in Wholesale Energy Market											
International Debt Service Payment											
Loan Processing and Broker Fees											
Loan-Interest Payment	$315,117	$214,666	$109,695								
Loan-Principal Payment	$2,232,245	$2,332,696	$2,437,668								
Operative Costs											
Operations & Management	$732,739	$741,531	$779,030	$759,435	$768,548	$777,771	$787,104	$796,549	$834,708	$815,781	$825,570
Maintenance Program	$329,546	$333,501	$337,503	$341,553	$345,651	$349,799	$353,997	$358,245	$362,544	$366,894	$371,297
Connectivity Fees to Grid Operator	$96,791	$99,317	$101,995	$104,833	$107,842	$111,031	$114,411	$117,993	$121,790	$125,815	$130,082
Legal Costs											
Legal Contributions/Royalties	$101,154	$104,189	$107,314	$110,534	$113,850	$117,265	$120,783	$124,407	$128,139	$131,983	$135,942
Law 99/1993 Tax - Environmental Protection Tax (4%)	$303,462	$312,566	$321,943	$331,601	$341,549	$351,796	$362,349	$373,220	$384,416	$395,949	$407,827
Property Tax	$6,000	$6,000	$6,000	$6,000	$6,000	$6,000	$6,000	$6,000	$6,000	$6,000	$6,000
Industry & Commerce Tax	$12,000	$12,000	$12,000	$12,000	$12,000	$12,000	$12,000	$12,000	$12,000	$12,000	$12,000
TOTAL EXPENSES BEFORE TAXES =	$4,129,054	$4,156,466	$4,213,147	$1,665,956	$1,695,441	$1,725,662	$1,756,645	$1,788,414	$1,849,597	$1,854,423	$1,888,720
Revenue Tax (15%)	$989,957	$985,846	$993,163	$1,375,242	$1,370,819	$1,366,286	$1,361,639	$1,356,873	$1,347,696	$1,346,972	$1,341,828
TOTAL EXPENSES AFTER TAXES =	**$5,119,012**	**$5,142,311**	**$5,206,310**	**$3,041,198**	**$3,066,260**	**$3,091,948**	**$3,118,283**	**$3,145,287**	**$3,197,293**	**$3,201,395**	**$3,230,547**

FINANCED CASHFLOW	9	10	11	12	13	14	15	16	17	18	19
EBTDA (BEFORE TAXES) =	$6,599,717	$6,572,305	$6,621,090	$9,168,281	$9,138,796	$9,108,574	$9,077,592	$9,045,823	$8,984,639	$8,979,814	$8,945,517
EBDA (AFTER TAXES) =	$5,609,759	$5,586,459	$5,627,926	$7,793,039	$7,767,976	$7,742,288	$7,715,953	$7,688,949	$7,636,944	$7,632,842	$7,603,689

PROJECT CASHFLOW	9	10	11	12	13	14	15	16	17	18	19
EBTDA (BEFORE TAXES) =	$9,147,079	$9,119,667	$9,168,452	$9,168,281	$9,138,796	$9,108,574	$9,077,592	$9,045,823	$8,984,639	$8,979,814	$8,945,517
EBDA (AFTER TAXES) =	$8,157,122	$8,133,822	$8,175,289	$7,793,039	$7,767,976	$7,742,288	$7,715,953	$7,688,949	$7,636,944	$7,632,842	$7,603,689

CASHFLOW OF CAPITAL INVESTMENTS	9	10	11	12	13	14	15	16	17	18	19
CAPITAL INVESTMENTS =	$2,547,363	$2,547,363	$2,547,363	$0	$0	$0	$0	$0	$0	$0	$0

CASHFLOW OF OPERATIVE COSTS	9	10	11	12	13	14	15	16	17	18	19
TOTAL OPERATIVE COSTS =	$1,581,691	$1,609,103	$1,665,784	$1,665,956	$1,695,441	$1,725,662	$1,756,645	$1,788,414	$1,849,597	$1,854,423	$1,888,720

CENTRAL ELECTRICA S.A. E.S.P.

CASHFLOW OVER A 25-YEAR PERIOD (USD)
(YEARS: 2034 – 2039) Page 3 of 3

YEAR	2034	2035	2036	2037	2038	2039
INCOME | PERIOD	20	21	22	23	24	25
Non-Operative Income						
Equity Investment						
Equity Investment						
Equity Investment (Tek Cost Discount)						
International Credit Line						
Carbon Emission Reduction Certificates (CERs)	$182,169	$182,169	$182,169	$182,169	$182,169	$182,169
Operative Income						
Energy Sales (Annual sales of generated kWhrs)	$10,863,000	$10,863,000	$10,863,000	$10,863,000	$10,863,000	$10,863,000
TOTAL INCOME =	**$11,045,169**	**$11,045,169**	**$11,045,169**	**$11,045,169**	**$11,045,169**	**$11,045,169**
EXPENSES | PERIOD	20	21	22	23	24	25
Preliminary Costs						
Structuring and Permitting Costs						
Land pre-acquisition (10 hectares)						
Grid Interconnection Study						
Engineering Designs and Construction						
Architectural and Civil Engineering Designs						
Land Acquisition (10 hectares)						
Conceptual Design and Engineering Studies						
Basic Design and Engineering Studies						
Environmental License						
Power Line Easement Agreement						
Construction Licensing						
Detailed Design and Engineering Studies						
Property perimeter fence						
Preliminary civil works, access roads & drainage system						
Construction of Generation Building						
HVAC system installation						
Project Insurance Coverage						
Electrical Systems Implementation						
Construction of Electric Substation & Connectivities						
Construction of Power Line Transmission at 110 kV						
Construction and Retrofit of Connectivity Bay Line						
Control Room Installation (SCADA & SAS Systems)						
Start up & Fine Tuning						
Security, access control and monitoring systems						
Technology Implementation Costs						
ECS-SOLAR Technology Installation (Tek Costs)						
Project Registry in Wholesale Energy Market						
International Debt Service Payment						
Loan Processing and Broker Fees						
Loan-Interest Payment						
Loan-Principal Payment						
Operative Costs						
Operations & Management	$835,477	$845,503	$855,649	$865,917	$876,309	$886,826
Maintenance Program	$375,753	$380,262	$384,825	$389,443	$394,116	$398,845
Connectivity Fees to Grid Operator	$134,607	$139,407	$144,499	$149,902	$155,637	$161,727
Legal Costs						
Legal Contributions/Royalties	$140,021	$144,221	$148,548	$153,004	$157,595	$162,322
Law 99/1993 Tax - Environmental Protection Tax (4%)	$420,062	$432,664	$445,644	$459,013	$472,784	$486,967
Property Tax	$6,000	$6,000	$6,000	$6,000	$6,000	$6,000
Industry & Commerce Tax	$12,000	$12,000	$12,000	$12,000	$12,000	$12,000
TOTAL EXPENSES BEFORE TAXES =	$1,923,920	$1,960,057	$1,997,164	$2,035,279	$2,074,440	$2,114,688
Revenue Tax (15%)	$1,368,187	$1,362,767	$1,357,201	$1,351,483	$1,345,609	$1,339,572
TOTAL EXPENSES AFTER TAXES =	**$3,292,108**	**$3,322,824**	**$3,354,365**	**$3,386,763**	**$3,420,050**	**$3,454,260**

FINANCED CASHFLOW	20	21	22	23	24	25
EBTDA (BEFORE TAXES) =	$9,121,248	$9,085,112	$9,048,004	$9,009,890	$8,970,728	$8,930,481
EBDA (AFTER TAXES) =	$7,753,061	$7,722,345	$7,690,804	$7,658,406	$7,625,119	$7,590,908

PROJECT CASHFLOW	20	21	22	23	24	25
EBTDA (BEFORE TAXES) =	$9,121,248	$9,085,112	$9,048,004	$9,009,890	$8,970,728	$8,930,481
EBDA (AFTER TAXES) =	$7,753,061	$7,722,345	$7,690,804	$7,658,406	$7,625,119	$7,590,908

CASHFLOW OF CAPITAL INVESTMENTS	20	21	22	23	24	25
CAPITAL INVESTMENTS =	$0	$0	$0	$0	$0	$0

CASHFLOW OF OPERATIVE COSTS	20	21	22	23	24	25
TOTAL OPERATIVE COSTS =	$1,923,920	$1,960,057	$1,997,164	$2,035,279	$2,074,440	$2,114,688