HLC ENVIRONMENTAL HOLDINGS LTD

Investment Opportunity in Global Renewable Markets

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Our future is green

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Abbreviations

HLC Environmental Holdings Abbreviations

AEOLUS – Aeolus Wind Limited
BEN - Bioenergia, Geração e Comercialização de Energia do Nordeste LTDA
BET – Biodiesel Energy Trading Ltda.
BIOVEG – Bioveg Oils & Fuels International Corporation PLC
CAPEX – Capital Expenditure
CC – Carbon Credits
CCM – Carbon Capital Markets
CCS – Carbon Capture and Storage
CDM – Clean Development Mechanism
CER – Carbon Emission Reduction
CHP – Combined Heat and Power
DYBSOL – Dynamic Biomass Solutions
ETS – European Trading Scheme
GHG – Green House Gas
HLC BR – HLC Brasil
HLC EH - HLC Environmental Holdings
HLC EGP - HLC Engenharia & Gestao de Projectos S.A.
IEA – International Energy Agency
PPA - Power Purchase Agreement
ZEPHYR – Zephyr Geração e Comercialização de Energia LTDA.

AEOLUS / ZEPHYR Abbreviations

AWL – Aeolus Wind Ltd.
ANEEL – National Energy Agency
BNDES – Brazil's State Development Bank
CBEE – Brazilian Wind Energy Centre
CCM – Carbon Capital Markets
CCV - Climate Change Ventures
CDM – Clean Development Mechanism
CEPISA - Companhia Energética do Piauí
CER – Carbon Emission Reduction
CREIA – Chinese Renewable Energy Industry Association
EDF – Energies de France
EDF EN – EDF Energies Nouvelles
EPE – Energy Research Company
GHG – Green House Gas
GWEC – The Global Wind Energy Council
HLC BR – HLC Brasil
HLC EH - HLC Environmental Holdings
IDEMA – Instituto de Defesa do Meio Ambiente do Rio Grande do Norte, Brazil
IEA – International Energy Agency

IGPM – General market price Index
LAWEA - Latin American Wind Energy Association
MME – Ministry of Mines and Energy
ONS – National Grid Operator
PPA - Power Purchase Agreement
PROINFA – Program of Incentives to Alternative Energy Sources
RDV – Rosa dos Ventos
SIIF- SIIF Energies do Brasil
SIN – National Interconnected System
SPV – Special purpose vehicle

BIOVEG / BET / BIOVASF Abbreviations

BET – Biodiesel Energy Trading
BIOVASF – Companhia de Biodiesel do Vale do São Francisco
BIOVEG – Bioveg Oil & Fuels International Corporation PLC
BRIC Nations - Brazil, Russia, India and China
BNDES – Banco Nacional de Desenvolvimento Económico e Social
CAGR – Compound Annual Growth Rate
ETBE - Ethyl Tertiary Butyl Ether
FAME – Fatty Acid Methyl Ester
GDP - Gross Domestic Product
GHG – Green House Gas
HLC EH - HLC Environmental Holdings
IEA – International Energy Agency
MOU - Memorandum of Understanding
ULSD – Ultra Low Sulphur Diesel

DYBSOL / BEN Abbreviations

BEN - Bioenergia, Geração e Comercialização de Energia do Nordeste LTDA
CDM – Clean Development Mechanism
CEMAR - Companhia Energética do Maranhão
CEPISA - Companhia Energética do Piauí
CER – Carbon Emission Reduction
DYBSOL – Dynamic Biomass Solutions
ETS – European Trading Scheme
GHG – Green House Gas
HLC BR – HLC Brasil
HLC EH - HLC Environmental Holdings
PPA - Power Purchase Agreement
SIN – National Interconnected System

Introduction

Purpose of the Document

Dependency on scarce resources and concerns regarding climate change are making available a wide series of different business opportunities in the renewable energy sector. HLC Environmental Holdings Ltd. (HLC EH or the Company) is a global renewable energy project developer based in the UK that provides strategic and financial expertise in Project Finance services to investors stepping in at an early stage of the project development process within this sector. The Company's main objective is to retrieve all non-core activities from the management teams of the projects: mainly, to align the interests between shareholders, to advise on purchase and disposal of assets and to raise funds in both equity and/or debt.

HLC Environmental Holdings is a UK based holding company owned entirely by Mr. Horacio Carvalho. It comprises shareholding stakes in the sectors of wind, biofuels, carbon and biomass, geographically spread throughout several emerging countries.

This document has been written to inform our business partners, as well as potential new investors about the holding company. It aims to secure both debt and equity investments to deliver an increase in value for HLC's group underlying assets as at 30th April 2009. The execution of this exercise will show a cohesive corporate structure which will facilitate investment from new investors to share and attribute to the development of these projects along the value chain.

Why Invest in Renewable Energy?

The utilities sector is at the heart of the global economy supplying our fundamental needs – water, power and heat – from resources that are scarce and often major contributors to climate change. As such, the challenges are wide-ranging and comprehensive. Equally, the business opportunities are significant.

Electricity utilities face a number of problems – they are overwhelmingly fossil fuel-based, making them the major contributors to climate change. Coal, the

"HLC Environmental Holdings Ltd. is a global renewable energy project developer..."

"...in the sectors of wind, biofuels, carbon and biomass, geographically spread throughout several emerging countries."

dirtiest fossil fuel, is also the cheapest and most widely available and its use is expanding because supplies of oil and gas are limited and in politically sensitive areas.

Energy utilities have been struggling with rising prices for the last decade and the sector is subject to increasing regulation. In Europe, electricity utilities are subject to the European Union Emissions Trading Scheme, and have to buy allowances to cover the CO2 emissions produced by their power generation. They will soon be joined by companies in the US, Australia, New Zealand and Japan, which are all considering the introduction of emissions trading schemes*.

In addition, the EU's Large Combustion Plant Directive means that utilities must close fossil fuel installations that do not have flue gas desulphurisation equipment. Further legislation is likely to force companies to invest in Carbon Capture and Storage (CCS), which would allow the continued use of fossil fuel, particularly coal, without increasing CO2 emissions. Installing CCS will be expensive, but it is seen as imperative in tackling emissions given the amount of coal-fired generating capacity being built in emerging markets such as China and India.

Establishing a price for carbon should incentivise low-carbon production of electricity and other ways of "decarbonising" the power sector, such as energy efficiency. The ETS and global policies to tackle climate change have created a renewable energy sector out of virtually nothing and the sector is beginning to see the emergence of companies of real scale, such as Vestas and Suzlon, the wind turbine makers from Denmark and India respectively.

Solar power is less advanced than wind and remains more expensive than conventional power. Wind and solar are currently failing to fulfil their potential, because of shortages of key components and raw materials, as well as the current global financial climate. With solar, the principle constraint has been the availability of silicon, while with wind, according to New Energy Finance, issues range from a lack of turbine gearboxes to a shortage of specialist ships to install off-shore turbines. Analysts believe that a huge amount of new silicon capacity will reach the market over the next few years and will bring the price down. This will affect some solar players hard, but should cut the cost of solar power significantly for consumers within a few years.

The International Energy Agency expects an extra GBP 23,000 billion of investment is needed to halve CO2 levels by 2050, leading energy developers and investors to "almost unlimited opportunities", referred the Financial Times in an article which concluded that combined heat and power is likely to become more common in the next few years along with the replacement of current nuclear power capacity.

Renewable Energy Portfolio of HLC EH – Why Invest?

HLC Environmental Holdings Ltd. (HLC EH) was established in 1998 with the purpose of developing projects in the renewable energy industry. During this time it developed the "Full Circle" concept which enables the development of activities surrounding the Kyoto Protocol, as illustrated in Figure 1.1.

This diagram illustrates the contribution of each business development as a response to the demands of Kyoto Protocol and

***HLC EH believes that a new global policy to substitute the Kyoto Protocol will emerge after 2012 and its strategy and business model is built around this "looking ahead"**

demonstrates how HLC EH achieves a global position through the integration of these projects.

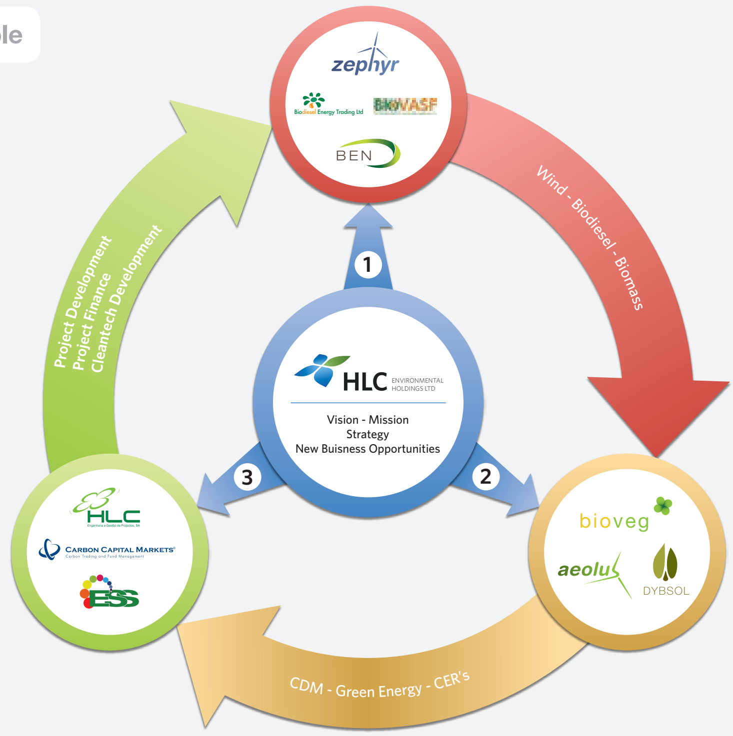
This model is based on the inputs and outputs of each business unit (companies), as explained in the example below:

BET is negotiating vegetable oils in India for its trading business, either for external sale or for its own future production, in this process, when crushing seeds to produce vegetable oil, a cake-biomass will be produced, which will then be used for the production of energy and in the process, carbon credits (CERs) will be originated. This process brings synergies between different companies in the group, with one originating business for the other and vice-versa.

With HLC EH monitoring and advising this portfolio of investments there is a company dealing with trading and origination with financial services for Carbon Credits (CERs) and the development of infrastructure projects that benefit local economies as well as mitigating climate change. These services are received by Special Purpose Companies (SPCs) which are set up for the origination of CERs through wind farms, biomass, biodiesel and small hydro-power plants.

The holding individual companies for each business activity were set up to maximize value to the shareholders and to create the means for the development of further business opportunities with a view to build a continuous model for development and growth.

Full Circle Principle



1 Financial Services, Marketing
2 Administration, Accounting, Legal Services
3 Management Advisory and Financial Services

Figure 1.1 – Full Circle Principle

Vision - Mission

The HLC Group has been using its slogan, “Our future is Green”, since 1998 and still continues to use it today in its branding, perhaps in a more fitting way, given the current trends we live in today.

For HLC, the concept of being green is uniting its vision with its mission. This is what is being achieved by the activities that the Group is carrying out. The world is going through tremendous change in policies that are trying to cope with the impacts of Climate Change, which has been caused by the overuse of fossil fuels and economic growth and has led to the explosion of the world’s population and CO2 emissions.

In a modern world that depends more and more on energy in order to operate, we must turn to cleaner and more efficient sources and usage of energy. HLC’s vision not only focuses on the continuous development of new technologies in the wind, biomass, solar, wave and biofuels sectors, but equally embraces nuclear and hydrogen technologies to respond to those demands.

We often like to turn our dreams into realities and our mission is to provide the most proficient means to help turn the planet green. HLC will continue to pursue this mission through innovative projects in the environment and renewable energy sectors.

Strategy

The experience held by HLC EH has taught it that to take a project from inception to operation, you need a professional and qualified team to implement it. As HLC expands its interests it is constantly engaging new talent to take forward its challenges and building up professional teams is part of its strategy.

HLC’s strength has always relied in spotting new opportunities and making them a reality, and this is taking projects from a green site to their operation. HLC is a developer, not an operator, and its strategy is to develop the projects to a stage where the maximum potential of the value chain is achieved, delivering bigger returns to its shareholders and investors.

HLC has in the past carried out the function of operator and has implemented various Build Own Transfer (BOT), Build Own

Operate (BOO) and Build Own Operate Transfer (BOOT) type projects. With such a vast range of activities involved in the renewable energy sector today, the capital required to retain these type of assets falls out of its scope of business, so HLC's approach is to develop the assets and then sell to operators, considering a "carried interest" when the opportunity arises.

This strategy is in line with HLC's Full Circle concept explained earlier in this document.

New Business Opportunities

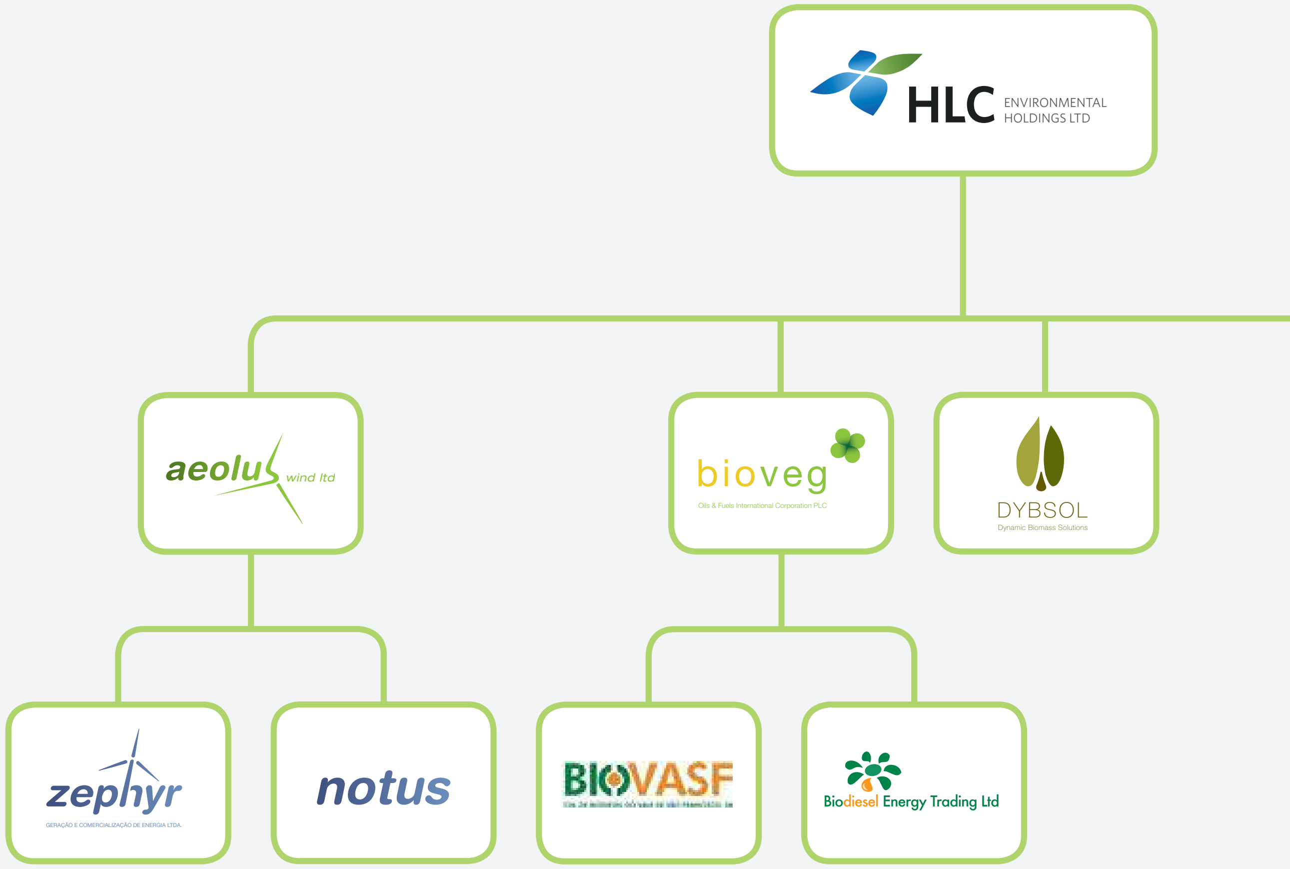
The success of HLC has been in being constantly ahead in creating new business opportunities, which has been demonstrated during the past years with its involvement in sectors developing projects such as the introduction of Natural Gas in Portugal for power generation, the largest wind park development so far in Brazil, the development of several fully integrated Municipal Solid Waste installations, carbon trading, as well as other projects.

HLC is currently developing new projects in the UK, where it aims to combine wind power infrastructures with green power generation, bringing to the grid 100% green power, which will be delivered to the end customers that want to know and audit the origin of their power consumption and ensure that it is provided by 100% renewable energy sources.

This project is being put together by a new team of professionals and will aggregate several companies into a Special Purpose Company (SPC) that contain the various skill sets that are needed to deliver this type of venture. This is a typical example of HLC's approach, innovative and experienced in the renewable energy sector, identifying market niches with the potential for growth.

In the biofuels sector, HLC is pursuing and developing a new opportunity in Canada, which will create for the company a platform to develop and expand on a very fast growing economy led by new policies from the Obama Administration, which will influence the renewable energy market expansion in this area.

Corporate Structure



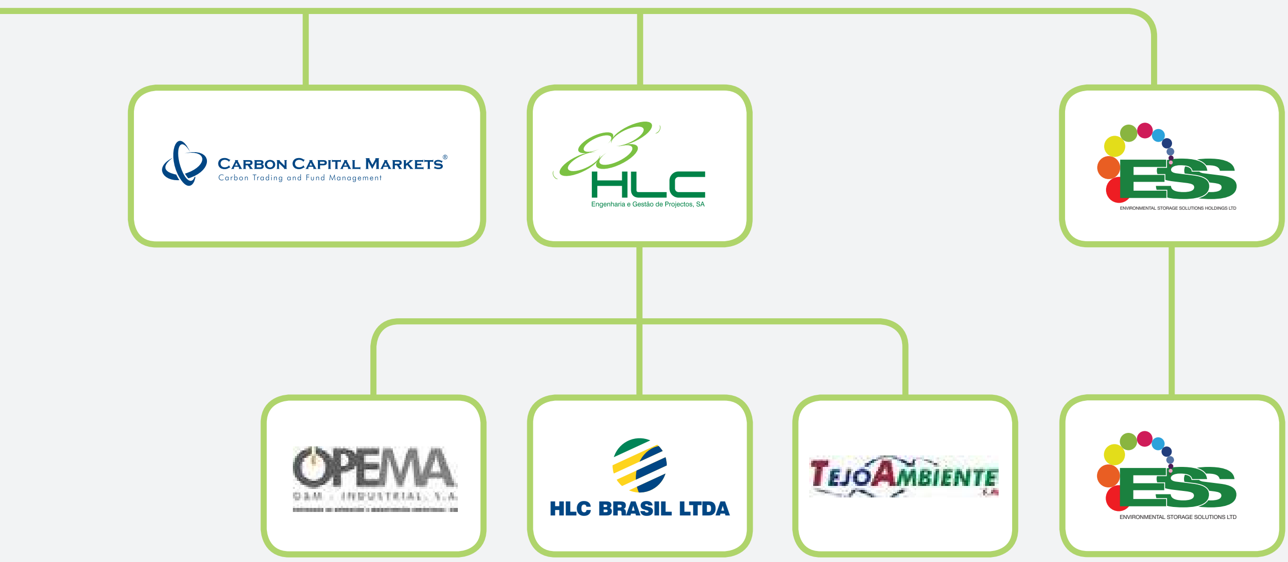


Fig 1.2 – HLC Environemntal Holdings Corporate Structure
N.B. The above diagram does not take into consideration the project companies

Consolidated Financial Projections

This section consolidates some financial information of each renewable energy project company and analyses the evolution of its value as well as the expected equity requirements to bring the projects forward and to the end of their value chain. These figures only assume the percentage of HLC EH and further calculations are explained at the end of the chapter of each company.

HLC current shareholding positions are the following:

In order to simplify our analysis we included the projects currently positioned at the nearest stage to be funded with equity investment for construction. It's important to mention that our core business is supported by project finance and, as Developer, we have been assuming the development costs up to this stage. The following tables show the estimated enterprise value (EV) considering 100% ownership of the companies and its cash needs from second quarter 2009 until end of 2013, date when we estimate to have all our main projects delivering cash to shareholders.

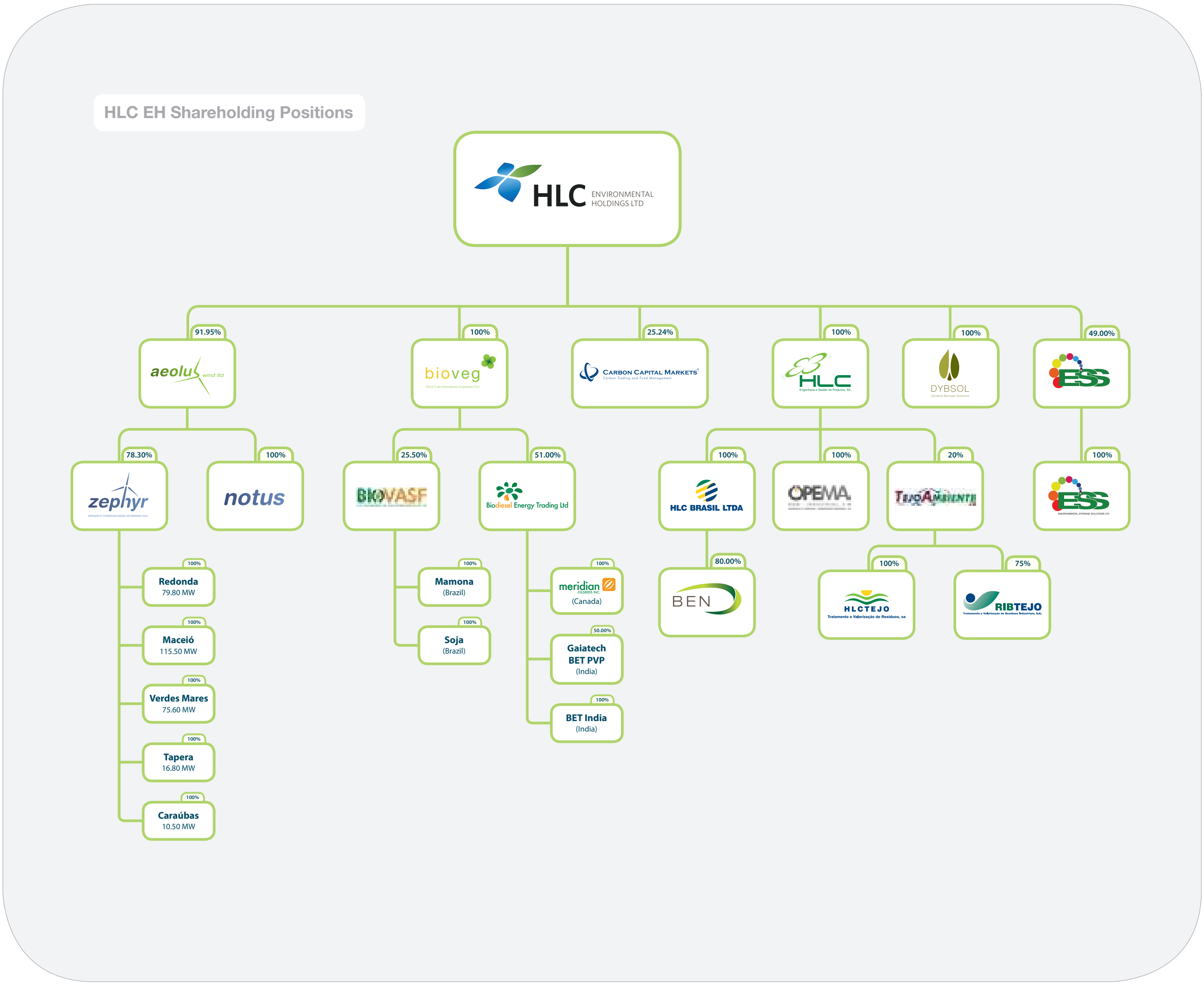


Fig 1.3 – HLC Environmental Holdings Shareholding Structure

According with our valuations, from a total equity requirement of circa EUR 125 million throughout next five years, HLC EH expects to retrieve an average of twice of its value in the beginning of operation. The company that requires the biggest stake is the Brazilian wind developer ZEPHYR, demanding 80% of total requirements. Considering the assumption that ZEPHYR will deliver 298 Mw of wind energy at the end of 2013 this equity investment represents 30% of total CAPEX, i.e. construction costs.

The remaining companies BIOVEG and DYBSOL require investment to revamp a soy crusher of 100,000 tonnes and build a biomass plant, accordingly. BIOVEG business will be explained in the following chapters together with BIOVASF and BET, its current shareholding positions. DYBSOL, through the Brazilian biomass company BEN, is prepared to build a 33 Mw plant in the state of Pernambuco to burn elephant grass. This company holds a 15 year PPA, EPC contracts and is expecting the raise the equity to close the senior debt financing with a local bank, considering 70% of total construction costs.

INVESTMENT HIGHLIGHTS								EUR in Millions	
	HLC EH %	EV 2Q '09	EV 4Q '09	EV 4Q '10	EV 4Q '11	EV 4Q '12	EV 4Q '13	NPV 4Q '13	Total 4Q '13
AEOLUS	91.95%	9.9	15.4	32.4	54.5	75.3	83.0	120.4	203.4
ZEPHYR	78.30%	13.8	21.4	45.0	75.7	104.6	115.3	167.2	281.5
BIOVEG	100.00%	2.1	4.9	4.4	3.1	4.2	4.2	1.8	6.0
BIOVASF	25.50%	8.1	19.4	17.4	12.0	16.3	16.6	7.0	23.5
DYBSOL	100.00%	3.0	6.5	11.7	11.2	11.8	12.0	19.7	31.7
BEN	80.00%	3.7	8.1	14.6	14.0	14.8	14.9	24.7	39.6
TOTAL HLC EH		**15.0**	**26.8**	**48.5**	**68.8**	**91.3**	**99.2**	**141.9**	**241.1**

Table 1.1 – HLC EH Enterprise Value and Cash Requirements

ESTIMATED CASH REQUIREMENTS TIMELINE							EUR in Millions
	EV 2Q '09	EV 4Q '09	EV 4Q '10	EV 4Q '11	EV 4Q '12	EV 4Q '13	Total
AEOLUS	1.1	6.6	23.5	30.8	28.8	10.7	101.5
BIOVEG		8.8					8.8
DYBSOL		14.5					14.5
TOTAL	**1.1**	**29.9**	**23.5**	**30.8**	**28.8**	**10.7**	**124.8**

Table 1.2 – HLC EH Estimated Cash Requirements Timeline

Track Record

The background and know how within the environmental and energy sectors was introduced by founder and chairman, Horacio Carvalho, a well known Portuguese industrialist, following a strategy to internationalize the business.

Horacio Carvalho initially founded Group HLC in 1986 in Portugal with the main goal of developing and participating in projects within the environment, energy, healthcare, multimedia and telecommunications business sectors, as well as providing operations and maintenance services within these areas.

One of the critical factors that enabled HLC to achieve these goals at the time was its visionary human resources strategy, which revolved around employing highly experienced professionals in each of the specialist areas and thereby providing resources and skills recognised by the market and enabling it to establish its presence in the market.

In the environment sector HLC retains an enviable track record, especially in Portugal, where it has made a strong contribution to the country's infrastructure in the waste & water sectors through the inception of various projects throughout the country and thereby allowing it to achieve standards very close to the levels of other European community countries (EU15).

HLC's role in this field tracked its specialization in these activity areas, undertaking the design, commissioning, management and operation of various types of projects, such as integrated waste management plants, landfills, composting plants, waste transfer stations, bring bank sites, dumps closure and waste water treatment plants.

In the energy sector, HLC was one of the companies responsible for the introduction of natural gas in Portugal, through the conception and promotion of the project finance for the Pego thermal power plant with a 30% participation in this project. It also established a partnership with PLE-Pipeline Engineering Gmbh and Transgas SA for the project management and supervision of the high pressure gas pipeline.

HLC's experience in the energy sector, both in Portugal and Brazil was established via the participation in energy projects under a BOT/BOOT strategy with a financial structure in project finance and the introduction of several combined heat and power (CHP) plants for electric power under 10 MW.

In the health sector, HLC in consortium with the Mello Group was responsible for the introduction of privatisation in the sector, through the introduction of the delegation of private health services in public hospitals by winning the bid for the Fernando da Fonseca Hospital-Amadora-Sintra.

In the telecommunications sector, HLC was the first private company to obtain licenses allowing it to operate in this sector.

HLC's growth in these sectors occurred in the period comprised between 1996 and 2003. It was at this time that it also undertook its strategy of internationalization into the UK and Brazil.

In the UK, HLC focused its expertise in the environment sector and developed one of the first WTE (waste to energy) plants in the country, based in Neath Port Talbot in South Wales. This plant was developed as

Figure 1.4

Fig 1.4 – Primary Gas Pipeline Project (Portugal)

Figure 1.5

Fig 1.5 – Hospital Amadora Sintra (Portugal)

Figure 1.6

Fig 1.6 – Neath Port Talbot (Wales)

Figure 1.7

Fig 1.7 – Piratini Biomass Plant (Brazil)

a materials recovery, composting and energy production through RDF (refuse derived fuel) plant.

Through the purchase of Henley Burrowes in 1998, HLC also gained a significant market presence in the waste sector in the UK, as this company held a vast track record in this industry, having a significant amount of projects developed within the waste sector.

In Brazil HLC focused its know how and expertise in the energy sector. Through CGE-Ceara Geradora de Energis SA, a company where HLC owned 51%, it developed a total of 127 MW of installed power in response to the emergency power program for the northeast state of Ceara in Brazil. At the request of the government, these power plants were later transferred to the state of Manaus to supply the region with electricity. HLC also developed several CHP plants for electric power under 10 MW throughout several states in Brazil.

HLC EH's current strategy in the biofuels, climate change and renewable energy sectors was developed in 2003 and is today showing considerable promise in these new sectors, with a series of successful projects in these areas currently under various stages of development.

Figure 1.8 – Tapada do Outeiro (Combined Cycle Gas Turbine Power Plant)

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Introduction

> *"It is part of our strategy to raise sufficient equity and debt finance to successfully develop our projects."*

Aeolus Wind Ltd. is a UK based company incorporated in May 2007 with the sole purpose of developing and implementing wind power projects. The company has been set up with the aim of building a substantial platform for one of the more developed and competitive new markets stemming from renewable energy sources: wind power.

In a world where renewable sources of energy are becoming increasingly necessary as an alternative to conventional fossil fuel energy sources, in order to reduce the impacts of climate change, Aeolus Wind Ltd. brings its experience in the wind power industry in response to the demands of an increasingly growing market.

Aeolus' track record has been successful; the expertise obtained in SIIF and RDV projects is now being used in the development of a new portfolio of wind sites. It is our intention in this document to focus on the current AWL portfolio which is at this stage being developed in North East Brazil, but our business strategy is to expand our portfolio not only across South America but also explore new opportunities in other potential countries such as the United Kingdom, Canada, India, North Africa (Magreb Countries) and Turkey, as well as any other opportunities that may arise. AWL is working on preliminary studies to proceed with further developments. It is also part of our strategy to raise sufficient equity and debt finance to successfully develop our projects.

Within our group there are other projects under development in India; we are now therefore using these synergies in order to introduce Aeolus into the Indian wind market. We intend to explore these wind opportunities since, on the 27th of June 2008, the Indian Ministry of New and Renewable Energy (MNRE) publicly announced guidelines for a generation-based incentive (GBI) of INR 500

(US$ 11.7) per MW/h to wind power project developers. The Government has extended a package of incentives, which includes a direct fiscal incentive, tax holiday, concessional custom and excise duties for renewable energy projects, and liberalised foreign investment procedures.

AWL's Corporate Structure

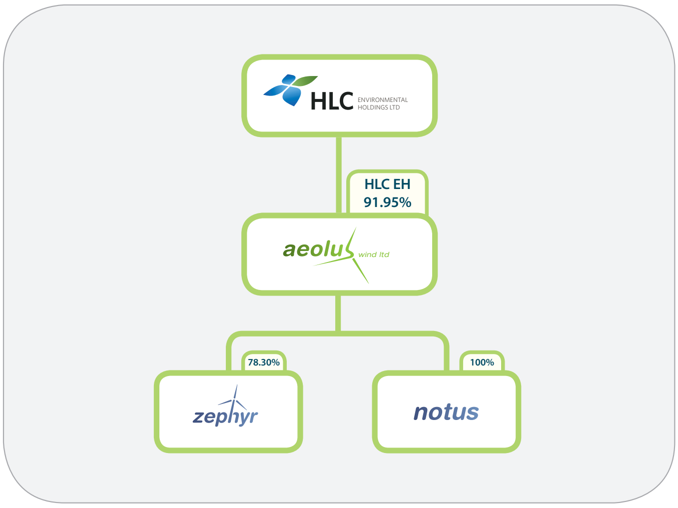

Fig 2.1 – Aeolus Corporate Structure

This structure supposes that the major shareholder HLC EH and two individual shareholders of all existing and future projects will have their stakes in a single holding company (AWL). The share-holding structure of Aeolus Wind Ltd. has the participation of one company and two investors. The majority of shares are held by HLC Environmental Holdings Ltd. with a participation of 91.95%. The Private investors have a participation amounting to 8.05%.

Key Points

- Renewable Energy: according to GWEC, Wind energy is the only power generation technology that can deliver the necessary cuts in CO2 in the critical period up to 2020, when greenhouse gases must peak and begin to decline to avoid dangerous climate change.
- Carbon Credits: Projects of this nature lead to sustainable development and generate Carbon Credits, a further source of income that can also be used as collateral for loans.
- Good Logistics: The projects are being developed at sites with good access to the national power grid. Consideration will be given to the importance of developing grid upgrades, as well as introducing costs savings by optimising the grid design.
- Good renewable energy resources: The Company is also focused on securing land rights and developing projects in areas that benefit from good resources. The Company's current wind pipeline is located in areas benefitting from excellent wind resources with a high average of wind speeds.
- Specific Wind Auction: According to the "portaria.147/09 de 31 de Marco de 2009, MME", the Brazilian Authorities are going to launch a specific wind auction on the 25th November of this year for wind assets similar to the biomass energy auctions already in existence.
- Strong Demand: The Energy sector in Brazil is currently facing shortages, due to high dependency on Hydropower and prolonged drought periods. Diversification is seen as necessary by the government. At the same time, Brazil has one of the strongest wind conditions, Wind generated power is amongst the world's fastest-growing sources of energy.
- Strong Equity Returns: Returns on equity up to 25% depending on capacity factor and equipment contracts, which are currently under negotiation.
- Strong Management: Proven track record and strong financial and regulatory structures, experience and know-how of the Brazilian economy mechanics developing wind farm projects;
- Strong Technology Partners: Suzlon ranked as the fifth leading wind turbine supplier in the world, has indicated that it will supply wind turbine generators that are customised to maximise the potential of the local geography.
- Project development: The Company develops the projects through their entire value chain. It will take the projects to the financing stage, either at a pre-construction or post-construction stage, depending on the availability of internal and external capital.
- Ethical: A strong ethical stance is important for the Company's ongoing "license to operate".

Wind Energy Industry Outlook

Figure 2.2

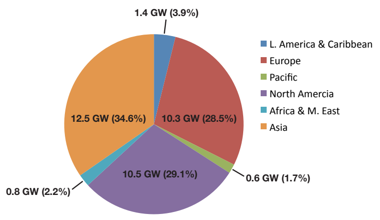

Fig 2.2 – Projected Global Wind Capacity in 2012
Source: GWEC

Figure 2.3

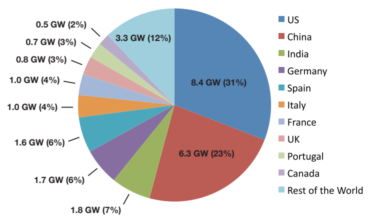

Fig 2.3 – Top 10 New Installed Capacity 2008
Source: GWEC

Figure 2.4

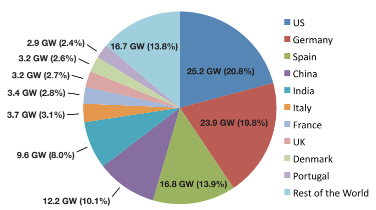

Fig 2.4 – Top 10 Total Installed Capacity 2008
Source: GWEC

According to the International Energy Agency (IEA), renewable energy, and in particular wind energy, must dominate the electricity generation sector for a sustainable energy future. It is very important to increase energy efficiency and conservation, switch fuel from coal to gas, and invest in renewable power generation, mainly wind power.

The IEA Energy technology perspectives 2008 publication suggests that in 2050 wind power could supply up to 12% of Global demand for electricity with concentrated effort and technological innovation.

The Global Wind Energy Council (GWEC) is forecasting that the global wind market will grow by over 155% to reach 240 GW of total installed capacity by 2012. In its annual "Global Wind Energy Report 2007", GWEC has adjusted its previous forecast to take into account the unexpectedly strong increase in wind energy deployment around the world. The Council now forecasts an addition of 146 GW in the coming five years, equalling an investment of more than €180bn (US$ 234bn) in 2007 values. The electricity produced by wind energy, will in 2012, reach over 500 TW/h (up from 200 TW/h in 2007), accounting for close to 3% of global electricity consumption (up from just over 1% in 2007).

Wind energy continued its growth in 2008 at an increased rate of 29 % (WWEA). This rate is higher than the average over the past decade. Over 27 GW of new wind power generation capacity came online in 2008, 36% more than in 2007.

Wind energy is now an important player in the world's energy markets. Increasing involvement of new players in the market is in part a reflection of wind power's success. This is now a business from which it is clearly possible to make a secure and profitable return. The global wind market for turbine installations in 2008 was worth about 36.5bn EUR or 47.5bn US$.

Leading wind markets 2008

In 2008, the USA and China took the lead. The United States passed Germany to become world No. 1 in wind power installations, and China's total capacity doubled, going ahead of India for the first time, taking the lead in Asia. Total worldwide installations in 2008 were more than 27,000 MW, dominated by the three main markets in Europe, North America and Asia.

United States

The U.S. wind energy industry shattered all previous records in 2008 by installing 8,358 megawatts (MW) of new generating capacity according to the American Wind Energy Association (AWEA). The new wind projects completed in 2008 account for about 42% of the entire new power-producing capacity added nationally last year, according to initial estimates, and will avoid nearly 44 million tons of carbon emissions, the equivalent of taking over 7 million cars off of the road. The total now stands at 25,170 MW.

China

China continues its role as the most dynamic wind market in the year 2008, more than doubling the size of its installations for the fourth year in a row; today it has more than 12 GW of wind turbines installed. China added 6298 MW of wind energy capacity during 2008, and now ranks fourth in installed wind energy capacity with approximately more than 12 GW of wind turbines installed. Based on current growth rates, the Chinese

Renewable Energy Industry Association (CREIA) forecasts a capacity of around 50,000 MW by 2015. The growing wind power market in this country has been encouraged domestic production of wind turbines, and today they have more than 40 domestic companies involved in the manufacture of this equipment.

Europe

For the first time, wind energy is the leading technology in Europe. A total of 64,949 MW of installed wind energy capacity was operating in the EU by end 2008, over 15% compared with the previous year. Europe's goal is to reach 300 GW of wind power including 120 GW offshore in 2030.

Last year more wind power was installed in the EU than any other electricity generating technology. According to the EWEA 8,484 MW (43%) of all new electricity generating capacity built in the European Union in 2008 was wind energy, exceeding all other technologies including gas, coal and nuclear power.

India

India also continues to see a steady growth and now counts about 9.5 GW of wind power installations, up from just over 7.8 GW in 2007.

Latin America

The Wind power market in Latin America still shows a slow development, accounting for only 0.5% of the Global capacity. The overall installed capacity at the end of 2008 was 667 MW. Brazil and Uruguay installed major wind farms in 2008. However, in some countries like Argentina, Brazil, Chile, Costa Rica or Mexico, many projects are under construction thus putting light in the forecast for 2009.

Brazil - A Major Renewable Energy Player

Brazil remains the worldwide leader in the supply of energy from renewable sources. In 2007 this source of energy represented over 46 percent (111.1 million tpe) of total Brazilian energy supply. The main driver of that trend has been the increasing use of biofuels using sugar cane.

A Positive Outlook for Investors in Wind Power in Brazil

Wind power is a clean way to reduce Brazil's dependence on imported energy sources and large-scale hydroelectric plants, which leaves an environmental footprint. The wind energy business is attracting serious interest from both internal and external investors. The environment has improved in the last three years and the government plans to redouble efforts to keep this pace.

The Minister of Mines and Energy has declared that the country's first wind auction will be held by the National Agency for Electrical Energy (ANEEL) on 25th November 2009.

Since wind conditions in Brazil have been confirmed to be among the best globally (Note: wind capacity factors in the North East can reach up to 45%, compared to 25%-30% for on-shore projects in Europe) various initiatives were put in place by the Brazilian government in order to stimulate the growth of the wind sector, namely the PROINFA: a program to incentivise alternative sources of energy for electricity development that was created in April 2002. Its main objective is to support the use of renewable sources of energy in Brazil, namely wind, biomass and small-scale hydro through financial

Figure 2.5

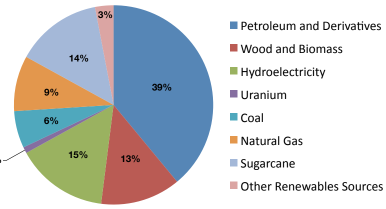

Fig 2.5 – Brazillian Energy Matrix 2007
Source: MME, Brazil

"The Minister of Mines and Energy has declared that the country's first wind auction will be held by the National Agency for Electrical Energy (ANEEL) on 25th November 2009."

"The total wind power potential measured in Brazil is estimated to be about 143,500 MW."

incentives, subsidies and preferential loans.

Brazil has some of the best wind conditions in the world

According to a wind atlas published by the Brazilian Wind Energy Centre (CBEE) the total wind power potential measured in Brazil is estimated to be about 143,500 MW, not including offshore. However, at this stage, wind still plays a secondary role in Brazil. Between 1999 and 2005, wind energy capacity in Brazil increased only in very small increments, until in 2006, when 208 MW were installed in one year, bringing the total to 237 MW. The total today is over 414 MW of installed capacity spread across thirty three wind farms mainly in the North-eastern region, which is the country's most promising region for wind generation, as well as the Southern and South-eastern regions where winds are strongest and most consistent. Wind is also considered as a potential hedge against low rainfall and the geographical spread of existing hydro power.

Regulatory regime

The Brazilian government has been working on improvements to the regulatory framework of the distribution network, cost and benefits for medium/long term development. In the second semester of this year an auction specifically for wind will take place.

Today there are a further nine wind energy plants amounting to 348.5 MW capacity which are now under construction stage. PROINFA has been seen as an important initiative, pointing in the right direction, as a product of the combination of subsidies and supply contracts for 20 years with Eletrobrás, as well as some tax incentives. However, their construction was delayed due to a series of changes that occurred half way through the project, partly due to the lack and restrictions of wind turbine suppliers and financial factors that drove up the cost of building such projects.

The investment outlook remains positive, and over 2400 MW of wind energy projects have already been registered with Brazilian Electricity Regulatory Agency (ANEEL) and are awaiting approval for supply contracts with utilities in order to move forward with planning and construction. These projects are non-PROINFA but they are being developed considering the auctions scheme.

Brief Summary about the next Wind Energy Auction

This auction will comprise the negotiation of energy commercialisation contracts via the Internet. The supply should begin in January 2012. In terms of tariff expectations, these should be in the range of R$200 per megawatt-hour (MW/h), for a 20 year PPA. During what is actually a reverse auction, bid winners are those that offer the lowest rate per MW/h to supply the expected demand from distributors. The power price is inversely proportional to the capacity factor of the wind farm, between fixed minimum and maximum values.

Power Purchase Agreement (PPA)

The winning projects of this Auction have a 20-year off-take agreement either with Eletrobrás, or with another energy supplier, although there is a lobby to change PPA's in wind to 25 years.

In the original PROINFA, projects were entitled to sign a 20 year PPA as well, these were respectively 180 and 204 R$ / MW/h. Today, PROINFA is no longer applied for new projects, so developers should get their PPA's through auctions and through the open market.

Criteria to be applied for the wind power 2009 auction, can be found in Portarias MME n.21 de 18 de Janeiro de 2008 e n.52 de 10 de Fevereiro de 2009.

Legal and administrative procedures for wind farm projects in Brazil

A significant part of wind power project development concerns administrative and legal procedures. In wind farm projects, most procedures are aimed at informing the federal and state institutions and agencies of the advancement of the project. In return, these agencies and institutions provide the required licenses and authorizations for implementation and operation. Before submission to an auction, and before signing a PPA, the following prerequisites have to be fulfilled:

- ANEEL's Authorisation
- The Preliminary Environmental License (LP)
- The Installation License (LI)
- The Transmission Lines License
- The Operation License (LO)
- Land Lease Use Agreement
- Engineering Registration

The ONS (National Grid Operator) and Local Distribution Companies require:

- Contract for the use of the Distribution System
- Contract for the connection to the Distribution System
- Contract for the use of the Transmission System
- Contract for the connection to the Transmission System
- Monthly payment of wheeling fees for grid access

Zephyr, subsidiary of Aeolus, is going to be present in this auction through Verdes Mares Wind power plant project, should the tariff regime change to a range of R$200 – R$220.

Carbon Credits

The clean development mechanism has contributed to the deployment of wind energy globally. Wind power projects generate carbon credits that are therefore eligible to be registered and approved as a Clean Development Mechanism (CDM), these credits are called 'CERs' and can be used to meet a country's cap. Carbon credits are also a very important means of improving cash flows of wind power projects.

Wind Energy accounts for circa 14% of all CDM projects and generates significant value; Almost 7 million CERs have already been issued, a number that will go up to a total of 213 million by the end of first commitment period in 2012 .

Brazil is host to the largest number of CDM projects in Latin America. As for the power sector, figures from April 2008 show us that Brazil had 255 project activities in the Clean Development system registered or under validation by the CDM executive board. Brazil is the third top country in this field, after China and India which are the leaders with 1003 and 840 CDM projects activities respectively.

Technology Partners

Suzlon has presented a proposal package for a supply of S88 2.1 MW wind turbines for our portfolio. The scope of the proposal includes the design, supply, delivery to site, installation and testing as well as commissioning, maintenance and service of wind turbines as associated equipment. However, once the PPA's are secured we will also consider other turbines suppliers proposals.

The market today is much more competitive when compared to previous PROINFA projects.

Favourable Political and Economic Environment

With Brazil's appetite for electricity growing, there are increased efforts on behalf of the current administration in Brazil, which has been taking measures since 20030 to make investing in Brazil a more attractive proposition for foreign investors by reducing the barriers to entry, whilst encouraging investment and economic growth:

Improved Investment Conditions

- New regulatory framework
- Reduced risks for investing through clearer rules for the roles of state and private companies
- Government guarantees for some projects through public-private partnerships (PPPs)
- Eased financing through development bank BNDES
- Long-term planning

Macro-economic Improvements

- Inflation has been reined in
- Interest rates have been reduced
- The balance of payments in order

Track Record

Aeolus benefits from the experience of its parent company HLC EH, who through another subsidiary was present in one of these auctions in 2008 for a biomass project, and was successfully awarded the contract under the rules of EPE.

Financial Summary

This section intends to explain Aeolus Wind Limited enterprise value and to estimate the expected development costs to bring its wind projects forward to construction phase.

Given the early stages of the projects to be developed in the Brazilian company Notus we've assumed zero enterprise value for these projects and will only consider development costs. Therefore, AWL value relies on Zephyr with five wind parks up to 298.20 Mw of power developed. When we align the wind market value chain with the current stages of Zephyr's wind projects together with Aeolus wind transactions we realise its estimated current market enterprise value.

According with our experience in comparable transactions it is allocated a value of BRL 100,000 per Mw for wind parks not registered in the auction and BRL 200,000 per Mw with full requirements for PPA and registered for the wind energy auction. After the auction each Mw with energy contracted will receive BRL 800,000 of market value. At financial close it is allocated a value of BRL 2,200,000 per Mw and at the beginning of construction a value of BRL 4,500,000 which is the average CAPEX per Mw.

The outstanding processes in Table 2.1 are expected to be fulfilled up to the end of second quarter this year, including the land rights under negotiation for Redonda and Maceio, and we believe Zephyr will achieve a PPA for Verdes Mares, Tapera and Caraubas. At the current stage, with Redonda and Maceio still securing land rights, Zephyr reaches a market value of circa BRL 40 million for the 298 Mw with reduced development costs to be assumed until the auction.

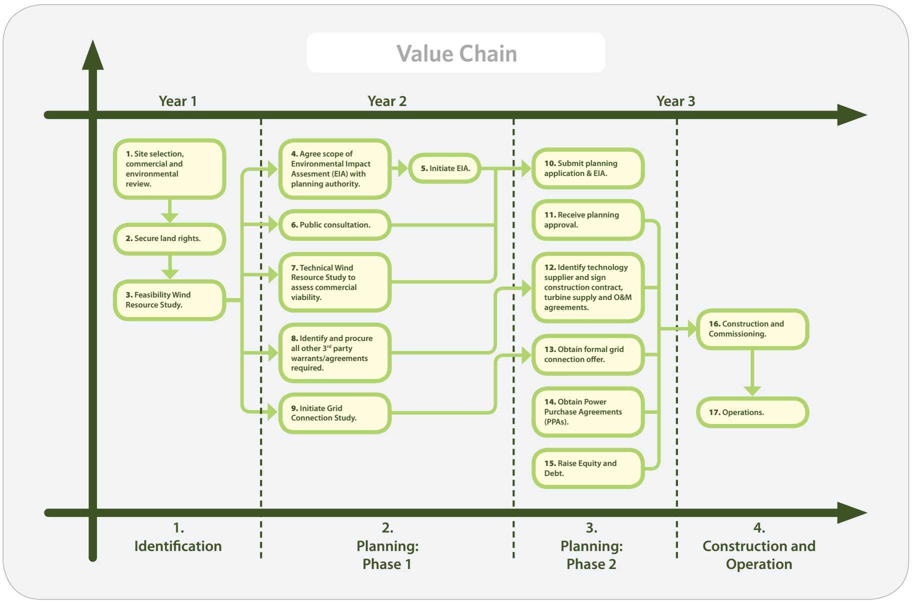

Fig 2.6 – Value Chain

	Redonda 79.80 MW	Maceio 115.50 MW	Verdes Mares 75.60 MW	Tapera 16.80 MW	Caraúbas 10.50 MW
Site Selection, Commercial & Environmental Review	100%	100%	100%	100%	100%
Feasibility Wind Resource Study	100%	100%	100%	100%	100%
Secure Land Rights	0%	0%	75%	80%	100%
Environmental Impact Study	100%	100%	100%	30%	100%
Submit Planning Applications	100%	100%	100%	0%	100%
Anticipated Environmental License (LP)	100%	100%	100%	0%	100%
Receive Planning Approval	100%	100%	100%	0%	100%
Contract Signature with Environmental Agency	100%	100%	100%	0%	100%
Environmental License Wind Farm (LI) (*)	100%	100%	10%	0%	100%
Grid Connection Studies	50%	50%	100%	100%	100%
Grid Access Authorisation	0%	0%	100%	20%	100%
Obtain Purchase Power Agreement	0%	0%	0%	0%	0%

Table 2.1 – Current Status of the Projects

When analysing the expected internal rate of return (IRR) the following assumptions have been made, some according to public releases and others with project specific characteristics:

- Price of ranging between BRL 185.00 and BRL 215 Mw/h
- Maturity of 20 years
- Combined capacity factor of 39.42% (this figure is expected to increase due to a site optimization in the wind park Verdes Mares)

- Equity ratio between 25% and 30% of total investment
- Effective annual interest rate of 9.50%
- Average transmission line with 50km length

Under these assumptions the net shareholder IRR reaches an average of 21.77% with an expected CAPEX of BRL 1,342 million.

The price sensitivity for an initial wind tariff ranges between BRL 185.00 and BRL 215.00 Mw/h. Our tariffs in projects under PROINFA average BRL 215.00 and when applied to Zephyr's projects it reflects a net IRR of 24.56% for the investor and a 17.05% return for the project. It is our belief that the Brazilian Government will not consider executing a wind auction under a tariff of BRL 185.00. However, if they do decide to use this level of tariffs our current wind projects will provide returns to investors of circa 19% annually (see Figure 2.7).

In terms of development costs, Aeolus' Brazilian management team (based in Fortaleza) will run the projects of Zephyr and Notus, at different stages of the value chain, and they will need to increase human resources at the holding level to develop other opportunities that are currently being identified in South Africa, Eastern Europe and North America. These teams aim to develop the projects either until getting the PPA or beginning of construction and will require expenditure up to BRL 1,500,000 annually.

For the holding side we will require circa GBP 400,000 annually.

Service providers will consume the highest stake of development costs being spread between several items: audit & accountants, legal advisors, tax & consulting and technical providers. If we also consider property expenses and financial costs, our overall estimate ranges between BRL 17.5 million and BRL 22.5 million until the wind parks are operational and delivering cash flow. These values are meant to be required gradually depending on which project's development stages is most significant, both during and after obtaining the power purchase agreement.

Figure 2.7

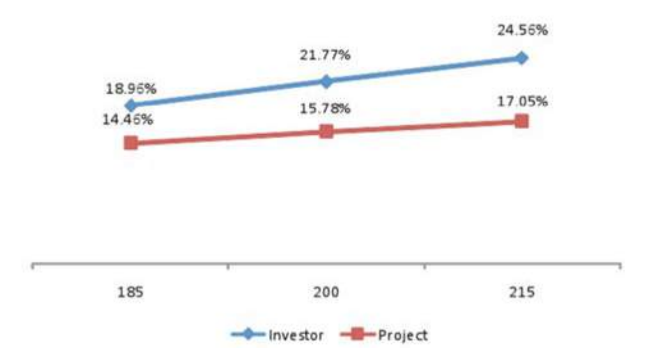

Fig 2.7 – Expected Internal Rate of Return

ASSUMPTIONS

								Net Production
Ownership	**100.00%**	Value / Mw	**100,000**	Not registered for auction	E (Price / Mw/h)	**200.00**	R	272,751.41
Bank Garant	**5.00%**		**200,000**	Pre PPA / Auction	Price growth	**4.00%**	M	423,555.81
			800,000	With PPA	Net Inc/Sales	**35.00%**	VM	235,152.58
EUR/BRL	**2.90947**		**2,200,000**	Financial close	Maturity	**20**	T	59,866.73
			4,500,000	Begin operation	Debt	**70.00%**	C	38,481.00
								1,029,807.53

VALUE IN EUROS

CAPEX	**138,365,407**
∑ (Gross Y Sales)	**2,107,991,459**
∑ (Sh Y profit)	**737,797,011**

Table 2.2 – Assumptions

ZEPHYR VALUATION

			2Q 2009		4Q 2009		2Q 2010		4Q 2010		4Q 2011		4Q 2012		4Q 2013	
Wind Parks	Mw	% Share	Price BRL/Mw	Total	Price BRL/Mw	Total	Price BRL/Mw	Total	Price BRL/Mw	Total	Price BRL/Mw	Total	Price BRL/Mw	Total	Price BRL/Mw	Total
R	79.80	100%	100,000	7,980,000	200,000	15,960,000	200,000	15,960,000	800,000	63,840,000	2,200,000	175,560,000	2,200,000	175,560,000	4,500,000	359,100,000
M	115.50	100%	100,000	11,550,000	200,000	23,100,000	200,000	23,100,000	200,000	23,100,000	800,000	92,400,000	2,200,000	254,100,000	4,500,000	519,750,000
VM	75.60	100%	200,000	15,120,000	800,000	60,480,000	2,200,000	166,320,000	2,200,000	166,320,000	4,500,000	340,200,000	4,500,000	340,200,000	4,500,000	340,200,000
T	16.80	100%	200,000	3,360,000	800,000	13,440,000	2,200,000	36,960,000	2,200,000	36,960,000	4,500,000	75,600,000	4,500,000	75,600,000	4,500,000	75,600,000
C	10.50	100%	200,000	2,100,000	800,000	8,400,000	2,200,000	23,100,000	2,200,000	23,100,000	4,500,000	47,250,000	4,500,000	47,250,000	4,500,000	47,250,000
	298.20		BRL $R	40,110,000	BRL $R	121,380,000	BRL $R	265,440,000	BRL $R	313,320,000	BRL $R	731,010,000	BRL $R	892,710,000	BRL $R	1,341,900,000
			EUR €	13,786,016	EUR €	41,718,939	EUR €	91,233,111	EUR €	107,689,717	EUR €	251,251,946	EUR €	306,829,079	EUR €	461,218,023
					Cash Require	-7,957,635			Cash Require	-32,696,677	Cash Require	-42,765,521	Cash Require	-40,058,842	Cash Require	-14,886,732
					as % E(V)	19.07%			as % E(V)	30.36%	as % E(V)	17.02%	as % E(V)	13.06%	as % E(V)	3.23%

Table 2.3 – Zephyr Valuation

Track Record

Aeolus Wind Ltd. brings with it a strong know-how of the wind power sector. This has been gained through its major shareholder, HLC Environmental Holdings Ltd. (HLC EH), as it has a wide experience in the energy sector with knowledge and presence in the Brazilian market.

During 2001, Aeolus Wind Ltd. major shareholder, HLC EH, acquired a majority shareholding in the company Rosa dos Ventos through HLC Brasil Ltda., a company of the HLC EH group. This company based in the state of Ceará held licenses and sites for the construction of three wind parks. At the time they had a projected installed capacity amounting to 48 MW. The sale of energy for two of the wind parks was guaranteed through PPA's (Power Purchase Agreements) with Eletrobrás for a period of 20 years. The third wind park held by this company did not hold PPA's. For this reason it was integrated into a pipeline that is currently under development. One of the projects is already operational and the other one is currently going through the construction phase and are scheduled to start operating in the next few months.

In 2005 the current shareholders of Aeolus Wind Ltd. acquired from EDF Energies Nouvelles (EDF EN), a subsidiary of EDF (Energies de France), the company SIIF Energies do Brazil. This company held a portfolio of wind projects at different stages of development amounting to a projected total of 1100 MW of installed capacity. At present the SIIF portfolio includes four individual projects amounting to a total of 207 MW of installed capacity. These projects are currently going through the construction phase and are scheduled to start operating during the first semester of 2009.

At the time of acquisition, the SIIF portfolio contained a total of eight wind park projects. When the shareholders of Aeolus Wind Ltd. sold the SIIF portfolio, as described above, they also sold another of the wind parks in this portfolio as a separate standalone project to the same buyers of the SIIF portfolio. This wind park project designated as Quintanilha Machado Wind Farm had a projected installed capacity of 135 MW. This project is located in the state of Rio de Janeiro and was at an early stage of development at the time.

Aeolus Wind Ltd. has so far successfully developed two different portfolios containing a total of six wind parks and a standalone project amounting to a total of seven wind parks with a an overall total of 356 MW of installed capacity. It has successfully sold these on to third parties at the point where the projects value chain has been fulfilled and is currently developing a new portfolio, designated as Zephyr and which amounts to a projected total of 300.00 MW of installed capacity. Following there is more detailed information on the projects that make up Aeolus Wind Ltd.'s track record.

Quintanilha Machado Wind Farm (disposed)

Project name
Quintanilha Machado Wind Farm

Location
Arraial do Cabo, North coast of Rio de Janeiro state, South East Brazil

Project status
100% PPA contracted under PROINFA 1st phase

Current Owner
Citigroup, Liberty Mutual and Black River

Installed capacity
135 MW

Number of turbines
68 Enercon E82 (2MW)

Net energy production based on P50 (P90)
Early development stage / to be calculated

Net capacity factor based on P50 (P90)
Early development stage / to be calculated

Canoa Quebrada Wind Farm (disposed)

Project name
Canoa Quebrada Wind Farm

Location
Canoa Quebrada, State of Ceará, North East Brazil

Project status
In full operation

Current Owner
Martifer Group and Ventania S.A

Installed capacity
10.5 MW

Number of turbines
5 Suzlon S88 turbines (2.1 MW rating)

Net energy production based on P50 (P90)
45.634 MWh/year (39.953 MWh/year)

Net capacity factor based on P50 (P90)
50% (43%)

Lagoa do Mato Wind Farm (disposed)

Project name
Lagoa do Mato Wind Farm

Location
Lagoa do Mato, Aracati, State of Ceará, North East Brazil

Project status
In full operation

Current Owner
Martifer Group and Ventania S.A

Installed capacity
3.23 MW

Number of turbines
2 Suzlon S88 turbines (2.1 MW rating)

Net energy production based on P50 (P90)
16.924 MWh/year (14.759 MWh/year)

Net capacity factor based on P50 (P90)
51% (41%)

Praia Formosa Wind Farm (disposed)

Project name
Praia Formosa Wind Farm

Location
Praia Formosa, State of Ceará, North East Brazil

Project status
Operation due to start in June 2009

Current Owner
Citigroup, Liberty Mutual and Black River

Installed capacity
104.4 MW

Number of turbines
50 Suzlon S88 turbines (2.1 MW rating)

Net energy production based on P50 (P90)
329,744 MWh/year (284,935 MWh/year)

Net capacity factor based on P50 (P90)
32% (26%)

Icaraizinho Wind Farm (disposed)

Project name
Icaraizinho Wind Farm

Location
Icaraizinho, State of Ceará, North East Brazil

Project status
Operation due to start in June 2009

Current Owner
Citigroup, Liberty Mutual and Black River

Installed capacity
54.0 MW

Number of turbines
24 Suzlon S88 turbines (2.1 MW rating)

Net energy production based on P50 (P90)
245,391 MWh/year (217,759 MWh/year)

Net capacity factor based on P50 (P90)
50% (41%)

Foz do Rio Choró Wind Farm (disposed)

Project name
Foz do Rio Choró Wind Farm

Location
Choró, State of Ceará, North East Brazil

Project status
In full operation

Current Owner
Citigroup, Liberty Mutual and Black River

Installed capacity
25.2 MW

Number of turbines
12 Suzlon S88 turbines (2.1 MW rating)

Net energy production based on P50 (P90)
89,336 MWh/year (78,006 MWh/year)

Net capacity factor based on P50 (P90)
41% (32%)

Paracuru Wind Farm (disposed)

Project name
Paracuru Wind Farm

Location
Paracuru, State of Ceará, North East Brazil

Project status
In full operation

Current Owner
Citigroup, Liberty Mutual and Black River

Installed capacity
24.4 MW

Number of turbines
12 Suzlon S88 turbines (2.1 MW rating)

Net energy production based on P50 (P90)
104,656 MWh/year (92,060 MWh/year)

Net capacity factor based on P50 (P90)
54% (44%)

Management & Contacts

Board:
Horacio Carvalho – hcarvalho@aeolus-wind.com
Stephen Evans – sevans@aeolus-wind.com
Bernardo Meira – bmeira@aeolus-wind.com

Management Team:

Executive Director	Pedro Cardoso (pcardoso@aeolus-wind.com)
Technical Director	Currently under recruitment
Consultant/Advisory	TBD

Arranging Banks:
TBD

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Technology:
Suzlon, other suppliers proposals under consideration.

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Introduction

Zephyr is a Brazilian based company with headquarters in Fortaleza – Brazil – and was established in 2007 as a subsidiary of the UK company Aeolus. Its sole purpose is the development and implementation of wind power projects.

The company has been set up with the aim of building a substantial platform for one of the more developed and competitive new markets stemming from renewable energy sources: wind power.

ZEPHYR has a strong know-how of the wind power sector and a proven track record. This has been achieved through the successful development of wind assets in the Northeast region of Brazil. ZEPHYR's management has developed two wind portfolios totalling six wind farms amounting to 221 MW.

The first, SIIF, had four wind farms totalling 207 MW and the second, RDV, two wind farms totalling 14 MW. Of these six wind farms, four are under operation and the remaining two are under construction with operations expected to start by June 2009.

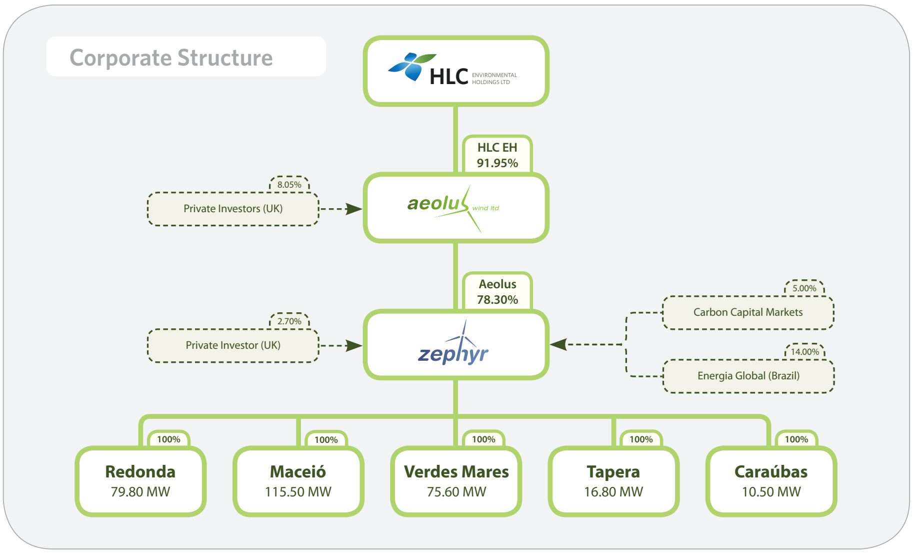


Fig 3.1 – Zephyr Corporate Structure

Corporate Structure

Aeolus Wind Ltd. holds the majority of shares in Zephyr with a participation of 78.30%. The remaining shares are held by a Brazilian developer company with a participation of 14%, an English company with 5% and an individual investor with a participation of 2.70%. Zephyr in turn fully owns the five individual wind parks in their entirety with a participation of 100%.

This structure concept also assumes in the case of Zephyr, all key group level management functions will be majority management by AWL through HLC EH, which will be responsible for strategy, marketing, and fundraising of the project companies. The operational functions are led by the team in Brazil.

An overview of the Zephyr current portfolio is shown below:

Zephyr project	Capacity (MW)	Number of turbines	P50 net capacity factor	Netenergy production (MWh/year)
Verdes Mares	75.6	36	35.51%	235,152.58
Maceio	115.5	55	41.86%	423,555.81
Redonda	79.8	38	39.02%	272,751.41
Caraúbas	10.5	5	41.84%	38,481.00
Tapera	16.8	8	40.68%	59,866.73
Total	**298.2**	**142**		**1,029,807.53**

Table 3.1 – Zephyr Portfolio (Current)

Zephyr owns a portfolio of five wind farm sites currently representing a capacity of circa 300 MW. Zephyr is being developed with a view to securing the necessary PPA's during 2009 and 2010 and full operations beginning after the first semester of 2012. Each wind site is incorporated as a Brazilian SPV and majority held by AWL in UK.

Improvements in wind turbine technology and the location of the wind farms has resulted in an increase in the capacity factor. With regards to these facts, the company has recently undertaken alterations to the amount of MW registered, thereby improving the capacity factor, which is now a variable of reference to take into consideration in the current Wind Market perspectives.

The following table summarises previous scenario that prioritised the amount of MW:

Zephyr project	Capacity (MW)	Number of turbines	P50 net capacity factor	Net energy production (MWh/year)
Verdes Mares	158.4	76	31.90%	446,050.00
Maceio	235.80	113	33.40%	694,720.00
Redonda	300.6	144	31.90%	814,430.00
Caraúbas	10.5	5	41.84%	38,481.00
Tapera	16.8	8	40.68%	59,866.73
Total	**722.21**	**346**		**2,053,547.73**

Table 3.2 – Zephyr Portfolio (Previous Scenario)

Zephyr's Management Structure

Once funding is achieved, the Company's shareholders will elect a CEO and Board of Directors to represent their interests. Presently the company has been taken forward with the support of HLC. Zephyr is run locally by its Director (Luiz Santos), who is based at the office in Fortaleza – Ceará.

There is a dedicated team of financial and legal experts working on the projects, dealing with all the requirements necessary for the projects to reach pre-PPA stage.

Once the PPA's are achieved, Zephyr will recruit additional personnel in order to complement the staff already in position. There is already a team with a track record in project execution in "waiting mode" available once we achieve the PPA's.

The following positions will be required:

- Production Manager
- Pre Construction Manager
- Operational Manager
- Financial Director
- Marketing Director

Zephyr Portfolio Technical Summary

Redonda

Background	
Location	Redonda, Icapuí, Ceará North East Brazil
Present Status of Project	Project under development to be ready for next Wind Auction
Capacity and Generation	
Installed Capacity	79.80 Mw
Number and Type of Turbines	38 x Suzlon S88 turbines (2.1 MW rating) 60 Hz
Net Energy Production Based on P50	272,751.41 MWh/year
Net Capacity Factor Based on P50	39.02%
Power Purchase Agreement	
Provider and Regulatory Regime	Eletrobrás
Anticipated PPA Power Price Term (per MWh)	R$ 200 circa. Zephyr anticipates 20 year PPA.
	The Company is in a strong position with excellent working relationships with Eletrobras and experience of the action process from previous projects (Siif and RDV).
Funding	
Development Capital	Budget under approval.
Anticipated Capital Expenditure	N/A
Key Contracts	
Preliminary Agreements	The Company is in a process of securing necessary permits to proceed to PPA auction including land use permits, general authorisation, environmental licenses, grid access permits and AEO estimative.
Turbines	Preliminary talks with Suzlon have secured turbines for this project.
Civil Construction, Substation and Networks, Transmission and Distribution Lines	Mercuricus, Areva and Alubar all procured on a fixed price basis.
Interface and Co-ordination Agreement	This is in the process of agreement with the necessary parties.
Expenditure	
Total Capital Expenditure	N/A

Verdes Mares

Background	
Location	Verdes Mares, Tibaú, Rio Grande do Norte, North East Brazil
Present Status of Project	Dossier delivered to EPE Wind Auction for supply at Jan 2012.
Capacity and Generation	
Installed Capacity	75.6 MW
Number and Type of Turbines	36 x Suzlon S88 turbines (2.1 MW rating) 60 Hz
Net Energy Production Based on P50	235,152.58 MWh/year
Net Capacity Factor Based on P50	35.51%
Power Purchase Agreement	
Provider and Regulatory Regime	Eletrobrás
Anticipated PPA Power Price Term (per MWh)	R$ 200 circa. Zephyr anticipates a 20 year PPA.
	The Company is in a strong position with excellent working relationships with Eletrobras and experience of the action process from previous projects (Siif and RDV).
Funding	
Development Capital	Budget under approval.
Anticipated Capital Expenditure	N/A
Key Contracts	
Preliminary Agreements	The Company has secured necessary permits to proceed to PPA auction including land use permits, general authorisation, environmental licenses, grid access permits and AEO estimative.
Turbines	Preliminary talks with Suzlon have secured turbines for this project.
Civil Construction, Substation and Networks, Transmission and Distribution Lines	Mercuricus, Areva and Alubar all procured on a fixed price basis.
Interface and Co-ordination Agreement	This has been signed by the necessary parties.
Expenditure	
Total Capital Expenditure	N/A

Maceió

Background	
Location	Itapipoca, Ceará, North East Brazil
Present Status of Project	Project under development to be ready for Wind Energy Auction.
Capacity and Generation	
Installed Capacity	115.50 Mw
Number and Type of Turbines	55 x Suzlon S88 turbines (2.1 MW rating) 60 Hz
Net Energy Production Based on P50	423,555.81 MWh/year
Net Capacity Factor Based on P50	41.86%
Power Purchase Agreement	
Provider and Regulatory Regime	Eletrobrás
Anticipated PPA Power Price Term (per MWh)	R$ 200 circa. Zephyr anticipates a 20 year PPA.
	The Company is in a strong position with excellent working relationships with Eletrobras and experience of the action process from previous projects (Siif and RDV).
Funding	
Development Capital	Budget under approval.
Anticipated Capital Expenditure	N/A
Key Contracts	
Preliminary Agreements	The Company is in a process of securing necessary permits to proceed to PPA auction including land use permits, general authorisation, environmental licenses, grid access permits and AEO estimative.
Turbines	Preliminary talks with Suzlon have secured turbines for this project.
Civil Construction, Substation and Networks, Transmission and Distribution Lines	Mercuricus, Areva and Alubar all procured on a fixed price basis.
Interface and Co-ordination Agreement	This is in the process of agreement with the necessary parties.
Expenditure	
Total Capital Expenditure	N/A

Caraúbas

Background	
Location	Caraubas, São Gonçalo do Amarante, Ceará, North East Brazil
Present Status of Project	Dossier delivered to EPE Energy Auction for supply at Jan 2012.
Capacity and Generation	
Installed Capacity	10.50 MW
Number and Type of Turbines	5 x Suzlon S88 turbines (2.1 MW rating) 60 Hz
Net Energy Production Based on P50	38,481.MWh/year
Net Capacity Factor Based on P50	41.84%
Power Purchase Agreement	
Provider and Regulatory Regime	Eletrobrás
Anticipated PPA Power Price Term (per MWh)	R$ 200 circa. Zephyr anticipates a 20 year PPA.
	The Company is in a strong position with excellent working relationships with Eletrobras and experience of the action process from previous projects (Siif and RDV).
Funding	
Development Capital	Budget under approval.
Anticipated Capital Expenditure	N/A
Key Contracts	
Preliminary Agreements	The Company has secured necessary permits to proceed to PPA auction including land use permits, general authorisation, environmental licenses, grid access permits and AEO estimative.
Turbines	Preliminary talks with Suzlon have secured turbines for this project.
Civil Construction, Substation and Networks, Transmission and Distribution Lines	Mercuricus, Areva and Alubar all procured on a fixed price basis.
Interface and Co-ordination Agreement	This has been signed by the necessary parties.
Expenditure	
Total Capital Expenditure	N/A

Tapera


Background	
Location	Tapera, Ceará, North East Brazil
Present Status of Project	Dossier to be delivered to EPE Wind Auction for supply at Jan 2012.
Capacity and Generation	
Installed Capacity	16.8 MW
Number and Type of Turbines	8 x Suzlon S88 turbines (2.1 MW rating) 60 Hz
Net Energy Production Based on P50	59,866.73 MWh/yr
Net Capacity Factor Based on P50	40.68%
Power Purchase Agreement	
Provider and Regulatory Regime	Eletrobrás
Anticipated PPA Power Price Term (per MWh)	R$ 200 circa. Zephyr anticipates a 20 year PPA.
	The Company is in a strong position with excellent working relationships with Eletrobras and experience of the action process from previous projects (Siif and RDV).
Funding	
Development Capital	Budget under approval.
Anticipated Capital Expenditure	N/A
Key Contracts	
Preliminary Agreements	The Company has already necessary permits to proceed to PPA auction including land use permits, general authorisation, environmental licenses, grid access permits and AEO estimative.
Turbines	Preliminary talks with Suzlon have secured turbines for this project.
Civil Construction, Substation and Networks, Transmission and Distribution Lines	Mercuricus, Areva and Alubar all procured on a fixed price basis.
Interface and Co-ordination Agreement	This is in the process of agreement with the necessary parties.
Expenditure	
Total Capital Expenditure	N/A

Value Chain of a Wind Project

The value chain chart below demonstrates a typical wind project cycle and the various steps associated with each phase along the projects timeline:

- Identification
- Planning: Phase 1
- Planning: Phase 2
- Construction and Operation

Investment Highlights of Zephyr Projects

Brazil has an advantageous position for wind power. This is characterised by the following factors:

- Agreements with national energy supplier, availability of 20 year Power Purchase.
- Attractive regulatory regime, large market opportunity under state supported Specific Wind Auctions.

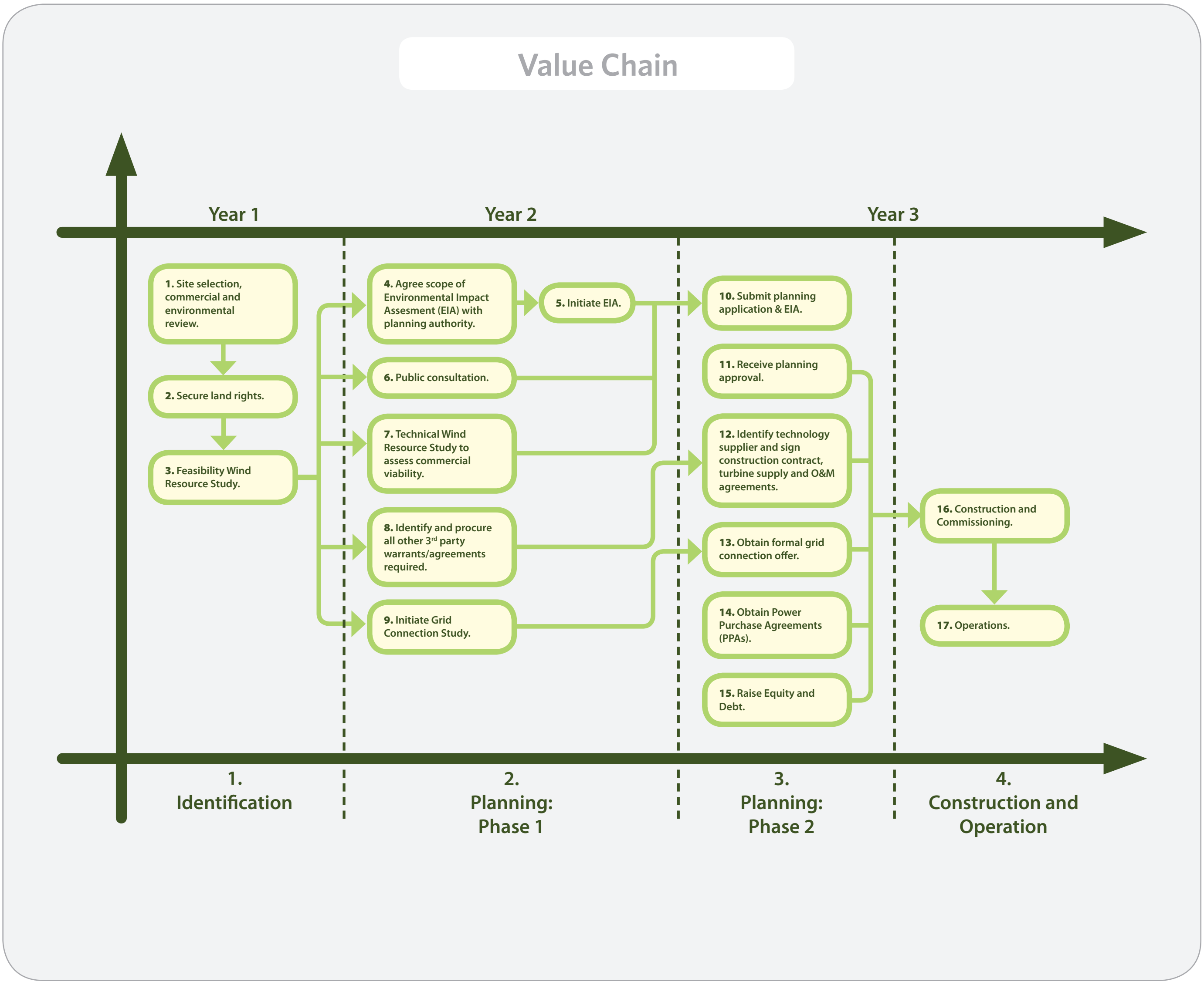
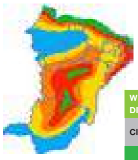


Fig 3.2 – Value Chain of a Wind Project

Figure 3.3



WIND RESOURCES AT 50M ABOVE GROUND LEVEL FOR FIVE DIFFERENT CLASSES					
Class	Shelter Sterrain	Open Plain	Sea Coast	Open Sea	Hills Ridge
	>6.0	>7.5	>8.5	>9.0	>11.5
	5.0-6.0	6.5-7.5	7.0-8.5	8.0-9.0	10.0-11.5
	4.5-5.0	5.5-6.5	6.0-7.0	7.0-8.0	8.5-10.0
	3.5-4.5	4.5-5.5	5.0-6.0	5.5-7.0	7.0-8.5
	<3.5	<4.5	<5.0	<5.5	<7.0

Fig 3.3 - Wind power potential in North East Brazil

"[Brazil has] world-class wind conditions in terms of speed consistency and direction"

"In the next few years, the necessity of energy in Brazil will be so immense, that every MW/h of energy that can be produced will be needed"

- Projects have most of the necessary permits, licenses, contracts and approvals needed for construction; Zephyr has obtained all necessary approvals, licenses, permits and wind studies to start implementation of four of its wind parks, with the exception of Tapera which is still in the early stages of development.
- Projects brought to final development stage by an experienced international energy company.
- Attractive Finance, recent correspondence suggests we can anticipate financial support loans for these projects from BNDES (Brazil's state development bank), Caixa Economica Federal and BNB, (Banco do Nordeste). Normally these institutions have a pool of balance structured towards project finance for wind farm developments, at a competitive spread plus long term interest rate.
- Good infrastructure capability, Brazil's existing infrastructure can accommodate wind generation capacity and both national and local grid connection bodies are committed to work with developers to facilitate the development of wind power capacity.
- Diverse industry structure: The significant wind potential in Brazil continues to create a national industry attracting developers, manufacturers and investors.
- All projects benefit from good geography and site conditions located in the windiest region in Brazil. World-class wind conditions in terms of speed consistency and direction.

Four of the Zephyr wind sites are currently at the pre-PPA stage having secured most of the necessary licenses and permits to proceed to the next Eletrobrás PPA auction. It represents a significant opportunity to invest in wind sites during the development stage with the potential for significant value accretion.

PPA

A significant short term milestone in the Zephyr development pipeline is securing the PPAs when they are auctioned by Eletrobrás. AWL believes it is in a strong position to secure PPAs for all the Zephyr sites for the following reasons:

- AWL includes the management team who served PPAs for Jantus and RdV projects. AWL will use this experience to leverage an advantage in the next auction process;
- AWL has good working relationships with Eletrobrás. The core management team have worked across the renewable energy sector in Brazil for many years and relationships with the regulator have also been strengthened by the successful development of Jantus and RdV;
- AWL is part of the HLC Group. The HLC Group is a well known provider of domestic and commercial energy in the Brazilian market. Further, core management view is that HLC's respected market position could be a differentiating factor in the auction process.
- According to the last official energy technical reports, made by MME, in the next few years, the necessity of energy in Brazil will be so immense, that every MW/h of energy that can be produced will be needed, and will get the respective PPA.

Environmental Licenses

Environmental permits issued by the 'Instituto de Desenvolvimento Económico e Meio Ambiente do Rio Grande do Norte' (IDEMA) must be renewed every two years. Further, a financial provision for potential environmental damages of 0.5% of the total project value is required by ANEEL.

Grid Access and General Authorisation

The ONS guarantees access to the grid for three years from date specified in the authorization. General authorizations issued by ANEEL allow AWL to:

- Construct and operate a wind farm and sell electricity on a commercial scale; and
- Petition access and usage of the national grid.

Land Use Agreement

AWL has secured the Zephyr sites on an initial term of 28 years that is extendable for up to 25 years thereafter, or 5 years fractions.

The cost of land may vary between BRL 2,500-10,000 until the start of commercial operations and 1.25-1.50% of the monthly gross income from the sale of electricity thereafter.

ZEPHYR Funding

The main budgeted expenditures includes consulting costs (technical, lawyers, etc) required to prepare for the PPA auctions and acquiring a workforce for Zephyr.

The strategy is to secure PPAs spreads between participation in auctions performed by ANEEL, the Brazilian national regulator, to direct sale to final consumers. The auctions cover all electricity buyers of the Brazilian national grid allowing the dilution of risk. Following the securing of PPAs, further funds will be raised for Zephyr. The financing needs of Zephyr will be funded using a mixture of debt and equity with an anticipated split of 80:20. The exact quantum of funds to be raised is not decided, however it is estimated that the total debt will be greater than one billion Brazilian Reais.

As previously mentioned the PROINFA program is no longer available for wind developers tendering at the next Eletrobrás auction. Therefore the benefits available to Jantus and RdV of subsidised debt financing will not be available for Zephyr. Core management therefore has already approached other debt providers, in order to fund the senior debt requirement for Zephyr.

The full Zephyr fundraising process is expected to begin in the second quarter of 2009 assuming that the PPA auctions and the development phase progress as scheduled. Funds will be raised at the AWL level to fund the construction of the Zephyr wind sites.

Aeolus/Notus

AWL's short term strategic goal is to continue to develop wind energy projects with a view to expanding the generation capacity with subsequent portfolios. The company has recently identified another opportunity in Brazil in a location with a robust wind potential to develop another 180 MWh and is now working on these wind sites. This portfolio is going to be incorporated inside Notus, a new company recently established in Brazil, that has other developments in pipeline and assessment stage as well. All the initial procedures have begun, including the land lease agreement, and the wind technical studies.

AWL is ideally positioned to select and develop these opportunities for the following reasons:

- Teamed with local engineer consultants, AWL has a unique understanding and opportunity to assess development potential and selectively choose projects to add to the AWL portfolio.
- With its early move into the market in 2005, AWL has now acquired a significant local presence and experience in the project team of developing wind projects in Brazil evidenced by its successful implementation of the SIIF and RDV projects.

This business opportunity arises from the present global scenario that provides support for investment in this activity.

It should also be considered that wind power has a huge potential and is a totally clean energy source. Policies and regulations have been made in this field, however there is still a lot to be done. Incentives are expected to be more effective, and market players have been taking advantage of these favourable market conditions.

Management & Contacts

Board
Aeolus Wind Limited

Management Team:

Director	Luiz dos Santos (lasantos@hlcbrasil.com.br)
Legal Advice	Ligia Pereira (ligia@hlcbrasil.com.br)
Electrical Engineer	Sormany Ferreira Rodrigues (sormany@hlcbrasil.com.br)
Technical team	Currently under recruitment
Consultant	Braselco, Inova;

Arranging Banks:
Banco do Nordeste do Brasil (BNB),
Banco Nacional de Desenvolvimento Económico e Social (BNDES)
or Caixa Economica Federa (Caixa)

Legal Advice:
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Fortaleza / Ceará CEP: 60.150-160, Brazil
Contact: gordiano@Imgordiano.com.br

Technology:
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Other suppliers proposals under consideration.

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bioveg

Introduction

Bioveg is a company that has been incorporated to act as the holding company of HLC Group's Biofuels interests. At the present time there are two associated companies operating in the Biofuels sector, Biodiesel Energy Trading Ltd. (BET) and BIOVASF.

BET was formed to develop two sites in Sines (approx 13 hectares) on which the company proposed to construct a 200,000 MT per annum Biodiesel Plant, and a small tank storage unit. The proposed site at Sines has sufficient space to increase the size of the unit by an additional 200,000 MT per annum. At the present time BET has received all the appropriate permits and licenses to allow the construction of the initial phase of the plant to proceed.

Due to the current market conditions in the European Biofuels sector, the management is in negotiations with the Portuguese Authorities to postpone the construction start date of this project and renegotiate the terms and conditions reflected in the licenses and permits.

In addition to the development of the Plant at Sines, BET is in the process of developing trading opportunities in India, Europe and the USA for the procurement of feedstock/vegetable oils.

Simultaneously, BET is also developing plans to construct a seed crushing facility in Alberta, Canada. This project is in its early stages and will advance during 2009, now that an option agreement to secure a site has been signed.

BIOVASF was formed after HLC Brasil, a company of the HLC Group, decided at the end of 2006, to make the acquisition of some assets in the Sao Francisco Valley in Pernanmbuco State – Sao Francisco, Brazil.

These assets comprise 43 hectares of land facing the river with two crushing mills, one 100.000 Ton soybean crushing mill and one 60.000 ton castor crushing mill, as well as storage facilities and leading station in Barreiras on the Sao Francisco river front supplying the soybean crusher via barges. These plants are being refurbished and will start operating simultaneously with 2009's crop season.

Global Analysis of Renewable Energies

Overview

In 2007 the global community finally started to come to terms with the climate change issue. Rising global temperatures is a cause for concern, emissions from international bunkers are growing rapidly, and there is growing evidence that emissions of greenhouse gases are responsible for global warming, with potentially severe economic, social and environmental consequences at global level.

There is a worldwide consensus regarding the fact that we are facing an energy and climate crisis. Energy consumption is growing faster and the world needs to increase energy supplies to sustain economic growth and development.

The International Energy Agency expects CO_2 emissions in 2030 to have increased by 55% to reach more than 40 billion tones of CO_2. The share of emissions coming from electricity production will increase to 44% in 2030, reaching 18 billion tones of CO_2.

Energy resources are under pressure and CO_2 emissions from today's energy use already threaten our climate globally, the energy sector emits 26 billion tones of CO_2 each year and electricity production alone accounts for 41% of emissions.

The use of integrating renewable energies in place of fossil fuels can substantially reduce greenhouse gases. Science suggests we need to reduce emissions by approximately 76% by 2050 to stabilise the climate.

The development of renewable energy requires appropriate economic, market and regulatory instruments. On one side there is a need to develop post-Kyoto policies, in order to stabilise atmospheric greenhouse gases at low concentration levels, and on the other side, it is important to maintain economic growth.

Renewable energy increases diversity of energy supplies and can replace diminishing fossil fuel resources over the long run.

HLC EH is pursuing a philosophy of vertical integration within the Biofuels business through Bioveg, as the biofuels sector is essential for these carbon reductions and is a part of the regulation policy for both the USA and Europe. It is also a part of the Food industry chain, through the production of seedcake, which can be used for this industry sector or as biomass for the energy sector.

Biofuels Industry Analysis

Brief Summary description on Biofuels

Biofuels are fuels produced from biomass, mainly of agricultural origin*. The term commonly applies to liquid transport fuels, but is also used for gas and solid fuels such as wood pellets and chips.

At present, three biofuels account for almost all consumption in the transport sector world-wide:

Bioethanol, mainly produced by fermentation of cereals, starch and sugar crops, is currently the world's main biofuel. However, the most frequent use of ethanol in the EU at present is through conversion into derivatives, such as ETBE composed of a mixture of ethanol and fossil fuels). The major and most successful producer is Brazil, through its sugar industry with the production of alcohol.

Biodiesel produced from oilseeds crops and other raw materials, which until recently was produced almost solely in the EU, is now gaining a foothold in other regions across the world.

Biogas production, from energy crops and organic wastes, is another available option that is (so far) less developed.

Biofuels versus Biodiesel

Biofuel is a general term that refers to a liquid or gas fuel derived from biomass

Figure 4.1

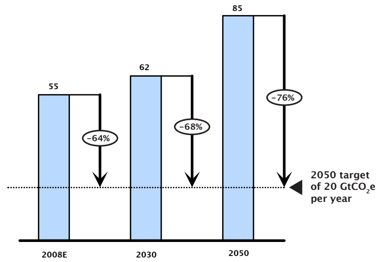

Fig 4.1 – Global "business as usual" GHG Emissions
Source: Mckinsey Analysis;
ipcc: stern review (2006)

"The International Energy Agency expects CO_2 emissions in 2030 to have increased by 55% to reach more than 40 billion tones of CO_2"

"At present, three biofuels account for almost all consumption in the transport sector world-wide: Bioethanol, Biodiesel and Biogas"

* The industry is migrating to non food crops. i.e. Jatropha, keen, mahura, etc.

plant materials such as crops, crop waste, wood and wood products, plant oils, and similar materials.

Ethanol is alcohol produced by the fermentation of sugars in corn, cane or beet sugar, or other plant matter. Biodiesel is flammable oil that is equated against petroleum-based diesel fuel except that it is produced from various types of plant oil or animal fats.

Biodiesel is manufactured from vegetable oil (i.e. Palm oil, soybean oil) or animal fats such as tallow. Biodiesel is common in Europe where there are more diesel passenger cars, but biodiesel has not caught on yet in the United States.

Biodiesel is ecological and non-toxic. Pure biodiesel is B100. B20 is 20 percent biodiesel and 80 percent petroleum diesel. B20 can be used in existing diesel engines without any modifications. B100 requires some minor engine modifications such as replacing the engine seals with non-rubber seals and in colder climates a fuel heating system may be necessary to keep the fuel from thickening.

Trading Biofuel Markets

Soybean Oil (SBO)

SBO is produced on a large scale around the world. SBO is a species of legume native to East Asia. It is an annual plant that may vary in growth, habit and height. It may grow prostrate, not growing higher than 20 cm (7.8 inches), or even up to 2 meters (6.5 feet) in height.

Cultivation is successful in climates with hot summers, with optimum growing conditions in mean temperatures of 20°C to 30°C (68°F to 86°F); temperatures of below 20°C and over 40°C (68°F, 104°F) retard growth significantly. They can rise in a wide range of soils, with optimum growth in moist alluvial soils with a good organic content.

Rapeseed Oil (RSO)

RSO is used in the manufacture of biodiesel for powering motor vehicles. Biodiesel may be used in pure form in newer engines without engine damage and is frequently combined with fossil-fuel diesel in ratios varying from 2% to 20% biodiesel.

Formerly, owing to the costs of growing, crushing, and refining rapeseed biodiesel, rapeseed derived biodiesel costs more to produce than standard diesel fuel. Prices of RSO are at very high levels presently (start November '05) owing to increased demand on rapeseed oil for this purpose. RSO is the preferred oil stock for biodiesel production in most of Europe, partly because rapeseed produces more oil per unit of land area compared to other oil sources, such as soy beans.

World production is growing rapidly, with FAO reporting that 36 million tonnes of rapeseed was produced in the 2003-4 season, and 46 million tonnes in 2004-5.

Crude Palm Oil (CPO)

Palm oil comes from the fruit of the oil palm tree, which is a different type of palm tree from the more familiar tropical coconut palm. Indonesia and Malaysia are the world's largest producers and exporters of palm oil. Production of palm oil has grown by approx 17 times from the 1970 production level.

Canola

Canola is a type of edible oil derived from plants initially bred in Canada by Keith Downey and Baldur Stefansson in the 1970s. The oil is extracted from a group of cultivars of rapeseed variants, from which low erucic acid rapeseed oil and low glucosinolate meal are obtained.

Genetically modified canola, which is resistant to herbicide, was first introduced to Canada in 1995. Today 80% of the acreage of canola is disseminated with genetically modified canola.

Jatropha

Jatropha is not a trading Biofuel , It is becoming a mainstream feedstock, and is now the most prominent non-food energy crop consisting of trees/shrubs that yield nuts whose oil-rich kernels can be converted into biodiesel. We can describe Jatropha as a genus of approximately 175 succulent plants, shrubs and trees (some are deciduous, like Jatropha curcas L.), from the family Euphorbiaceae.

Currently the oil from Jatropha curcas seeds is used for making biodiesel fuel in Philippines, promoted by a law authored by Philippine senators Miriam Defensor-Santiago and Miguel Zubiri. Likewise, jatropha oil is being promoted as an easily grown biofuel crop in hundreds of projects throughout India and other developing countries. In Africa, cultivation of Jatropha is being promoted and is grown successfully in countries such as Mali.

Biofuels Industry Overview

More than eighty per cent of the energy consumed daily worldwide is derived from fossil fuels. By definition these fossil fuels are limited in supply and will eventually run out. This in turn causes their price to rise as supply wanes and demand grows. Another negative aspect of fossil fuels is their polluting factor which is raising concerns regarding climate change.

To somehow address these issues, technological advancements have been made so that the production costs of alternative fuel sources can be reduced and hence made profitable. One such industry is that of biofuels like bioethanol and biodiesel that are derived from renewable sugar-cane and from sustainable non-food feedstocks such as jatropha or canola.

Biofuels Global Market

The global market for biodiesel is set for explosive growth in the next ten years. Although Europe currently accounts for 80% of global biodiesel consumption and production, the United States (U.S) is now producing at a faster rate than Europe, and Brazil is expected to surpass U.S. and European biodiesel production by the year 2015. It is possible that Biodiesel could represent as much as 20% of all on-road diesel used in Brazil, Europe, China and India by the year 2020 with the pursuit of second generation, non-food feedstocks.

Projections state that consumption of energy will increase faster than in previous decades and that the supply of energetic power might be twice as large as today's capacity in all segments, specially oil, natural gas, ethanol and electricity.

Outlook to 2030

Three key factors which will be major influences in the growth of the biodiesel industry over the coming years and looks at the prospects in the main producing and consuming regions:

- Global diesel demand;
- Economic viability of biodiesel production;
- Domestic policy and political support.

Looking to the Future: The Potential of Second-Generation Biofuels

Many concerns remain for the future of biofuels, including competition from unconventional fossil fuel alternatives and concerns about environmental tradeoffs. Perhaps the biggest uncertainty is the extent to which the land intensity of current biofuel production can be reduced. The amount of biofuel that can be produced from an acre of land varies from 100 gallons per acre for EU rapeseed to 400 gallons per acre for U.S. corn and 660 gallons per acre for Brazilian sugarcane.

Competitive Fossil Fuel Alternatives

High oil prices have created interest not only in the biofuels industry, but to a range of other liquid fuel alternatives. Large investments are being made in developing more conventional oil resources located in remote areas or deeper waters, unconventional sources, such as oil sands and heavy crude oil, and the conversion of coal to oil.

While world oil production is expected to increase 30 percent by 2030, production from unconventional fossil fuels will increase drastically, according to the U.S. Department of Energy. Global biofuel production is projected to more than double. Many of the fossil fuel alternatives have lower costs of production than biofuels. The current production is more than 1 million barrels per day, with some

Figure 4.2

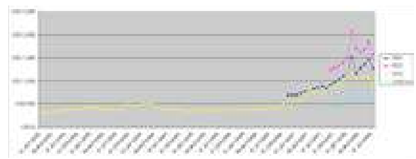

Figure 4.2 – Historical Agricultural Market Prices

Figure 4.3

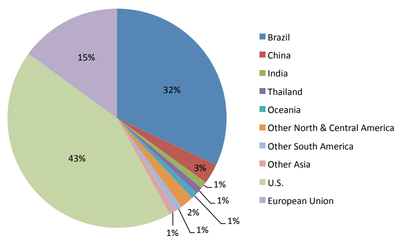

Figure 4.3 – Biofuel Production by region as a percentage of world total. Source: FO Licht, includes only ethanol for fuel

Figure 4.4

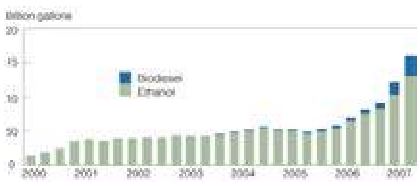

Figure 4.4 – Historical Global Biofuel Production Levels Source: International Energy Agency, FO Licht

forecasting production rising to more than 3.5 million barrels per day by 2030.

Another alternative is converting coal to oil, which is of particular interest to economies with abundant coal resources, such as China and the United States.

Key trends

It is expected that the world biodiesel production is likely to touch the mark of 12bn litres by the end of 2010. The global ethanol market will probably exceed 120,000 million mark by the end of the year 2020, with a growth rate of above 6.5% from 2006.

Contributing about half of the world bioethanol production, Brazil is the world's leading producer of the same, with US following next. The European Union, with a production of about 0.5m tons, is estimated to be accountable for about 10% of the total bioethanol in the world. With the rapid growth in bioethanol production, US will be able to catch up with Brazil in this business in the years to come.

Major Biodiesel Markets

The world leaders in biofuel development and use are Brazil, United States, France, Sweden and Germany but the so-called "BRIC nations" (Brazil, Russia, India and China) are driving a massive increase in demand for oil based products. Particularly the BRIC markets are amongst the fastest growing sector within the alternative fuel industry.

The current size of the Biodiesel market in BRIC is estimated at $577.57mn (the cumulative turnover of 35 active players), and is further projected to increase to $6.0bn by 2012, at a CAGR of 59.9%. Further an additional 33 players are in the process of setting up production facilities, which are expected to go live during 2008~12. The top three players alone account for nearly two thirds of the BRIC market, while the rest is distributed amongst the smaller players.

The "dieselfication trend" particularly takes place in Europe. In 2005, diesel cars accounted for 42% of all new car registrations in Europe (25% more than in 1998). Today 55% of total fuel sales in Europe derive from diesel. If EU goals concerning biodiesel (5.75% in 2010) are to be met, there will have to be approximately a 35% growth per year in capacity. The market would then be approximately €10bn (or 10m tonnes) in size.

Prospects for World Biodiesel Market Development

Despite the projected rapid growth of biofuels and other non-hydroelectric renewable energies and the expectation of the first new orders for nuclear power plants in over 25 years, oil, coal, and natural gas are nonetheless projected to provide roughly the same 86 percent share of the total U.S. primary energy supply in 2030 as they did in 2005 absent changes in existing laws and regulations. This reflects a situation in which rapid growth in the use of biofuels and other non-hydro renewable energy sources begins from a very low current share of total energy use, the share of a growing electricity market supplied from nuclear power falls despite projected new plant builds, and hydroelectric power production, which accounts for the bulk of current renewable electricity supply, is stagnant.

Natural gas consumption is projected to grow to 26.1 trillion cubic feet (tcf) in 2030, well down from projected consumption of 30 tcf or more that had been included in the AEO reference case only a few years ago. Much of this change results from projected natural gas prices that significantly cut the expected growth natural gas use for electricity generation over the last decade of the projection period. According to The Annual Energy Outlook 2007 (AEO2007) reference case, overall natural gas consumption is almost flat between 2020 and 2030, as growth in residential, commercial and industrial consumption over this period is nearly offset by a decline in projected gas use for electricity generation.

Coal is projected to play a growing role in the AEO2007 reference case, particularly for electricity generation. Coal consumption is projected to increase from 22.9 quadrillion British thermal units (quads) in 2005 to over 34 quads in 2030, with significant additions of new coal-fired generation capacity over the last decade of the projection period. The projections for coal use are particularly sensitive to the underlying assumption for the reference case analysis that current energy and environmental policies remain unchanged throughout the projection period.

- Consumption of renewable fuels is projected to grow from 6.5 quads in 2005 to 10.2 quads in 2030. More than 50 percent of the projected demand for renewable is for grid-related electricity generation, including combined heat and power, and the rest is for dispersed heating and cooling, industrial uses, and fuel blending.
- Carbon dioxide emissions from energy use are projected to grow at an average annual rate of 1.2 percent per year, from

5,945 million metric tons in 2005 to 7,950 million metric tons in 2030, reflecting growth in fossil fuel demand. The carbon dioxide emissions intensity of the U.S. economy is projected to fall from 538 metric tons per million dollars of GDP in 2005 to 353 metric tons per million dollars of GDP in 2030, an average decline of 1.7 percent per year.

- Biofuel cost effectiveness. Ethanol and biodiesel will lead the market in the medium term because of the high distribution costs of methanol and hydrogen and production, storage and consumption issues.

Biofuels and Carbon Savings
Environmental sustainability is becoming a fundamental part of any biofuels policy. The carbon contribution varies dramatically depending on the feedstock.

The biofuel producers' best option to reduce emissions is by managing emissions from the production process, choosing the cleanest fuel to power their plants. This includes using cleaner fuels such as natural gas or biomass, or using residues or by-products such as bagasse and glycerine to power the process.

Using natural gas instead of coal reduces emissions by 50%, and using bagasse plants can eliminate all the process related emissions. If the plants have electricity surplus, they can even help to offset emissions from other industries.

In general, biofuels made from crops grown in a sustainable manner in warmer and wetter tropical countries have a lower carbon intensity, both per hectare and per litre of fuel, than biofuels produced in colder, dryer northern climates where more energy input (e.g. nitrate fertilizers made from fossil fuels) is required.

Biofuel Production – Major Producers / Users
Brazil
Brazil is the world's largest producer of sugar-based ethanol, producing about 16 billion litres a year. It accounts for around half of the world's total output. State oil giant Petrobras plans to boost ethanol exports to 9.4 billion litres in 2010 from 2 billion in 2005.

United States
The United States, the world's biggest oil user, is the second-largest biofuel producer after Brazil. The Senate recently voted to require US output of ethanol reach at least 8 billion gallons a year by 2012, doubling the current output. About 12 percent of the US corn crop is projected to be used for ethanol in the coming year.
*European Union**
The European Union in its biofuels directive (updated 2006) has set the goal that for 2010 that each member state should achieve at least 5.75% biofuel usage of all used traffic fuel. By 2020 the figure should be 10%. Its own biodiesel production capacity was expected to exceed 4 million tonnes by mid-2006. Some 80 percent of EU's biodiesel comes from rapeseed oil, with soybean oil and a marginal quantity of palm oil making up the rest.

Japan
Japan, the world's second-largest consumer of gasoline, imported 149 million litres of an ethanol from Brazil in 2004.

Canada
In 2004 Canada's annual ethanol production was about 300 million litres per year and it hoped to increase ethanol production by 750 million litres a year. A number of major initiatives are underway to boost production significantly, possibly blending 35 percent of all gasoline supplies with 10 percent ethanol by 2010.

Thailand
Thailand, the world's second-biggest sugar exporter after Brazil, planned to replace regular gasoline with a mix that includes 10 percent ethanol in 2007.

India
Jatropha incentives in India are a part of India's goal to achieve energy independence by the year 2012. India is keen on reducing its dependence on coal and petroleum to meet its increasing energy demand and encouraging Jatropha cultivation is a crucial component of its energy policy.

Biofuel comparison
Please see Table 4.1 opposite.

Biofuels in Brazil
Brazil's biodiesel mandate came into effect in June of 2008. The B2 blend, now compulsory in Brazil, is hailed as a step towards a new era of relying on low carbon fuels, combining the best aspects of the highly successful Pro-Alcool program (which led to all gasoline in Brazil currently containing 25% of sugarcane ethanol), with a new vision on social and environmental sustainability. The government is so optimistic about the adaptation of the market to

* At the time of writing this document the EU is revising its policy on the biofuels/carbon emissions sector.

the B2 mixture that it predicts it could give permission for a non-compulsory 3% blend in 2008, ahead of schedule. Brazil's target is now to have a mandatory 5% biodiesel blend in place by 2013. The Financial perspective from BNDES, The Brazilian Development Bank, is also very positive, once they announced its intention to invest US$11 billion in the sugar and ethanol industries up to 2010.

Ethanol

Ethanol is derived from naturally grown crops such as corn and sugar. It is therefore a renewable energy source since farmers can simply grow more corn and sugar next year for the next round of ethanol production, that it provides significant economic stimulus to a country's agricultural sector and over-all economy. Ethanol also has an advantage in that it burns more cleanly than gasoline, thus producing fewer pollutants. It produces up to one-third less carbon monoxide and one-quarter less CO_2 than a comparable gallon of gasoline. Ethanol also eliminates the sulphur dioxide emissions from gasoline that comes back to earth as acid rain. Nonetheless, it is still a combustion fuel that emits greenhouse gases. The production process for ethanol also releases CO_2 into the atmosphere, although that is offset by the fact that the feedstock plants absorbed CO_2 during their lifetime.

As an illustration of Brazil's renewable energy potential Brazil is a major player in the renewable fuels market and is the world's leading fuel ethanol producer from a clean and sustainable source – sugarcane, it is also the largest exporter of bio-ethanol. Brazil is also investing in biodiesel production, which is already seeing a rapid increase in domestic demand and a strong potential for exports.

Table 4.1

Biofuel	Advantages	Disadvantages
Corn ethanol	Compared with oil it may help decrease the gas emissions as well as reduce the world's dependence on oil. It also promotes the building of biofuels infrastructure.	The production of ethanol requires a lot of energy, which doesn't quite cover the energy efficiency demand. The recent boom in corn demand has increased the prices of corn bushels from $2 last year to $5 this year. Farmers devote more land to corn and less to other grains, which raises the prices of corn worldwide. Over 450 lbs of corn are needed to produce 25 gallons of ethanol.
Biodiesel	It is estimated that biodiesel will reduce gas emissions 40%-80%. It also provides 90% more energy than is required to produce it.	The demand for biodiesel has led to an increasing number of Amazon and South East Asia forests being cut down and replaced with palm tree plantations, which released huge amounts of greenhouses gasses into the atmosphere and, in itself, is more of a danger than solution. Luckily, the practice has been limited.
Sugar cane ethanol	Sugar-cane generates more ethanol per acre than corn and it needs less energy to produce, therefore is regarded as a more eco-friendly than corn ethanol. The increased demand for sugar ethanol hasn't raised the food prices since sugar is not a basic ingredient in food production like corn.	Growing cane requires a certain type of climate, namely warm and rainy, which limits its potential for being a global source of fuel.
Cellulosic Ethanol	The production of cellulosic ethanol doesn't involve switching the use of cropland from growing food to growing biofuels since it is made by breaking down wood chips, farm waste and nonfood crops, such as grass.	It requires more energy to produce ethanol from nonfood plants than corn or sugar cane. The production of cellulosic ethanol is still expensive and the process of making ethanol from nonfood plants is difficult.
Algal Biofuel	Since it is a fastest growing plant on the planet, algae can produce up to 30 times more energy per acre than other biofuel sources. Moreover, a promising combination of byproducts can be made into algal-biofuels, which may contribute to their cost effectiveness.	Unfortunately, the biomass for making algal biofuel does not yet exist and it has to be grown. Harvesting it is quite expensive, thus cost effective production of this type of biofuel is still years away.

Table 4.1 – Biofuel Comparison Table

Financial Summary

BIOVEG foresees to become vertically integrated along the biofuels value chain, from securing feedstock up to delivering off take contracts to the market as well as developing a trading desk for vegetable oils. The current main focus of the Company is to secure feedstock.

In order to achieve this goal BIOVEG holds diversified investments both in the Brazilian Company BIOVASF, and in the UK Company BET. These companies in their local markets serve different purposes and business opportunities but when they are aligned together it will provide a fully integrated business from land cultivation at the downstream of the value chain up to the delivery of biodiesel to major oil companies

To date BIOVEG, incorporating BET and BIOVASF has made an aggregate investment of approximately EUR 11 million.

BIOVASF

BIOVASF intends to develop soybean and castor oil and to develop an irrigation project of castor and fruit in Petrolina – State of Pernambuco.

Soybean crushing project
The Soybean Plant is in the process of being upgraded and refurbished. The project has commitments in place to secure the feedstock and the plant is capable of crushing 100,000 tonnes per annum. This will deliver 18,000 tonnes per annum of oil and approximately 79,000 tonnes of mille.

Figures 4.5 and 4.6 opposite show operational free cash flow annually and cumulated.

Under these model fundamentals it's assumed that the project will deliver increasing positive cash flow after first year and will retrieve all investment until fourth year of operation.

Castor crushing project
At the moment the project projections are under review pending notification that the development of Pontal project will remain constant.

Pontal project
This is an irrigation project of 700 ha of land in a very early stage of the process. The purpose is to complete the construction of a pipeline to transfer water from the river to the irrigation site. The land will be irrigated and it expects to produce 90% castor, the remaining 10% coconuts and other tropical fruit. Pontal is strategic to the castor crushing project given that it will secure feedstock for the crushing facility. In terms of development costs,

BIOVASF ESTMIATED CASHFLOW										Value in EUR
Year	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Equity Investment										
Total Equity BRL	-25,708,000									
Total Equity EUR	-8,835,974									
Gross sales										
Total Gross Sales BRL	82,832,393	100,878,247	107,046,365	111,328,219	115,781,348	120,412,602	125,229,106	130,238,270	135,447,801	18,827,459
Total Gross Sales EUR	28,469,925	34,672,379	36,792,393	38,264,089	39,794,653	41,386,439	43,041,896	44,763,572	46,554,115	6,471,096
EBITDA										
Total EBITDA BRL	5,567,601	6,467,703	6,591,475	6,511,474	6,771,933	7,042,810	7,324,523	7,617,504	7,922,204	747,715
Total EBITDA EUR	1,913,613	2,222,983	2,265,524	2,238,028	2,327,549	2,420,651	2,517,477	2,618,176	2,722,903	256,994
Total Cash Flow in EUROS										
Project	-6,922,360	2,222,983	2,265,524	2,238,028	2,327,549	2,420,651	2,517,477	2,618,176	2,722,903	256,994

Table 4.2 – BIOVASF Estimated Cashflow

HLC EH is contracted to support BIOVASF's development costs until senior debt is disbursed. Until the end of the year HLC EH will fund BRL 2 million.

BET

BET's major aim has been to secure feedstock opportunities to develop its trading of vegetable oils. From its trading operations in India, Europe and the USA, the company projects a revenue stream of approximately EUR 3 million by the end of 2009 and significant increases in the following years. The margin on these revenues would be approximately 15%.

The Company has adequate financial resources available during 2009. These funds will secure BET's overheads for 2009 and together with the income from trading operations it should fund the development costs associated with the Canola project in Canada. The Canola project will require development costs of EUR 900,000 until December 2010. This is a strategic project for BET as it will provide approximately 300,000 tonnes of Canola oil per annum, which the Company will trade in the market.

Figure 4.5

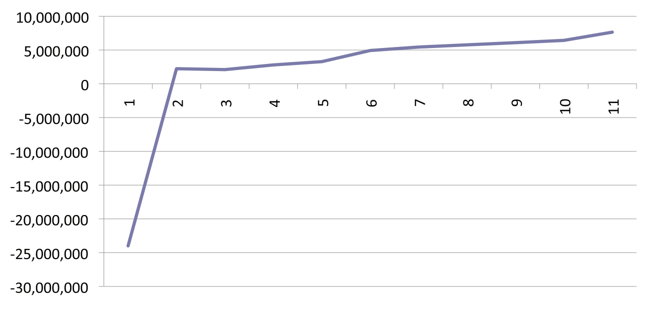

Figure 4.5 - Operational Free Cashflow Annually

Figure 4.6

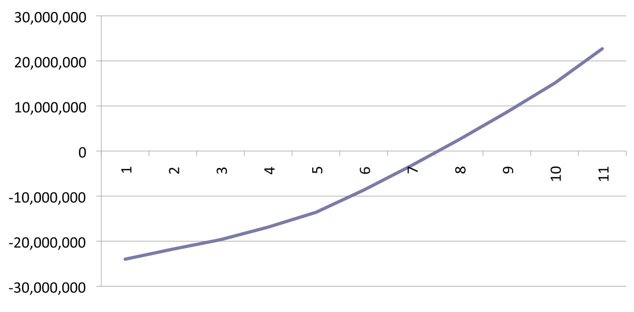

Figure 4.6 - Operational Free Cashflow Cumulative

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Biodiesel Energy Trading Ltd

Purpose/Background

The purpose of this chapter is to provide an overview of the background to the company; the development of the company's activities and any changes to the company's strategy since the company was first established in December 2003.

Company Background

BET – Biodiesel Energy Trading Limited (BET) was formed on 22nd December 2003, and is registered in England and Wales, in the United Kingdom.

The company's registered office is: 4th Floor, 15 Berkeley Street, London, W1J 8DY.

The company was originally established to specialize in the production of biodiesel, or FAME (Fatty Acid Methyl Ester) using a variety of vegetable oils, notably soy bean oil (SBO) to supply the European market.

The company's original business plan was to produce biodiesel in a refinery located in Sines, Portugal using imported soy bean oils from Brazil and Argentina.

At the time of the closing of the company's first equity round, on 2nd September 2005, soy bean oil was $450 per MT. It then made perfect sense to use soy bean oil as a feedstock for biodiesel, however since then, there has been a sustained rise in the cost of feed stocks generally, with soy bean oil in particular, rising to $1500 per MT by December 2000, falling back more recently to circa $850 per MT.

With edible oils, such as soy bean, palm, rapeseed and sunflower oil at such high prices, the company has since sought to identify, procure and subsequently trade inedible oils at commercially viable prices. The company has therefore invested significant resources into sourcing indigenous, inedible oils from India and other emerging markets.

However, in recent months the turmoil in the financial markets in general; as well as the fiscal uncertainty in relation to Biofuels in particular, has resulted in a complete re-focusing of the company's objectives.

For example, the significant and material change in the requirement by financial institutions for Debt and Equity has resulted in the company having to postpone its planned construction of a Biodiesel refinery in Sines, Portugal.

Although, the company had successfully secured all the necessary planning and regulatory consents from the Portuguese Government for the construction of a 200,000 MT Biodiesel refinery, on a 4 hectare site in the Industrial Park in the Port of Sines, the company is now in advanced negotiations with the authorities to extrcate itself from its financial obligations in Portugal.

BET's Current Strategy:

Following an extended period of turbulence in the financial markets, as well as fiscal uncertainty in relation to the exports of blended material from the USA, the management has decided to increase its efforts to generate income from trading biomass and Biofuels.

The recent decision by the European Commission to apply a tax of approximately US $400 per MT to imports of B99 material from the USA to Europe has enforced some change in the strategy of the company.

The Management therefore intends to focus its efforts on the following specific areas:

The pursuit of customers with a specific demand/ requirement for Biofuels

Over the last four years, the company has established a strong network of relationships in the industry. The company intends to secure mandates to supply oil companies with material that could be suitable for blending with fossil fuels.

The supply of niche products which are not liable to penal tax duties

The Management has identified niche market opportunities which we believe have potential to generate significant trading income, whilst at the same time avoiding excessive taxes and import duties. To this end, the company has also tested methyl-esters derived from animal fats, corn oil and canola oil. These have been analysed by potential off-takers in the UK.

The initial tests have been positively received and initial shipments have begun.

The development and exploitation of new markets

The company has invested significant resources in the pursuit of new market opportunities which have yet to be exploited by our competitors.

We believe that there are opportunities to originate supplies of Biofuels from countries that do not apply penal taxes to exports. One such potential source of supply is Canada, where the company has already established relationships with seed crushers.

Another potential source of trading income for the company is to originate biomass, from countries such as Brazil and Argentina, where the company has a network of potential supplier relationships which offer scope for originated supply, which we believe could be profitable.

Biodiesel Processing in Europe

For the same reasons that BET decided against building a large Biodiesel refinery in Europe, biodiesel refiners in Europe and across the world are struggling to operate at full capacity or at economic cost in the current fiscal environment.

We therefore believe that an opportunity exists to supply vegetable oils to existing biodiesel processors in Europe and, where required, to enter into/negotiate tolling agreements with biodiesel refiners who have spare refining capacity.

The Management envisages that corn oil (CO) and Used Cooking Oils (UCO) as well as greases and fats or blends could be used as feedstock supplies.

Biodiesel Processing in Canada

An alternative or additional opportunity to that which is proposed above, is to supply Europe with biodiesel produced in Canada, through a tolling arrangement.

There are quite a number of biodiesel plants in various states of Canada with varying capacities, some of which are likely to have spare capacity.

Furthermore, BET could also transesterify canola oil in order to supply the European market with and supply RME in the winter period to Europe, which requires a lower CFPP during the winter months. Initial enquiries suggest that this could be a very interesting opportunity for the company.

Canola Crushing Facility in Canada

The company has conceived, originated, and embarked upon the development of a canola crushing project Alberta, Canada.

A subsidiary company has been established in Canada known as "Meridian Oil Seeds Inc" in which Biodiesel Energy Trading has invested significant Management time and capital in the amount of EUR 250,000.

Vegetable oils for use as feedstock for Power Generation

The company also intends to exploit the rise in demand for vegetable oils to be used in Renewable Power Generation. Through the company's extensive network of contacts in the Power Generation sector, there are opportunities to supply the UK Renewable Power market.

Biodiesel Supply into India

The company has established a trading link into India. It will be the Companies intention to supply biodiesel for distribution and onward sale to local transport companies.

The existing contracts with local transport companies in India will be supplied from biodiesel procured outside India.

The Management's focus is therefore in three discrete areas:

- Meeting the needs of our customers
- Exploiting niche product opportunities
- Exploring new markets and securing demand for our products.

The company has therefore ceased to pursue biodiesel refining in its own right, using its own Biodiesel refinery, but rather to become a specialist niche player in the origination and trading of Biofuels to be used as renewable transport fuels and in renewable power generation.

It is the Management's intention to ensure that this strategy is successfully developed and that attractive returns are delivered to shareholders.

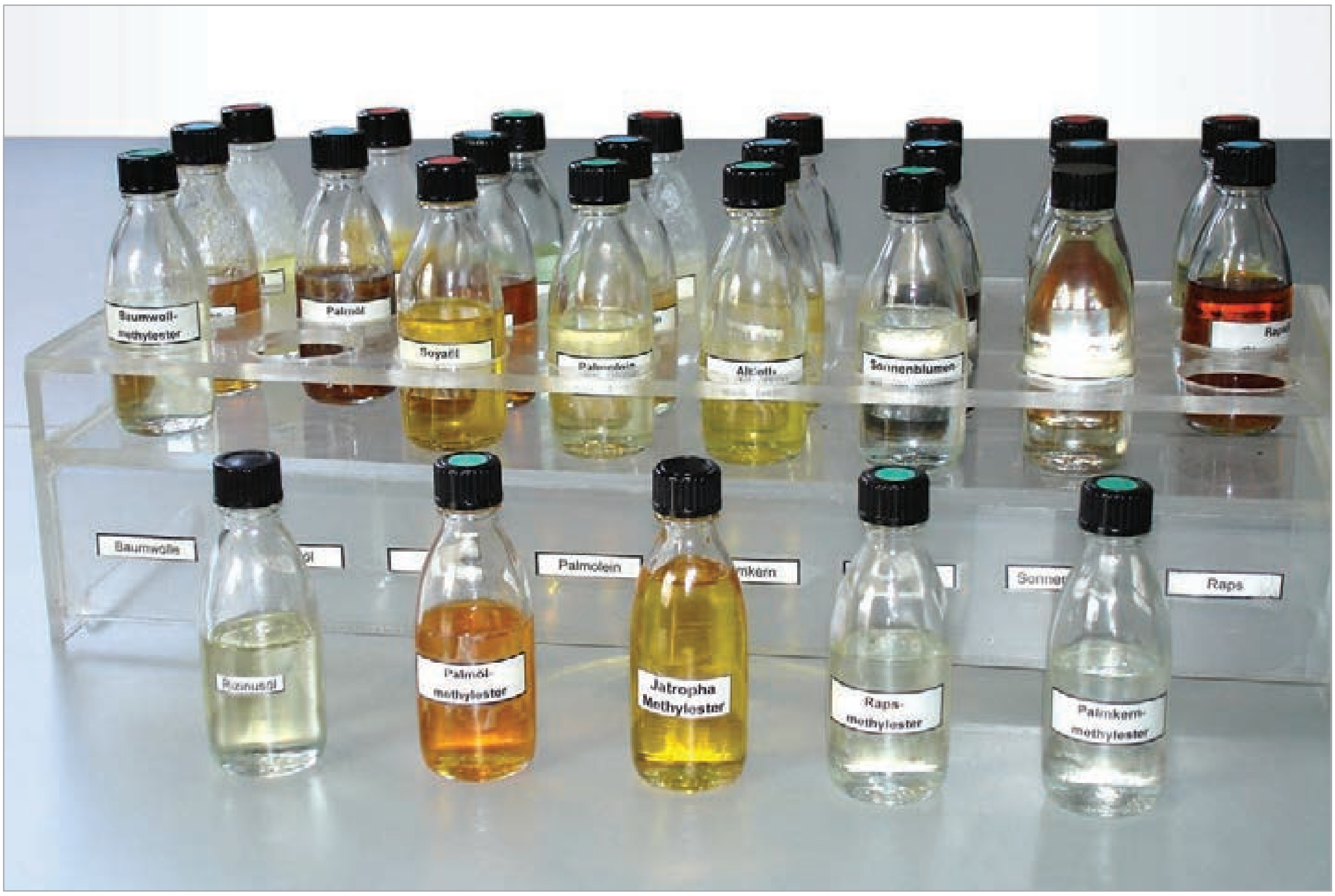

Figure 5.1 – Selection of Vegetable Oil Methyl Esters

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BIOVASF
CIA. DE BIODIESEL DO VALE DE SÃO FRANCISCO, SA

Introduction

COMPANHIA DE BIODIESEL DO VALE DO SÃO FRANCISCO – BIOVASF is a privately-held company, which was formed in June 2006 with the aim to operate on the area of the grains, crushing of grains, vegetable oils, meal and biodiesel.

BIOVASF holds physical assets in the town of Petrolina in the state of Pernambuco – Brazil. They comprise a significant area of circa 43 ha, in the town industrial area, facing the river São Francisco with a small port accessible by barges with circa 2000 tonnes capacity. Within the premises are a number of buildings, processing units and tank farms. The building and plant are in the process of being refurbished and upgraded. Operation of the Soya processing unit ceased about two years ago after being leased to Caramuru, a Brazilian medium size company on the grain and meal market. Since then it has not been in use and is being reconditioned before the processing operation is restored. Further assets are owned in the State of Bahia about 600km upstream the river of São Francisco, in the port of Ibotirama. This is a facility which comprises storage for grains, weighers, loading and discharging barge facilities, lorry discharging facilities, and offices. This allows the receipt, intermediate storage and loading of barges for transport of grains along the river to Petrolina.

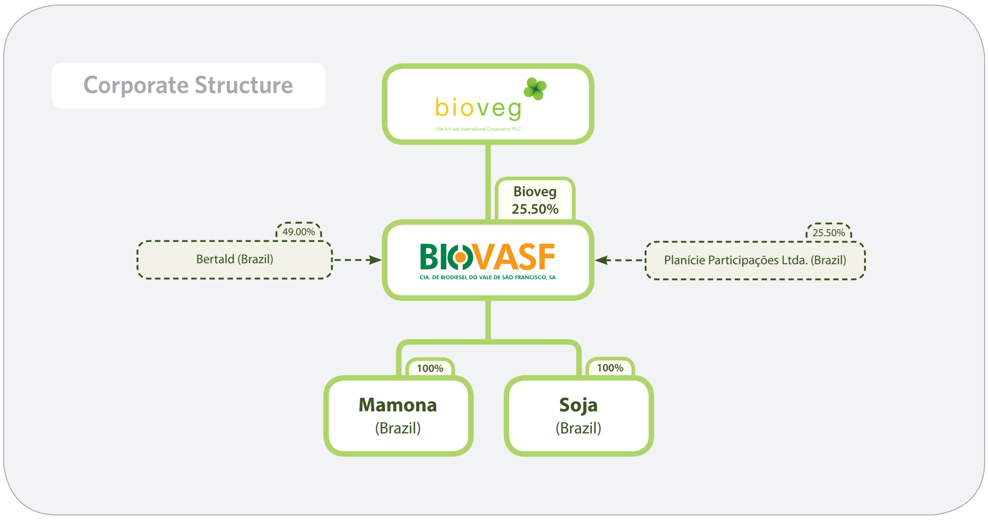

Figure 6.1 – BIOVASF Corporate Structure

Key Points

- **Vertical Integration:** As a direct result of these increases in feedstock prices, and the need to seek alternate feed stocks to palm, rapeseed and soy bean oil, the company has been seeking ways in which to lock-in its own proprietary supplies. It is the Management's considered view that the safest way to secure supply is to vertically integrate the project, in order to protect the company from further feedstock price inflation.
- **Feedstock Supply:** Secures a significant proportion of the company's future feedstock requirements.
- **Strong Demand:** Enables the company to meet projected demand for biodiesel. The oil is going to be sold in the internal market as edible vegetable oil, specifically to refiners, such as icofort. The cake is going to be sold to the local farms.
- **Crushing Capacity:** Allows the company to have a significant share in its own expanded crushing capacity.
- **Strong Equity Returns:** Provides Equity Returns above 20%.
- **Experienced Management:** An experienced Management team is based in Sao Paulo, with a local project office at the site in Petrolina; the existing shareholders have offices in Sao Paulo, next to SB's offices in Sao Paulo. The team in Sao Paulo manages all aspects of the project, including the management of the crushing plants, the development of loading and discharge facilities and the acquisition of land leases in the Sao Francisco Valley.
- **Strong Asset Potential:** A solid platform from which to increase crushing capacity.
- **Good Logistics:** Enables the company to participate in the supply chain from plant to pump; from "well to wheel".

Units

Ibotirama Harbour Unit

Located towards the right-hand side of the São Francisco River boundaries, 700km from the main city in Bahia, Salvador, the unit is situated in a small city with a population of 24,000 residents.

This unit is comprised of equipment such as an airtight tower to store seeds, weighing scales, platforms and offices.

Petrolina Industrial Unit

Also surrounded by the São Francisco River, 740km from the main city of Pernambuco, this unit is located near to the urban region (in contrast to the Ibotirama unit). It is a very prosperous city with a growing population of approximately 260,000 residents.

Even now, the site is located in one of the most important economical centers of this city. It is supplied with plant and equipment that can receive stocks of seeds, extract oil with mechanical and solvent methods, has machines to sack and detoxify bran to be used as fertiliser or animal feed, engines to dry up castor oil and mechanisms to produce soap.

The factory has the capacity to

Table 6.1

Current Company Structure

Shareholders	Shareholding % Ordinary Share	Preferential Share	Total
BIOVEG	25.5	-	25.5
PLANICIE PARTICIPAÇÕES	25.5	-	25.5
BERTALD DO BRASIL S/A	49	-	49

Table 6.1 – Current Company Structure

Figure 6.2

Figure 6.2 – Ibotirama Harbour Unit

Figure 6.3

Figure 6.3 – Petrolina Industrial Unit

Figure 6.4

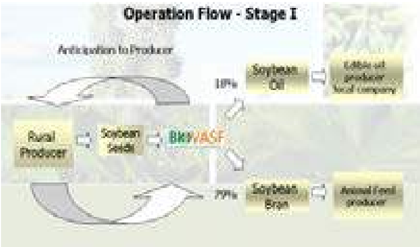

Figure 6.4 – Operational Flow - Stage I

"Strong Asset Potential: A solid platform from which to increase crushing capacity"

"It is one of the most important economical centers of this city...

...The factory has the capacity to produce 400 tons per day of soybean."

produce 400 tons per day of soybean.

Soya Unit

BIOVASF Soya project is the recondition of the existing soya crusher plant together with all necessary auxiliaries, material handling and storage systems in order to make operational the unit to handle and crush circa 100,000 tonnes per year of soya seeds.

It is the intention of BIOVASF to complete the reconditioning works and it has already taken major important steps towards this objective. This is part of a business plan that includes the gathering of seeds in the region, transporting the seeds to the plant, handling, processing the seeds and, finally, selling the processed products into the local market.

Soya seeds will produce circa 79% of meal by weight and circa 18% of soya oil by weight. BIOVASF has been in negotiations with potential off takers for these products and has established MOUs with local companies; ICOFORT for the vegetable oil and with SOCIL a company of the group EVIALIS and with Neptuno Group, dealing on fish farms, for the meal produced.

It is intention of SOCII to put forward proposals to enter into an option agreement for a small participation in the company (BIOVASF).

Soybean Unit – Stage I

PRODUCTION

- *Crushing Capacity:*
  100,000 t/year
- *Crushing Cycle:*
  April to January
- *Acquisition of Soybean Seeds:*
  100,000 t/year
- *Production of Vegetable Oil:*
  18,000 t/year
- *Production of Soybean bran:*
  79,000 t/year

MARKET STRUCTURE

- Soybean seeds: These will be purchased from the manufacture which is situated in the provinces of Barreiras and Luis Eduardo Magalhães (Bahia) and South of Piauí.
- Vegetable Oil: Will be sold as vegetable oil to the refiners.
- Soybean bran: Will be sold in the factory to the poultry farm of the region or to produce animal feed.

Castor Project

PERFORMANCE SECTION

The company distinguishes itself as a manufacturer of soybean and castor crushing, with the following products:

- Soybean Oil
- Castor Oil
- Soybean Bran
- Castor Cake

Castor Unit – Stage I

PRODUCTION

- *Crushing Capacity:*
  60,000 t/year
- *Crushing Cycle:*
  April to January
- *Acquisition of soybean seeds:*
  6,000 t/ year
- *Production of Vegetable Oil:*
  278,000 t/ year
- *Production of Soybean bran:*
  32,000 t/ year

MARKET STRUCTURE

- Castor seeds: These will be purchased from the manufacture which is situated in the provinces Irece (Bahia).
- Vegetable Oil: Will be sold as castor oil.
- Soybean bran: Will be sold in the factory to the poultry farm of the region or to produce animal feed.

PONTAL Project

The Pontal Project is a PPP – Public Private Partnership which will be for tender later this year, for the conclusion of an irrigation plan which has already been initiated. The elements currently available in relation to the project can be assessed via the website – www.pontal.org

The project includes the irrigation of an area of circa 7,700 ha and a non-irrigated area of circa 26,000 ha. The water is pumped from the Sao Francisco River through open channel to the area considered. This area is near Petrolina and is served by an airport circa 40 Km away.

The interest of BIOVASF in this project is the potential area which will be available for Castor cultivation, with high yield production, mechanised plantation and harvesting. The seeds would be delivered to the BIOVASF plant in Petrolina for additional businesses, after the upgrade and refurbishment of the existing plant.

The tender requires that the value of the liquid assets of the company (or group of companies) bidding shall amount to at least R$40.0 M. The value of the tender is predicted to reach the R$110.0M. Due to the requirements of this public tender BIOVASF will need to establish agreements with strategic partners to put forward an application for participation in this project.

BIOVASF is already in discussions with a fund which could participate up to 25% - Funcef (Fundacao dos Economiários Federais). Other trading companies are reviewing the opportunity to off take the castor oil for their own businesses, has shown an interest in participating. However considering the type of project, a partner with expertise of irrigation would add value and a significant advantage to improve the chances of winning the PPP. The company has identified a potential party that could be a relevant partner, should it demonstrate that it has the appropriate expertise in irrigation.

The tender criteria establishes that the irrigated area cannot be a monoculture and therefore will need at least 10% of the land to be dedicated to different cultures. Fruit trees are an alternative as the climate of the region is ideal for these type of crops and this will likely suit the potential party identified.

"The Pontal Project is a PPP – Public Private Partnership"

"The project includes the irrigation of an area of circa 7,700 ha and non-irrigated area of circa 26,000 ha"

Figure 6.5 – Loading Dock at Petrolina Industrial Unit

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DYBSOL

Dynamic Biomass Solutions

Introduction

"Biomass for heat and power is a fully mature technology that offers a ready disposal mechanism for municipal, agricultural, and industrial organic wastes"

"The HLC Group already has know-how and experience in these type of projects"

DYBSOL is a new company that has been incorporated to become the holding company of the HLC Group's Biomass interests. Biomass for heat and power is a fully mature technology that offers a ready disposal mechanism for municipal, agricultural, and industrial organic wastes. However, the industry has remained relatively stagnant over the decade to 2007, even though demand for biomass (mostly wood) continues to grow in many developing countries.

DYBSOL has arisen in a large part due to the fact that its direct subsidiary company, BEN, recently won an auction that took place on 14th August 2008 for a Biomass Energy Tariff, although the HLC Group already has know-how and experience in these type of projects, through the implementation of similar projects in the past.

The outcome of this auction has resulted in the award of a 15 year Power Purchase Agreement (PPA) with Elotrobrás, Brazil's national Power Regulator.

DYBSOL, being in the very early stages of formation is already seeking to expand its management team. One of the main functions this team will have is the origination of further projects in this business sector in Brazil and other geographical areas.

Further, through our biofuels projects, DYBSOL will be able to obtain feedstock from the processes involved in the production of biofuels, as these produce biomass materials. In this way, the synergies that are existent between the two companies will be maximised.

BIOENERGIA, GERAÇÃO E COMERCIALIZAÇÃO DE ENERGIA DO NORDESTE LTDA.

Introduction

BEN is currently owned by HLC Brasil*, the Brazilian subsidiary of Group HLC. BEN was established in January of 2008 and its shareholding structure is owned in 80% by HLC EH and 20% by Energia Global, a Brazilian developer company. Both of them have an extensive experience, as developers of projects in the fields of crushing, biodiesel production and power generation.

BEN's objective is to implement a Thermo Electric Biomass Plant in the state of Píaui, Brazil. This Power Plant has a projected installed capacity of 30 MW and is an innovative project in the Biomass market, due to the technological solution applied to obtain energy. The production of energy will be obtained using elephant grass (Pennisetum Purpureum) as fuel. Elephant grass is a large stalk grass type plant, similar to sugar cane and is highly efficient in the retention of carbon dioxide during the photosynthesis process.

On the 14th of August BEN participated and successfully won the auction held by the Brazilian government for Biomass Energy tariff. The outcome of this auction has resulted in the award of a 15 year Power Purchase Agreement (PPA) with Electrobrás, Brazil's national Power Regulator. This PPA award is for a power capacity of 24 MW with an expected Internal Rate of Return (IRR) of 24.86%. BEN has a further 6 MW capacity derived from this Plant which it intends to trade in the free market, according to local marketing legislation.

Key Points

- **Vertical Integration:**
  By taking advantage of this approach, BEN is guaranteeing the necessary feedstock at a fixed price, thereby achieving a competitive advantage in the marketplace;
- **Strong Demand:**
  The Energy sector in Brazil is currently facing shortages, due to high dependency on Hydro power and prolonged draught periods. At the same time, its agricultural sector is growing at a fast pace, making projects of this nature an obvious and preferred solution, due to their environmentally friendly nature;
- **Renewable Energy:**
  Increasing demand for Renewable Energy sources in order to reduce Green House Gas (GHG) emissions;
- **Carbon Credits:**
  Projects of this nature generate Carbon Credits, a further source of income;
- **Strong Equity Returns:**
  Returns on equity U 19.18%;
- **Strong Management:**
  Proven track record and strong experience and know-how of the Brazilian economy mechanics;
- **Strong Asset Potential:**
  Capacity for expanding production units through the imple-

* BEN'S PPA was obtained while BEN was incorporated under HLC Brasil. Once we have found a partner, the carried interest from BEN will be transferred to DYBSOL

mentation of further Biomass Power Plants;

- **Good Logistics:**
  Good access by road and river and to the national power grid;
- **Feedstock Supply:**
  Locally produced and in plentiful supply - Elephant Grass

Highlights of the Project

Between them, HLC Brazil and Energia Global, have extensive experience, as developers of projects in the fields of crushing, biodiesel production and power generation.

HLC Brazil is a subsidiary company of the Portuguese Group, Grupo HLC. This group of companies has a wide range of business interests in the Waste & Water, Renewable Energies, Climate Change and Service sectors. HLC Brazil (HLC BR) was recently involved in the disposal of Jantus, a subsidiary company of the group that developed a Wind Power portfolio amounting to 207 MW of installed capacity in the northeast region of Brazil.

Positive Outlook for Biomass

Brazil has seen a major expansion in agricultural activity but still has vast swathes of land available for development without the danger of encroachment on forests and preservation areas. The Brazilian government is willing to increase the output of Biomass Power Plants for use on the national grid. This has attracted investor's willingness to take on board projects of this nature for several reasons. One of the main reasons is that this political outlook has created incentives that make these projects economically attractive. Another factor is that burning biomass is broadly neutral in terms of Green House Gas (GHG) emissions, reducing the impacts on Climate Change. The Brazilian government expects biomass to represent 10% of all electricity in Brazil by 2030.

Carbon Credits

This project generates carbon credits and is therefore eligible to be registered and approved as a Clean Development Mechanism (CDM) project enabling it to obtain Carbon Emission Reduction (CER) units, which can be traded in the Carbon Market, such as the European Trading Scheme (ETS). This is illustrated by the fact that of Brazil's 141 approved CDM energy projects, approximately half are biomass co-generation projects.

Table 7.1

Project Type	Number of Projects	kton CO_2 /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 7.1 – Distribution of Projects

Table I, although not covering all of the previously mentioned projects, represents the distribution of projects by category.

Vertical Integration

It is the Management's considered view that the safest way to secure supply is to vertically integrate the project, in order to protect the company from further feedstock price inflation. An opportunity has been identified in Brazil.

Feedstock Supply

Locally planted and produced. Elephant grass can be used as an "energy crop" to be burnt in power stations to generate electricity. The plant needs little fertiliser to produce very high yields. Burning biomass is broadly neutral in terms of Green House Gas (GHG) emissions, which are believed to be responsible for the global warming phenomenon.

Technology Partners

BEN has requested three proposals for a turnkey solution from three different technology suppliers for the supply of all equipments, components, drafts and complete units. The three companies approached by BEN for this turn key proposal are: DEDINI, Equipave and Koblitz. It is worth referring that the initial project proposal submitted at the auction was undertaken by Koblitz.

Figure 7.1

Figure 7.1 - State of Piauí

"BEN will implement a 33 MW powerstation that will sell approximately 212 MWh/year to the ACR"

Technical Summary

The following technical summary comprises the solution that was submitted at the auction and was prepared by technology partners, Koblitz. BEN is currently assessing alternative solutions from other technology suppliers, as well as assessing alternative sites in order to see if it can improve the feasibility, economical and environmental impact of the project. There are no restrictions for this under the auction rules and guidelines.

Reason for the Undertaking

In view of the scenario of growth of the Brazilian economy and the consequent increase in demand for electrical energy in the Brazilian interconnected system, BEN BIOENERGIA GERAÇÃO E COMERCIALIZAÇÃO DE ENERGIA LTDA has resolved to implement a powerstation of nominal power 33 MW which will sell approximately 212.274 MWh/year in the Regulated Contracting Environment (ACR) through participation in the 2008 energy sales, in conformity with Decree no. 331, of 04/12/2007, from the Ministry of Mines and Energy.

Location of the Undertaking

The generating-station will be located on a 19,368-hectare property in the municipality of Santa Filomena, Piauí State, on the banks of the Parnaíba river.

Existing Infrastructure

The municipality of Santa Filomena is located in the Alto Parnaíba microregion of Piauí, in the Southwest Piauí mesoregion, at approximately 925 km from Teresina, the State capital.

The municipality, created in 1938, has approximately 6,000 inhabitants and an area of 5,285 km2 and possesses high agricultural and livestock potential, being one of the greatest producers of soya, rice and cotton from the Cerrado area of Piauí. The city is bathed by the Parnaíba River that separates it from the municipality of Alto Parnaíba in the State of Maranhão.

The municipality does not have an electrical substation capable of accepting the power to be provided by the BEN ENERGIA plant, as a consequence of which investment will be essential in a transmission line which will be connected at a point to be defined by CEMAR (Companhia Energética do Maranhão) when it issues its access statement. On a preliminary basis said point would be at the Serra do Penitente Substation, approximately 110 km from the installation site of the thermal powerstation.

The possibility of connection to the CEPISA (Companhia Energética do Piauí) network was initially examined; however, due to the great distance, said connection was demonstrated to be economically unviable.

Climatic, Geological and Water Characteristics of the Implementation Site

The municipality of Santa Filomena (at an altitude of approximately 277 m above sea level) has a climate with a minimum temperature of 20°C and a maximum of 35°C and a hot and semi humid climate. The mean annual rainfall is defined as being a Continental Equatorial regime with isohyets ranging from approximately 800 to 1200 mm and a rainy season running from November/December to April/May. The wettest quarter corresponds to the months of December, January and February.

The soils of the region, arising from decomposition of arenites, siltites, sedimentary foliated rock, conglomerates, limestone and silexite, are thick and young and influenced by the subjacent material comprising medium-textured yellow alic or dystrophic latosols, associated quartzose sands and/or concretionary red-yellow podzols, plinthitic or non-plinthitic. The vegetation is deciduous tropical cerrado phase, coconut palm forest.

The predominant morphological accident is the broad reworked tabular surface, flat or slightly undulating, limited by abrupt scarps that may attain 600 m, exhibiting a relief with sunken and dissected zones.

The surface water resources generated in the State of Piauí are represented by the hydrographic basin of the Parnaíba River (see figure), the largest among the 25 basins of the Northeastern Slope (with an area of 330,285 km2, equivalent to 3.9% of the national territory) and which includes the State of Piauí and part of the States of Maranhão and Ceará.

Figure 7.2

Figure 7.2 - Hydrographic Basins of Brazil

The Parnaíba river is 1,400 kilometres long and the majority of its tributaries located downstream of Teresina are permanent being fed by rainwater and groundwater. It is the most important river after the São Francisco and is the most important river in the Northeast.

The city of Santa Filomena also offers the possibility of obtaining the water required for the powerstation through drilling wells, and this option will be examined in the environmental study underway.

Fuel Availability

The thermal powerstation to be installed will use Elephant Grass as principal fuel. Its use for the production of electrical energy has gained importance by virtue of its high productivity of 35 tonnes/hectare/year approximately of dry biomass; eucalyptus, for example, for the purposes of comparison only yields 7.5 tonnes/hectare/year.

Elephant grass will be planted on 8,000 ha of the 19,368 ha property on which the generating-station will be installed, ensuring all the fuel necessary for operation of the thermal powerstation

Figure 7.3

Figure 7.3 – Elephant Grass

without depending on other suppliers.

Summary

- Area of the property: 19,368 ha
- Area to be planted: 8,000 ha
- Expected productivity: 40 tonnes/ha/yr
- Expected fuel production: 200,000 tonnes/yr
- Consumption: 186,257 tonnes/yr
- Production - consumption = 13,743 tonnes/yr
- Margin of safety = 13,743/186,257 = 7.4%

Thermal Cycle

The thermal generating-station in question will use the Rankine cycle, also known as the condensation cycle. In said cycle a boiler produces high-pressure steam to drive a turbogenerator assembly constituted by a condensing steam turbine and a three-phase synchronous generator. Following thermodynamic conversion the steam exits the turbine at a negative pressure (normally 0.10 bar) and is condensed in a unit called a condenser that exchanges heat with a cooling system (towers). The condensate is then pumped back to the boiler, completing the generating cycle.

The Rankine cycle yields typical electrical efficiency figures of between 20% and 25%.

Technical Design of the Project

The design of the thermal powerstation in question was conceived with a view to achieving an improved implementation cost to plant efficiency ratio, prioritising use of Brazilian manufactured equipment with established operational track records, using equipment with critical operating conditions (pressure and temperature) having been discounted, this not being economically-justifiable in a plant of the size of the thermal powerstation in question (30 MW).

A simplified flowchart of the BEN ENERGIA plant is shown in Figures 7.4 and 7.5 together with its principal thermodynamic variables:

Figure 7.4

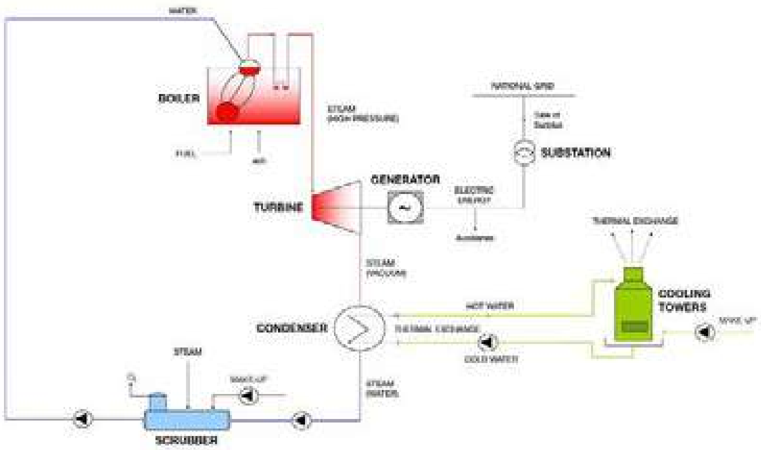

Figure 7.4 - Simplified Thermodynamic Balance Flowchart for the Power Plant

Principle Components of the Thermal Powerstation

Boiler

The boiler is a complex heat-exchanger which produces steam by means of heat energy transfer from the hot source (fuel) to a vaporisable fluid. It is made up by various associated, fully integrated units with a view to obtaining the highest thermal performance possible.

Watertube boilers are the type most employed in thermal powerstations by virtue of their higher thermal performance and operational safety: within such boilers,

Figure 7.5 / 7.6

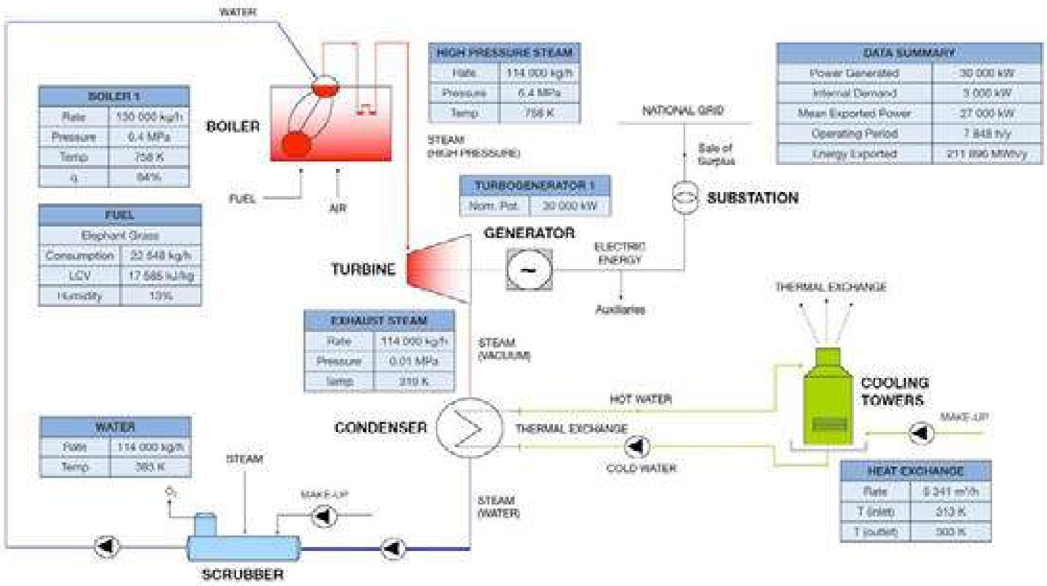

Figure 7.5 - Simplified Thermodynamic Balance Flowchart for the Power Plant

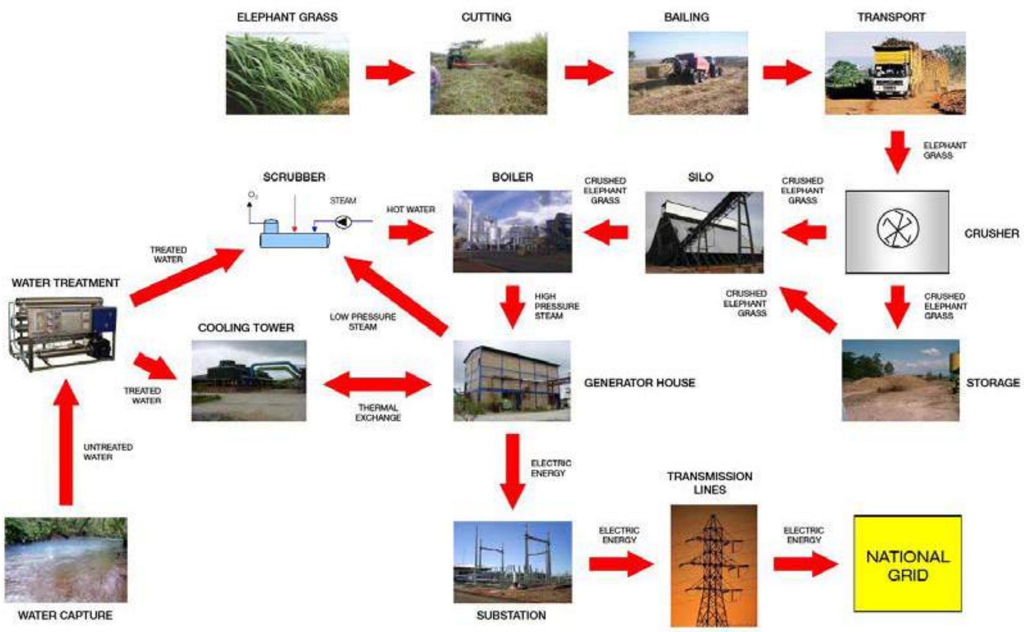

Figure 7.6 - Energy Flow Process Chart for BEN Biomass Plant

hot gases circulate externally to the tubes, transferring heat to the water contained within the tubes and also within the drums. The constructional characteristics of this type of boiler make the production of high steam flows at high temperature possible.

The equipment of the thermal powerstation in question will have the following specifications:

- Denomination: C1
- Type: Watertube
- Nominal Capacity: 130 tonnes/h
- Nominal Pressure: 6.4 MPa
- Steam Temperature: 758 K
- Efficiency: 84%

Steam Production x Grass Consumption:

- 4.03 kg steam/kg grass

Accessories:

- Economiser
- Air Preheater
- Gas Scrubber
- Automation and Monitoring System

Turbogenerator

A turbogenerator assembly is basically constituted by the following equipment:

Turbine: responsible for thermodynamic conversion of the energy contained in the high pressure and -temperature steam into mechanical energy at its shaft.

Reducer: responsible for adjustment of the nominal rotational speed of the turbine to the synchronous speed of the generator.

Figure 7.7

Figure 7.7 – Biomass Boiler

Generator: responsible for electrodynamic conversion of the mechanical energy of the turbine shaft into electrical energy at its terminals.

The equipment of the thermal powerstation in question will have the following specifications:

Denomination: TG1

Turbine:

- Type: Condensation
- Nominal power: 30 MW
- Feed Steam Pressure: 6.4 MPa
- Feed Steam Temperature: 758 K
- Specific Consumption: 3.8 kg steam/kWh

Reducer:

- Nominal Power: 30 MW
- Highest Shaft Rotational Speed: 5000 rpm
- Lowest Shaft Rotational Speed: 1800 rpm
- Service Factor: > 1.2

Generator

- Nominal Power: 37.5 MVA/30 MW
- Power Factor: 0.8
- Nominal Voltage: 13.8 kV
- Nominal Frequency: 60 Hz
- Rotational speed: 1800 rpm (4 poles)

Condenser

The condenser is a heat exchanger wherein exhaust steam from the turbine is converted back to water. The condenser of the thermal powerstation in question will be of the shell-and-tube type; in this unit cooling water is pumped through a bundle of metal tubes, cooling the steam circulating externally to the tubes within the structure of the condenser; the vapour progressively yields heat and is converted into water which is pumped to the deaerator and subsequently to the boiler, completing the generation cycle.

The equipment of the thermal powerstation in question will have the following specifications:

- Type: Shell-and-tube
- Rate (Steam - Shell): 130 tonnes/h
- Working Pressure (Shell): 0.01 MPa

Figure 7.8

Figure 7.8 - Condensation turbine: turbine in foreground, coupled generator in background

Figure 7.9

Figure 7.9 - Shell and tube-type condenser

Figure 7.10

Figure 7.10 - Wet-type countercurrent cooling towers

Figure 7.11

Figure 7.11 - Vertical atmospheric-type deaerator

• Rate (Water - Tube Bundle):	6000 m3/h
• Working Pressure (Tube Bundle):	0.25 MPa
• Water Inlet Temperature:	40 °C
• Water Outlet Temperature:	30 °C

Cooling Towers

A cooling tower has the objective of reducing the temperature of the cooling water which circulates within the condenser of the turbine and other heat exchangers in the generating station, i.e. it is the element responsible for discharging heat from the generating system to atmosphere.

Heat dissipation in the towers is facilitated by their constructional form: internally they possess a system of thin smooth sheets providing uniform distribution of the water which then falls under gravity from the upper part of the towers in forced countercurrent to the air drawn upwards from below by exhausters installed at the top of the towers.

The equipment of the thermal powerstation in question will have the following specifications:

• Type:	Mechanically-induced countercurrent flow
• Number of Cells:	06 (six)
• Flow per Cell:	1000 m3/h
• Total Flow:	6000 m3/h
• Water Inlet Temperature:	40°C
• Water Outlet Temperature:	30°C
• Motorised Pumps:	(four), 01 reserve
• Capacity:	2000 m3/h (each)

Deaerator

This is the unit responsible for removal of gases (O_2 and CO_2) dissolved in the water originating from the turbine condenser, also performing the functions of reheating the feedwater and water in the boiler-feedwater storage tank. Its operation prolongs the working life of the boiler by virtue of all the tubing being less subject to oxidation.

The equipment of the thermal powerstation in question will have the following specifications:

• Type:	Atmospheric, vertical, bubble
• Capacity:	60 m3 (30 min operation)

Mechanical System
Constituted by pipework, supports, valves and accessories interconnecting all the mechanical equipment forming part of the thermal powerstation.

Electrical System
Constituted by electrical power and control panels, the automation and monitoring system and additional electrical equipment ensuring operation of the thermal powerstation with the safety and reliability required for continuous connection to the network of the concessionaire, making possible the export of the excess energy generated.

The electrical system of the thermal powerstation in question will have the following principal components:

- Substation 69/13.8 kV - 1 x 37.5 MVA.
- Invoicing measurement system (ONS/CCEE standard).
- Automation and monitoring system.
- Instrumentation.
- Electrical power, protection and system control panels.
- AC and DC auxiliary services systems.
- Power transformers for secondary substations.
- Low-tension motor control centres.
- Power, control and communication cables.
- Trays, electrical troughing, electrical conduits and miscellaneous installation accessories.

Treatment of Combustion Gases

The boiler to be installed in the thermal powerstation in question will have a combustion-gases treatment system with the following stages for particulates collection:

Inertial Sand Precipitators:
Located at the outlet from the tube bundle and in the gas return box of the air preheater, its function is to collect the heaviest particles.

Gas Scrubber:
Located prior to the exhauster, it consists of a wet-method soot precipitation and collection system in a cylindrical compartment in which combustion gases are treated prior to discharge to atmosphere through the chimney. There are water-sprinkler nozzles within the scrubber where, having been moistened, solid particles are precipitated due to the following factors:

Figure 7.12

Figure 7.12 - Mechanical system of a thermal powerstation

Figure 7.13

Figure 7.13 - Electrical system of a thermal generating-station

Figure 7.14

Figure 7.14 - Example of a thermal-powerstation step-up substation

Figure 7.15

Figure 7.15 - Mechanical harvesting of elephant grass

Figure 7.16

Figure - Baling for transport to the thermal powerstation

- Weight increase, permitting gravity collection
- Low gas ascent speed
- Action of the water jets which direct particles towards the bottom of the scrubber.
- Scrubbing-water separation and recirculation:

This consists of a pumping system and a decantation tank to which the water employed in the gas scrubber is sent. Following decantation the clean water is pumped back to the scrubber, closing the cycle.
The following performance indicators are expected of the aforementioned equipment:

- Inlet gases' particulate-material emission rate: 5.0 g/Nm3
- Predicted efficiency: 97%
- Gases' particulate-material emission rate at scrubber outlet: 200 mg/Nm3

Predicted Performance Referred to LCV

- Energy Available (Total - Parasitic Consumption) = 211 896 MWh = 211 896 000 kWh
- LCV (elephant grass): 17 585 kJ/kg = 4200 kcal/kg
- Conversion factor, kcal to kWh = 0.001163
- Total fuel utilised = 186 257 000 kg/year
- Energy contained in fuel = 186 257 000 x 4200 x 0.001163 = 909 790 942 kWh
- Performance: 211 896 000/909 790 942 = 23.2%

Downtime Rates

Programmed Downtime:
Estimated time for annual system maintenance: 31 days = 744 h
Consequently: 744/8760 = 8.49%

Unprogrammed Downtime:
Estimated time of stoppages due to defects (20-year average):
7 days/year = 168 h
Consequently: 168/8760 = 1.92%

69 kV Line to Substation

The electrical substation to be constructed will permit connection of the thermal powerstation in question to the national interconnected system (SIN), via the distribution system of CEMAR (Companhia Energética do Maranhão), through implementation of a 69 kV TL of approximately 110 km length between the Maranhão cities of Serra do Penitente and Alto Parnaíba, this latter being a neighbour of Santa Filomena, in Piauí, the location where the generating plant will be established. The connection point will be confirmed when CEMAR issues its access statement, one bay for interconnection of the TL from the thermal powerstation in conformity with the applicable technical standards.

The line will be executed with a preliminarily-defined 48 MVA capacity, however this figure may be reevaluated at implementation as a function of the prospect of future extension of the generating-station. The 37.5 MVA step-up substation to be implemented in the area of the thermal powerstation will have the following basic configuration:

- 03 lightning conductors at input with discharge meters.

- 01 set of instruments for shared measurement and protection, constituted by 03 current transformers and 03 power transformers.
- 01 circuitbreaker.
- 01 set of 03 sectioning switches, permitting sectioning and possible bypass of the set of instruments and circuitbreaker in the case of any maintenance.
- 03 lightning conductors for the power transformer.
- 01 earthing resistor, depending on agreement with the local concessionaire.
- Substation power, protection and control panels.
- AC and DC auxiliary services systems.
- Protection system against atmospheric discharges.
- Earthing mesh.
- Concrete structures, cables, isolators, miscellaneous metal fittings and other components required for its proper operation.

Fuel Transport

Following field harvesting of the elephant grass and its compaction by means of balers, it is transported by suitable lorries to the thermal powerstation. Investment in its own fleet, or third-party transport by local companies, is being examined.

Fixed and Variable Costs of the Thermal Powerstation

O&M COSTS (R$: REAL)			
Variable Costs (Fuel)			
Plantation/transport	R$ 30.00/tonne	186 257 tonnes/year	R$ 5,587,719.44/year
Variable Costs (O&M)			
Maintenance	R$ 1,040,000.00/year		
Consumables	R$ 360,000.00/year		
Fixed Costs (O&M)			
Operation	R$ 150,000.00/month	12 months	R$ 1,800,000.00/year
Administrative Expenses	R$ 20,000.00/month	12 months	R$ 240,000.00/year
System Usage Charges	R$ 172,725.00/month	12 months	R$ 1,352,700.00/year
TFSEE (ANEEL)	R$ 3,797.25/month	12 months	R$ 45,567.00
Insurance	-	-	R$ 160,000.00/year
Indexes			
Variable Costs (fuel)	R$ 26.37/MWh		
Variable Costs (O&M)	R$ 6.61/MWh		
Fixed Costs (O&M)	R$ 16.98/MWh/year		

Table 7.2 - Fixed and Variable Costs of the Thermal Powerstation

Financial Summary

ASSUMPTIONS	
Power Installed	30.00 MW
Energy Generated	211,896 MW/h
PPA Price	154.70 BRL
Project Duration	15 Years
Beginning of Construction	1 Mar 2009
Beginning of Operation	30 Sep 2010
Exchange Rate EUR/USD	0.65
Exchange Rate BRL/USD	1.7
Exchange BRL/EUR	2.62
Expected Inflation	4.0%

Table 7.3 - Assumptions

PERFORMANCE INDICATORS	
Project NPV	70,606,819 BRL
Shareholder NPV	25,549,669 BRL
Project IRR	20.25% aa
Shareholder IRR	19.18% aa
Project Reference Interest Rate	10.00% aa
Shareholder Discount Factor	15.00% aa

Table 7.4 - Performance Indicators

Figure 7.17

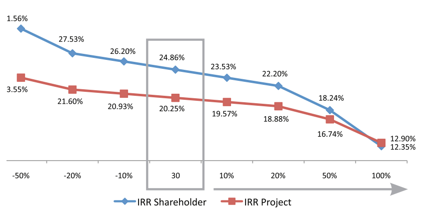

Figure 7.17 - Internal Rate of Return (Shareholder vs Project)

INVESTMENT	
Investment	101,435,000 BRL
Working Capital	2,865,513 BRL
Interest During Construction	6,429,069 BRL
Financing Fees	318,640 BRL
Total	**111,048,222 BRL**

Table 7.5 - Required Investment

BEN fundamentals assume a conservative but consistent set of assumptions mainly supported by two factors:

1) Tariff fixed at the Brazilian tender; and
2) Elephant grass market price.

The tariff was fixed for BEN at BRL 154.70 per MW/h and the current market price of elephant grass is circa BRL 30.00 per tone.

In spite of BENs' total installed capacity being 33.00 MW the PPA was only awarded for 24.00 MW leaving considerable room for trading the remaining 6.00 MW in the spot market. From an investors' point of view and in terms of performance BEN provides considerable comfort when compared to current market scenarios of uncertainty.

Under these circumstances, Table 7.3 and 7.4 opposite summarise reliable figures with an expected annual return of 19.18% for the shareholders that step in at this early stage of the value chain.

BENs' strategy is focused in building a vertical end-to-end business model which comprises the control of raw material supply through plantations of elephant grass that terminates in the sale of energy to the grid. Nevertheless the elephant grass price bias will affect the projects' performance without annulling its attractiveness: i.e. even if the oscillation in the price of raw material suffers a 100% increase BEN still delivers a reasonable return for its investors (see Figure 7.17).

The investment requirement to complete construction is circa BRL 111 million. This figure is mostly comprised by the implementation of the plant which amounts to 90% of total investment (see Table 7.5).

Until beginning of operation in the fourth quarter of 2010 investment expenditure isn't progressive, having a relatively small amount of investment at the beginning of construction and circa 80% of its value concentrated in the period between September 2009 and June 2010. The most demanding item is Equipment with half of total investment requirement followed by Electric Network, Transmission Lines and Assembly with a joint allocation above 20% (see Figure 7.18).

Figure 7.18

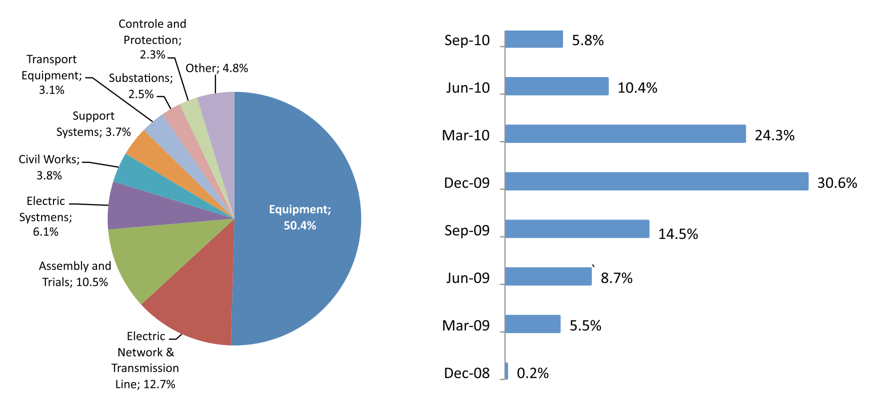

Figure 7.18 - Expenditure Breakdown

Under the concept of Project Finance, local senior debt providers are prepared to support this project with an allocation of up to a 75%-25% split with equity holders. Our track record and experience as developers into the Renewable Energy sector, especially in the Brazilian market, has taught us to be considerably conservative as demonstrated by the figures presented in Table 7.6 and 7.7.

In order to stimulate the interest and commitment of senior lenders into BENs' project, our business model delivers positive cash flows after one year of operation without extra cash requirements from shareholders and/or lenders throughout its maturity (see Table 7.8).

It is important to focus the consistent alignment between growth in EBITDA and Net Profit emphasising the reduction of operational costs through time (see Figure 7.19). Our understanding and proficiency in projects of biomass in the Brazilian market reflect the need of securing the downstream and upstream processes of the value accretion chain to provide financial validity to attract investors' appetite for energy plants. Securing land, and by means of plantations, controlling feedstock along with the guarantee of a PPA to sell energy to the Brazilian national grid offers enough stability to future equity partners and debt providers.

DYBSOL pretend to wrap this business model and allocate its cash flow to reinvest into equal biomass projects to be developed within a range of 2 to 3 years between each project. This means that the second project will be paid by the current project and the third one will be paid by the second project leaving DYBSOL to receive the free cash from the third project with underlying assets three or four times bigger than the original one.

DYBSOL expects to have the second plants operational by 2013 and the third plant operational by 2015 delivering to the market circa 72 MW of contracted energy with an extra 18 MW of energy to be sold at the open market. CER's are an important item in these projects with a conservative expected value of circa 500 thousand credits per annum and per project starting in 2011. At the moment DYBSOL is securing land to replicate BEN's business model.

INVESTMENT BREAKDOWN	
Equity Requirement	29,095,812 BRL
Senior Debt – BNDES Bank	81,952,410 BRL
Others	–
Total	**111,048,222 BRL**

Table 7.6 - Investment Breakdown

SENIOR DEBT – BNDES	
Reference Interest Rate	6.25% aa
Spread	2.50% aa
Effective Interest Rate	8.75% aa
Amount of Loan Payments	138 Months
Grace Period (Including Construction)	30 Months
Compound Interest – Construction Period	1,447,527 BRL

Table 7.7 - Senior Debt (BNDES)

FINANCIAL DATA AFTER ONE YEAR OF OPERATION	
Income	33,567,508 BRL
EBITDA	20,247,811 BRL
Amort. + Financing Interest	13,612,730 BRL
Income Taxes	183,450 BRL
Cash Flow (Without Working Capital)	6,451,631 BRL

Table 7.8 - Financial Data after one year of Operation

Figure X+9

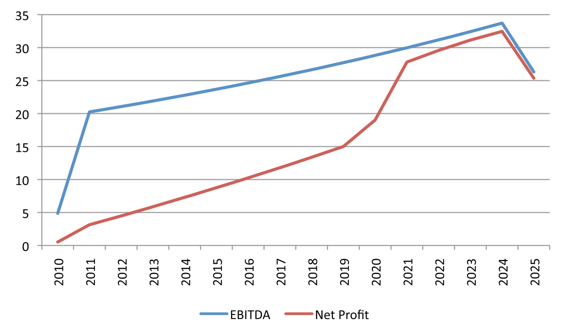

Figure 7.19 - EBITDA vs Net Profit

BEN'S EXPECTED CAPACITY TO GENERATE CASH									
Year	2009	2010	2011	2012	2013	2014	2015	2016	2017
	-1	0	1	2	3	4	5	6	7
Price Auction '08	4.00%	154.7	160.89	167.32	174.02	180.98	188.22	195.74	203.57
Equity Investment									
Total Equity BRL	-41,160,607								
Total Equity EUR	-14,147,115								
Gross sales									
Total Gross Sales BRL		10,157,675	27,164,526	37,668,143	39,174,869	40,741,864	42,371,538	44,066,400	45,829,056
Total Gross Sales EUR		3,491,246	9,336,589	12,946,737	13,464,607	14,003,191	14,563,319	15,145,851	15,751,685
Net Profit									
Total Net Profit BRL		1,313,292	-1,631,795	5,865,868	6,585,067	8,222,547	9,899,382	11,603,228	13,377,479
Total Net Profit EUR		451,385	-560,856	2,016,129	2,263,322	2,826,132	3,402,469	3,988,090	4,597,909
Total Cash Flow in EUROS									
Project	-14,147,115	451,385	-560,856	2,016,129	2,263,322	2,826,132	3,402,469	3,988,090	4,597,909

Table 7.9 - BEN's Expected Capacity to Generate Cashflow

BEN'S EXPECTED CAPACITY TO GENERATE CASH (CONT'D)								
Year	2018	2019	2020	2021	2022	2023	2024	2025
	8	9	10	11	12	13	14	15
Price Auction '08	211.72	220.19	228.99	238.15	247.68	257.59	267.89	278.61
Equity Investment								
Total Equity BRL								
Total Equity EUR								
Gross sales								
Total Gross Sales BRL	47,662,218	49,568,707	51,551,455	53,613,513	55,758,054	57,988,376	60,307,911	47,040,171
Total Gross Sales EUR	16,381,753	17,037,023	17,718,504	18,427,244	19,164,334	19,930,907	20,728,143	16,167,952
Net Profit								
Total Net Profit BRL	15,182,081	17,032,724	20,584,383	25,053,058	27,177,464	28,998,784	30,543,979	23,920,898
Total Net Profit EUR	5,218,160	5,854,236	7,074,960	8,610,867	9,341,036	9,967,033	10,498,125	8,221,737
Total Cash Flow in EUROS								
Project	5,218,160	5,854,236	7,074,960	8,610,867	9,341,036	9,967,033	10,498,125	8,221,737

Table 7.9 Cont'd - BEN's Expected Capacity to Generate Cashflow

Management & Contacts

Board
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Luiz dos Santos – lasantos@hlcbrasil.com.br

Management Team:

Project Manager	Currently under recruitment
Farming Manager	Currently under recruitment
Mechanical Engineer	Currently under recruitment
Electrical Engineer	Sormany Ferreira Rodrigues (sormany@hlcbrasil.com.br)
Consultant	Professor Herbert Vilela, expert in Elephant Grass

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Caixa Economica Federa (Caixa)

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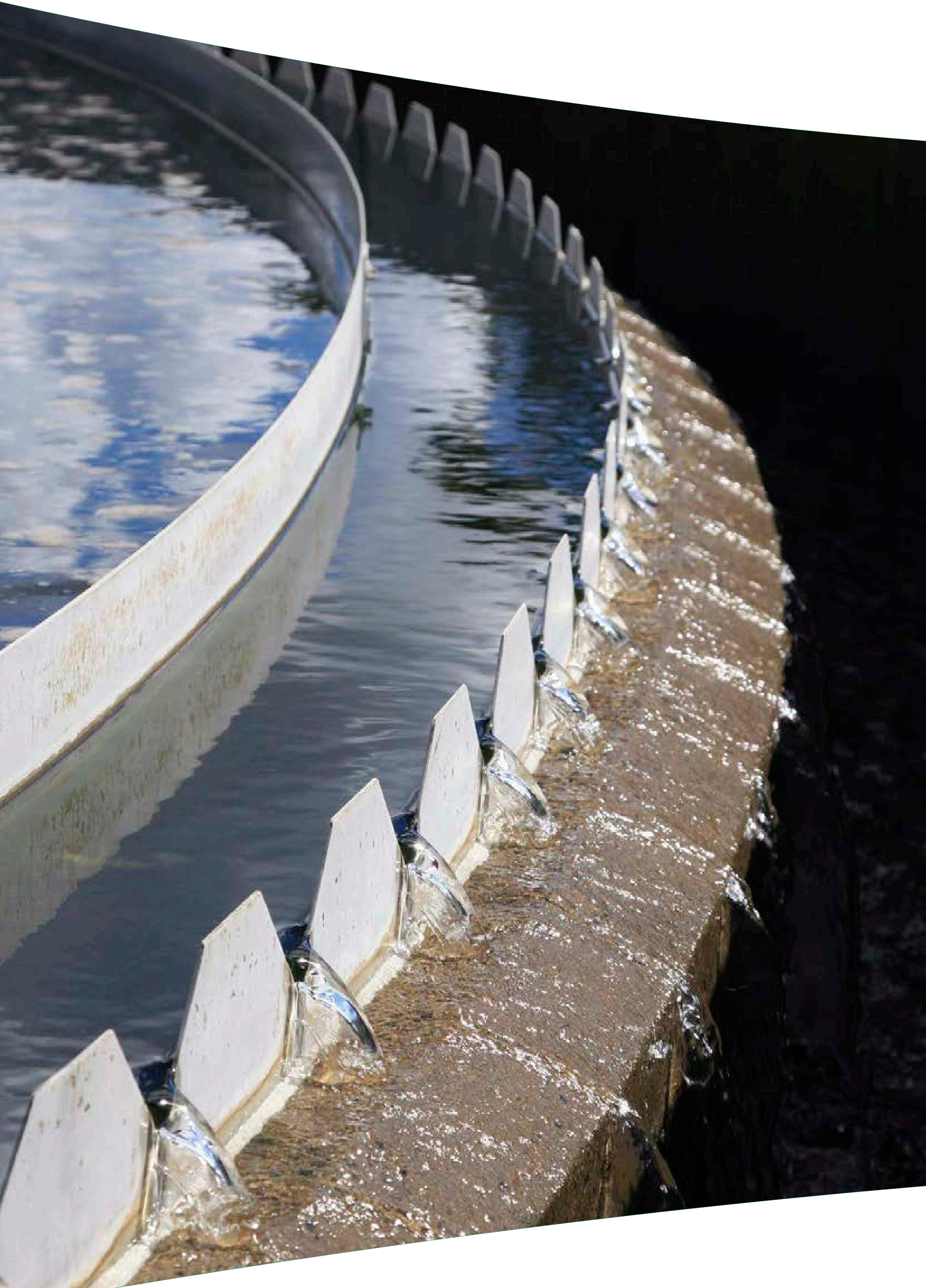

Engenharia e Gestão de Projectos, SA

Introduction

HLC – Engenharia & Gestão de Projectos, S.A. (HLC EGP) is the founding company of the HLC Group and was established in 1986.

It is a diversified project management, construction and service organisation operating mainly in Portugal. It also operates throughout Europe, South America and North Africa, with the head office in Portugal.

HLC EGP's business activities are mainly focused at the environment industry, namely on the waste and waste water sectors and they comprise projects of the following nature:

- Landfills for Municipal Solid Waste (MSW) and Industrial Solid Waste (ISW)
- Dumps closure and environmental recory of dumps
- Transfer Stations and Bring banks
- Recycling Plants
- Composting Plants
- Waste Water Treatment Plants (WWTP)
- Waste to Energy (WTE) projects - Energy production from Landfill biogas

HLC EGP's knowledge and experience in these sectors, as well Xas the efficiency and effectiveness of the team of professionals it employs allow it to provide an added value in the provision of professional services and solutions for environmental problems at an integrated level (technical, operational and financial).

Its expertise in engineering allows it to integrate all processes, from the design phase through to construction, commissioning, and operation creating in this way a complete solution for all phases of the projects.

HLC EGP established itself as one of the majors players in the Portuguese market, developing several projects in the Waste industry, such as the Integrated Waste Management System (IWMS) in Cova da Beira, a facility incorporating a landfill and a composting plant, the Resitejo IWMS, where it designed, constructed and operated an MSW Landfill and an Industrial Solid Waste (ISW) Landfill. In the Water industry it designed and constructed the WWTP in Frielas and the WWTP in Freixo, two of the largest WWTP in the country, the first in the Lisbon region and the second in the Porto region in the north, as well as several others throughout the country.

Background

HLC EGP was established in 1986 under the name of HLC Trading Portugal Lda. (HLC TP). Until 1996, when the name was changed to its present designation, HLC EGP, the company was dedicated to the business of operating and maintaining industrial equipments and acting as an agent to represent and sell equipments from internationally renowned industrial equipment manufacturers such as MAN GHH, Kaelble Gmeindler, Gec Alsthom, Boart International as well as others, primarily in the mining and construction industries.

Operating in big industrial projects, HLC TP had Operation and Maintenance (O&M) contracts with several clients such as EDP for the Sines Coal Fired Power Plant, Cimpor Park for the Cement Plant in Alhandra, Somincor for the mines in Neves Corvo, which is still under contract today and with the Port of Sines for vacuum handling coal, cereals and minerals.

At the time the Coal Fired Power Plant in Sines was constructed, there were no facilities to handle the supply of coal. HLC engineered a solution to supply the plant with coal. This solution comprised the use of "Continuous Self Unloading Ships" from Canada Steamship Lines (CSL) from Canada. These ships carried out the transshipment of coal from Rotterdam to Sines. The coal was delivered in Rotterdam by capsize ships (120.000 to 150.000 tonnes) and was then transported to Sines by a CSL ship (30.000 tonne continuous self unloader ship). On arrival at Sines, on a first stage, the ships berthed at pier 1 of the Port of Sines and the coal was then delivered to the Plant via a hopper and trucks. A second stage for delivering the coal to the Plant comprised a provisional facility with hopper and a conveyor belt to the Plant. These solutions were operational for a period of 3 to 4 years, during which time HLC had a contract with CSL to transport the coal for EDP. During this period HLC also traded the supply of coal to EDP from the USA and South Africa.

The period, between 1986 and 1996 enabled HLC TP to gain a tremendous amount of experience in engineering and O&M in the industrial and mining sectors in Portugal enabling it to establish itself as a serious player in this market.

Simultaneously, during the 1990's decade, HLC diversified its business model to act in the Environment and Energy sectors. In the Environment sector, HLC's first contracts were with Tratolixo, a company created by the association of municipalities in Cascais, for the operation of the MSW Treatment Plant and with Setubal's Composting Plant, also an O&M contract.

In the Energy sector, HLC EGP conceived and promoted the project finance for the Tapada do Outeiro Power Plant for Turbogas – Produtora Energetica SA. (Turbogas). This 990MW Combined Cycle Gas Turbine (CCGT) Power Plant, in which HLC had an initial participation of 30%, was fundamental for the introduction of Natural Gas into Portugal. With the introduction of Natural Gas in Portugal, HLC established a partnership with PLE – Pipeline Engineering GmbH (PLE) and Turbogas with the role of project manager and supervisor of the high-pressure gas pipeline. At the peak of the works for this project, HLC was employing circa 900 people.

In consortium with other companies, HLC EGP was responsible for the coordination of the wining consortium of companies for

Figure 8.1

Fig 8.1 – Continuous Self Unloader Ship at Sines Port

Figure 8.2

Fig 8.2 – Low Wheel Loader in Neves Corvo Mines

Figure 8.3

Fig 8.3 – Vasco da Gama Bridge

Figure 8.4

Fig 8.4 – Cummings Generators in Manaus

> ***"In 1996, HLC EGP restructured its strategy and developed its business model with the scope to internationalise the company"***

the public tender for the 2nd bridge over the river Tagus in Lisbon, Lusoponte. HLC left the consortium after the signature of the concession contract.

In 1996, HLC EGP restructured its strategy and developed its business model with the scope to internationalise the company. The new geographical markets where it was to start acting would be the United Kingdom, in the Environment sector and Brazil in the Energy sector.

In the Health sector, HLC in consortium with the Mello Group was responsible for the introduction of privatization of health services in public hospitals by winning the public tender for the Fernando da Fonseca Hospital in Amadora, Sintra in 1995, where it remained a partner until April 2004.

In the Energy sector, HLC adopted a Build Operate Transfer/Build Operate Own Transfer (BOT/BOOT) strategy and making use of Project Finance to financially structure the projects. Through this strategy, HLC introduced several Cogeneration Power Plants in Portugal and Brazil for electric power under 10MW.

Corporate Structure

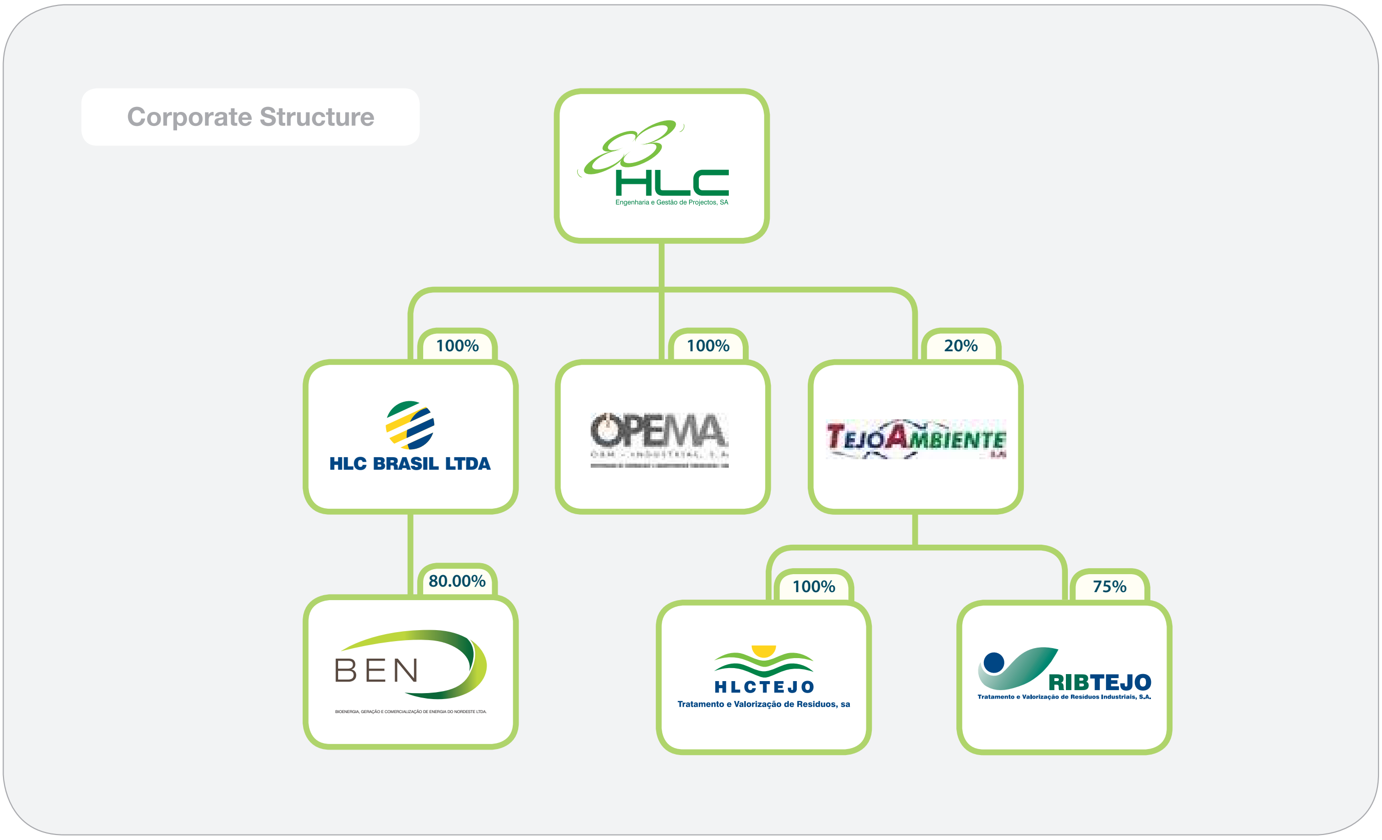

Figure 8.5 - Corporate Structure

Track Record

AMALGA MSW Landfill

Design and construction of MSW landfill and
4 Transfer Stations
Location: Alentejo, South of Portugal
Client: AMALGA (Associação de Municipios)
Contract Value: 5,835,416 Euros
Landfill Capacity: 630,000 Mg of MSW
Completion Date: 2003

RESITEJO MSW Landfill

Design, Construction and Operation of MSW Landfill,
3 Transfer Stations and 7 Bring Banks
Location: Ribatejo, Centre of Portugal
Client: RESITEJO (Associação de Municipios)
Contract Value: 6,833,531 Euros
Landfill Capacity: 763,220 Mg of MSW
Annual Turnover: 4,000,000 Euros
Completion Date: 1999

RIBTEJO ISW Landfill

Design, Construction and Operation of ISW Landfill
Location: Ribatejo, Centre of Portugal
Contract Value:

- 2,300,000 Euros (1st phase)
- 2,000,000 Euros (2nd phase)

Landfill Capacity: 50,000 Mg/year
Annual Turnover: 2,000,000 Euros
Completion Date: 2003

Freixo WWTP

Design and Construction of Freixo WWTP

Location: Porto, North of Portugal

Client: SMAS Porto

Contract Value: 21,212,882 Euros

Treatment Capacity: 170,000 inhabitants

Completion Date: 2001

Frielas WWTP

Design and Construction of Frielas WWTP

Location: Loures, Lisbon, Portugal

Client: Municipality of Loures

Contract Value: 41,899,023 Euros

Treatment Capacity: 700,000 inhabitants

Completion Date: 2003

Cova da Beira MSW Landfill and Composting Station

Design, Construction and Operation of IWMS at Cova da Beira

Location: Cova da Beira, North of Portugal

Client: AMCB (Associação de Municipios)

Contract Value: 11,222,952 Euros

Composting Capacity: 50,000 Mg of MSW

Completion Date: 2001

Neath Port Talbot IWMS and WtE Plant

Design, Construction and Operation of IWMS and WTE Plant at Neath Port Talbot
Location: Wales, United Kingdom
Client: Municipality of Neath Port Talbot
Contract Value: 45,714,000 Euros
Plant Capacity: 166,000 TPA of MSW
Completion Date: 2002

Valorsul Sorting Plant

Design, Construction and Supply of large volume treatment line
Location: Lisbon metropolitan area
Client: Valorsul
Contract Value: 2,195,000 Euros
Processing Capacity: 5Mg packages/hour
Completion Date: Under conclusion

Biogas Energy Production from the Coimbra Landfill

Biogas Energy Production from the Coimbra Landfill
Location: Coimbra, Centre of Portugal
Client: ERSUC – Resíduos Sólidos do Centro, S.A.
Contract Value: 1,564,022,66 Euros
Installed Capacity: 853 kW
Completion Date: 2007

Current Projects (as at May 2009)

The projects that HLC EGP is currently developing are fundamentally in the portuguese market, within the waste and waste water sectors and are mainly public projects. The clients for these projects are mainly companies of the group Aguas de Portugal.

WORKS IN PROGRESS				
Client	**Project**	**Total Value**	**HLC EGP %**	**HLC EGP Value**
ÁGUAS DO ALGARVE	Vila Real de Sto. Ant ónio WWTP	4,977,490	40.00%	1,990,996
SIMARSUL	Pumping and Drainage Stations for Lagoa/Meco/Sto António	7,820,000	35.00%	2,737,000
ÁGUAS DO CENTRO	WWTP Construction/Refurbishment	1,250,636	33.00%	412,710
EDAB	Beja Airport WWTP	899,579	51.00%	458,785
CÂMARA MUNICIPAL RIBEIRA GRANDE	Rabo de Peixe WWTP	1,498,839	25.00%	374,710
ERSUC	Sealing of Sanitary Landfill at Figueira da Foz	1,042,000	55.00%	573,100
SULDOURO	Cell for Sanitary Landfill at Sermonde	1,044,733	55.00%	574,603
CULT	S.Roque and Almeirim Pumping Station	370,759	61.00%	226,163
	Total	**18,904,036**		**7,348,067**

Table 8.1 - Works in Progress

ADJUDICATED WORKS AT CONTRACT PHASE				
Client	**Project**	**Total Value**	**HLC EGP %**	**HLC EGP Value**
CULT	S. Roque and Almeirim Pumping Station	370,759	61.00%	226,163
ERSUC	Design, Construction and Supply of MSW Mechanical Biological Treatment in Aveiro/Coimbra	70,716,034	24.10%	17,042,564
CULT	Lapa and Casais Luises WWTP	689,960	50.00%	344,980
CULT	Pontevel WWTP	1,163,108	59.00%	686,234
CULT	Vale de Pedra WWTP	587,909	53.00%	311,592
	Total	**73,527,770**		**18,611,533**

Table 8.2 - Adjudicated Works at Contract Phase

WORKS AT THE ADJUDICATION PHASE				
Client	**Project**	**Total Value**	**HLC EGP %**	**HLC EGP Value**
ÁGUAS DO OESTE	Maceira WWTP	970,815	54.00%	524,240
VALORSUL	Mato da Cruz Landfill - Biogas	2,093,226	40.00%	837,290
ÁGUAS DO ALGARVE	2ª phase for the Vila Real de Santo António WWTP	6,165,953	40.00%	2,466,381
ÁGUAS DO AVE	Sousa (Lousada) WWTP	10,979,448	33.00%	3,623,218
RESIOESTE	MSW Sorting for Oeste	2,728,029	69.00%	1,882,340
ALGAR	Barlavento Sanitary Landfill	1,497,700	50.00%	748,850
C.M.Mangualde	Poente de Mangualde WWTP	2,244,436	36.00%	807,997
ÁGUAS DO AVE	Cávado-Homem WWTP	8,917,650	33.30%	2,969,577
EPAL	External Works and Implantation of Automatic Irrigation System at the Asseceira Water Treatment Plant	800,000	50.00%	400,000
	TOTAL	**36,397,257**		**14,259,894**

Table 8.3 - Works in Progress

SUMMARY		
	Total Value	HLC EGP Value
WORKS IN PROGRESS	7,820,000	2,737,000
ADJUDICATED WORKS AT THE CONTRACT PHASE	70,716,034	17,042,564
WORKS AT THE ADJUDICATION PHASE	970,815	524,240
TOTAL	79,506,849	20,303,804

Table 8.4 - Summary

Future Outlook

Portuguese Market

Regarding the portuguese market, a brief analysis of the waste & water markets provides us with the following picture:

Forseen investments according to:
- PERSU II – National Strategic Plan for Municipal Solid Waste: €220 Million/year up to 2016
- PEAASAR II – National Strategic Plan for Water Supply and Waste Water Sanitation: €570 Million/year up to 2013

Considering the average participation rate of HLC EGP in tenders:
- 60% in waste tenders
- 35% in water tenders

and taking into account that:
- HLC EGP's average success rate in tenders is 10%
- HLC EGP's average participation in consortiums is 50%

HLC EGP forsees an average anual business volume of €16.5 Million for the next 5 years.

International Market

Taking into account the degree of maturity, necessities and available funds for investment in the various markets in which HLC EGP has under consideration, HLC EGP is attentive to the establishment of local partnerships, so as to position itself as a player in its elected market – Waste & Waste Water for the different markets it has identified:

- North Africa (Morocco, Tunisia and Algiers)
- Romania
- Brazil

Figure 8.6 - Resitejo Transfer Station and Bring Bank

Management & Contacts

Board
Jorge Raposo de Magalhaes – jrmagalhaes@hlc-sa.pt
Sofia Bras – sbras@hlc-sa.pt
Artur Mariz Santiago – msantiago@hlc-sa.pt

Management Team:

Deputy Chairman	Jorge Raposo de Magalhaes
Managing Director	Sofia Bras
Commercial Director	Artur Mariz Santiago

Arranging Banks:
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Lisbon, Portugal

Banco Millennium BCP
Lisbon, Portugal

Lawyers:
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Lisbon, Portugal

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Other Shareholding Positions

Introduction

HLC Environmental Holdings has developed an investment strategy that seeks to identify and develop new business opportunities where it retrieves synergies between the different industry sectors outside the scope of renewable energy. As part of our investment portfolio we are co-founders in an e-waste and recycling business and in a carbon developer and trader. This chapter will explain the businesses of these two different companies: Environmental Storage Solutions Ltd. and Carbon Capital Markets Ltd.

The origination process started as personal investments of Mr. Horacio Carvalho. When the projects moved up through the value chain and demonstrated capability to evolve, they were then integrated and/or merged at the holding level, increasing the value of the balance sheet and enhancing the potential of the company to generate cash.

Given the track record and proven proficient experience identifying and developing projects within this scope of investments, HLC EH decided to integrate this rationale into its strategy. HLC EH positions itself as the holding company that identifies, develops, manages, allocates and monitors business opportunities that provide positive impact to the environment. At the moment we're studying potential business opportunities within the UK, Portugal, South and North America, distributed in waste and water, on-shore and off-shore wind, biofuels and several distressed assets. These opportunities are analysed against an internal set of investment criteria and then are allocated into a specific sub-holding company focused in the business industry considered.

As mentioned before in this document, our sub-holdings are AEOLUS for wind, BIOVEG for biofuels, CCM for carbon, DYBSOL for biomass and HLC EGP for waste and water. Currently we are adding ESS for e-waste and recycling. As a global developer HLC EH seeks to bring in new business partners able not only to support us and fund the projects but also to originate and identify further opportunities.

ENVIRONMENTAL STORAGE SOLUTIONS LTD

ESS, Environmental Storage Solutions Ltd. is a UK company based in Northamptonshire and was established in the year 2000. Its business activities are focused at the e-waste industry sector, more specifically the collection, treatment and recycling of electric and electronic waste. Its facilities, which are located at the Leyland Trading Estate in Northampton, comprise a specialist Refrigeration and Vending Recycling Facility.

Waste Electrical and Electronic Equipment (WEEE)

The Waste Electrical and Electronic Equipment Directive (WEEE Directive) is a European Community directive (2002/96/EC) for waste streams originating from electrical and electronic equipments. It became a European Law in February of 2003 and sets out targets for the collection, recycling and recovery for all types of electrical goods. This directive came into force in the UK in January of 2007.

The directive imposes the responsibility for the disposal of waste from electrical and electronic equipments onto manufacturers of this type of equipment. Under this directive, companies have to establish an infrastructure for collecting WEEE to the extent that users of electrical and electronic equipment from private households have the possibility of returning WEEE at least free of charge. These companies are also compelled to use the collected waste in an ecologically friendly manner, either by ecological disposal or by reuse/refurbishment of the collected WEEE.

Market Context

The recycling market can be split into sectors determined by specific materials such as paper, glass, plastics, textiles and packaging. The recycling of Waste of Electric and Electronic equipments (WEEE), and end-of-life vehicles (ELVs) are also included in this Market. In 2007, the UK market for non-metal recycling was worth an estimated £2.09bn, an increase of 40% from 2006.

- Government Strategy: Waste reduction, re-use and recycling.
- Legislation: This is a major driver behind the recycling market

The non-metal recycling market in the context of the Government's waste strategy is based on the principles of the waste hierarchy, or RRR-Reduce, Reuse, Recycle, and is a method of ranking the waste-disposal options, with the top priorities being waste reduction, re-use and recycling.

Legislation is a major driver behind the recycling market, especially the Landfill Directive with its increasingly restrictive stages as to what can be sent to landfill. In addition, legislation and recycling targets are in place for specific waste streams.

The UK non-metal recycling sector is dominated by a small number of large companies, most of which have other interests, particularly in the water industry. There is a strong representation of continental European companies in the UK non-metal recycling sector, major examples being businesses from France and Spain.

Non-metal recycling faces challenging issues in addition to those related to legislation. Further expansion in the recycling infrastructure is needed if the UK is to increase its recycling rate across a broader range of materials. This is particularly true for waste streams that have recently been subject to recycling legislation, i.e. WEEE and ELVs.

The municipal sector is experiencing a degree of stress as it tries to cope with an increasing volume of recycled material. Moreover, the Landfill Allowance Trading Scheme (LATS) gives local authorities an allowance for landfill, which, if exceeded, can involve the payment of very high charges for landfill space.

The recycling sector is growing, which raises the question of recruiting and maintaining a workforce in this industry. The future will see further expansion in the scope and complexity of non-metal recycling. The recycling rate for biodegradable materials, WEEE and ELVs will continue to grow.

Further legislation for the recycling of batteries is in the pipeline, and there is currently discussion about recycling in the construction industry. Increased global demand for almost all materials will help to boost the value of the recycling market.

WEEE Collection & Processing

ESS is a fully licensed WEEE recycling facility with a Waste Management License to operate 24/7, for all categories of WEEE, including Hazardous Waste and has Approved Authorised Treatment Facility (AATF) status with approval to issue Evidence Notes under WEEE regulations. It also holds a Full Waste Transport License and provides Client Audits for Duty of Care.

ESS's facilities in Wellinborough near Northampton, which comprise a specialist Refrigeration and Vending Recycling Facility, are specialised in dealing with the following categories of the waste stream:

1. Large Household appliances
2. Small Household appliances
3. IT & Telecommunications Equipment
4. Consumer Equipment
5. Lighting Equipment
6. Electrical and Electronic Tools
7. Toys, Leisure and Sports Equipment
8. Medical Devices
9. Monitoring and Control Equipment
10. Automatic Dispensers
11. Display Screen Equipment
12. Refrigeration Equipment
13. Gas Discharge Lamps.

The company acts in a fast growing industry and aims to grow with it by providing the necessary services to help others meet their environmental obligations. It is a key service provider in the sector with a significant market share (Figure 9.1) and is well placed to absorb the growing demands and requirements of the recycling market.

Figure 9.1

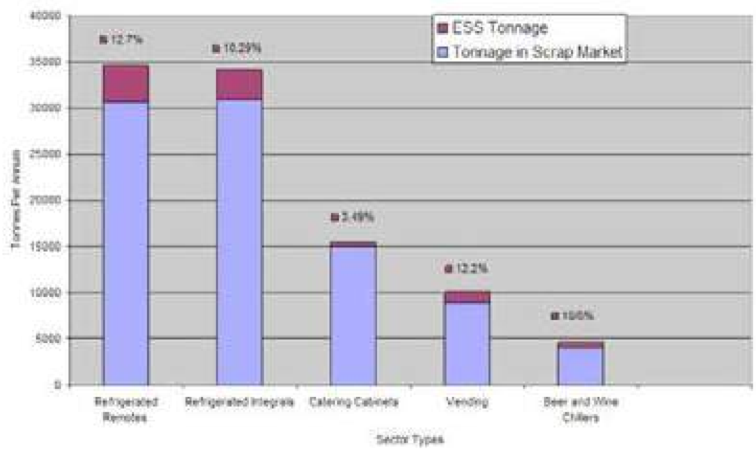


Figure 9.1 - Market Share of End of Life Units

ESS has a national network of logistic partners that allows it to arrange collection at competitive rates and from anywhere in the UK. Combined to the fact that it holds a Full Waste Carriers License and operates a feeder site in the Bristol area, means ESS can more easily collect from more remote areas in the South West region of the country.

ESS has further plans to open a third feeder site in the South London Region and a fourth in the Bradford area, thereby achieving a complete national coverage. By operating feeder sites that hold Waste Management Licenses but don't hold AATF status will enable it to manage these as satellites, while managing the AATF status centrally at the Processing Plant in Northampton (Figure 9.2 & 9.3). This will allow ESS to offset rebates against transport costs, while having the capability of accepting deliveries on a 24/7 basis.

ESS's processing plant benefits from being a full WEEE recycling facility with the added competitive advantage of being the only facility in the region with a degassing machine (Figure 9.4) and metal processing capabilities. On the latter, ESS aims to acquire new equipment which will enable it to expand on its operations and diversify itself to increase profits.

The WEEE recycling process goes through different phases and upon receipt of the different kinds of electric and electronic equipments, the first phase is the disassembly phase, where the different waste streams are sorted into primary products to be treated. These are mainly composed of the following (Figure 9.5):

Figure 9.2

Figure 9.2 - Primary Processing Halls

Figure 9.3

Figure 9.3 - Inside the Processing Hall

Figure 9.4

Figure 9.4 - 1st Phase Gas Reclamation Plant

Figure 9.5

Figure 9.5 - 1st Phase Primary Products

Figure 9.6

Figure 9.6 - 2nd Phase Processing

Figure 9.7

Figure 9.7 - Card and Paper Bailing

- Fluorescent Tubes
- Batteries
- Contaminants (food, card, water, acids)
- Circuit Boards
- Wiring
- Glass
- Plastic
- Compressors
- Radiators and other Metals

The second phase entails the primary products going through a breakdown treatment process to obtain a final product that can be sold onto the market as a commodity, such as metal products like ferrous, radiators, aluminium, copper, iron ally and other general by products, such as plastic, paper, cardboard and glass (Figure 9.6 & 9.7)

ESS has additional security systems in place for the treatment of IT and Telecommunications equipments, where destruction of electronic information is guaranteed if required. It is a Licensed Operator of Blanco High Security data removal software and operates under ISO 9001 procedures.

ESS usually assesses a clients WEEE and offers services that can include Tariff Charges, Discounts on Tariff Charges, Free of Charge (FOC), free WEEE compliance that saves clients £2000 per annum and rebates against tonnages of metals within Goods In.

ESS offers a total waste solution comprising the management of Production and Operational Waste (POW) for card, plastics, metal, paper, wood and glass. It also exports this POW directly to the market or for delivery at an AATF with WEEE for processing. This avoids the waste going to landfills and delivers revenue for waste. These revenues are based on the index of the Materials Recycled Week (MRW). Loose metal is bought on monthly rates, which are better than those found on the MRW.

Sales Targets

ESS prioritises its recycling sales targets in the sector as follows:

1. Operators of refrigerated units
2. Manufacturers of refrigerated units
3. Operators of other units
4. Manufacturers of other units

In the refrigerated sector, ESS emphasis its state of the art degassing unit and also targets companies for the sale of second hand units and parts.

CARBON CAPITAL MARKETS®
Carbon Trading and Fund Management

Carbon Capital Markets (CCM) was established in 2005 as a carbon developer, fund manager and carbon trader with the aim to develop projects that generate carbon credits under the Kyoto Protocol and to trade and sell the resulting credits, predominantly in the EU.

HLC Environmental Holdings Ltd. is a shareholder in the Company with a 25.24% shareholding. Together the two companies have been co-investors in a number of projects and ventures. The major shareholder in CCM is Trading Emissions PLC, which is AIM listed and the world's largest private sector fund investing in emission assets.

CCM has been profitable since inception and is a vertically integrated carbon company producing its own carbon credits through investment in underlying projects, managing the carbon logistics through the Clean Development Mechanism (CDM) and then selling and distributing carbon credits with those who need to purchase carbon credits in Europe.

As the global carbon market has developed and grown, the company has responded to changing legislation and new opportunities, vertically expanding the business' operations in the carbon market and leveraging its experience in the clean energy markets.

CCM is a proven fund manager and trader specialising in the carbon and clean energy markets. It is an authorised company regulated by the Financial Services Authority (FSA), and has been developing three main activities:

Sales and Distribution

The Sales and Distribution team had net revenues of €2m (EBIT of €1.2m) per annum in 2007 and is growing at 25-30% annually. The team manages the carbon credit positions for over 300 customers in the European Emissions Trading Scheme (EU ETS).

Carbon Supply and Origination

CCM has generated its own credits directly through its proprietary activities and on behalf of others through its fund management structure. It developed and has a €7.4m carried equity stake in Jantus, a portfolio of 4 wind farm projects totalling 207 MW and has an additional ownership of a €2m stream of carbon credits.

In addition, CCM has successfully established or helped two carbon funds which provide the financing for carbon projects and obtain carbon credits at cost in return: the €40m Carbon Asset Fund (CAF), which has now closed, in which it owns a €3.7m stake and the €400m China Methane Recovery Fund (CMRF), in which it owns a €13.4m stake. It is also the main

"CCM has been profitable since inception and is a vertically integrated carbon company"

"CCM is a proven fund manager and trader specialising in the carbon and clean energy markets"

"CCM manages the carbon credit positions for over 300 customers in the European Emissions Trading Scheme"

backer of the €300m Renewable Energy Asia Fund (REAF), which has begun fund raising in conjunction with Credit Suisse, in which it has a €6.6m stake.

Carbon Logistics

CCM manages the entire carbon credit creation process for its carbon supply through its carbon logistics business. This allows it greater certainty and reliability on the delivery of its carbon credits and to keep the €2-4 margin per tonne that would normally be given to a third party.

Carbon Logistics supports Carbon Capital Markets activities and works closely with project developers to manage all aspects of the CDM and JI project registration and issuance process, including: CDM and JI risk assessment assistance, project management, project data implementation and knowledge management.

As a result of this growth, Carbon Capital Markets now has offices in London, Brazil, China, Poland and Ukraine. In just over three years, the company has expanded rapidly and is now a leading player in the global carbon and clean energy markets.

Carbon Capital Markets is an award winning company whose excellence has been independently recognised by a number of high profile and respected industry awards, including the National Business Awards, FT Sustainable Banking Awards and more recently in 2008, as a winner of the Ernst & Young Entrepreneur of the Year awards. ENDS have also named it as one of the top 30 carbon offset providers worldwide.

Key Success Factors

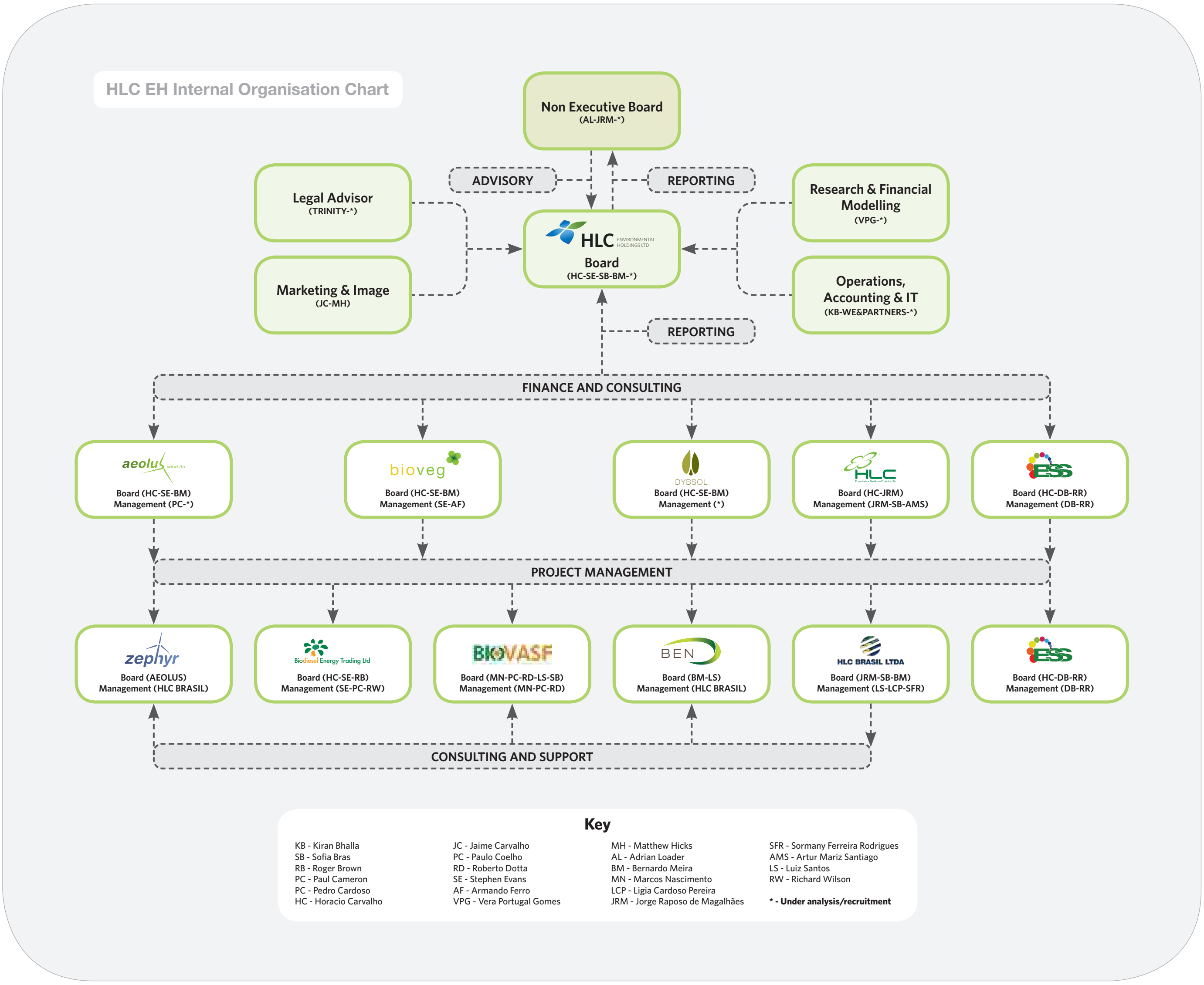
The role and mission of companies like CCM is essential to the Industry. Companies such as CCM are needed, as the Kyoto system that allows carbon emissions to be reduced in one country to the credit of another is highly complex. Control of supply is key to success in the carbon market. Demand side intermediaries such as banks and financial institutions have purchased stakes in supply side intermediaries as a result of this and are a natural exit option for CCM.

The CCM business model is unique and generates higher margins. CCM is unique in the carbon sector as it disintermediates all intermediaries, maintaining the highest possible margins.

"CCM is unique in the carbon sector as it disintermediates all intermediaries, maintaining the highest possible margins."

Management

Internal Organisation Chart



Team Profiles

Kiran Bhalla

Kiran Bhalla has been with HLC Environmental Holdings for over 15 years. She is personal assistant to Mr. Horacio Carvalho as well as being responsible for management of the office. Her responsibilities also comprise sourcing and procurement – mainly in finding, evaluating and engaging suppliers of consumables and services. Kiran also holds the responsibility of managing the processes of human resources. Her long service with the Company indicates her knowledge of projects past and present.

Sofia Bras

Sofia Bras has extensive experience in the Energy sector and is a Member of the Board for HLC Environmental Holdings Ltd. She is also the acting Managing Director for HLC Engenharia e Gestao de Projectos S.A. and is a Member of the Board for HLC Brasil and BIOVASF in Brazil.

Sofia's expertise in the development of business strategies is a highly valued contribution to the formulation of projects from conception to fully operational status for the HLC Group. She has delivered financial and strategic advisory services for the Group throughout the last 10 years of her career and has been engaged in several renewable energy projects in both Portugal and Brazil. These comprise the development of biomass, biofuels, cogeneration plants and wind farms. Sofia also analyses investment and expansion business opportunities in Brazil and Africa.

Previously to joining the HLC Group, Sofia held senior positions in the Tourism, Energy and Environmental sectors.

Paul Cameron

Paul Cameron joined the company in November 2007 and is responsible for developing the company's trading platform. He has a wealth of experience in the oil industry having traded gas; power and structured products for a variety of recognized industry names such as Sempra Energy Trading and RBS.

Paul is currently focusing on developing the commercial relationships with our trading partners from the perspective of supply and off-take. Using his extensive network of contacts in the industry, he has established strong supplier relationships and provided access to industry off-takers.

Pedro Cardoso

Pedro joined Aeolus Wind Ltd. as the Executive Director responsible for Business Development and execution of Renewable Energy opportunities. Prior to joining Aeolus, Pedro was working in GE Capital since 2005 as an Associate Director in the Energy equity sponsors group, performing investment analysis and Due Diligence coordination of Renewable Energy investments. His main areas of focus while at GE were Project Finance Origination and execution of European equity deals in the Solar, Wind and Hydro sectors. In particular, he acted as Principal Investor in the acquisition by GE of 60 MW of hydropower plants and 140 MW of Wind projects, both deals in Turkey.

Previously, he had worked for 6 years in SONAE Capital, the Venture Investment group of the Portuguese conglomerate SONAE, where he performed business development and Investment appraisals for Real Estate, Tourism, Gaming and Infrastructure assets and companies. Pedro holds an MBA degree from New York University Stern School of Business, an MSc in Real Estate Finance from ESAI and a BA in Economics from the Universidade Catolica Portuguesa.

Horacio Carvalho

Horacio Carvalho has a strong track record for originating business ideas and developing complex projects through the construction phase and beyond. He is a member of the Board and the CEO of HLC Environmental Holdings Ltd. Horacio is also a Director and Board Member of Aeolus, Bioveg, Dybsol and ESS.

Horacio originated Aeolus Wind Ltd. track record by capitalising opportunistically on the sale of 'Rosa dos Ventos' and more importantly, the sale of SIIF by EDF EN, arising from its Euronext listing. Since then he has led the team that has procured suppliers on a global scale to form an integrated global network that will deliver the potential of Aeolus Wind Ltd.

Horacio is widely known in the South American and Portuguese markets. He will maintain this role as a CEO until a management team is in place to deliver a successful IPO in 2010/11. He has successfully led various biomass plants and thermal fuel plants to operation phase in Brazil and established HLC as a leading private sector provider of Waste Management services in Portugal.

Jaime Carvalho

Jaime Carvalho brings a diverse management background in delivering marketing and general management services. He has responsibilities in developing and coordinating the marketing strategy and branding of the company. Jaime's main responsibilities include:

- Developing and integrating marketing strategies with the overall strategic goals of the company;
- Developing and managing the company's brand;
- Coordinating internal and external efforts in all marketing campaigns and promotion of the company;
- Implementing and overseeing the necessary support structures, such as knowledge management, IT structure and information management;
- Providing management support to the core management team.

Jaime's previous experience includes technical support in civil engineering and construction projects, media creation and management in the advertising and broadcast industries, as well as management services in the environment industry sector, namely the waste & water sectors.

Paulo Coelho

Paulo Coelho has a degree in Business Management specializing in Marketing. Over the past twenty years he has been involved in the management of businesses in a wide range of sectors. In the early 1990's he acted in the export industry for soft beverages, holding positions such as chairman for Sucovalle, a factory for Coca-Cola and distributor for Kaizer, and later came to be Exports Director for the USA and Canada for Frutos Tropicais SA., a Brazilian fruit juice manufacturer. He has been a founding partner in several businesses for the resale of brands such as Mercedes Benz, BMW, Toyota, Michelin, Chrysler, Bandag, Esso, Shell and Harley Davidson. He is also a founding partner for Petroinvesty, Bertald and BIOVASF.

Roberto Dotta

Roberto Dotta has a degree in Business Management from the 'Fundação Getúlio Vargas' in São Paulo, Brasil. He is also a Chartered Financial Analyst (CFA) and has published books on financial mathematics and markets. He began his career as an auditor in Price Waterhouse, where he audited over 60 companies, both national and multinational, small, medium and large companies in the industrial and financial sectors. He has worked for banks such as Unibanco and Banque Indosuez accompanying and evaluating businesses in the mining, metalworks and energy sectors, as well as being a director at Tudor Asset Management. He is currently a director in Petroinvesty and BIOVASF, where he is responsible for the structuring of project finance operations.

Stephen Evans

Stephen Evans is a qualified Chartered Accountant with over 30 years experience in practice and commerce and is a Member of the Board for HLC Environmental holdings Ltd. Stephen is also a Member of the Board for Aeolus, Bioveg and BET. He is the CEO for Bioveg and the Executive Director of BET.

He has specialised in the development of small and medium sized enterprises as well as providing Corporate Finance advice on a variety of disposals, mergers, and acquisitions over the last ten years. He has been engaged in many projects associated with the environment and renewable energy sector. This has included the development of two waste recycling facilities in the UK, wind power projects in Brazil and the development of an international trading business for biofuels and associated products.

Armando Ferro

Armando Ferro is a Mechanical Engineer, with extensive international experXience in the development of large infrastructure Projects. These have included Biodiesel refineries; coal discharging facilities; gas transmission lines; independent power plants as well as large waste recycling schemes.

Armando is currently directing the technical due diligence required on the various biodiesel refineries with which we are negotiating tolling arrangements, as well as leading the Engineering team involved in the development of Bioveg's Canadian project.

Vera Portugal Gomes

Vera Gomes brings international business experience from Portugal, Brazil and UK. She has responsibilities for the corporate governance and business research for the company, as well as providing substantial support in formulating marketing strategy. Vera's main responsibilities include:

- Organizing and maintaining proper corporate governance for HLC EH, including the review of expenses at subsidiary level;
- Provide transaction support for the development of the different projects, including liaising with the team in Brazil and organizing all necessary documentation;
- Carrying out several support activities for business research and marketing strategy;
- Providing support with the compilation of documents and presentations.

Vera's previous experience includes the development of strategic business projects in Brazil (Sao Paulo and Fortaleza) as well as relevant Banking and Financial experience, gained through the London Branch of Caixa Geral de Depositos, the largest Portuguese Bank.

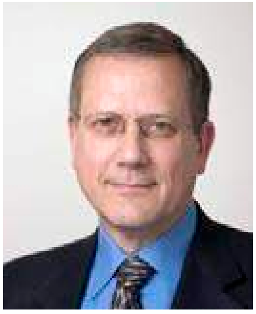
Matthew Hicks

Matthew Hicks is the in-house designer for the HLC Group. He has responsibilities in designing all graphical and multimedia elements to support the brand development for the Groups companies and subsidiaries. Mathew's main responsibilities include:

- Designing and producing all the graphical elements, including logos, documents, brochures, annual reports and other graphical support elements, such as business cards and stationary materials, for the companies and their subsidiaries;
- Designing, managing and monitoring websites for the Group's companies;
- Managing all the digital assets, such as domain names and ISP accounts;
- Managing print reproduction and photography of all graphical elements;
- Providing support with IT management and infrastructure.

Matthew graduated with a Graphic Design degree from Central Saint Martins College in 2007, having previously worked in the IT sector. Matthew also brings with him experience working in the advertising industry.

Adrian Loader



Adrian Loader is currently Senior Advisor to the Board and will be appointed Non Executive Chairman on the establishment of the new company. Adrian has over 35 years experience in the energy industry across the globe on all continents, principally with Royal Dutch Shell where he held a wide range of senior line management and functional positions. Before retiring from Shell at the end of 2007 Adrian served as Strategy and Business Development Director for the Group prior to being appointed President and Chief Executive of Shell Canada.

He now works in a non-executive capacity with a number of companies in different sectors. Adrian has an MA from Cambridge University and is a Fellow of the Chartered Institute of Personnel and Development.

Bernardo Meira

Bernardo Meira delivers financial and strategic advisory services for the HLC Group and is responsible for overseeing the development of the Company's projects. Bernardo a Member of the Board for HLC Environmental Holdings as well as Director and Board Member of Aeolus, Bioveg and Dybsol and HLC Brasil. His main responsibilities include:

- Overseeing the procurement of all significant contracts, including securing PPAs;
- Raising the debt and equity finance required to fund the projects portfolio;
- Managing the due diligence process involved with the fund raising;
- Coordinating technical, financial and legal parties to complete testing and to secure the necessary licenses within the project development timeline;
- Providing support to the core management team where required in terms of originating ideas and developing short and long term strategic approaches.

Bernardo's previous roles include Deloitte Consulting and Banco Espirito Santo advisory services. He is supported in his role primarily by the in-house project team based in Brazil and leverages off the experiences of the core management team. He is currently working with the core management to build an expert wind team that will support the company's management team, with a focus on the key financial, technical and marketing functions.

Marcos Nascimento

Marcos Nascimento graduated from the University of Sao Paulo, Brazil, with a degree in Civil Engineering. For the past 30 years he has worked and acted on several civil engineering projects, both at the industrial and residential levels through his own engineering company, Tecniplan Engenharia e Comércio Ltda., established in 1985. Marcos has also played a role in real estate, where he founded the company Mercotec Construções e Comércio Ltda., which later became a shareholder of SBER-Sociedade Brasileira de Energias Renováveis Ltda., a company focused on the development of renewable energy projects.
He became an associate of the HLC Group in 1998 and through HLC Brasil Ltda. helped develop several projects in the energy and renewable energy sectors. As well as his administrative and financial skills, he has good relationships in the public sector, with municipalities and financing institutions.

Ligia Cardoso Pereira

Bachelor of Law (J.D. equivalent - 2004, Universidade do Estado do Rio de Janeiro - UERJ). Member of the Brazilian Bar Association (admitted 2004). Specialization Degree in Brazilian Corporate Law and Contracts (2007, Fundação Getúlio Vargas – FGV/RJ).

Ligia Pereira focuses her practice on corporate law, contracts and litigation, with vast experience in litigation involving contracts, torts, corporate and commercial matters, bankruptcy and restructurings, and has represented clients in several Brazilian courts as well as in arbitration proceedings. She has also practice on advising domestic and international companies on their activities in Brazil, as well as on regulatory, environmental and licensing matters, particularly in the energy industry.

Regarding infrastructure projects, Ms. Pereira has worked in green field infrastructure EPC projects in Brazil involving the construction and operation of hydroelectric and thermoelectric power plants, power purchase agreements and contracts with suppliers and contractors.

Jorge Raposo de Magalhães

Jorge Raposo de Magalhaes is a member of HLC EH's non-executive Board in the UK and Deputy-Chairman of HLC EGP in Portugal. Throughout his 20 years inside Group HLC he has participated in major projects and strategic decisions providing an important contribution to the track record and industry knowledge of the Company today.

Jorge is a well known and influential executive within the Portuguese market and other relevant European markets, leveraging his CEO experience from several companies in the industry, civil construction and environment sectors, as well as his academic background in the field of Management.

Sormany Ferreira Rodrigues

Sormany Ferreira Rodrigues holds a degree in Electrical Engineering and a Post Graduation in Systems Analysis. He has extensive experience in production and maintenance for the industrial sector, having worked for Brahama and Kaiser in Brasil. Sormany was also operations manager for CGE, Ceara Geradora de Energia Ltda. and is currently the Industrial Manager for HLC Brasil Ltda.

Artur Mariz Santiago

Artur Mariz Santiago brings an extensive 15 years of experience in the development of projects in the Environment sector. He is a Member of the Board for HLC EGP and is the acting Commercial Director.

Mariz has participated in numerous waste management projects in Portugal in the past few years and has been a key member in developing HLC EGP's extensive Track Record in the Waste & Water sectors at a national and international level, with a focus towards the North African and Eastern European Markets. He holds degrees in Civil Engineering and Environmental Management, as well as a MBA.

Luiz Santos

Professional graduated in Economics (Universidade Estadual Paulista – UNESP) with MBA in Corporate Financing (Fundação Getulio Vargas – FGV).

Luiz Santos has extensive experience in large size companies and wide knowledge of energy markets. Great experience in Financial Planning, as well as in sectorial analysis, investment planning for new projects, elaboration of financial models, budgets and forecast.

He has actively participated on negotiation of credit support lines with financial institutions for Rosa dos Ventos and SIIF projects, among others.

In the Aeolus Wind projects, he is currently involved in the development of new ventures in Brazil, PPA's and Suppliers negotiations, financial planning and fund raising. He coordinates all management, human resources and technical activities in Brazil.

Richard Wilson

Richard Wilson has an extensive background in the development of Renewable energy projects. He has worked internationally on energy projects in Brazil; the Dominican Republic; Portugal and the United Kingdom.

Richard joined the company in August 2004 and has focused on the origination and development of supplier relationships, as well as the development of market opportunities, in Brazil; Canada; India. Richard speaks Spanish and Portuguese fluently.

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