

CONTENTS

Page 1. INTERVIEW WITH HENRI FRACHON, RENEWABLE ENERGY ENGINEER

Page 3. PRESENTATION OF THE NAM THA 2 HYDROPOWER PROJECT IN VIETNAM

Page 4. EMISSIONS REDUCTION PROJECT OPPORTUNITIES: FOCUS ON CAMBODIA

Page 5. CORPORATE NEWS



Henri Frachon on a site visit in Ouagadougou, Burkina Faso

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INTERVIEW WITH HENRI FRACHON, ENGINEER IN RENEWABLE ENERGY, CARBONIUM

Carbonium is known as a company specialized in carbon finance and renewable energies. How does this materialize in your activities?

We focus on renewable energy and energy efficiency projects, and, from time to time, we work on industrial gas or forestry related carbon projects. In addition to our expertise in the carbon sector which we have built in the regulated and voluntary carbon markets, we have strong competencies in renewable energies, especially in wind, solar, hydro and biogas projects. In these fields, we have the technical expertise to go beyond the carbon cycle and to guide our clients in their project development. We are now capable of carrying out complete feasibility studies, due diligence procedures, and specific technical and financial studies.

As consultants on the carbon market, we have always the same approach: we do not take market positions but focus on brokerage activities for compliance and voluntary buyers. We do believe that this is the most pertinent way to proceed for our company and to limit our financial exposure.

When you take part in a solar or a wind energy project, is it necessarily generating carbon credits?

Not necessarily, but it has usually been the case. We have at some occasions worked with clients solely on project financing and development. This was, for example, the case for a wind power project in the Caribbean, in Martinique. However, since it is one of our core activities, we always have a look at the value of emissions reduction or other environmental products induced by any project.

How far goes the expertise of Carbonium in renewable energy project financing?

We are proud to say that we have now a large panel of references in renewable energy project financing. Due to our historical activities, we have been very close to financial institutions, private investors and bilateral and multilateral donors such as the European Investment Bank or the French Development Bank AFD (Agence Française de Développement). On the other side, due to our presence and experience on the field, we are approached by many project developers across the world. After selecting the most interesting projects on several

INTERVIEW WITH HENRI FRACHON *CONTINUED FROM PAGE 1*

criteria such as technical studies, risk analysis, profitability, developer solvability or sustainable development, we work on finding the most appropriate financial arrangement, guarantee and partners for the project. For example, this leads us to guide our client on the financing of a concentrated solar power (CSP) plant project in Bitola, Macedonia. After carrying out a complete financial analysis and business plan, we are now in discussion with several investors.

Do you develop your own projects or is it always on behalf of a project developer playing the role of an investor?

We work essentially as consultants and we guide our clients in their project development. Our clients are diverse. We work with public actors such as ministries or municipalities but also with international firms and financial partners.

However, due to our company's flexibility, we have been developing our own projects which we then sold. This was the case for a 1MW solar PV power project with the Municipality of Marseille, in the South of France, which we developed and then sold in September 2012.

Can you give some examples of projects you are working on?

We are currently working on several exciting projects. We have recently finished the financial analysis of a large CSP project in Macedonia, which I mentioned earlier. Due to the evolution of the carbon market, we have recently reinforced our presence in Africa. For instance, we are currently working on a rural electrification project or on a large-scale improved cook stoves distribution project in two Western African countries. On these two projects we are completely in charge of the feasibility studies and we assist the project owner in the implementation process. We have also developed our expertise in small-scale hydropower projects in Vietnam and in China.

How do you see the market evolving?

It is true that the carbon market is facing a difficult time. This is related to the economic context on one side and the over-allocation of allowances on the other side within the EU ETS. Despite the situation of the market, we are extending our activities in the development and financing of renewable energy projects and are able to reinforce our services in the carbon market.

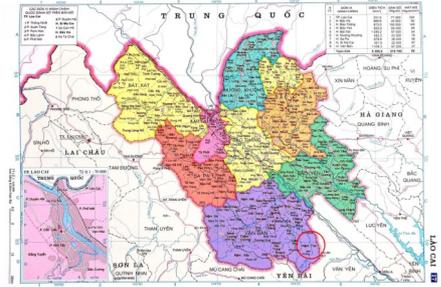
As for emissions reduction projects, we are focusing our efforts in least developed countries, especially in Sub-Saharan Africa where we have solid relationships with public authorities. Nonetheless, while we see more and more projects emerging in these countries, we believe that only a few of them will eventually be implemented. Carbonium is doing its best to help these projects to overcome their barriers. In this context, we have recently been joined by Mr Philippe Coste who was appointed Deputy Managing Director. As a former diplomat, Mr Coste has extensive experience in emerging countries and will definitely play a major role in the success of our projects.

PRESENTATION OF THE NAM THA 2 HYDROPOWER PROJECT

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The project of the Nam Tha 2 hydropower plant (HPP) is situated in Lào Cai province in the north of the Socialist Republic of Vietnam. Although the overall electrification rate in Vietnam attains about 97%, it is in the northern regions that coverage is not complete. There is however an important resource to be found in water bodies which allow for environmental conscious and sustainable implementation of small-scale hydropower.



In a favourable regulatory environment, especially with the Decree 1855/QĐ-TTg of December 27th, 2007, the share of renewable energy in total electricity generation in Vietnam shall increase from about 2% in 2010 to 11% in 2050. It is in this context, that the initial step of the development of this 4.8 MW HPP under the Energy and Environment Partnership with the Mekong Region (EEP Mekong) explored different scenarios in order to make small hydropower projects an attractive means to achieve this target.



Securing a sound internal rate of return became an important issue throughout the feasibility study of the project and therefore knowledge transfer focused largely on the financial structure. Economic viability of small-scale hydropower projects in Vietnam is subject to feed-in tariffs which are based on subsidized consumer prices for electricity and to the generally good, yet irregular availability of necessary water flows.

Carbonium is member of a consortium for this project with Phuckhanh Energy Development and Construction Investment Joint Stock Company and the Institute of Energy of Vietnam, while EEP Mekong is the financial partner.

The consortium formulated a research methodology and a schedule of tasks under which it began reviewing national and international incentives such as taxes, development programs and emission reduction mechanisms to assess opportunities for additional financing. As the project further aims at the dissemination of its results among other independent power producers (IPPs) in the country, a second step assessed the overall situation of Vietnamese IPPs and access to finance.

While Carbonium was carrying out the project, it was decided to prepare the project for validation as an emissions reduction project by assessing its eligibility under different standards (CDM, GS, VCS) and by drafting the necessary project design documents. The next step for this particular development, as well as of the inclusion of a foreign investor, is currently under consideration.

The project as it was designed under the EEP Mekong is now at completion with a final dissemination and training workshop held in Hanoi on December 6th to 7th,

EMISSIONS REDUCTION PROJECT OPPORTUNITIES: FOCUS ON CAMBODIA

Designated National Authority

Ministry of Environment
Climate Change Office
48, Samdech Preah
Sihanouk Blvd
Phnom Penh
Cambodia



The Kingdom of Cambodia is a country in South-East Asia of nearly 181 035 sq. km and a population of approximately 15 million inhabitants. If the economy of Cambodia has been rather dynamic compared to other Asian countries, it had briefly lost momentum in 2007 and 2008 as a result of the financial crisis but was able to slightly re-

cover in 2010. Its economy relies mostly on agriculture (which provides employment to approximately 80% of the country's labor force), textile, tourism and construction. The country is politically stable since the end of the nineties, being understood that Cambodia presents a strong disparity in development, notably between the capital city and the countryside. Cambodia is nevertheless trying to develop and reach the development objectives fixed by the United Nations.



Still, the Cambodian energy sector is underdeveloped. Firstly, Cambodia uses little commercial energy per person, and half of the Cambodian people did not have access to electricity in 2012, particularly in rural areas. Secondly, despite a potential for renewable energies, the main source for energy generation is fuel, even if some dams for hydroelectricity power plants exist and produce energy. Therefore, Cambodia depends on importations of fuel products which implies high energy costs and frequent energy disruption. This is amplified by the current power generation capacity of about 600 MW which is not sufficient and is planned to be developed to 2.5 GW by 2020. Finally the share of biomass, and particularly wood fuel, for domestic energy generation is very high and deforestation is a threat in Cambodia. The Cambodian Government has therefore set a plan to improve energy production in the country, mostly through hydropower dams and coal power plants.

Cambodia ratified the United Nation Framework Convention on Climate Change on December 28th, 1995, and the Kyoto Protocol on August 22nd, 2002. As a non-Annex I country and a LDC, Cambodia is eligible to host Clean Development Mechanism projects. The Cambodian Ministry of Environment acts as the Designated National Authority, and by October 2012, six CDM projects had been registered, mainly in power generation, and many others are under validation.



Cambodia is an attractive country for renewable energy and CDM projects, but its potential is mainly unused. For instance, the average solar irradiation in Cambodia is about 4.7 kWh/m² per day, and therefore offers an important resource for solar power. There is also potential for hydro-power or biomass projects (notably with rice pods). As for the CDM, the main sources for GHG emissions are fuel combustion (1,272 MtCO₂eq), cement industry (49 MtCO₂eq), waste (147

MtCO₂eq) and agriculture (e.g. rice cultivation totaling 3,158 MtCO₂eq). Despite the fact that resources are available, few projects have been carried out for the moment, notably because such projects need significant initial investments. The Government of Cambodia supports in principle projects in the field of renewable energy and waste management.

CORPORATE NEWS

Conferences



Carbonium co-presents (with the engineering company Artelia and the Macedonian state-owned power company ELEM) a paper on **“Solar repowering of the coal-fired thermal power plant of Bitola”**, at the Energetics 2012 International Symposium in Ohrid, Macedonia, October 4 to 6, 2012.

<http://zemak.mk/simpozium.html>



United Nations
Framework Convention on
Climate Change

Carbonium moderates **two UNFCCC / UNDP seminars on Programmes of Activities (PoA) in Africa** for francophone countries, in Dakar, Senegal, September 10 & 11, 2012, and for anglophone countries, in Luanda, Angola, July 30 & 31, 2012.



Philippe Coste represents Carbonium during the **International Workshop on Bamboo Green Growth and Carbon Finance** in Phnom Penh, Cambodia, 26-27 April 2012. <http://bamboogreengrowth.com>



Philippe Coste gives a presentation during the **Second Regional Annual Forum of EEP Mekong** entitled « Overcoming Barriers to Financing Clean Energy Projects in the Mekong Region » in Bangkok, January 31 to February 1, 2012.

http://www.eepmekong.org/eep_forum

In the Media

Journal of Energy & Ecology n°135, November 2012. Citation of Henri Frachon, engineer at Carbonium (“The Macedonian power company ELEM is pioneering, with the development of a hybrid concentrated solar power in Bitola” page 6). <http://energiaciecologia.org/download/135-2.pdf>

An interview with Alexandre Borde was broadcasted by Radio Rwanda on March 30, 2012, about the implementation of the Clean Development Mechanism and the grid emissions factor of the country.

<http://carbonium.fr/PDF/Interview%20AB%20Rwanda%20mars%202012.mp3>

New Team Members

Philippe Coste: Deputy Managing Director, Paris Office

Maëlle Pannetier: Intern, Paris Office

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