

Bernard CHABOT

Consultant and trainer on Renewable Energy and Sustainable Development

GARBEJAIRE B107, 06560 Valbonne - FRANCE

E-mail : bechabot@wanadoo.fr

EXPERIENCE AND SKILLS :

- **Independent Consultant and Trainer for renewable energy and sustainable development** (see references below) since April 2008.
- **Designer of the « Profitability index Method »**, targeted at economic analysis of sustainable energy projects and programmes (renewable energy, energy efficiency, clean and efficient industrial processes...) and for the design of related market regulation to facilitate their large scale deployment.
- Chartered engineer from ENSAM National School of Engineers and energy economist.
- From 1993 to April 2008 : Senior Expert at ADEME (www.ademe.fr): directly involved in the design and calculation from the Profitability Index Method of the 2001 French wind tariff system, consulting and advice for the design of the Ontario Feed-in tariffs system for renewables and for other countries (Ireland, Tunisia...). Studies, training sessions and publications in France and at international level (European Commission, PNUD, FAO...).
- From 1988 to 1993: Head of ADEME Renewable Energy Department : definition and monitoring of French R&D, demonstration and dissemination programmes for solar photovoltaics (stand alone and grid connected), wind power, small hydropower.
- From 1981 to 1988: in charge of the French solar photovoltaic programme : research, industrial development, demonstration and market deployment.
- From 1975 to 1981: Head of the Technical Studies Department at the SOFRETES French private Company: design and test of solar thermal and photovoltaic water pumping systems for developing countries.

REFERENCES OF MAIN SEMINARS AND TRAINING SESSIONS ON ECONOMIC ANALYSIS OF SUSTAINABLE ENERGY PROJECTS AND PROGRAMMES:

- UNDP Cape Verde, May 17-21, Praia: Symposium “Renewable energy, development and economic competitiveness”: lectures and learning workshop on assessment of economic and financial profitability of renewable projects for investors and decision makers and on renewable energy markets and investment opportunities.
- World Future Council, February 23 and 26, 2010: two workshops in Lansing (Michigan) and Boston on wind and solar PV Advanced Renewable Tariffs design and calculation for State Regulatory Authorities and local stakeholders. Proposal and case studies in USA for a “USPV FIT Model” (Universal Smart PV Feed-In Tariff Model).
- NREL (National Renewable Energy Laboratory)-Golden, USA: two days seminar on the design and calculation of « Advanced fair and efficient renewable tariffs » for the « Energy Analysis » division and 2 hours Webinar on this topic for analysts and RE and EE programmes managers at US-DOE - Washington, 9/28/09 to 10/1/09
- EWEA, Brussels, July 16th: Seminar for EWEA, EPIA, ESTELA and EREF executives on strategic conclusion of economic analysis based on the profitability index Method of

renewable projects versus fossil fuels projects in a context of increasing energy and carbon prices.

- EPIA workshop on “Sustainable PV Tariffs”, July 9th, Berlin: invited lecture on “Contribution from the profitability index Method to advanced fair and efficient PV FITs designs”.
- UNDP/GEF, Tunis, April 2009: advice for a UNDP-ANME workshop « Wind energy Development in Tunisia » on April 20,2009 and 2 lectures on the development of wind power and solutions to allow its large scale penetration on grids.
- UNDP/GEF « Wind Energy project » and Alternative Energy Development Board, Islamabad, 10-11/2/2009: training workshop for decision makers and executives on the design of feed-in tariffs systems for renewables from the profitability Index Method and proposal for a « Fair and efficient tariff system » for wind power in Pakistan.
- French National Institute for Solar Energy (INES, Chambéry): January and March 2009, 2 days workshops for managers and executives of the Research and Innovation Division on the Profitability Index Method and its application to economic profitability assessment of solar PV, sustainable buildings and R&D projects.
- French CSTB (National Centre for R&D for buildings), 9/2008: 2 days workshop on Economic assessment of sustainable buildings investments options : energy efficiency, renewables, high environmental quality buildings for executives and project managers.
- Berlin, 2007/9/4: BMU (German Ministry of Environment) and members of the French-German cooperation professional group on Wind Energy: one day seminar on how to protect wind energy feed-in tariffs from negative impacts of inflation. Case studies presented : Germany, France, Ireland, Ontario, conclusions and proposal for a potential wind energy fair and efficient tariff system.
- Varsovia, May 23-24, 2007: Polish Fund for Environment : 2 days training seminar for decision makers, executives and projects managers in charge of funding environmental protection, water and renewable energy projects. Integration of the Profitability Index Method and its related software (on Excel) as project analysis and selection tools.
- ADEME, 10/2006: 3 days training session for executive and project managers (renewable energy, energy efficiency, waste management, sustainable development).
- UNDP, Bratislava, April 2006: 2 days training workshop for 17 UNDP executives and regional managers in charge of the GEF-CDM programmes. Main topic: presentation and use of the Profitability Index Method fore carbon finance for sustainable energy projects in developing countries (renewables, energy efficiency).
- Jakarta, 3/2006 and Hanoi 12/2005 et 2/2006: 2 seminars for executives and decisions makers from public and private sectors on the economic analysis of small hydropower projects within the frame of the European IFRERA project.
- Ontario, 10/2005: One day workshop for the Ontario Energy Board (OEB, the independent energy regulatory authority) and the Ontario Power Authority (OPA, reporting to the Ontario Government): relevance of the profitability Index Method to design Advanced Renewable Tariffs, screening of wind and biogas for electricity proposed tariffs by OSEA (Ontario Sustainable Energy Association). This workshop contributed to the final decision of OPA on March 21st 2006 to launch a standard offer programme for projects of less than 10 MW (wind, hydro, biomass, photovoltaics).
- Tunisia, June and et July 2005: 2 + 2 days of training and case studies for the « National Task Force on Wind Energy » : Ministry of energy, National Agency for Renewables and energy efficiency (ANME), national electricity and natural gas utility (STEG), bankers... Output: report on economic comparison between natural combined cycles projects and

wind power ones, and within public and private (IPPs) wind projects. A second report on a proposal of a specific advanced wind power tariff for Tunisia at the request of the Secretary of state for Renewables.

- Republic of Maldives, February 2005: 4 days training workshop for decision makers and executives in charge of energy, energy efficiency and renewables (from Ministries in charge of Energy, Research, Economy, Banks and the national electric utility); Recommendations for sustainable energy programmes and case studies, economic analysis, subsidy and tariff calculation for an hybrid diesel-photovoltaic island system, design of a potential tariff system for grid connected solar PV and wind energy.
- Ontario Sustainable Energy Association (OSEA), January 2005: within the frame of their study commissioned by the Ontario Ministry of Energy, technical assistance in the form of a two day workshop for 24 stakeholders involved in renewables (from public and private sector and NGOs) to define advanced tariffs systems for community power (up to 10 MW from wind, solar, biomass, small hydropower). Outcome: results of tariffs systems design included in the OSEA proposal to the Ministry of Energy of Ontario: "Powering Ontario Communities" (downloadable at www.ontario-sea.org).

REFERENCES IN PROFESSIONAL TRAINING SESSIONS:

- NegaWatt Institute, France, 2009 and 2010: Definition and implementation of a professional training session on 3 days on economic and financial profitability analysis of sustainable investment projects (renewables, energy efficiency, sustainable buildings).
- INES (French Solar Energy National Institute): Definition and implementation of one day professional training session on economic and financial profitability analysis of grid connected PV investments. 6 sessions in 2009 and 10 planned in 2010.
- FINER (Financing Renewable Energy Projects, METROL private company): 2 lectures on renewable markets and investments opportunities in France and on economic analysis of renewable projects (2 to 4 sessions by year).
- ADEME professional training sessions: Lectures and case studies on economic analysis of investments in sessions dedicated to wind, PV, SHP (8 to 10 sessions per year).
- Professor at the UNESCO summer school on photovoltaics and renewable energy in developing countries (since 1991): two days of lectures on projects economic analysis and case studies on dedicated and proprietary excel software: decentralised rural electrification, village power, water pumping.

REFERENCES IN ACADEMIC TRAINING SESSIONS :

- Ecole Nationale Supérieure des Mines de Paris (ENSMP, School of Mines of Paris): economic analysis of renewable and sustainable development projects :
 - Joint French-Chinese Master Tsinghua University of Beijing/School of Mines of Paris «ALEF » (Alternative Energy, in English, 2.5 days).
 - European EUREC Master « Renewable Energy » (2 days).

- INSTN/University Paris X: Master “EDDEE” (Energy, Environment and Sustainable Development): 2 days lectures on renewable energy projects economic analysis
- Polytech’Savoie (Chambéry School of Engineers):
 - Master Energy in Buildings: 5 days on economic analysis of renewables, energy efficiency, sustainable buildings options.
 - Energy option: 2.5 days lectures on wind energy basics : wind potential analysis, wind turbines, energy production, grid penetration, markets, development scenarios, economic analysis of projects.
- ENSAM Arts et Métiers Institute of Corsica :
 - Master “Renewable Energy”: 4 days lectures and case studies on economic analysis of renewable, energy efficiency, CHP and sustainable buildings.
 - Same: 1.5 day lectures on risks and opportunities of climate change, carbon markets, CO2 emissions calculation from ADEME “Bilan Carbone” method.
- University of Versailles, MASTER CEDER: 2 days lectures and case studies on economic analysis of photovoltaic and CHP from fuel cells projects.
- Schools of Mines of Albi and Saint Etienne, energy options : lectures on renewable energy technologies and applications and their economic analysis (1.5 days each).

REFERENCE PUBLICATIONS ON THE PROFITABILITY INDEX METHOD:

- "Assessment of "Carbon Credits" Impacts on Wind Energy Projects Profitability", Proceedings of the 2004 European Wind Energy Conference & Exhibition, 22-25 November 2004, London, UK. Also published in "Windtech International, Vol 1, N° 2, March 2005.
 - "Are Your Energy Efficiency Projects Enough Profitable ? Check-it From the profitability Index Method !", Proceedings of the ECEEE Summer Study, Mandelieu, May 2005.
 - "Defining Advanced Wind tariffs Systems to Specific Locations and Applications: Lessons from the French Tariff system and Examples", 2002 Global Wind Power Conference", Paris, April 2-5, 2002 (co-authors: P. Kellet and B. Saulnier).
 - “Combined Use of Energy Sufficiency, Energy Efficiency and Renewable Energy: a solution for a Sustainable Growth of Energy Services”, 1999 European Energy Conference: Technological Progress and the Energy Challenges”, International Association for Energy Economics, 30th Sep. – 1st Oct. Paris, 1999.
 - "From Costs to Prices: Economic Analysis of Photovoltaic Energy and Services", Progress in Photovoltaics: Research and Applications, **6**, 55-68 (1998), John Wiley & Sons, Ltd., Chichester, 1998.
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