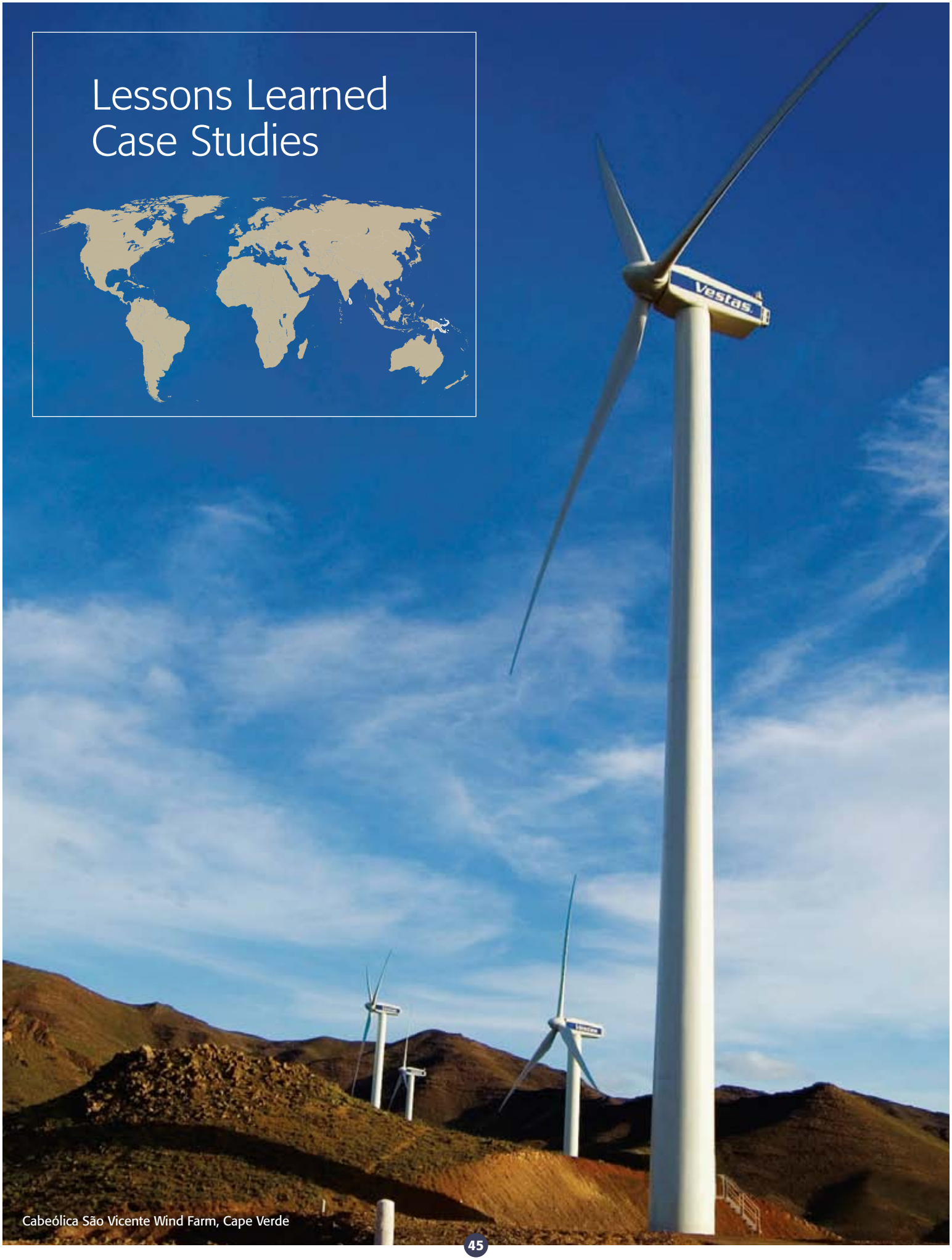
Lessons Learned Case Studies

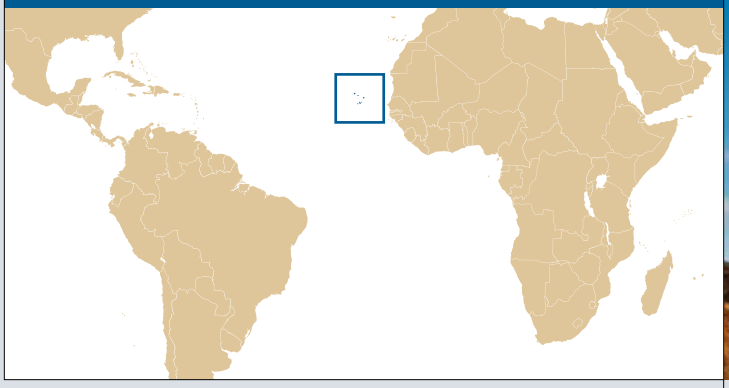


Cabeólica São Vicente Wind Farm, Cape Verde

Source: Cabeólica S.A.

Cape Verde

LESSONS LEARNED CASE STUDY



Source: Cabeólica S.A.

THE PROJECT

- Cabeólica S.A. is a Cape Verdean company created in 2009. It is based on a Public-Private-Partnership (PPP) established in 2008 between InfraCo Limited, a privately managed donor-funded infrastructure development company, the Government of Cape Verde (GovCV) and Electra, S.A.R.L., the local utility company.
- The PPP administers the development, financing, construction, ownership and operation of four wind farms in Cape Verde, with a total installed capacity of 25.5 MW, distributed throughout the islands of Santiago (9.35 MW), São Vicente (5.95 MW), Sal (7.65 MW) and Boa Vista (2.55 MW).
- The main objective of the Cabeólica PPP is the production of electricity from wind for the national grid under an independent producer regime.
- The PPP envisions Cabeólica as a solution to the rapidly increasing energy demand, while also acting to reduce the import of expensive and environmentally polluting fossil fuels. Furthermore, the Cabeólica project proposes to diversify the national energy matrix and reduce pressure on the public sector in financing the energy growth of the country alone and complying with international environmental commitments.
- In 2010, Africa Finance Corporation, a Pan-African development finance institution and Finnish Fund for Industrial Cooperation, began their participation in Cabeólica as majority investors and fundamental strategic partners.
- Having secured long-term loans from African Development Bank and the European Investment Bank, Cabeólica signed a full Engineering Procurement and Construction contract (EPC) and Service Agreement with Vestas. The EPC envisioned the construction of the four wind farms including the erection and installation of all 30 wind turbines procured; the construction and installation of roughly 30 km of transmission lines for connection of each wind farm to the respective island's utility electricity grid; the construction of a total of roughly 15 km of external and internal access roads and 4 control station buildings.
- At the end of 2011 three of the four wind farms began producing roughly 30% of the energy consumed in the respective islands. The fourth and last wind farm was scheduled to begin production in April 2012.
- The project is designed as a Clean Development Mechanism project. Cabeólica has completed its PDD (project design document), which has been accepted for publication on the UNFCCC website by the CDM Executive Board. It is currently undergoing validation.
- As the first commercial scale PPP wind farm in Sub-Saharan Africa, the Cabeolica projects won the Best Renewable Project in Africa Award at the African Energy Awards in 2011.

PUBLIC-PRIVATE PARTICIPANTS

Public Sector:

- The Republic of Cape Verde; Ministry of Tourism, Industry and Energy
- Electra, S.A.R.L.; majority Government-owned utility company

Private Sector:

- African Finance Corporation
- Finnish Fund for Industrial Cooperation Ltd. (Finnfund)
- InfraCo Limited (Developer of the project)

LESSONS LEARNED

Energy Policies

- Since the 1990's, the Government has been seeking to increase the installed wind energy capacity in the

Source: Cabeólica S.A.

country. However, due to limiting technical and know-how factors and the lack of strategic partners in the industry, it was unable to complete this goal until now. In 2006, together with the expansion of the energy grid, coupled with technical studies and development of a wind and solar atlas, the (GovCV) set the target of reaching 25% Renewable Energy by 2011, which created a good basis for the Cabeólica PPP and decision-making.

- The electricity system is a Single Buyer system, which constitutes a clearer framework for ensuring the off-take volumes and pricing, compared to a liberalized competitive power market. The project financing relies on a tailor-made long-term PPA supported by certain GoCV guarantee arrangements and tax and duty exemption agreements that secure the normal activity of the company through at least 20 years.
- At the moment Cabeólica is financially self sustainable, with no public sector financial support, and its wind farms currently in operation are contributing a large share of renewable energy into the electrical grid network. Furthermore, Cabeólica is supplying 25% cheaper electricity than other available options. These positive factors, coupled with the continuous acquisition of know-how, place the company in a strategic position to support GoCV in its target of reaching 50% installed renewable energy capacity by 2020.

Financing

- Cabeólica's investments are based on the Project Financing scheme with 30%-70% equity-debt ratio. The PPP had a key role in establishing the financing by facilitating the long-term PPA with Electra, and by providing the supporting guarantees and tax exemptions.
- InfraCo Limited, as the main developer of the project, created the dynamics behind the financing of the project by identifying investors to take the risk of investment and assume a shareholding position, as well as, identifying international institutions to assume the financing.
- The main investors (Africa Finance Corporation; Finnish Fund for Industrial Cooperation and InfraCo Limited) invested roughly € 20 million.
- The main lenders were the European Investment Bank and the African Development Bank. They provided loans of roughly € 45 million in total.

Replicability

- This project is the first PPP in Cape Verde. It was designed in such a way that its structure could be replicated in other power projects and/or across other industry sectors in the nation.
- The Cabeólica project is also the first commercial PPP in the wind energy sector in Sub-Sahara Africa, and is being studied by other countries for replication. The PPP plays a key role in providing conditions acceptable for private equity and debt financing. In countries in which sufficient political will exists in combination with a transparent environment between the public and private partners, this project can be successfully replicated.
- The main roles which the Cabeólica PPP plays in ensuring replicability of similar projects are:
  1. Participation of solid, transparent, high-profile public and private partners.
  2. Reduction of the pressure on the public sector to fund the expansion of energy generation capacity alone.
  3. The incentive for the constitution of a long-term off take agreement to ensure predictable and transparent cost planning.

Long-Term Policy Framework

- This PPP can have a positive influence on private financing and private companies investing in developing the electricity supply systems, thus providing additional financial and business know-how resources to complement the often inadequate public sector resources. In the medium term this will also help to introduce competition into the electricity market.

Source: Cabeólica S.A.

- Furthermore, during the development phase of the project, the company aided the GoCV in establishing its Designated National Authority (DNA). The creation of this organ will now facilitate further clean energy investments which will benefit from potentially positive CDM evaluation.
- Besides the establishment of clear renewable energy capacity installation targets, no new policies were developed specifically to ensure the success of the project. However, in 2006, 2 decrees were established to refine policies regarding electricity production with some slight benefits to renewable energy production.
- In 2011 a strong decree was created to establish certain incentives for renewable energy development which includes issues of land planning, taxation, environmental licensing and warranties. In Cabeólica's particular case, the search for private investors was hugely simplified due to the project being low carbon-emission. This factor in the framework is seen as an extremely positive incentive.
- Now, public actors have to ensure that policies are enforced and the PPA and other commitments are honoured without changes, in order to encourage further private financing.
- Moreover, the public sector has to ensure the financial strength of Electra, the national utility company, by improving the legal and regulatory framework for retail electricity distribution, especially for billing and collection, and by developing price regulation policies and practices.

Research and Development

- Technical, commercial and organisational R&D is needed in order to increase the wind (and solar) power penetration rate. Currently the local grid stability and spinning reserve requirements limit renewable energy penetration to around 40-50%. A partnership such as this, directed towards renewable energy production, must encourage continuous development of the grid control systems and performance and integration of specific equipment (in this case wind turbine) into the grid, research into electricity storage, training and know-how transfer to its employees as well as utility employees in order to maximize stable production and minimize losses. This sort of promotion of R&D and training will be primarily encouraged from the private actors and must involve the public actors to be effective.

CONCLUSIONS

- A successful PPP provides a firm framework to facilitate project financing. The renewable energy sector is particularly demanding in terms of capital investment, as well as heavily regulated. Ensuring a public-private partnership is an important way to overcome these two important obstacles.
- With the involvement of the government and the utility, the regulatory and commercial risks are reduced to a minimum and it is easier to develop and identify solid private partners for project finance. During the operational phase and in business management, public sector involvement is not required.
- It is important to state that PPPs will fail if they are used for political purposes, or if the public partner is able to change the rules retroactively.

FOR MORE INFORMATION CONTACT:

Ana Monteiro
Cabeólica S.A.
Tel.: +238 2602260
ana.monteiro@cabeolica.com
http://www.cabeolica.com

Acknowledgements

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BASIX

Black Sea Trade and Development Bank

Bons Ventos Geradora de Energia S.A

Botswana Power Corporation

Ceskoslovenska obchodni banka, a.s.

CJ Energética S.A

CMC

Comisión Nacional de Energía; Dominican Republic

Commonwealth Utilities Corporation, Northern Mariana Islands

Companhia Hidrelétrica Figueirópolis S.A.
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Construtora OAS Ltda.

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Corporación Andina de Fomento

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Division of Energy and Telecommunications; Barbados

Duke Energy

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EDP Energias do Brasil S/A

Electric Power Research Institute

Eletrobras

Eletrobras Eletronuclear

Eletronorte - Centrais Elétricas do Norte do Brasil S. A.

Eletrosul Centrais Elétricas S.A.

Enel S.p.A.

Energy Commission of Nigeria

Energy Market Authority; Singapore

Energy Service; Cyprus

Engevix Engenharia S/A. Esmeralda S/A / Santa Laura S/A

Eólica San Cristóbal S.A. - EOLICSA

Eolica Technologies

European Bank of Reconstruction and Development

FMO Netherlands

French Development Agency

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Global Environment Facility

Global Sustainable Electricity Partnership

Hydro One Networks Inc

Hydro Tasmania

Hydro-Québec

Independent Power Producers Forum

Indoasian

INENSUS GmbH

InSite International - Solar Energy Unlimited

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Inter-American Development Bank

Interconexion Electrica S.A.

ISAGEN S.A. E.S.P.

Islamic Development Bank

KEGOC JSC

KfW Group

Ministère de l'énergie et du petrole; Chad

Ministerio de Minas y Energía de la República de Colombia

Ministry of Economics of Latvia – Energy department

Ministry of Economy from the Republic of Moldova

Ministry of Economy of Montenegro

Ministry of Economy, Labour and Entrepreneurship; Croatia

Ministry of Electricity; Iraq

Ministry of Energy & Mines; Peru

Ministry of Energy and Mining of Jamaica

Ministry of Energy and Public Utilities; Mauritius

Ministry of Energy and Water in charge of Natural Resource, Republic of Djibouti

Ministry of Energy and Water Resources, Gabon

Ministry of Energy and Water, Lebanon

Ministry of Energy of the Republic of Lithuania

Ministry of Energy; Kenya

Ministry of Energy; Panama

Ministry of Infrastructure (MININFRA); Rwanda

Ministry of Mines and Energy, Government of the Republic of Namibia

Ministry of Public Infrastructure, Industries and Commerce, Palau

Ministry of Public Utilities, Trinidad & Tobago

Ministry of Tourism, Industry and Energy; Cape Verde

Ministry of Water and Energy; Ethiopia

National Council of Energy (Consejo Nacional de Energía); El Salvador

National Electrification of the Philippines

Neoenergia

New & Renewable Energy Authority for Studies & Technical Affairs; Egypt

Northeast Utilities

Pacific Hydro

PCH – São Tadeu Energética S.A.

Phaesun GmbH Germany

REEEP - Renewable Energy and Energy Efficiency Partnership

ResearchPAYS, Inc.

Rural African Ventures Investments

Rural Support Programmes Network

S.P.I.N. Technologies, LLC

SPA 'Belenergo'; Belarus

Subsecretaría de Energía Renovable y Eficiencia Energética - Ministerio de Electricidad y Energía Renovable; Ecuador

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Superintendencia de Servicios Públicos de Colombia

Sustainable Energy Association of Singapore

The Federation of Electric Power Companies, Japan

The Kansai Electric Power Co., ltd.

The Wind Factory International BV

The World Bank

Tokyo Electric Power Company (TEPCO)

Tractebel Energia S.A.

Ukrainian Ministry of Energy & Coal Industry

UN-Energy

United Nations

United Nations Foundation

Viceministerio de Electricidad y Energias Alternativas; Bolivia

World Energy Council

World Energy Forum

XL Capital Assurance

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ABOUT THE GLOBAL SUSTAINABLE ELECTRICITY PARTNERSHIP:

Created in the wake of the 1992 Rio Summit, the Global Sustainable Electricity Partnership, formerly e_8, is a non-profit international organization, composed of the top world leading electricity companies, whose mission is to play an active role in the international debate on global electricity issues and to promote sustainable energy development through electricity sector projects and human capacity-building activities in developing and emerging nations worldwide.

For more information visit:
www.globalelectricity.org.

ABOUT UN-ENERGY:

UN-Energy was initiated as a mechanism to promote coherence within the United Nations family of organizations in the energy field and to develop increased collective engagement between the United Nations and other key external stakeholders. Its envisaged role was to increase the sharing of information, encourage and facilitate joint programming and develop action-oriented approaches to coordination. It was hoped that it would develop into a system-wide network open to all and a mechanism by which a range of organizational actors could work with the United Nations to ensure a more coherent approach to addressing energy issues.

For more information visit:
www.un-energy.org.

FOR MORE INFORMATION:

Dr. Luis-Martín Krämer
RWE AG
2011/2012 Chair Company of
the Global Sustainable Electricity Partnership
Public Affairs / Energy Policy
Opernplatz 1
45128 Essen, Germany
Tel: +49 (0) 201/12-16535
Fax: +49 (0) 201/12-15907
Email: Luis-Martin.Kraemer@rwe.com

Ivan Vera, Ph.D.
Senior Sustainable Development Officer
Emerging Issues Branch
Division for Sustainable Development
Department of Economic and Social Affairs
United Nations
Two United Nations Plaza, DC2-2104
New York, NY 10017, USA
Tel: +1 (212) 963-2043
Fax: +1 (212) 963-4340
Email: vera@un.org

Adriana Paez
Communications Coordinator
Global Sustainable Electricity Partnership
General Secretariat
505 de Maisonneuve Blvd W., Lobby Level
Montreal QC H3A 3C2 Canada
Tel: +1-514-392-5642
Fax: +1-514-392-8900
Email: paez.adriana@hydro.qc.ca

Morgan Bazilian, Ph.D.
Special Advisor to the Director-General on Energy
United Nations Industrial Development Organization (UNIDO)
Vienna International Center, D2283
PO Box 300, A-1400 Vienna, Austria
Direct line: +43 (0) 1 26026 3504
Email: M.Bazilian@unido.org
Web: www.unido.org

Global
Sustainable Electricity
Partnership

Global Sustainable Electricity Partnership
General Secretariat

505 de Maisonneuve Blvd. W, Lobby
Montreal QC H3A 3C2
CANADA

Tel.: +1-514-392-8876
Fax: +1-514-392-8900

generalsecretariat@hydro.qc.ca