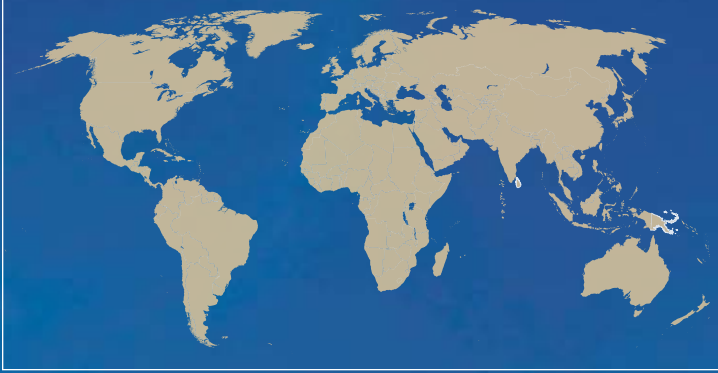
Lessons Learned Case Studies

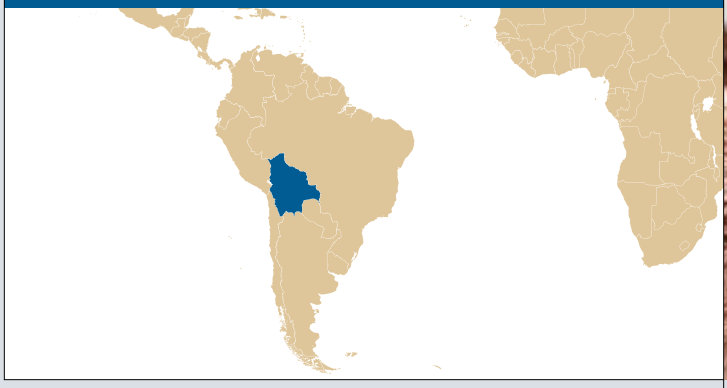


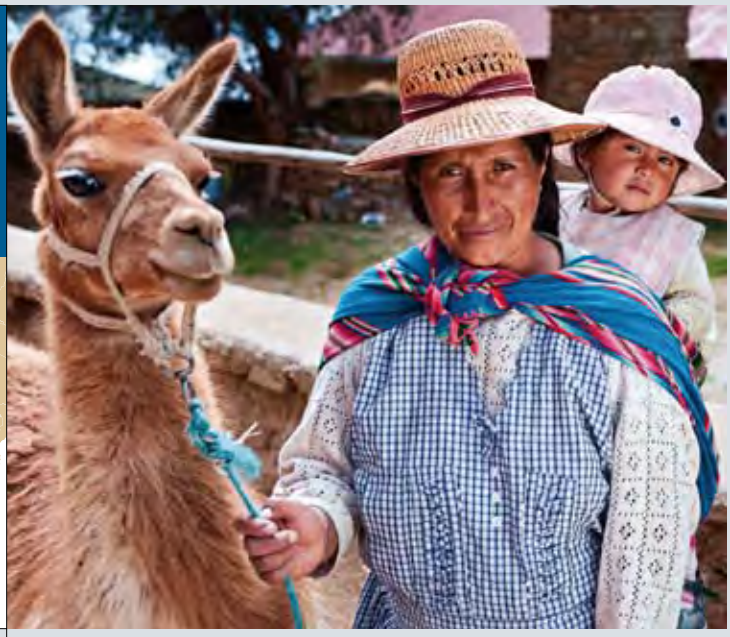
Cabeólica São Vicente Wind Farm, Cape Verde

Source: Cabeólica S.A.

Bolivia

LESSONS LEARNED CASE STUDY





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THE PROJECT

- Decentralized Infrastructure for Rural Transformation (Infraestructura Descentralizada para la Transformación Rural, IDTR); Provision and Installation of Photovoltaic Systems for Rural Areas (Provisión e Instalación de Sistemas Fotovoltáicos para el Área Rural)
- The IDTR Project, which is part of the Bolivian government's initiative *Electricidad para Vivir con dignidad,* is one of various sustainable energy projects in Bolivia. Its main aim is to give rural families in Bolivia —especially in off-grid regions— access to electricity. Besides the installation of photovoltaic panels for rural homes, the IDTR also encompasses other measures, such as the densification of the electrical grid in more populated regions. The goal of the Bolivian government is to advance the electrification of the country and reach an electrification rate of 100% in 2025.
- The Vice-Ministry of Electricity and Alternative Energies launched the IDTR-Project in 2007. While the government works as contractor and manages the project, on site implementation is carried out by private partners.
- The photovoltaic modules used for the IDTR-Project had capacities of 22 Wp to 75 Wp each. The total investment was approximately $US 32 million. The first phase of the IDTR-Project ended in 2011.

PUBLIC-PRIVATE PARTICIPANTS

Public Sector:

- Ministry of Hydrocarbons and Energy of Bolivia (Ministerio de Hidrocarburos y Energía)
- Local Governments

Private Sector:

- International Development Association (IDA)/The World Bank (financing institution)
- Energética (NGO)
- Isofotón S.A.

LESSONS LEARNED

Energy Policies

- In order to secure international financial support, the Bolivian government had to implement or change regulations. In particular, a regulatory framework for sustainable rural electrification was necessary.

Financing

- The IDTR was financed primarily by a loan from the IDA (The World Bank). For the first phase of the IDTR, IDA approved a loan of US$ 23 million, while US$ 50 million have been earmarked for the second phase of the project (IDTR II).
- The support was offered as Output-based aid.
- The project provides incentives to foster market development, allowing for a positive internal rate of return for operators, despite serving unattractive regions with low population density. The incentives seek to bridge the difference between the actual costs the operators have to bear and the capacity of the users to pay for the service. The subsidies are transparent, efficient and target primarily poor households. Moreover, the subsidies are directly related to the results that operators achieve, as they are paid according to the number of photovoltaic modules installed.

- The users have to pay an amount that is high enough to cover the costs of the photovoltaic components. Moreover, users have to be able to bear the costs of future replacement equipment. The incentives scheme assumes that in the medium term the users will not require subsidies for the operating costs. There are three kinds of payment in the subsidies scheme:
  1. the payment the users have to make to the supplier once the facilities are installed
  2. the annual payments to the provider for the provision of services (local technical training and other human capacity-building measures, annual visits, monitoring and evaluation)
  3. the indirect payments for market development measures (promotion, technical assistance, etc.).
- The exact amount of subsidies for a specific module is determined through a bidding process. As a rule, the photovoltaic systems are not subsidized beyond 50% of investment costs. To reach the poorest households however, smaller systems have a slightly higher subsidy than large systems. In these cases, the government subsidizes the photovoltaic module with 60%, while the end user pays 40% of the system's costs. Micro credits are offered to those who cannot afford to pay their share upfront.
- The IDTR-Project is a Clean Development Mechanism project. The participation in a Carbon Credit Fund will be part of the payment options (OBA), ensuring long-term quality of service. Compliance and goal attainment will be monitored continuously by a monitoring system and evaluation of each operator in the respective areas. In this way, they will have access to payments only if they show results. Audits will verify the information given by the operators. In the medium term, the regulator will be in charge of handing out the payments to the operators according to their results.

Replicability

- The project is as a whole replicable. Actually, after successfully implementing the first phase from 2007 to 2011, two more phases are planned (from 2011-2015 and from 2015-2020).
- Running the project through public-private partnerships was key in making the implementation procedures more effective, which assured the replicability of the project.

Long-Term Policy Framework

- During the implementation of this project, new policies and regulations were required. These were also necessary to assure an effective coordination between the public and private actors, as the private sector in Bolivia is not meant to play an active role in the economic development of the country.
- To give incentives to the development of low carbon technologies with participation by the private sector, the formulation of an appropriate legal framework was necessary.

CONCLUSIONS

- As Bolivia had to create policies and a legal framework especially for this public-private partnership, the project participants would have welcomed an increased implementation period.
- Moreover, the terms of the international financing institutions were perceived to be very demanding and difficult to meet, which also may have been one cause for delays.
- Nonetheless, the IDTR-Project succeeded in providing basic electricity access to more than 10,000 rural families in Bolivia.

FOR MORE INFORMATION CONTACT:

Ing. Raul Villarroel Barrientos
Viceministerio de Electricidad y Energías Alternativas

Tel.: (+591) 22115660
Cel.: (+591) 70 670016

rvillarroel@hidrocarburos.gob.bo

www.pevd.gob.bo

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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.
Ludesa Energética S.A.

Construtora OAS Ltda.

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Department of Energy, Mines and Water Resources; Comoros

Department of Energy, Togo

Development Bank of Zambia

Dirección Nacional de Energia; Uruguay

Division of Energy and Telecommunications; Barbados

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Electric Power Research Institute

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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

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Gargaú Energética S.A.

Global Environment Facility

Global Sustainable Electricity Partnership

Hydro One Networks Inc

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Independent Power Producers Forum

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InSite International - Solar Energy Unlimited

Institute for Economics and Forecasting, NAS, Ukraine

Inter-American Development Bank

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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.

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REEEP - Renewable Energy and Energy Efficiency Partnership

ResearchPAYS, Inc.

Rural African Ventures Investments

Rural Support Programmes Network

S.P.I.N. Technologies, LLC

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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

Yukon Energy Corporation

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