BBDP – The Bolivian Biogas Development Proposal

Executive Summary

Tanner Kenney, Thesis – M.S. in Global Affairs
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Objectives

- Given the inevitable rise in greenhouse gas emissions that will accompany Germany's elimination of nuclear power from its energy generation portfolio by 2022, coupled with Bolivia's recent increases in per capita GDP, domestic natural gas consumption and international exportation, the purpose of BBDP is to provide a greenhouse gas emissions offsetting mechanism for both nations via renewable natural gas utilization.
- As a net-importer of natural gas and coal for energy production as well as a producer of both commodities, Germany has financial ability and the ecological responsibility to offset both its domestic and exported GHG emissions.
- The success of BBDP will be attributable to the rich history of private and public sector cooperation between the two nations which have developed programs promoting cultural, educational, financial, and technical exchange and beyond for many years.
- The proposal outlines the necessity of as well as the expertise, technology, and funding required for the sustainable development of Bolivian biogas resources via capture and anaerobic digestion technologies coupled with upgrading facilities in order to generate onsite electricity and produce vehicle fuels and, eventually, for pipeline injection.

Academic Arguments & Resources

- BBDP is rooted in the belief that sustainable development is the clearest path forward for agricultural, economic, and human development in emerging economies around the world. The proposal agrees with some of the opinions posited by Professor Arturo Escobar in his book *Encountering Development: The Making and Unmaking of the Third World* through the de-growth discourse, but disagrees with several of his post-development theories by citing the tenets of the sustainable development discourse. BBDP supports these claims with a feasible technical proposal that incorporates the indigenous populations of Bolivia to be supported by the Bolivian Academic & Technical Training Service, or BATTS.
- Resources for the contents of BBDP include primary texts (e.g. ED and a *Financial Times* special edition, *The New Bolivia*), scholarly texts, technical reports, and op-ed publications. In-person and mediated interviews with professionals in various fields related to agricultural and food production, climate and environment, energy, indigenous rights, governmental affairs, international relations, and beyond were conducted by the author to illuminate the academic and technical propositions made throughout BBDP. It also provides a review of existing literature and recommends areas for future research.

Payment & Repayment

- The proposal requests $5,000,000.00 (USD – €4,454,939,05 as of April 24th, 2016) from the KfW Bank of Responsibility (overseen by the GIZ – German Society for International Cooperation) to be paid to German private sector companies identified by BBDP for the initial development of biogas resources at the El Ceibo Chocolate Company. These payments – to be overseen by the GIZ Technical Agency – are intended as a one-time

investment for offsetting the increase in GHG emissions that will occur with the shuttering of the German nuclear power sector which are intended to be replaced by solar, wind, and other renewable energy sources on a massive scale. These funds can then be recouped through the EU Emissions Trading Scheme via demonstrable success in reducing national GHG emissions. Funding for BATTS will come from charitable foundations as well as corporate social responsibility programming.

Case Study – The *El Ceibo Chocolate Company*

- A privately-held cooperative based in El Alto with various cacao-producing locations in the region. Serving as host of BBDP's pilot installation, El Ceibo will have the ultimate choice for the location of anaerobic digestion, upgrading, power generation, and refueling facilities. El Ceibo will not need to provide a workforce for the planning or construction of BBDP facilities as German private sector companies will provide labor and materials whilst the expertise required for their ongoing operation will come from BATTS.

Benefits

- Increases in the reliability of Bolivian natural gas flowrates as well as domestic utilization and export capacity. Governmental savings via decreased subsidies for traditional fuels. Training and skilled labor positions for the Bolivian job market.
- Increased reliability of Bolivian electricity distribution in densely populated areas and on rural farms. Access to RNG for use in natural gas-powered municipal vehicles.
- A stronger intergovernmental relationship between Bolivia and Germany coupled with reductions in GHG emissions contributions from the agricultural, commercial, energy, industrial, residential, and transport sectors in both nations.
- Investment increase for German corporations involved in BBDP as well as data from and models for the future construction of biogas capture, energy generation, and pipeline injection technologies in a low-pressure, high-altitude environment.
- Provides support to and sets precedents for international cooperation and investment through the EU Emissions Trading Scheme carbon marketplace.

Parties Involved – *Public & Private Sectors, International Organizations*

The organizations involved throughout BBDP's development are listed in total below. However, the proposal recommends that the expansion of RNG development in the nation take place in several stages beginning with the El Ceibo chocolate company and then moving to the surrounding region of El Alto and La Paz, culminating in the expansion of BBDP to various cities (i.e. Cochabamba and Sucre) and sectors (i.e. agriculture, energy, and transportation).

- *Bolivia*

  Public Sector
  - Ministry of Foreign Affairs (Secondary)
  - Ministry of Hydrocarbons & Energy (Primary)
  - Ministry of Productive Development and Plural Economy (Secondary)
  - Ministry of Public Works & Housing (Secondary)

  Private Sector
  - El Ceibo Chocolate Company (Case study)
  - Yacimientos Petrolíferos Fiscales Bolivianos (YPFB – National oil and gas company)

- *Germany*

  Public Sector
  - German Academic Exchange Service (Operator of BATTS)
  - German-Bolivian Chamber of Commerce and Industry (Secondary)
  - German Embassy – La Paz, Bolivia (Secondary)
  - Germany Society for International Cooperation (GIZ – Primary)
    - GIZ Technical Agency (Subsidiary)
    - KfW Bank of Responsibility (Subsidiary)
  - Germany Trade and Invest (Secondary)
  - Ministry of Economic Affairs & Energy (Secondary)

  Private Sector
  - Agraferm Technologies (Anaerobic digestion primary)
  - E.On (Biogas utilization)
  - GASCADE Gastransport (Pipeline primary)
  - Gasunie Deutschland (Pipeline secondary)
  - HZI BioMethan (Biogas secondary)
  - Schwarting Biosystem GmbH (Anaerobic digestion secondary)
  - Siemens (Turbine primary)
  - TUBA Turbine (Turbine secondary)
- *International*
  - European Union (ETS – Emissions Trading Scheme)
  - DOEN Foundation, Friedrich Ebert Foundation, Konrad Adenauer Foundation (BATTS funding)
  - The Ecologic Institute & The Heinrich Böll Foundation (Consultants)

Results, Conclusions, & Recommendations

- The proposal offers several lofty goals for Bolivia and Germany and, in turn, the EU. But when considering BBDP's relatively small construction and operation costs in addition to its holistic approach and self-reliant maintenance structure, the economics dictate its practicality. Given the Bolivian government's ability to rapidly deploy development projects – guided by the nation's Law of Mother Earth – coupled with the German government's desire to minimize its GHG contributions, the financial challenges posed to BBDP's implementation can be easily overcome and set a precedent for international and intergovernmental cooperation on combatting climate change around the world.

"The state, at its various levels, and society, in harmony with the common interest, must ensure the necessary conditions in order that the diverse living systems of Mother Earth may absorb damage, adapt to shocks, and regenerate without significantly altering their structural and functional characteristics, recognizing that living systems are limited in their ability to regenerate, and that humans are limited in their ability to undo their actions."[1]

[1] "Law of Mother Earth – The Rights of Our Planet – A Vision from Bolivia" World Future Fund. http://www.worldfuturefund.org/Projects/Indicators/motherearthbolivia.html