



7 CALLE 19-54, ZONA 8 SAN CRISTOBAL II  
MIXCO, GUATEMALA  
Tel (502)2478-2655 Cell (502) 5050-0407

## **JORGE ERNESTO MANRIQUE**

Over thirty years of professional experience in the electric utility industry and in the development of renewable energy projects. Extensive management experience and expertise in the areas of electric industry policy and institutional analysis, strategic and business planning, portfolio management, power marketing, electric system operations, electric utility regulation, pricing of power and transmission services, power purchase contracts and bidding process, resource planning, resource evaluation, engineering analysis, project management, as well as planning and development of all generation technologies. Extensive experience in the areas of evaluation, planning, development and operation of renewable energy projects.

### **PROFESSIONAL RECORD**

#### **HIDROELECTRICA SANTA RITA,, S.A. January 2014 to present**

##### **GENERAL MANAGER**

Hidroelectrica Santa Rita, S.A. (HSR) is part of an investment fund set up for development of renewable energy projects in Latin America, with participation by development banks of Holland, Germany, and Switzerland, as well as the IFC and the government of Spain. Development of the Santa Rita project was stopped in July of 2013 when construction equipment was burned by groups opposed to the project. Thus, when I joined HSR in January 2014, one of the main tasks was to achieve a long term agreement of mutual support with the 18 neighboring communities. I managed to achieve the support of the neighboring communities and in July of 2014 signed a Long term agreement of mutual support with the communities, with participation of the Municipality of Coban, the Governor of Alta Verapaz and the president of Guatemala. During the act of signature of the agreement, the President said the agreement was historic and an example of how project developers and communities can work together to develop a mutually supportive relationship. As the legal representative and General Manager of HSR my Responsibilities include:

- Setting the business direction and policy for the company
- Assessing legal and regulatory issues, industry trends and market conditions.
- Identifying and pursuing potential business opportunities for the Investment fund.
- Represent HSR in negotiations with potential partners, financial institutions and/or government agencies
- Manage all aspects of the company's legal, commercial, and operative activities.
- Participate in policy groups with other agents of the Guatemalan wholesale energy market.
- Negotiate and sign Agreements with land owners and other Local entities.
- Conduct negotiations with potential off-takers, work with Guatemalan authorities, including various ministries, Energy Commission, etc. for various matters involving sale of capacity and energy, negotiating contracts, obtaining permits.
- Manage and direct relationship with communities and local governments



## **ENERGIA DEL FUTURO, S.A. June 2007 to present**

### **GENERAL MANAGER**

Formed Energia Del Futuro, S.A. (EDF) in partnership with Charles Alsberg, as an affiliate of Americas Energy Holding LLC (AEH), and act as its legal representative and General Manager. EDF focuses in the development and operation of hydroelectric projects, with several projects under development. Responsibilities include:

- Setting the business direction and policy for the company
- Developing a Business Plan and strategies for expanding business in Latin America.
- Assessing legal and regulatory issues, industry trends and market conditions.
- Identifying and pursuing potential business opportunities
- Represent EDF in negotiations with potential partners, financial institutions and/or government agencies
- Represent EDF in Board of Directors of Talcanac, S.A. and other project companies formed by EDF.
- Manage all aspects of the company's legal, commercial, and operative activities.
- Participate in policy groups with other agents of the Guatemalan wholesale energy market.
- Negotiate and sign Participation Agreements with land owners and other Local partners for development of generation projects.
- Manage and direct project screenings, pre-feasibility studies, feasibility studies and development activities for new projects.
- Manage and direct preparation of financial models for generation projects and negotiate participation with potential partners and financial institutions.
- Conduct negotiations with potential off-takers, work with Guatemalan authorities, including various ministries, WMA, Energy Commission, etc. for various matters involving sale of capacity and energy, negotiating contracts, obtaining permits.
- Manage and direct relationship with communities and local governments.

## **SISTEMAS ECOLOGICOS. S. A. Feb 2003 to June 2007**

### **PRESIDENT**

Formed Sistemas Ecologicos, S. A. (SISECO) as a consulting and technical services company. SISECO provides technical and management services to government and private institutions for the design, evaluation, development, operation and maintenance of renewable energy projects. SISECO also provides technical and consulting services to commercial and industrial companies in the areas of energy efficiency, and contracting for energy services to minimize their energy costs. Recent business activities included:

- Evaluation of technical and financial feasibility for over twenty wind energy and hydroelectric projects in Guatemala.
- As US Hydropower's Program Director for Guatemala, provide policy and technical Support to INDE executives for the development of a National Program for Small Hydroelectric Projects in Guatemala. Work includes:
  - Development of general criteria for a Small Hydro Development program.
  - Draft contract for purchase of electricity generated by the small hydroelectric projects.
  - Draft general guidelines for technical standards for the design, construction, operation and maintenance of small hydroelectric projects.
  - Provide oversight and expert support for the identification and preliminary evaluation of potential small hydro sites.
  - Member of inter-agency Task Force charged with selecting ten small hydroelectric projects to perform Feasibility Studies on. Terms of Reference were drafted for bidding out the feasibility study contracts.



- Prepare a Program for Development of the Small Hydroelectric Potential in the coffee farms members of ANACAFE, the national coffee association.
- As Executive Director for Hidro Xacbal, S.A., manage and direct the development of the 96 MW Xacbal hydroelectric project. Responsibilities covered all areas of work, including engineering design, geology, hydrology, environmental assessments, contracting, legal and regulatory issues, negotiation of power purchase contracts, feasibility studies, permits, financing and others.
- Review of Feasibility study performed by an international engineering company for the El Tesoro hydroelectric project. Recommendations presented as part of the review included changes to the project's design to increase its installed capacity from 50 MW to 90 MW and to make its operation more efficient. The changes recommended increased the project's profitability significantly and were adopted by the project developers.
- Study of technical and economic feasibility of a 10 MW internal combustion generation plant to supply power to an industrial park in the northwestern region of Guatemala.
- Study of technical and economic feasibility of a 500 KW cogeneration system for an industrial company.
- Consulting services to INDE to develop a methodology for calculating the value of water for generation by hydroelectric projects within the Guatemalan and regional electricity market.
- Consulting services to commercial and industrial electricity users to optimize their use of energy and minimize their cost of producing or buying energy.
- Feasibility study of a cogeneration site for Maquilas in El Salvador.
- Evaluation of technical and economic feasibility of installing Distributed Generation technologies to supply electricity for industrial customers.
- Providing consulting services to USA investors for the development of hydroelectric projects in Central America.
- Development of a 15 MW hydroelectric project in Southern region of Guatemala.

#### **HYDRO WEST GROUP, LL.C, Dec 1998 to Feb 2003**

##### **DIRECTOR OF BUSINESS DEVELOPMENT FOR LATIN AMERICA**

In charge of developing new business ventures in Central America. Responsibilities included:

- Developing a Business Plan for HydroWest Group LLC.
- Assessing legal and regulatory issues, industry trends and market conditions.
- Developing strategies for expanding business in Latin America
- Identifying and pursuing potential business opportunities
- Represent HydroWest Group in Negotiations with potential partners and/or government agencies
- Represent Hydro West Group L.L.C. in Board Of Directors of Inversiones Pasabien, S.A. and other investments.

##### **GENERAL MANAGER OF HYDROWEST DE GUATEMALA, S.A.**

Formed HydroWest de Guatemala, S. A. as a subsidiary of HydroWest Group and acted as its legal representative and General Manager. This company focuses in the development and operation of hydroelectric projects. It is now a successful business endeavor with several projects under development, long-term contracts for operation, management and administration of existing hydroelectric projects. Responsibilities included:

- As legal representative and Single Administrator, covered all functions of the Board of Directors.
- Setting the business direction and policy for the company
- Obtaining new business and managing all aspects of the company's legal, commercial, operative and financial activities.
- Participated in policy groups with other agents of the Guatemalan wholesale energy market.



- Negotiated and signed Operations, Maintenance and Administration of Pasabien and Rio Hondo hydroelectric projects with installed capacities of 12 MW and 32 MW respectively.
- Managed the operation and maintenance of the Pasabien Project. Managed marketing and sale of the project's power in the Central American electricity market.
- Managed and directed development work for the Rio Hondo project and negotiated a Power Purchase contract for the capacity and energy produced by this project.

#### **INVERSIONES PASABIEN S.A. , GUATEMALA:**

Provided services as General Manager of Inversiones Pasabien, S. A. to organize and supervise the company's start-up, operation and maintenance of its new hydroelectric project. Responsibilities included:

- Develop a strategy for maximizing value of power generated by the Pasabien project in the Guatemalan and central American energy markets,
- Renegotiate Power Purchase contract with INDE,
- Negotiate sale of energy and capacity to the Spot Market and to other market participants through side contracts,
- Develop and implement an Operations and Maintenance plan for the hydroelectric project,
- Hire, train and organize staff for the project's operation
- Develop Accounting systems and project performance reports.
- Legal representation of Inversiones Pasabien, S.A in contracts and other business matters.

#### **GRANT COUNTY PUBLIC UTILITY DISTRICT. Jan 1997 to Dec 98**

##### **MANAGER OF POWER MANAGEMENT DEPARTMENT:**

Managed department with an annual budget of 50 million dollars and a staff of forty professional and highly skilled employees. Responsibilities included:

- Strategic & Business Planning: Leader of District's management team for development of new strategic and business plans; direct Power Management's assessment of potential business models for Generation, Energy Services and Wires business to be pursued by the District; assess and negotiate joint ventures and alliances with other utilities, marketers, IPP5, etc.; participate in electric industry restructuring activities at local, state, regional and national levels;
- Power Portfolio Management: Manage District 's hydroelectric generating resources ( Twenty units of 100 MW each for a total of 2,000MW of installed capacity); manage energy price risks; plan and manage reservoir levels and operation at District's hydroelectric generation projects; manage hourly-coordination of Mid Columbia River projects' operation; plan, acquire and contract power supplies (long-term, short-term and real-time); develop programs to promote development of renewable resource generation; represent District in regional discussions regarding BPA's operation and in direct negotiations with BPA on power supply contracts; managed medium-term, short-term and real-time buy/sell transactions to maximize value of District's portfolio (Forward contracts, Pre-schedule, Real-time)
- Marketing of Electricity Services: Market bulk and ancillary power supply, services to wholesale and large retail customers; monitor, forecast and analyze long-term short-term and real- time supply, demand and prices in power markets; provide high value, competitively priced power supply services to customers; perform cost of service studies and develop rates for retail customers. Developed methodology for pricing Green Power as a way to promote development of generation with renewable resources.



- Dispatch Electric System: Schedule operation of the hydroelectric and thermal plants and transactions with other control areas; maintain stability of District's control area; implement NERC/WSCC reliability criteria: maintain communications with other entities in region; represent District at NERC & WSCC committees and in regional discussions on reliability and on development of Regional Security Coordinator.
- Transmission Asset Management: Procure transmission services (long-term short-term and real-time); administer BPA transmission contract; negotiate and develop transmission service contracts; develop District's open access tariff, represent District in regional forums addressing development of regional Independent System Operator.
- Represented District in the Formation of Regional Transmission ISO (INDEGO): Member of Executive Committee of INDEGO including IOUs, municipal utilities, BPA, regulatory agencies, large customers, and government agencies from throughout the Pacific Northwest working for over two years to develop policy and technical aspects related to the formation and operation of INDEGO. All technical, legal, operational, economic and tariff documents for INDEGO were developed but municipal entities voted not to participate because of perceived potentially negative economic impacts on their individual transmission tariffs.

#### **TACOMA CITY LIGHT 1995 to 1997**

##### **SPECIAL PROJECTS ENGINEER**

Represented the Tacoma City Light (TCL) in Regional forums such as NRTA, INDEGO, PNUCC, Governors Regional Review, and PGP, managing to influence regional processes and decisions to meet TCL's objectives. Participated in TCL's Strategic and Business Planning Executive Team. As group leader, played an influential role in developing new strategies to unbundle TCL's transmission services. Developed methodology and action plans for development of Integrated Analytical Tool for Portfolio and Risk management. Performed a study for the upgrade of all of the Utility's hydroelectric plants and developed a plan identifying the key factors for the relicensing of the Utility's hydroelectric projects. Evaluated feasibility and acted as Project Manager for the installation of 1.5 MW plant using methane gas from city's dump. Negotiated agreements to purchase energy from renewable resources at competitive market prices without exposing TCL to risk.

#### **INDEPENDENT CONSULTANT, 1991 to 1995**

Consulting services covered a wide range of areas and topics, varying from leading teams of international experts in the development of policy for the transformation of government owned electric utility industries into competitive markets to developing electric rates for wholesale and retail electricity customers. Clients included entities in both the private and public sectors in the US and Latin America. Private sector clients included Investor owned electric Utilities and private power developers. Public sector clients included state owned utilities, governmental offices and international organizations.

The primary focus of consulting was in the areas of development of policy and technical systems to enable the successful transformation of the electric utility industry. Reviewed existing electricity laws in the USA and Central American nations and identified key areas to be addressed in the development of new laws and regulations. Developed resource expansion plans for electric utilities in Central America and developed wholesale energy and capacity prices. Assisted senior management of state Owned electric utilities in developing policy, strategic planning, electric power and transmission rates, negotiating power purchase contracts, evaluating and managing the development of private generation programs, developing analytical tool, etc.

As consultant for the California Energy Commission, performed technical and economic evaluation of micro hydro, solar and wind generation options to supply electricity to guard stations in the national parks of Costa Rica.



Performed evaluation of potential for development of hydroelectric and wind projects in Central America and presented recommendations for structural changes in the region to enable private sector investment in renewable energy projects. Performed technical and economic evaluation of renewable energy projects with potential for development by private entities.

#### **PACIFIC GAS & ELECTRIC CO., 1976 to 1991**

##### **DIRECTOR, POWER PLANNING AND CONTRACTS DEPARTMENT:**

Supervised staff of twenty nine professional and technical employees in the development of corporate policy and strategies for supply of power services in a competitive environment. Represented PG&E in power purchase contract negotiations with private cogenerators and municipal entities, and handled contract related matters. Developed business, operating and strategic plans and goals at the corporate, division and department levels. Acted as assistant to the Vice President of Power Planning and Contracts Dept.

##### **SENIOR ENGINEER, ELECTRIC RESOURCES PLANNING DEPARTMENT:**

Supervised engineers in the development of long-term resource plans. Directed engineering and economic evaluation of generation resources including all technologies (natural gas, oil, coal, geothermal, nuclear, hydroelectric, wind, solar etc.), considered for development by PG&E and other entities. Directed development of operating & capital investment plans for PG&E's hydroelectric system (114 hydroelectric power plants with a total generating capacity of over 4,120,000 KW) and developed strategy for licensing and construction of PG&E proposed project additions. Represented PG&E in negotiations with municipal agencies on the purchase of power and joint development of major new generation projects. Coordinated preparation and presented testimony in hearings at the CPUC for review of the Power Purchase contracts.

##### **ENGINEER, HYDROELECTRIC PLANNING SECTION:**

Project Manager for the comprehensive evaluation and development of additions and improvements to PG&E's hydroelectric facilities in the Kings River and Mokelumne River watersheds, with capital investments of \$440 million and \$380 million respectively. Coordinated preparation of relicensing applications and presented testimony on economics of project improvements at FERC's relicensing hearings. Lead negotiator for power purchase contracts signed with South San Joaquin and Oakdale counties and for several private hydro projects. Lead analyst and member of team negotiating with Placer County Water Agency and SOFAR project Agency on joint development/power purchase contracts. Performed engineering and feasibility, studies for various river systems. Developed power values (avoided generation costs) for use in evaluation of project feasibility.

#### **EDUCATION**

- Masters in Resource Economics, San Francisco State University
- B.S. Mechanical Engineering, University of California at Berkeley
- Planning and development of hydroelectric projects, University of Minnesota
- Strategic and Business Planning, University of Pacific Gas & Electric Co.
- Electric resource Planning, University of Pacific Gas & Electric Co.
- Project Management Methods, University of Pacific Gas & Electric Co.