

Notice Requesting Application for
Panel Member List for
Hydropower Licensing Study Dispute Resolution

Docket No. AD04-4-000

Mark W. Crisp, PE
Senior Consultant



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The following qualifications are to support my application for consideration for Panel Member for the following specific resource areas:

Socio-economics

Engineering:

Civil
Hydraulic
General

RESUME:

EDUCATION:

MBA, Finance & Accounting, University of Arkansas at Little Rock, 1980
BS, Civil Engineering, Georgia Institute of Technology, 1978

REGISTRATIONS:

Registered Professional Engineer – Georgia
Registered Professional Engineer – Florida

PROFESSIONAL ACTIVITIES / HONORS:

Member: American Society of Civil Engineers; American Water Works Association; Water Environment Federation; Rural Water Association; National Hydropower Association

EXPERIENCE RECORD:

Mr. Crisp directs the Atlanta Regional Office functions at C.H. Guernsey & Company (GUERNSEY). He has twenty-three years of experience in the water resources, hydroelectric power design and operations, hydrology and hydraulics, and thermal power sectors. He has been involved in a significant number of projects, domestic and international, in the water and electric industry. Mr. Crisp has provided consulting services to international power developers, electric utilities, environmental protection organizations, water supply entities, irrigation districts and local, state, federal and foreign governments.

Mr. Crisp has extensive knowledge of the hydropower resource sectors in the US, Central and South America. His expertise ranges from hydropower siting and

design to international financing and project development of IPP projects in developing countries. He has been instrumental in evaluating hydro and thermal markets within the Central and South American sector for privatization investment opportunities.

EXAMPLES OF SPECIFIC CONSULTING EXPERIENCE:

Domestic Hydropower Consulting Experience

Mr. Crisp has been involved in the domestic hydropower business since the late 1970's. His earliest experience involved technical assistance in the daily operations of Carpenter and Remmel Dams for Arkansas Power & Light Company. Responsibilities also included review of potential low-head hydropower installation at Corps of Engineer owned navigation and flood control projects along the Arkansas River.

Mr. Crisp spent 17 years providing, design, consulting and operations support to the hydropower resources of the Southern Company. During his employment with the Southern Company, Mr. Crisp was responsible for various components of operations and maintenance of 20 hydro projects with a total installed capacity of over 3500 MW, including small run-of-river projects (<5 MW each), medium head conventional hydro projects (35 Mw – 320 Mw), pumped storage projects and 1000 Mw high head, high capacity peaking projects. His experience has included siting studies for hydro projects, hydrology and hydraulic studies, design and equipment specification, construction and startup. He has also provided day to day operations support, upgrade analysis, as well as, maintenance budget support. Mr. Crisp has completed a significant number of hydro machine evaluations for upgrade potential, resolution of environmental issues, such as, addition of aspirating units for improving dissolved oxygen and replacement of units due to age and metal erosion.

In addition to his hydro operations experience, Mr. Crisp has been responsible for various phases of Federal Energy Regulatory Commission ("FERC") relicensing activities on numerous hydro projects including the first successful applicant prepared EA.

Mr. Crisp has been responsible for the Dam Safety, rehabilitation and re-commissioning of over 100 earthfill, concrete gravity and plumbstone constructed dams in the Southeast, Central American and South American. He has completed inspections required by the Federal Energy Regulatory Commission ("FERC"), State Dam Safety Agencies and investors during due diligence activities.

Mr. Crisp has been responsible for a significant number of projects in water resources, hydropower, competing demands and basinwide impacts, project development and financing. His twenty-five plus years experience in the

international and domestic electric and water resources, hydropower and IPP industry has allowed him to develop contacts and associations with developers/owners, financing markets and foreign governments, worldwide.

International Hydropower Projects

Since the late 1980's, Mr. Crisp has provided engineering and operations expertise to IPP developers and investors on hydro projects throughout Central and South America. Assignments included technical assessment of projects, energy studies, project valuation and development of bidding strategy for privatization. Mr. Crisp was also involved in the equity and debt arrangements upon successful procurement. Mr. Crisp has performed a significant number of insurance analyses (Condition Assessments and Safety Analysis) to support successful insurance underwriting.

Projects in Argentina

Alicura - Developed technical and financial models to evaluate the investment potential of this 1000 Mega-watt hydro project. Evaluated energy markets, transmission access, operating and maintenance budgets to determine the projects investment worth on the international equity market. Evaluated the financing arrangements necessary to provide non-recourse lending and interest in placing financing in the international debt markets.

Piedra del Aquila - Developed technical and financial models to evaluate the investment potential of this 1200 Mega-watt hydro project. Evaluated energy markets, transmission access, operating and maintenance budgets to determine the projects investment worth on the international equity market. Evaluated the financing arrangements necessary to provide non-recourse lending and interest in placing financing in the international debt markets.

El Chocon - Developed technical and financial models to evaluate the investment potential of this 1400 Mega-watt hydro project. Evaluated energy markets, transmission access, operating and maintenance budgets to determine the project's investment worth on the international equity market. Evaluated the financing arrangements necessary to provide non-recourse lending and interest in placing financing in the international debt markets.

El Chanar - Developed technical and financial models to evaluate the investment potential of this 400 Mega-watt hydro project.

Evaluated energy markets, transmission access, operating and maintenance budgets to determine the projects investment worth on the international equity market. Evaluated the financing arrangements necessary to provide non-recourse lending and interest in placing financing in the international debt markets.

Cerros Coloradas - Developed technical and financial models to evaluate the investment potential of this 1200 Mega-watt hydro project. Evaluated energy markets, transmission access, operating and maintenance budgets to determine the projects investment worth on the international equity market. Evaluated the financing arrangements necessary to provide non-recourse lending and interest in placing financing in the international debt markets.

Los Reyunes - Developed technical and financial models to evaluate the investment potential of this 800 Mega-watt pump storage hydro project. Evaluated energy markets, transmission access, operating and maintenance budgets to determine the project's investment worth on the international equity market. Evaluated the financing arraignments necessary to provide non-recourse lending and interest in placing financing in the international debt markets.

El Toro - Developed technical and financial models to evaluate the investment potential of this 800 Mega-watt hydro project. Evaluated energy markets, transmission access, operating and maintenance budgets to determine the project investment worth on the international equity market. Evaluated the financing arrangements necessary to provide non-recourse lending and interest in placing financing in the international debt markets.

El Tigre - Developed technical and financial models to evaluate the investment potential of this 50 Mega-watt hydro project. Evaluated energy markets, transmission access, operating and maintenance budgets to determine the project's investment worth on the international equity market. Evaluated the financing arrangements necessary to provide non-recourse lending and interest in placing financing in the international debt markets.

Los Nihuiles - Developed technical and financial models to evaluate the investment potential of this series of three projects with a combined capacity of 750 Mega-watt hydro projects. Evaluated energy markets, transmission access, operating and maintenance budgets to determine the project's investment worth on the

international equity market. Evaluated the financing arrangements necessary to provide non-recourse lending and interest in placing financing in the international debt markets.

Pichi Picun Lefue - Developed technical and financial models to evaluate the investment potential of this 1200 Mega-watt hydro project. Since this project was still on the development boards, evaluated energy markets, transmission access, operating and maintenance budgets based on forecasts to determine the projects potential investment worth on the international equity market. Evaluated the financing arrangements necessary to provide non-recourse lending and interest in placing financing in the international debt markets.

Yacereta - One of the largest projects in terms of installed capacity and number of operating units. This project, a joint effort of the Argentina and Paraguayan Governments, has not been privatized at this point. However, several different scenarios have been suggested for privatization, including operations as a unit, energy marketing as a unit with ownership retained in the joint Government Corporation. Evaluated the potential for this type of packaging to provide positive financial attractiveness to international investors. Also, as these units come "on-line" the energy market in Argentina will become even more capacity rich. Evaluated how the energy would be marketed and at what price the markets bid for this energy.

Itaipu - Evaluated the impact of this extremely large hydro project on the surrounding energy markets. Determining the pricing impacts to existing generators, the transmission requirements necessary to support a project this immense and the potential for international privatization.

Projects in Chile

Colbun - Evaluated the total combined project including both thermal generation and hydropower for possible investment.

Mejionelles - Evaluated the energy market, construction requirements and operating requirements for the completion of this project after privatization.

Projects in Ecuador

Daule-Peripa - Prepared an evaluation of the potential for expansion of this project from irrigation only to a joint irrigation and hydropower project for the state owned utility CEDEGE. Evaluated the energy potential, the energy market, transmission requirements and potential for international investment.

Projects in Nicaragua

Copolar - Prepared the initial feasibility of the Copolar hydro project in Northeast Nicaragua. Evaluated the transmission requirements, energy market and potential for international investment.

Projects in Puerto Rico

Puerto Rican Electric Power Authority (PREPA) - Evaluated the current level of technical expertise within the organization. Prepared an organizational assessment recommending alternatives to meet the need to operate their fossil and hydro projects efficiently.

International Water Resource Projects

Projects in South America

Mendoza, Argentina - Developed technical and financial feasibility of water supply and irrigation for the provincial government of Argentina. Evaluated the supply options and the necessity of wastewater treatment for the reuse of □gray water□ for irrigation of the many vineyards, which make this region of Argentina famous. Evaluated the financial markets and their interest in supporting privatization of these services.

Projects in Ecuador

Guyaquile - Evaluated the wastewater conditions for the City of Guyaquile and the surrounding rural region. The current situation necessitated immediate improvements due to disease from the lack of wastewater treatment. Evaluated the cost to improve service, prioritized additions to make immediate improvements, and evaluated the financial requirements to support expansion.

Domestic Water Resource Projects

Basinwide Inundation Studies - Modeled the Probable Maximum Flood (PMF), 100 Year Flood and 500 Year Flood Hazard Zones for over 2000 miles of river environment, including mountainous terrain, urban and suburban areas, including the Cities of Atlanta and Columbus, Georgia, and rural coastal plains. Inventoried structures located within the potential hazard zone and evaluated the economic impact and liability exposure to hydropower operator upstream

City of Anniston, Alabama - Evaluated current wholesale water rate structure. Provide recommendation on rate revisions, impact fees and water conservation education.

Polk County, Georgia - Evaluation of optional long term water supply sources as a result of continued deterioration of groundwater quality.

Federal Energy Regulatory Commission - Developed basinwide models for evaluation of competing use issues for the Oconee River Basin. Evaluated alternative hydropower operations to meet instream flow requirements with minimal degradation of hydropower peaking operations.

Platte River Authority - Provided “third party” technical assistance to the Authority in the evaluation of basinwide operation alternatives.

Apalachicola-Flint Chattahoochee / Alabama-Coosa-Tallapoosa Basinwide Study – Mr. Crisp continues to provided expert analysis of competing use issues, water supply demands, demand forecasts, hydrologic modeling, watershed assessments and hydropower operations. Provided consulting to major stakeholders in the development of an equitable water allocation formula. Supported State and Federal Legislative efforts to formalize a Basinwide operating commission responsible to the stakeholders for the scheduling and operation of the two river basins and their subsequent sub-basins.

West Georgia Regional Water Authority – Analyzed present and future water supply requirements for five-county region. Evaluated and identified options for storage supply. Performed cost studies on various options. Developed strategy for possible privatization of water supply and treatment system.

Savannah River Basin Comprehensive Study – Mr. Crisp is providing hydrologic, hydraulic, socio-economic and environmental consulting services in the analysis of the Savannah River Basin Comprehensive Study.

He is analyzing flow regimes, effects to Endangered Species, impacts to operations at Federal hydropower projects and competing use issues between the States of South Carolina and Georgia.

Cumberland River, TN Study - Mr. Crisp is analyzing the impacts of flow variation, competing uses and economic issues concerning the operations of the Federal projects along the Cumberland River in Tennessee.

Southwest Georgia Agricultural Issues – Mr. Crisp has provided consulting services to the Southwest Georgia Regional Development Center (“RDC”) evaluating the irrigation demands, irrigation impacts to groundwater, and groundwater/surface water interaction and economic impacts of loss of irrigation to farm commodity revenues.

Gulf Sturgeon – Mr. Crisp is providing consulting expertise in the evaluation of critical habitat, economic loss and flow variability requirements to improve the habitat conditions along the Apalachicola River to sustain the population of the Gulf Sturgeon.

As detailed in the above resume, I have over 25 years of working experience with the design, construction, operations and relicensing of Hydroelectric Projects, worldwide. I have experience with the operations of projects to meet single purpose objectives as well as multi-purpose projects operating to support power generation, recreation, environmental enhancement and water supply. I have also completed numerous economic analyses involving the value of energy and capacity from derived from hydroelectric projects, the value of fish & wildlife economics, recreation and water supply as resources. I have prepared studies of the value of lost generation, the value of hydropower as spinning reserves and transmission regulation support (ancillary services). I have prepared studies to support the habitat enhancement per the Endangered Species Act and other Federal legislation.

I have completed numerous relicensing projects including one of the first Applicant Prepared EA's, Sinclair Dam (Georgia Power Company). I continue to participate in projects that range from balancing flow releases to sustain fish and mussel habitat to mediating competing use disagreements surrounding water supply withdrawals. I have completed many projects involving the Endangered Species Act, Clean Water Act, Wild and Scenic Rivers Act, Federal Power Act and the Fish and Wildlife Coordination Act. I have present expert witness testimony in cases involving many of the Federally promulgated legislative issues involving hydropower in the Southeast and the Nation.

In many of the cases involving mediation or negotiations, I have participated from a position of law, promoting constructive discussions or negotiations while preserving the integrity of law. In cases where Case Law is either non-existent or out of date, I have participated with the client and adversary to modify law to meet the needs of today or developed interpretations that allow for defensible settlements within the framework of existing law.

References:

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