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April 18, 2012

VIA COURIER and RESS

Ms Kirsten Walli
Board Secretary
Ontario Energy Board
27th floor
2300 Yonge St.
Toronto, Ontario
M4P 1E4

Re: Ontario Energy Board Renewed Regulatory Framework for Electricity Distribution Network Investment Planning (EB-2010-0377); Regulatory Framework for Regional Planning for Electricity Infrastructure (EB-2011-0043); Establishment, Implementation and Promotion of a Smart Grid in Ontario (EB-2011-0004); Approaches to Mitigation for Electricity Transmitters and Distributors (EB-2010-0378); and Defining and Measuring the Performance of Electricity Transmitters and Distributors (EB-2010-0379) (collectively, the "RRFE Proceedings")

Dear Ms. Walli:

We are counsel to the Association of Power Producers of Ontario ("APPrO") on the RRFE Proceedings. Further to the Board's letter of April 10, 2012 providing cost eligibility to certain generator groups (including APPrO, CanWEA, CanSIA, and the CDEA), APPrO's letter of March 1, 2012, and the Board's prior cost eligibility decisions, we wish to:

(i) set out the proposed approach for the coordinated and individualized activities of the generator groups involved in the RRFE Proceedings (APPrO, OWA, APAO, CanWEA, CanSIA, and the CDEA collectively, the "Generator Coordination Group" or "GCG");

(ii) ensure that the proposed retention and charges of common counsel and the intended common expert for coordinated and individualized activities are approved and/or consistent with the Board's interpretation of, and the principles outlined in, s.5.01 of the Board's Practice Direction on Cost Eligibility (the "**Practice Direction**"); and

(iii) request an extension for the filing of the GCG's and individual member's written submissions until May 7, 2012 in order to allow for requisite coordination and efficiency.

(i) Proposed approach to coordinated and generation/fuel specific activities.

The RRFE Proceedings are likely to have important impacts on the conditions for developing and operating electricity generation in Ontario, and such impacts may vary with the generation and fuel type. The Board has encouraged groups with similar interests to collaborate as far as possible, in trying to bring forward co-ordinated input for its consideration. The following organizations currently represent groups of electricity generators in Ontario that hope to coordinate through the retention of common counsel on applicable RRFE Proceedings and a common expert (name, expertise and scope of report outlined below) to provide a single generator focused report on the EB-2010-377; EB-2011-0043; EB-2010-0378 and EB-2010-0379 proceedings: APAO, the Agri-Energy Producers Association of Ontario; APPrO, the Association of Power Producers of Ontario; CanWEA, the Canadian Wind Energy Association; CanSIA, the Canadian Solar Industries Association; CDEA, the Canadian District Energy Association; and OWA, the Ontario Waterpower Association.

The six groups mentioned above are entirely independent of one another and have unique objectives or positions. However, there are common RRFE Proceeding activities (including, without limitation, reviewing Board communications, certain drafting, and appearances at the Board) and concerns that are conducive to coordination. It is our view that having a single common counsel for group activities and each of our individual activities will result in efficiencies for the Board as well as each applicable member of the proposed generator coordination group that are consistent with s.5.01 of the Practice Direction. The potential benefits are further outlined in APPrO's March 1, 2012 letter. The six groups therefore intend to coordinate and consult with one another through counsel and the assistance of Jake Brooks of APPrO, rationalize common activities through the approach set out in (ii), below, and provide common submissions where applicable and individualized fuel type/generation specific submissions where applicable.

(ii) **Proposed approach to the retention and rates of legal counsel and a common expert.**

Each generator group intends to retain Norton Rose, with Elisabeth (Lisa) DeMarco as assigned legal counsel having responsibility for the RRFE Proceedings. Norton Rose will bill each of the applicable members for the full amount of time spent on common/coordinated work, but at the applicable fraction of its normal hourly rate (normal hourly rates divided by the total number of cost eligible generator groups for each proceeding).

The applicable generation groups will each claim the hourly rate actually paid to Norton Rose in their cost claims, recognizing that this will be a fraction of the regular/full hourly rate (i.e. one fifth of the hourly rate if there are five members, one third if there are three members). This fractional rate is expected to be well below the maximum hourly rate set by the Board for each individual group for at least 4 of the 5 RRFE Proceedings and therefore will result in considerable cost savings to the Board as well. By way of example, all general time spent on common tasks including but not limited to reviewing evidence, documents, expert co-ordination, drafting, co-ordination of positions, and attendance at the Board will be billed as follows. Assume 3 hours are spent on drafting a common portion of a submission. The 3 hours will be recorded as 3 hours on each of the applicable generator organization's bill, but the rate applicable to those hours will be our regular hourly rate divided by the number of applicable cost eligible generator organizations for that proceeding. The cost savings to the generator groups and the Board are outlined below.

PROCEEDING				PARTICIPANT			RATE DIVISOR	EFFECTIVE RATE ($/HR)	COST SAVINGS TO OEB ($/HR)
	APPrO	OWA	APAO	CANSIA	CANWEA	CDEA			
EB-2010-0377	√			√	√	√	4	187.50	102.50

EB-2010-0378	√	√	√	√	√		5	150	140
EB-2010-0379	√	√	√	√	√	√	6	125	165
EB-2011-0043	√	√	√	√	√		5	150	140
EB-2011-0004	√				√		2	375 (Board max $290)	0

Activities that are generation/fuel type specific will be subject to the regular cost recovery requirements set out in the Practice Direction, but the Board is still likely to benefit from the efficiencies associated with fewer counsel and streamlined submissions. In some cases, individual generator associations have relied on individual counsel to this point and may continue to do so only for matters specific to a sub-sector in the event that an unresolvable conflict with the generator group arises.

Cost sharing and oversight of expert consultant(s)

The GCG is seeking approval and cost eligibility to retain one of the following two experts to prepare a single report on the methods for assessing the system benefits of distribution and transmission network investments, related performance measures, and cost impacts/allocation, in light of the objectives of the Green Energy Act.

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and

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This single report will relate to the following 4 proceedings: Distribution Network Investment Planning (EB-2010-0377); Regulatory Framework for Regional Planning for Electricity Infrastructure (EB-2011-0043); Approaches to Mitigation for Electricity Transmitters and Distributors (EB-2010-0378); and Defining and Measuring the Performance of Electricity Transmitters and Distributors (EB-2010-0379). The relevant qualifications of these experts and their organizations are attached to this letter at Appendix A.

In summary and given the timelines stipulated by the Board for the RRFE Proceedings, the above-mentioned generator groups would appreciate: (i) the Board's approval of GCG's retention of, and cost eligibility for, one of these two experts (to be selected by the GCG) in accordance with the Board's November 8, 2011 letter, and (ii) the Board's advance notional approval of the proposed approach set out herein in order to facilitate their ongoing efficient participation in the RRFE Proceedings.

(iii) **Requested extension.**

In light of the timing of the recently afforded participation status of certain generator groups and the intended coordination activities outlined above, we respectfully request an extension to the deadline for filing the GCG and individual member's written submissions to May 7, 2012 and the proposed expert report (contingent on Board approval) to May 15, 2012.

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Thank you for your consideration.

Norton Rose Canada LLP

Elisabeth (Lisa) DeMarco

lmd:mcz

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APPENDIX A

NAVIGANT

ONTARIO MARKET KNOWLEDGE AND EXPERIENCE

APRIL 18, 2012

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RELEVANT EXPERIENCE

Navigant Consulting is a specialized independent consulting firm providing professional services to assist energy industry clients in identifying and implementing practical solutions to the challenges of risk, uncertainty and change. We have more than 300 professionals in North America with a depth of energy industry experience (including nine located in our Toronto office), and over 2,000 consultants worldwide. Our resources can be used to address the full range of challenges, including regulatory and policy issues, that energy industry participants confront.

We are offering the Association of Power Producers of Ontario (APPrO) and the members of the Generation Co-ordinating Group (GCG) a senior project team with extensive Ontario electricity industry experience and knowledge. Below Navigant Consulting demonstrates the depth of our project team's knowledge and experience in the critical areas that are key to the successful completion of this assignment: (1) extensive experience with all aspects of Ontario's wholesale and retail markets; (2) detailed knowledge and considerable experience with the transmission and distribution sector; and (3) broad based experience with regulatory and policy design and development.

Navigant Consulting is a pre-eminent consulting firm for Ontario electricity wholesale and retail power market issues. We have the largest staff of any Ontario consulting firm focussing exclusively on the electricity sector. Furthermore, with a largely Toronto-based team we are able to cost-effectively deliver the required services to APPrO. Presented below is a review of some of our relevant Ontario assignments.

Knowledge and Presence in the Ontario Market

Since establishing an office in Toronto in 1998, Navigant Consulting has advised numerous parties on virtually every facet of Ontario's electricity sector. This includes ongoing advice to the Ministry of Energy, Ontario Electricity Financial Corporation, IESO, OPA, OEB, OPG and LDCs such as Hydro One, PowerStream, Toronto Hydro and Horizon Utilities.

We assist the OEB with the administration of the regulated price plan (RPP) including technical support in the semi-annual RPP price-setting. We have also advised the OEB on: (1) an appropriate revenue generation model for assessing fees on Ontario market participants to recover its costs; (2) the refinement of its regulatory compliance program; (3) its review of applications for the development of transmission facilities and transmission cost of service and rate design; and (4) rate mitigation options for LDCs.

We have supported the OPA with all of its major activities from conservation programs, sector development, electricity resources, and power system planning. Specifically, we advised the OPA on measurement and verification of its demand response program; were selected to provide economic, financial and electricity industry advisory services related to its Combined

Heat and Power procurement; and advised the OPA on various aspects of the development of its Integrated Power System Plan (IPSP). In addition, we advised the OPA with respect to the appropriate role of LDCs with the provision of conservation and demand management services; the costs of a wide range of generation technologies and CDM programs and a framework for comparing their costs and respective benefits to Ontario's electricity system; the development of its standard offer program for renewable resources; the development of the Portfolio Supply Model that was used by the OPA to develop its Supply Mix Advice Report that was issued to the Minister of Energy.

Additional relevant projects (as well as an expanded description of some of the projects identified above) are listed below.

- Workshop for APPrO members on the structure and operation of two-part Locational Marginal Pricing (LMP) regimes used by many system operators in the US and discussion of the potential costs and benefits of implementing a similar wholesale market structure in Ontario.

- Retained by the Ministry of Energy to provide technical support to the Agency Review Panel with a mandate to review the five institutions governing or serving the Ontario electricity sector: OEG, OPA, IESO, OPG and Hydro One.

- Jointly for Toronto Hydro and the OPA, Navigant developed a forecast of the potential for distributed generation in Central and Downtown Toronto. Navigant's report was submitted to the OEB and a member of Navigant's proposed project team appeared as an expert witness for Toronto Hydro. As part of its analysis, Navigant developed a market characterization of the potential for various types of distributed generation based on electricity demand, thermal demand and roof space using Natural Resources Canada, Statistics Canada and other data sources. The resultant potential was then mapped to each of Toronto Hydro's stations according to mapping provided by Toronto Hydro.

  In a follow-on to the above study, Navigant assessed the connection capacity of and enabling options for Distributed Generation across Toronto Hydro's entire distribution system. This report, which was also filed with the OEB, presented key information spatially. The spatial mapping involved a high degree of collaboration between Toronto Hydro and Navigant.

- Engaged by Hydro One to develop avoided cost estimates to value CDM investments. Analysis estimated avoided energy, capacity and transmission costs and system losses. Analysis was approved by the OEB without a hearing and has been used by various parties to assess the value of different investment alternatives including district energy projects.

- Navigant assisted the Ontario Power Authority (OPA) with the development and design of a standard offer program to promote the installation of clean and renewable energy

resources embedded in distribution systems in Ontario. The project included extensive research on policies for standard offer used elsewhere, both in Europe (as feed in) and in the United States (as contract programs.) Navigant participated in the stakeholder consultations for this project and helped to formulate a program design that met the OPA's criteria.

- Supported the OPA in developing refinements to the Clean Energy Standard Offer Program (CESOP) including Ontario-specific estimation of the various sources of value provided by distributed clean energy generation reflecting its likely operating profile and distribution system connection within the Ontario electricity grid.

- Capital development planning study for Horizon Utilities and similar asset management and capital planning studies for various utilities including First Energy, Pacificorp, Seattle City Light, Toronto Hydro and Saskatoon Light & Power.

- Served as expert witness to the Ontario government with respect to a lawsuit filed by the former owner of a privately-held distribution utility. At issue was the impact of restructuring on the utility, the degree to which the utility took steps to mitigate restructuring costs and risks and the government's response to various requests for accommodations and exemptions from regulations and legislation for the utility.

- Navigant is currently estimating the conservation effect due to sub-metering of multi-residential facilities for a sub-metering service provider. This study incorporates an econometric analysis of the monthly consumption of over 4,000 individual dwelling units over an extended period. Given the number of multi-residential units in Toronto, assumptions regarding the percentage of multi-residential units that are sub-metered (or suite-metered) will have a material impact on the peak demand forecast.

- Advised the OPA on the market entry costs for new generation and CDM resources. Prepared an analytical framework that allows these costs of these different types of resources to be directly compared.

- Retained by the IMO to develop a blueprint for demand response in Ontario. The IMO developed an Action Plan on Demand Response Initiatives based upon the blueprint and implemented the action plan.

- Drafted a White Paper for the Ontario Ministry of Energy on Regional Electricity Pricing evaluating the degree to which there are sufficient electricity cost differences between Northern Ontario and the rest of Ontario sufficient to justify establishing a separate electricity prices for Northern Ontario.

- Retained by the City of Barrie to serve on the Joint Steering Committee to negotiate a merger agreement between Barrie Hydro and PowerStream Inc. As part of this

engagement, explored the potential savings, rate and reliability impacts of the potential merger and made numerous presentations to City of Barrie Council and senior staff regarding the implications of the potential merger. The merger was ultimately approved by the three municipal shareholders of the two utilities.

- Advised the Ministry of Energy with respect to its smart metering program initiative. NCI evaluated a range of different structures for the program and evaluated alternative roles and responsibilities for LDCs, the IESO and MOE.

- Led numerous strategic assessments for a variety of Ontario electric distribution utilities, their Boards of Directors and municipal shareholders. The assessments included potential divestiture, merger, lease and purchase transactions covering including due diligence, bid preparation, bid evaluation, negotiations and transitional planning. Valuations were undertaken based on discounted cash flow and market comparables, risk analysis and identification of potential cost savings in response to performance-based regulation.

- Supported the OPA on various generation procurement initiatives, including the OPA's CHP procurement. As part of this work, developed evaluation models (incorporating Navigant's market price forecasts as Prospective Power Years) that have been used in many of the OPA's natural gas, renewable and waste-fuel generation procurement initiatives including CHP I, II and III, the NYR peaking procurement and the GTA West procurement.

- Advised the Ontario Electricity Financial Corporation (OEFC) on negotiations with several natural gas, biomass and hydro Non-Utility Generators (NUGs) to modify their contracts to reflect current circumstances and market opportunities. As part of our work with OEFC, Navigant assessed the likelihood of NUG plants continuing to operate after the expiration of their contracts based on expected market prices and marginal operating costs for these NUGs. We also compared the likely contract extension costs for these NUGs against new-build capacity.

- Navigant was engaged to identify a new operating model and/or possible operating enhancements for the Ontario Energy Board. This engagement included identification of relevant performance characteristics of regulatory agencies and research to identify efficient and effective regulatory agencies around the world.

The experience described above is supplemented by the insights gained from one of the most active regulatory policy practices of any Canadian consulting firm. Our team has provided electricity policy and regulatory advice to governments in Ontario, Alberta, New Brunswick, Nova Scotia, Newfoundland and Labrador, and Saskatchewan on a broad range of regulatory policy issues including transmission planning and pricing, renewables, energy efficiency and DSM program delivery, market structure, and market competitiveness. This includes

comprehensive research on regulatory best practices. This regulatory experience, combined with a detailed knowledge of the Ontario electricity and natural gas markets, ensures that we have the context and expertise required to provide insightful advice. We understand what works and what doesn't, but more importantly, we also understand the unique local market context and the critical interplay between market structure and regulatory framework to ensure government policies objectives are realized.

ICF COMPANY OVERVIEW

Founded in 1969 and headquartered in the Washington, DC area, ICF is an industry leader in helping clients successfully navigate a consistently changing regulatory landscape, and manage the world's natural, physical, economic, and community resources in a sustainable manner. ICF provides a portfolio of strategy, analysis, advisory services, and implementation tools to clients in the energy sector. Long recognized for innovative solutions, ICF's combination of strategic, policy, risk management, market, and industry knowledge enables us to offer clients unparalleled industry expertise. ICF's clients include energy utilities, independent transmission developers, merchant generators, power marketers, governments, major corporations and multilateral organizations in North America, Asia, Europe, and Latin America. The approximately 4,000 employees of ICF are based in thirty six offices in the United States and six international offices - Beijing, London, Moscow, Toronto, New Dehli, and Rio de Janeiro.

ICF employs almost 450 full time professionals specializing in energy market and climate change issues. For the power generation sector, we have extensive experience in generation, transmission, environmental, and fuels markets. ICF also has an internationally-recognized climate change practice with over 20 years of experience supporting corporate and government clients to devise and implement climate change related strategies. ICF draws upon extensive industry knowledge, distinguished professionals, and innovative analytics to develop solutions to complex energy, environment, emergency management, community development, and transportation issues.

We have developed one of the most respected and experienced Energy and Climate Change practices in consulting, and have provided key energy market analytical support to the U.S. Department of Energy (DOE), Federal Energy Regulatory Commission (FERC), Environmental Protection Agency (EPA), most major power producers in the country, and a large number of international, state, regional, and local governmental organizations and agencies.

ICF's energy analysis capabilities range from end-use technology assessment and building energy simulation to complex power system optimization, emissions forecasting and transmission network modeling. In many cases, our consultants are drawn from the industries we work with, giving us a familiarity with issues that comes only from direct experience. In all cases, our approach is founded on a deep understanding of the analytics required to frame and answer our clients' questions and direct experience with answering similar questions for other customers throughout North America and Europe.

ICF CAPABILITIES AND ANALYTICAL APPROACH

With our approach and expertise, the ICF International (ICF) team brings internationally-recognized expertise in transmission market analysis, fuel market analysis, power plant valuation, generation strategy, regulatory analysis (air, transmission, and power market), greenhouse gas policy and strategy, renewable markets analysis, and environmental analysis.

ICF offers a truly integrated approach to evaluating environmental regulations that is both dynamic and global. We have extensive experience in power, fuel, transmission, and air emissions markets and have assimilated this expertise into an unparalleled modeling tool, the Integrated Planning Model (IPM®). ICF has a unique capability to simulate economy-wide climate policies and project their impacts on power generation unit dispatch, fuel use, emissions, retirements, and capacity additions as well as on commodity power prices and other market products in both deregulated and regulated markets.

For example, ICF was recently retained by a national environmental action group to conduct analysis of the effects of potential environmental regulations (including a proposed national CO_2 mitigation regime) and potential demand side management penetration on the US wholesale power market. The specific areas of analysis included impact on wholesale power market prices, generation, capacity entry and exit, emissions, and environmental retrofits. ICF analyzed several sensitivity cases as part of the assessment and included an analysis of select cases on total U.S. system costs.

Our analytic approach – with modeling capabilities that share a single platform and look across key macroeconomic drivers, markets, and a multi-decade time horizon – is able to solve for all parameters simultaneously, capturing the effects and feedback loops that arise and spread across the system, leading to a fully consistent set of results. ICF's global perspective, evident in our geographic reach, broad subject matter expertise, and wide spectrum of service offerings, provides an integrated perspective on which our analytics rest.

ICF has performed power plant assessments across the U.S. and in many international markets in the context of development, acquisition, financing, restructuring, and portfolio valuations. We have analyzed natural gas plants, coal plants, and renewable plants extensively. Key issues that we have addressed are power plant dispatch, emission allowance price, renewable and transmission expansion, nodal and zonal pricing, implied volatility and scarcity pricing, natural gas pricing and differentials, environmental regulations and implications for supply, mothballing and coal plant retirement activity and potential, and timing of market equilibrium and capacity expansion. We have analyzed large portfolios owned by major utilities and independent power producers (IPPs) in various regions.

In our power market analysis, we leverage our staff and expertise across related areas. Specifically, we have deep expertise and modeling capabilities in the areas of (i) transmission modeling and assessment (including LMP analysis and AC and DC load flow analysis), (ii) natural gas modeling and assessment (we have very detailed modeling of all supply and demand fundamentals and the pipeline network in the gas sector across North America and international representation), (iii) environmental modeling and assessment (ICF supports all major air policy analysis in the power sector for the U.S. Environmental Protection Agency using ICF's modeling framework), (iv) power generation engineering, (v) power project financing, (vi) energy efficiency, and (vii) renewable energy.

ICF POWER, ENVIRONMENTAL, RENEWABLE AND TRANSMISSION EXPERTS

Judah L. Rose joined ICF in 1982, and with 30 years of energy experience, currently serves as a Managing Director of ICF International's Power and Fuel Practice. Mr. Rose has supported the in-depth market analysis, marketing strategy and financing of tens of billions dollars of new and existing power plants, including many plants and projects in the Western U.S. Mr. Rose's clients include electric utilities, financial institutions, law firms, government agencies, fuel companies, and IPPs. Mr. Rose has provided expert testimony in scores of state, federal, international, and other legal proceedings. Mr. Rose is also one of ICF's Distinguished Consultants, an honorary title given to just three of ICF's 4,000 employees. Mr. Rose has addressed approximately 100 major energy conferences, authored numerous articles published in Public Utilities Fortnightly, the Electricity Journal, Project Finance International, and written numerous company studies.

Kenneth Collison is an ICF Vice President with expertise in transmission studies, power system reliability studies, critical infrastructure protection, transmission and ancillary services valuation, generation analysis, utility restructuring, and strategic studies. He manages ICF's Transmission and Ancillary Services Group within the Power and Fuel Practice. He has recently managed several studies evaluating power markets in the Western U.S. Mr. Collison has developed full alternating current (AC) nonlinear power flow models for detailed power system engineering studies, including power system reliability assessment, contingency analysis, and total transfer capability analysis for the networks of several power pools in the United States. In several power markets, he has led studies to determine the impact of major proposed transmission projects on the ability of the market operators to reliably meet system demand.

Steven Fine is a Vice President and manages ICF's Environmental Markets Group within the Power and Fuel practice. At ICF, Mr. Fine's work has concentrated on evaluating the impact of developing environmental regulations on existing and new energy resources. Within this context, he has extensively analyzed the impact of environmental regulations on power sector economics, the impact of these regulations on compliance strategies for existing assets, and the relative role that different resource types might play. Mr. Fine also led the electric sector analysis for the Edison Electric Institute (EEI) evaluation of the Utility Hazardous Air Pollutant, Ash and Water rules, and has led other high profile analyses such as the Regional Greenhouse Gas Initiative (RGGI) and the US Climate Action Partnership (USCAP). He is currently performing a number of multi-pollutant compliance planning, asset valuation, and environmental positioning assignments for electric power companies in the US, within the context of developing regulations. Formerly, Mr. Fine worked for Luz Industries, at the time the largest developer of concentrated solar thermal systems in the world.

King Lin has over 30 years of experience in energy economic analysis and currently serves as a Principal at ICF International (ICF). She has managed numerous projects for private and public utilities, independent power developers, multi-lateral institutions, and government officials. Her areas of expertise include Regulatory Support, Power Market Analysis, Power Price Forecasts, Due Diligence, Asset Valuation and Project Financing Support, Retail Power

Market Rate Design, Integrated Resource Planning, Coal Royalty and Water Royalty Analysis, Coal Supply Contracts, and Coal Transportation. Ms. Lin has supported many ICF clients in state regulatory proceedings. She is familiar with regulatory process and is experienced in working with all stakeholders. Ms. Lin has also provided extensive regulatory and analytical support to major U.S. electric utility clients in their power plant capacity expansion including an Integrated Gasification Combined Cycle (IGCC) project. She represented a major client in an industry conference held in China in 2008 and presented project status of the client's new IGCC power plant. Ms. Lin also has experience working with clients in countries such as Australia, Brazil, Canada, China, and Taiwan.

Chris MacCracken is a Principal in the Energy, Climate and Transportation practice. Mr. MacCracken has 18 years of experience in energy and economic modeling and using models to assess the potential impacts of environmental policies on regional economies and on the U.S. electric sector. At ICF, Mr. MacCracken has directed a number of studies assessing the impacts of environmental regulation on emission, power and fuel markets, compliance planning, and generating unit asset valuation. Using ICF's Integrated Planning Model, IPM®, he has examined market impacts over a range of potential policies and programs, including CO_2, NO_X, SO_2, and air toxics regulations, renewable incentives and portfolio standards, and efficiency programs. He is also the author of the Emissions Markets chapter of ICF's quarterly Integrated Energy Outlook. Mr. MacCracken is currently managing ICF's support for RGGI, Inc. for the 2012 Program Review and led its support for the Bipartisan Policy Center in the development of staff papers on the impacts of air toxics regulations and clean energy standards. He has a BA from the University of California and an MBA from Carnegie Mellon University.

David Gerhardt, a Principal with ICF International, is an energy analyst with over 20 years of experience in energy economics and energy engineering issues. Most of his work in energy economics has been in areas such as asset valuation, wholesale power litigation, risk management, and PPA negotiations. Mr. Gerhardt is the lead power generation engineer for ICF International's Wholesale Power group. As the lead engineer, Mr. Gerhardt reviews and develops all critical data required by the group including new power plant cost and performance characteristics by prime mover type, operation and maintenance estimates, forced and scheduled outage rates, uprates, and emission rates. Mostly recent this has included developing carbon capture and sequestration (CCS) data. Mr. Gerhardt is currently serving as lead consultant in a portfolio restructuring case and a wind developer acquisition venture. Mr. Gerhardt has a BS in Mechanical Engineering, Rochester Institute of Technology and an MS in Energy Management and Policy, University of Pennsylvania. Before joining ICF, Mr. Gerhardt worked at Energy and Environmental Analysis, Inc., the New York State Energy Office, and Solarex.

ICF EXPERIENCE AND QUALIFICATIONS

Below we have provided samples of our market experience.

Power Market Analysis

Assessment of California Power Market and PPA Analysis, Project Development, Confidential IPP

ICF analyzed both NP-15 and SP-15 markets for an independent power producer pursuing gas-fired development opportunities in both these markets. This included assessment of supply/demand fundamentals, market structure, and projections of forward prices, plant dispatch and cash flows for the facility of focus. The assessment involved both merchant and power purchase agreement analysis.

Restructuring Support and Power Market Analysis for Calpine's Unsecured Creditors

ICF was retained as markets advisor for the Calpine bankruptcy and restructuring process. This work required ICF to evaluate in great detail the power markets in many regions, and we assessed cash flows for each of Calpine's power plants (approximately 25 GW in total) and contracts nationwide. This work involved extensive analysis of markets across the US, including the Southeast, Midwest, Texas, Northeast, and the West, and supported our valuation assessment of close to $20 billion. As part of this engagement, ICF reviewed and analyzed Calpine's business plans, financial and operating results and performance, proposed contracts and transactions, and large power and natural gas claims pending in the bankruptcy court. ICF also reviewed, quantified, and evaluated the risk associated with dozens of existing long-term power and steam contracts and recommended restructuring options.

Overview of Arizona Power Market, Confidential Investment Banking Client and a Confidential IPP

ICF analyzed the Arizona power market and key market structure issues, including California power market, supply/demand fundamentals, historical power prices, plant dispatch, projected plant retirements, environmental regulations, renewable portfolio standards, transmission and transmission expansion.

Testimony Support of Generation Asset Valuation, Tucson Electric Power

ICF provided assessment of the wholesale power market in the Southwest, specifically Arizona/New Mexico and WECC using its proprietary IPM model. Key assumptions considered are peak and energy demand, plant dispatch, fuel and emission allowance prices, transmission capability, environmental regulations, new plant construction and capital costs for new plants, plant retirements, existing plant operation and power plant retrofit options. ICF's approach for asset valuation was primarily based on the income or discounted cash flow approach. However, ICF also presented results based on replacement cost and comparable cost methodology.

Assessment of the PJM Market to Support Investment Decisions for a Private Equity Firm
ICF performed a near-term locational marginal pricing forecast for various nodes, hubs and zones in PJM for a major power developer and private equity fund. In addition, ICF provided long-term zonal energy and capacity price forecasts, as well as annual REC price forecasts for the two regional markets of Pennsylvania and Ohio. ICF helped the client determine the impact of major transmission projects in the near-term on client interests; particularly four wind sites, a combined cycle facility, and a coal-fueled power plant. ICF provided gross margin forecasts for the client units and determined the viability of these projects. ICF determined the impact of various scenarios, including variations in gas prices, demand levels, delayed transmission and a range of carbon regimes on nodal discounts, LMPs, plant dispatch and power plant valuation.

Transmission Analysis

Optimal Power Flow Simulation, WECC
ICF performed an optimal power flow simulation of the WECC market to determine dispatch scenarios for a large power plant in the Palo Verde, Arizona region. The work included the economic dispatch of units, contingency analysis, and snapshots of expected summer peak nodal prices. This analysis demonstrated the capability of the transmission system to deliver power to market with all transmission facilities in service and under various contingency scenarios.

Transmission Scenario Planning and Environmental Data Analysis, WECC
WECC is using DOE funding under the American Recovery and Reinvestment Act to significantly expand regional transmission planning and broaden stakeholder involvement. WECC retained ICF as a technical contractor to support and advise WECC's Scenario Planning Steering Group in its responsibilities. Our work is primarily in two areas: 1) gathering and analyzing environmental data to determine how to integrate such information into transmission planning, including ranking different areas for development; and 2) participate actively in scenario planning for transmission (which clearly affects generation) and capital budget decisions for WECC. ICF is thus supporting WECC's Transmission Expansion Policy Planning Committee in evaluating long-term regional transmission needs in light of future electricity demand, generation resources, energy policies, technology costs, impacts on transmission reliability, and emissions. The resulting 10-year and 20-year transmission plans will provide high quality, credible information on transmission infrastructure requirements and the generation that the grid will connect to decision makers at all levels.

Transmission Capacity Expansion Study, Client Confidential
For a major power developer, ICF modeled the transmission network in the Western Electric Coordinating Council (WECC) to determine the effect of the expansion of key transmission facilities in the region. ICF determined the reduction in congestion costs with capacity addition and the variations in cost of serving load, generation dispatch, production cost, and generation revenue in several zones. The results included the costs and benefits accruing to each zone, and demonstrated the mitigating effect of the relaxation of the constrained facilities.

Collector and Transmission System Design for Renewable Energy, Wyoming Infrastructure Authority
ICF led the design of a conceptual scalable and flexible Wind Collector Transmission System for one of the states in the U.S. This collector system is designed to consolidate electricity generated by far-flung wind power plants into a common high-voltage transmission network and evacuate up to 12,000 MW of wind. ICF analyzed designs such as Radial and Networked, single versus double circuits etc. using steady-state and contingency power flow methods. ICF also developed preliminary cost estimates for each collector system design.

Environmental Market Analysis

Cross-State Air Pollution Rule Market Impact Assessment, Clients Confidential
ICF is currently working with several electric utility companies to evaluate the impacts of the Cross-State Air Pollution Rule (CSAPR) on their generating assets and the markets in which they operate. ICF has projected state and regional allowance prices for each of the three programs, successfully modeling the interaction of all key provisions endogenously (state variability limits, regional trading, and assurance penalties). Unit control and retirement decisions, new build decisions and the transmission implications of retirements and builds have all been evaluated.

Environmental Regulation Impact Analysis, Edison Electric Institute
Working with the Edison Electric Institute and its member companies, ICF conducted an analysis of the impact that a variety of upcoming environmental regulations would have on the power sector (the so called "Air Regulatory Pathways" analysis). These regulations included those pertaining to Hazardous Air Pollutants (HAPs), Water (316b), and Coal Combustion Byproducts (Ash under RCRA). These scenarios were evaluated both with and without a potential federal CO_2 policy, and concentrated, in particular, on the ability of the coal fleet to incur the cost of the required environmental retrofits and forecast, on a regional basis, how much capacity were candidates for shut-down. The number of environmental retrofits, the cost of those retrofits, the need for new capacity and the impact on power prices were also evaluated. EEI and its member companies provided all assumptions, as well as scenario descriptions. The preliminary results of the analysis were presented to the CEO's of the member companies at the EEI annual conference in June 2010.

Policy Development Support, Regional Greenhouse Gas Initiative
ICF conducted the electric sector analysis for the Regional Greenhouse Gas Initiative (RGGI), a coalition of seven states (Massachusetts and Rhode Island withdrew, while Maryland is considering joining) in the northeast (including New England) and mid-Atlantic that are currently considering the implementation of a regional greenhouse gas reduction strategy. Using the IPM® modeling framework, ICF is examining and quantifying a series of proposed policy measures intended to reduce CO_2 emissions from the power sector in the region. Integral to this analysis is a detailed treatment of the renewable resource cost and performance and availability in the northeast and mid-Atlantic and how renewable portfolio standard requirements will

interact with conventional wholesale power markets and impact the CO_2 emissions trajectory in the region.

Regulatory Compliance Strategy Support, Client Confidential
For a large mid-west electric power company, ICF prepared an analysis of SO_2, NO_X, mercury and carbon emission regulations. The study examined the potential impact of new air emission regulations on power and fuel markets, the company's compliance strategy, and overall corporate strategy. The results of the analysis were summarized in an Executive Policy Briefing that was presented to the company's senior management team and board of directors.

Renewable Energy Market Analysis

REC Market Analysis Services, Client Confidential
ICF provided a major U.S. investment bank with an extensive analysis of state renewable portfolio standards (RPS) and proposed federal renewable electricity standards (RES), region-specific renewable supply-demand balances, renewable energy credit (REC) and solar REC price (SREC) projections, renewable capacity expansion trajectories, fuel price projections, wholesale power prices, and a variety of other market data. The client's environmental commodities desk used these data and analysis to inform and develop trading strategies. Markets covered include New England, New York, PJM, the Midwest, Texas, Arizona/New Mexico, the Interior West, the Pacific Northwest, and California.

REC Market Analysis to Support Asset Acquisition, EDF Trading North America
ICF provided EDFT North America (EDFT) with and assessment of REC) markets across the U.S. to support the potential acquisition of the entire environmental markets business of Integrys Energy Services. ICF conducted this engagement in two parts. Part 1 consisted of a review of RPS regulations and the renewable energy market framework in Illinois, New Jersey, California, Colorado, Arizona, Idaho, Montana, Oregon, and Washington. Part 2 of the engagement consisted of an analysis of the factors influencing the development of REC markets and prevailing REC prices using ICF's Integrated Planning Model (IPM®). ICF provided REC price forecasts and renewable supply curves and demand forecasts for seven markets: California, Colorado, Arizona/New Mexico, Idaho/Montana, Oregon/Washington, New Jersey and Illinois.

Wind Strategy Initiative, Client Confidential
ICF evaluated a major Midwest utility's potential to develop significant wind capacity in the Upper Midwest and to access load centers in the Midwest Independent System Operator (MISO) footprint and beyond. The project involved an assessment of the quantity of wind capacity that existing state and potential federal renewable portfolio standards can support in the Upper Midwest region, the impact of transmission constraints on the utility's and competitors' strategic positions, and the impact of federal CO_2 regulation on project economics. ICF translated the results of the analysis into a broad wind resource development strategy. We presented the results of our initial analysis to the CEO, CFO and other officers of the company.

Solar Power Market Assessment, Tenaska Energy

On behalf of Tenaska, ICF modeled renewable energy supply and demand in several US states to assess the long-term viability of solar power markets. The modeling exercise included detailed representation of state and federal incentives programs for utility-scale and distributed solar installations. In states with RPSs that include explicit carve-outs for solar technology we provided SREC price forecasts. For states lacking policy support for solar energy, we calculated the solar price premium over commodity power.