STATE OF VERMONT

PUBLIC SERVICE BOARD

In Re: Joint Petition of Central Vermont Public Service Corporation ("CVPS"), Danaus Vermont Corp., Northern New England Energy Corporation ("NNEEC") for itself and as agent for Gaz Metro Limited Partnership and its parents, Green Mountain Power Corporation ("GMP") and Vermont Low Income Trust for Electricity, Inc.("VLITE"), for approval of: (1) the merger of Danaus into and with CVPS; (2) the acquisition by NNEEC of CVPS and certain other Vermont companies; (3) the amendment to CVPS's Articles of Association; (4) the merger of CVPS into and with GMP; and (5) the acquisition by VLITE of a controlling interest in Vermont Electric Power Company, Inc.	)	PSB Docket No. 7770

PREFILED TESTIMONY OF AJ GOULDING
ON BEHALF OF AMPERSAND GILMAN ENERGY LLC

JANUARY 20, 2012

Mr. Goulding's testimony recommends that, as a condition of approval of the merger, the Public Service Board put in place measures to protect CVPS customers from rate increases and service quality declines as a result of the merger. He advises the Board to impose a rate freeze, to examine carefully the combine company's cost of capital, and to apply operational efficiency targets and performance metrics over the long run.

EXHIBIT

Exhibit 1 Resume of AJ Goulding

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Q. Please state your name and business address.

A. My name is AJ Goulding, and I am the Managing Member of the Ampersand Gilman Energy LLC (”AGE”), and its affiliates, Ampersand Gilman Hydro LP (“AGH”), Ampersand Gilman Biomass LLC (“AGB”), and Ampersand Gilman Site Optimization, LLC (“AGSO”), referred to collectively as the “Ampersand Companies”. My business address is 717 Atlantic Avenue, Suite 1A, Boston, MA 02111.

Q. Who are you representing today?

A. The Ampersand Companies.

Q. Why do the Ampersand Companies have standing?

A. AGE was formed to facilitate the acquisition of the assets associated with the former Gilman paper mill in Gilman, Vermont. AGE controls three subsidiaries: AGH, AGB, and AGSO.

- AGH owns and operates a 4.85 MW hydroelectric generating station on the Connecticut River.
- AGB is responsible for the existing biomass assets at the Gilman Mill site, including a development program which has been exploring restarting the biomass facility or pursuing other generation projects in various configurations. AGB has active interconnection processes and capacity allocations with ISO-New England, as well as an outstanding certificate of public good ("CPG") application with the Vermont Public Service Board ("PSB") regarding the restart of the biomass facility.[1]
- AGSO owns much of the land at the Gilman site (other than that land allocated to the hydro facility in its FERC license), several mill buildings and houses, town plots in the town of Gilman, and two wooded plots near the town.

Each of the entities has a different set of relationships with Central Vermont Public Service ("CVPS").

- AGH currently sells power to CVPS under a long term contract. AGH is also a party to an interconnection agreement ("IA") with CVPS. In addition, AGH is

[1] Petition of Ampersand Gilman Biomass, LLC pursuant to 30 V.S.A. §248 for Authority to Refurbish, Expand and Operate the Steam Turbine Facility located in Lunenburg, Vermont; filed with the State of Vermont Public Service Board on July 13, 2009.

presently a CVPS customer, purchasing all power used on the site during hours when load exceeds AGH production.

- AGB has for some time been attempting to negotiate a long term offtake agreement for its proposed biomass facility. AGB has also been negotiating an interconnection agreement for its proposed facilities; CVPS has been a party to those discussions as well.
- As AGSO is actively seeking to lease space at the site to a variety of businesses, AGSO also has an interest in the proceedings. Ultimately, AGSO may have one or more separately metered premises, creating new potential customers for CVPS.

Thus, collectively, the entities and their parent AGE have an interest in the merger proceeding as current and potential CVPS customers, as parties currently selling power to CVPS and seeking to sell more, and as parties who have interconnection agreements involving CVPS.

Q. Please summarize your relevant professional background.

A. In addition to being the Managing Member of the Ampersand Companies, I am President of London Economics International LLC, a global economic and financial consulting firm focused on energy and infrastructure industries. I also serve as an adjunct professor of power markets at Columbia University. As such, I have extensive experience in the electric energy industry, including experience analyzing the merits and implications of acquisitions like the one proposed by petitioners. I advise major global electric utilities on international business development strategy as well as on the economics of asset acquisitions, and divestitures. I also advise regulatory bodies around the world on topics related to deregulation, market power mitigation, tariff restructuring, and performance-based ratemaking. Throughout my career as a regulatory economist, I have participated as an advisor or principal in over fifty power sector

proposed or executed acquisitions and investments. I have testified as an expert in regulatory and litigation proceedings in the US and Canada on issues ranging from rate-setting and cost of capital to valuation disputes. Lastly, at Columbia University, I have been teaching a course on electricity market design and regulatory economics since 2003, along with (more recently) two graduate workshops. For further details, I have attached my resume in Exhibit 1.

Q. Why do you believe the merger may harm the interest of the Ampersand companies?

A. I am concerned that the Ampersand companies will face two potential sources of harm. First, as a customer, I am concerned that the premium paid for CVPS, a 45 percent premium over CVPS's share price immediately prior to the announcement of the previous agreement CVPS had reached with Fortis Inc.,[2] will result in significant pressure to raise rates and/or reduce service in order to earn back the premium for GMP's parent. The fact that GMP's parent is willing to pay such a premium suggests that allowed returns on equity in Vermont may be larger than they need to be to attract capital. As a customer of CVPS, AGE believes that the Public Service Board ("PSB") needs to carefully examine the merged company's cost base, cost of capital, ability to achieve efficiencies, and service quality commitments.

Second, as a supplier, AGE is concerned about an increase in monopsony buying power now that there will effectively be one fewer purchaser of renewable (as well as conventional) energy in the already small Vermont market. Indeed, the merged companies have made it clear that they intend to exploit their market position by "negotiate[ing] strategically."[3] The

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[2] GazMetro. Press Release. *Gaz Métro to acquire Central Vermont Public Service Corporation*. July 12, 2012.

[3] See page 5, line 6, of the pre-filed testimony of Mary G. Powell and Lawrence J. Reilly, as well as subsequent references to "purchasing power" on page 11.

petitioners exaggerate the extent to which smaller generators have meaningful access to the ISO-New England market; indeed, rising costs of direct wholesale market participation mean that many small producers, at a practical level, face limited outlets for their power.[4] Furthermore, in order to build a new project, developers need to be able to obtain contracts of reasonable length, in addition to having access to the wholesale market. Because Vermont does not allow Vermont customers direct access to suppliers, Vermont generators cannot rely on what would otherwise be their most natural source of contracts, and Vermont customers are unable to reap the benefits of competitive generation markets. Vermont generators are thus at the mercy of either selling to their local utility at potentially inappropriately depressed prices, or bearing high costs to access the wider New England market.

Smaller producers would be further squeezed out of the market if the Combined Company is allowed to build ratebase renewable and conventional generation. It is by no means clear that a larger utility would be able to more efficiently build generation than would independent power producers ("IPPs"). When IPPs miscalculate, the IPP shareholders bear the cost; when utilities make similar mistakes, ratepayers are often left paying for them. If the Combined Company is allowed to abuse its monopsony, or "buyer-side", market power, it may ultimately squelch new competitive generation investment and force out existing suppliers, eventually resulting in higher prices for end consumers when the Combined Company builds

[4] The petitioners are being disingenuous when they note, as they do on p.26, that "as a result of exclusive retail franchise territories, there will be no adverse effect on competition" when it is the very fact of those exclusive retail franchises which prevents the utilities from facing competitive pressures from new and emerging technologies in the first place. Sites such as Gilman, which would be ideal for the creation of a renewables-based micro-grid to attract small eco-friendly companies, are prevented from doing so as a result.

new, generation that independent generators could have built more cheaply and at lower risk to Vermont consumers.

AGE is also concerned that the Quebec location of the combined company's parent will result in additional power transactions with Hydro Quebec ("HQ") due to the simple fact that the parent and HQ likely have pre-existing business relationships that would facilitate such transactions on behalf of the larger, combined company. Regardless of whether CVPS and GMP self-build under ratebase or enter into further contracts with Hydro Quebec for supply, opportunities for local producers would be further reduced.

Q. What do you believe the Public Service Board should require as conditions of the merger to assure that the merger promotes the general good?

A. Given my concerns expressed above, the PSB should put in place explicit measures, building on existing frameworks within the Alternative Regulation Plans, to protect CVPS's customers from rate increases and service quality declines as a result of the merger. I believe that a portfolio of measures should be deployed, including a rate freeze over the short term, careful examination of the appropriate cost of capital for the merged companies, and the application of operational efficiency targets and enhancing existing binding performance standards over the long run.

Specifically, I believe that the following measures are necessary before the merger can be deemed to promote the general good:

- The merger should not be approved until the PSB has held a comprehensive hearing determining an appropriate going forward cost of service for the Combined Company, and a revised Alternative Regulation Plan has been devised. In the meantime, rates for CVPS should be frozen.

- The cost of capital for the merged companies should be adjusted downwards to reflect perceived reductions in risk in the combined companies and the increased access to capital as a result. For example, the cost of equity for CVPS as a stand-alone company was recently established at 9.45%.[5] On page 26 of the pre-filed testimony of Powell and Reilly, the petitioners note that "The Combined Company will have greater access to capital and liquidity…" Similar assertions are made on p.6 of Pierre Despars' pre-filed testimony. If the arguments of the petitioners are accepted with regards to ease of access to capital markets, the allowed return on equity (ROE) for the combined company should be lower, and the cost of debt may fall as well.
- Future rates should be set using a revised Alternative Regulation Plan for the Combined Company based on an assumed minimum expected level of ongoing annual operational efficiency improvements – these minimum ongoing efficiency improvements should be calculated *after* the savings from consolidation of the two entities are taken into account, and thus would be in addition to the promised savings of $144 million over ten years. [6]
- The PSB should enhance existing explicit performance standards which would assure that the Combined Company places in the top quintile of US utilities with

[5] Docket No. 7627. Order Approving Amendments. Petition of Central Vermont Public Service Corporation for approval of certain amendments to its Alternative Regulation Plan pursuant to 30 V.S.A.§ 218d.

[6] GazMetro. Press Release. *Gaz Métro to acquire Central Vermont Public Service Corporation*. July 12, 2012.

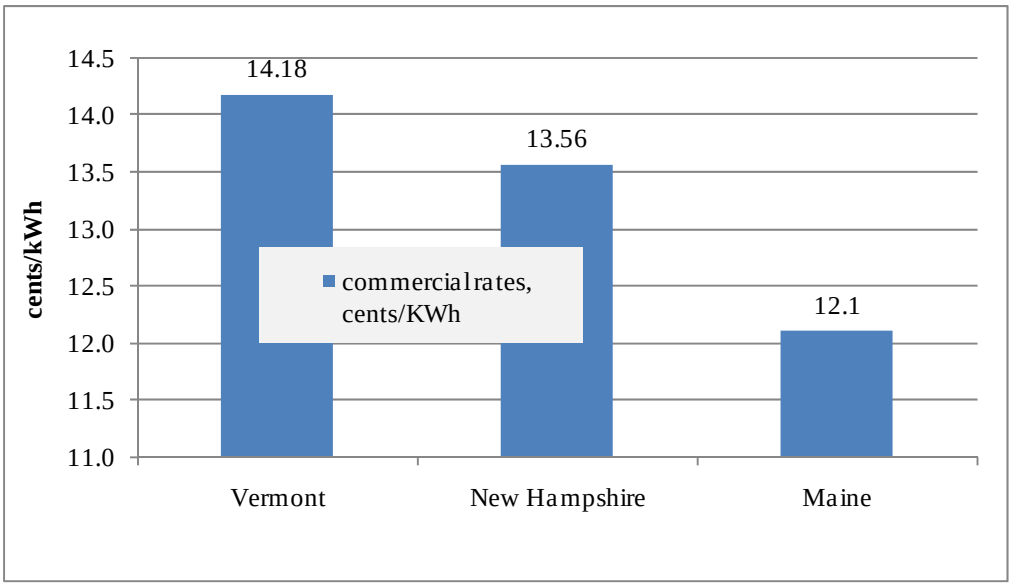
regards to all of the key metrics included in the current Service Quality and Reliability Plans. The merged entity should face increased explicit monetary penalties should it fail to meet these standards. While Mr. Otley testifies that it is the Combined Company's "intention" to deliver a higher quality of service, and to meet regularly with the DPS regarding service quality (see p. 14 of Mr. Otley's prefiled testimony), the best protection for customers will be to link these commitments in a new Service Quality and Reliability Plan for the Combined Company which will clearly define revised service quality expectations linked to financial penalties if the established targets are not met.

- In addition, CVPS and GMP should be required to competitively procure all of their future generation needs, or at a minimum all of their future renewables needs. Such a commitment would benefit ratepayers by assuring that developers bear the risk of cost and construction schedule deviations and the operational risk of the facilities. Through the competitive process costs are likely to be lower than those of the Combined Company if it were to build the facility itself, especially given the fact that developers, unlike utilities, cannot rely on ratepayers for recovery of cost overruns. Furthermore, competitive procurement may boost the local economy to the extent that the winning plants are located in Vermont.

Q. How do Vermont rates compare to rates in neighboring states?

A. Data from the US Energy Information Administration shows that Vermont delivered rates

to final commercial customers are higher than rates in New Hampshire and Maine.[7] Rates for all customer classes are lower in Maine than those in Vermont.

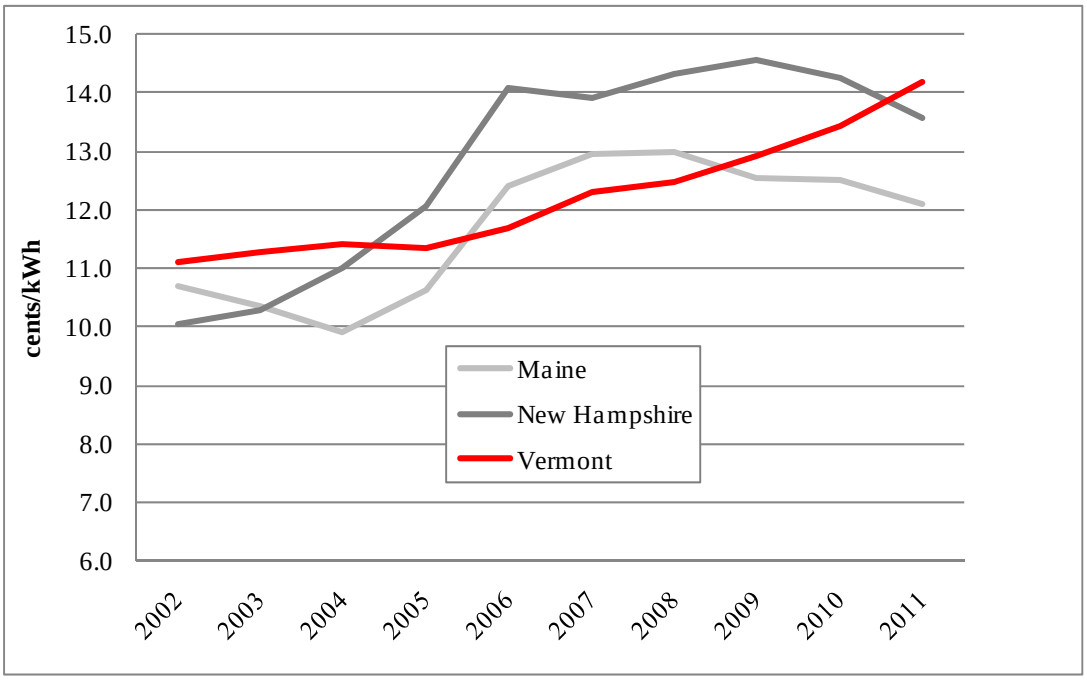


Q. How have Vermont rates changed over the past 5 years relative to neighboring states?

A. Since 2008, rates to final commercial customers across New England, and particularly in nearby states, have fallen.[8] By contrast, rates in Vermont continue to rise.

[7] Source: EIA. Average Retail Price of Electricity to Ultimate Customers by End-Use Sector, by State, October 2011. Release date: January 18, 2012. Data from: Electric Power Monthly.

[8] Source: EIA. Average Price by State by Provider, 1990-2010. Release date: November 15, 2011. Data from: Electric Power Monthly; EIA. Average Retail Price of Electricity to Ultimate Customers by End-Use Sector, by State, October 2011. Release date: January 18, 2012. Data from: Electric Power Monthly.



Q. Why would the amelioration you propose be beneficial to Vermont consumers?

A. The proposed requirements would assure that Vermont customers would receive immediate and meaningful benefits from the merger. The trend of rising rates to final consumers would be broken, the merged companies would be prevented from reducing service quality to increase profits,[9] and ratepayers would not face the risk that the Combined Companies would invest in new generation assets (including in technologies with which the merged companies have little experience) with the potential for cost overruns and the inability to access during operations the economies of scope and scale available to specialized developers of those technologies.

[9] The 2005 Vermont Electric Plan highlights the importance of small local utilities in being responsive "to the local community's needs for service in a manner that reflected the characteristics of the local community…" As the Combined Company becomes more distant from the communities it serves, requiring the Combined Company to amend its Service Quality and Reliability Plan with improved performance standards linked to clear increased financial consequences is a means of maintaining or enhancing the local service commitment.

Q. Can you provide examples of the various measures that you propose from other jurisdictions?

A. Yes. Efficiency targets and performance standards are common features of regulatory regimes worldwide, and have been a feature of the regulatory regime in Vermont for several years. For example, in the province of Ontario, electric distribution utilities have been required to improve efficiency by 0.72% per year,[10] with laggards facing a "stretch factor" of an additional 0.2 to 0.6% per year, depending on each distributors' historically achieved productivity level.[11] Ontario has several utilities which are similar in size to the merged companies, or indeed smaller; many of these utilities serve rural and low population density areas. It is important to note that, in contrast to the CVPS Alternative Regulation Plan as restated March 3rd, 2011, *all* utilities in Ontario (including those in the best performing quintile) are subject to the productivity target.

Similarly, utilities in Maine have also been under a regime with explicit efficiency targets; a more stringent form of alternative regulation coupled with greater choice for Maine consumers in the wholesale supply market contributes to rates that are lower than Vermont's for many customers.[12]

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[10] Ontario Energy Board. EB-2007-0673. Supplemental Report of the Board on 3rd Generation Incentive Regulation for Ontario's Electricity Distributors. September 17, 2008. Page 12.

[11] Ontario Energy Board. EB-2007-0673. Addendum to the Supplemental Report of the Board on 3rd Generation Incentive Regulation for Ontario's Electricity Distributors. January 28, 2009. Page 1.

[12] See e.g. Central Maine Power Company. Alternative Rate Plan 2008. Docket No. 2007-215.

An example of the linkage of performance standards with financial consequences, again similar to the Service Quality and Reliability Plans in Vermont, can be found in Alberta, where the utility serving the city of Calgary agreed to meet specific targets regarding Injury/Illness Frequency Rate (AIIFR), System Average Interruption Frequency Index (SAIFI), and System Average Interruption Duration Index (SAIDI).[13] Failure to meet these specified performance standards results in penalties which can total as much as $2 million per year.[14]

Furthermore, many US states forbid utilities from building generation under ratebase unless a competitive process has established that the utility itself is the least cost alternative.

Q. Do you support the testimony of AARP with regards to the windfall sharing order?

A. I do. The $144 million promised to ratepayers as a result of the merger are entirely due to efficiencies gained through the combination; they do not address the windfall that arose as a result of attempts to put the two companies on a sound financial footing despite the imprudent contracts to which the companies were a party. Whereas CVPS shareholders received a substantial premium for their shares (more than twice what was observed in other recent utility mergers)[15], the merger proposal provides for no recognition of the fact that ratepayer money was

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[13] Alberta Utilities Commission. Decision 2009-035. ENMAX Power Corporation. 2007-2016 Formula Based Ratemaking. March 25, 2009. Page 65.

[14] Ibid.

[15] The transaction price under the Duke Energy and Progress Energy, Inc. merger represented a 6.4% premium to the 20-day average closing stock price preceding the merger announcement (Duke Energy Press Release, Jan 10, 2011), while the transaction price under the Exelon Corporation and Constellation Energy merger represented a 18.4% premium to the 30-day average closing stock price preceding the merger announcement (Exelon Press Release, April 28, 2011).

used to put the companies on a sound financial footing. Refunds as proposed by AARP would provide a reasonable means of achieving this compensation.

Q. Practically, how do you suggest the processes you propose would work in Vermont?

A. The proposal for the Combined Company to submit a rate filing for review and approval *after* the Board's final merger order is issued is problematic (See prefiled testimony of Robert Griffin, p. 9). The Companied Company is basically asserting benefits to ratepayers, but saying "trust us" when it comes to the modifications to rates that will be necessary in order to assure that ratepayers actually receive appropriate compensation. If the merger is to be approved, such approval should be contingent upon the Combined Company simultaneously entering into a new Alternative Regulation Plan incorporating a comprehensive cost of service review. The new Alternative Regulation Plan would:

- incorporate an appropriate reduction to the cost of capital, which should result in an allowed ROE for the Combined Company of less than the lower of the two allowed ROEs for the predecessor companies;
- assure the Productivity Factor is tightened to assure that the Combined Company faces a minimum productivity target of 0.5% on Non-Power Costs even if it finds itself in the 1st Quintile,[16] with the productivity target increasing by 0.25% per

[16] Note that such a level would mean that were the Combined Company to reach the first quintile, it would still face a productivity target less than that applied to the most efficient companies in Ontario, a jurisdiction with similarly situated utilities. Furthermore, unlike utilities in Ontario, the Combined Company may (depending on the Alternative Regulation Plan proposed) still have access to the ROE Performance Adjustment, as well as being subject to a more flexible capital spending regime.

quintile as performance falls, and consider expanding the Peer Group of utilities given the increased size of the Combined Company;

- require that a revised Service Quality & Reliability Plan be attached to the Alternative Regulation Plan with target performance set to meet or exceed the top quintile of US utilities and linked to specified penalties, including increasing credits for Service Guarantees to $100 per customer, eliminating caps on per incident payouts, and increasing Maximum Annual Service Quality Compensation to $2 million for the Combined Company with appropriate corresponding adjustments to the average cost per point; and
- forbid inclusion in the Power Cost Adjustment Mechanism costs associated with any future new utility-owned generation.

Absent the above provisions, I believe that the merger may not provide net benefits to CVPS ratepayers, or contribute to the general good of the state. As evidenced by the photo on the joint petition of the companies, a merger is not necessary for the two companies to cooperate in specific areas where coordination of activities is sensible. For the general good of the state to be advanced by the merger, resulting rates need to be just and reasonable, and the Combined Company needs to deal fairly with competing independent suppliers. The provisions I propose will assure that this is the case.

Q. Does this conclude your testimony?

A. Yes.

Exhibit 1

A.J. GOULDING

President, Ampersand Energy Partners LLC, London Economics International LLC

KEY QUALIFICATIONS:

In his role as president of London Economics International LLC, A.J. Goulding manages a growing international consulting firm focused on finance, economic, and strategic consulting to the energy and infrastructure industries. In addition to serving as a sector expert in electricity and gas markets, his responsibilities include project management, marketing, budget and financial control, and recruiting. A.J. also serves as an adjunct professor at Columbia University, where he teaches a course on electricity market design and regulatory economics.

Besides his work at LEI, A.J. heads New England based Ampersand Energy Partners LLC ("AEP"), an established renewable energy producer with close to 10 MW of capacity under management. In this role, A.J. is responsible for all strategic decision making, financial planning, as well as power purchase negotiations. Finally, A.J. leads AEP's business development activities, including project identification, financial modeling, purchase price negotiations, and closing.

With over seventeen years of experience in evolving electricity and natural gas markets, A.J.'s diverse background enables him to work effectively in both emerging markets and OECD countries. AJ has led multiple engagements advising electricity market regulators and utilities in tariff design, including establishment of performance-based ratemaking regimes. A.J. has significant experience in the Kingdom of Saudi Arabia (KSA), drafting the Electricity Industry Restructuring Plan, and advising the Electricity and Cogeneration Regulatory Authority (ECRA) on establishment of a new tariff methodology and design, and was retained by ECRA to advise on the creation of a new wheeling tariff. He also led the engagement providing advice to a Kuwati based energy company in the potential acquisition of an engineering services firm.

In North America, A.J. has been articulate in describing the new market relationships between wholesale power marketers, merchant plants, aggregators, and the existing investor owned utilities. In emerging markets, A.J. has considerable experience dealing with the challenges of mixed private and public ownership, difficulties in creating credit-worthy distribution and retail entities, and the realities of line losses, unreliable fuel deliveries, and politicized labor relations. He is sensitive to the need to develop solutions to electric power sector restructuring problems which respect national pride while at the same time conforming to sound economic principles.

A.J. began his career performing natural gas market analysis for the ICF Resources subsidiary of ICF Kaiser International. Later, he lived for two years in New Delhi, India, where he advised the United States Agency for International Development (USAID) on electric power sector restructuring in India. He continued his work on India while pursuing his MA at Columbia University, leading to the publication of an article on Indian privatization. Simultaneously, he researched the process of power sector reform in Pakistan, contrasting it with the Indian experience. Upon completion of his MA, A.J. served as business development associate for Citizens Power LLC, a top ten US wholesale power marketer. He then moved to London Economics, where he has held roles of progressively increasing responsibility.

EDUCATION:

Earlham College, Richmond, Indiana, B.A. in Economics, 1991. College honors, scholar-athlete, public service graduate fellowship.

Columbia University, New York, New York, M.A. in International Business, 1997. Foreign Language and Area Studies fellowship, Cordier prize.

EMPLOYMENT RECORD:

From: 1996	**To:** present
Employer:	*London Economics International LLC, United States*
	President (July 1999 to present), Senior Consultant (January 1998 to July 1999), Summer Associate (June 1996 to August 1996)
From: September 2003	**To**: present
Employer:	*Columbia University*
	Adjunct Assistant Professor
From: 1997	**To**: 1997
Employer:	*Citizens Power LLC; Boston, MA*
	Associate
From: 1994	**To**: 1995
Employer:	*USAID; New Delhi, India*
	Energy Consultant
From: 1991	**To**: 1993
Employer:	*ICF Resources, Inc.; Fairfax, VA*
	Analyst

SAMPLE PROJECT EXPERIENCE:

The projects briefly described below are typical of the work A.J. has performed throughout his career at London Economics, Citizens Power, USAID/India, and ICF Resources. A.J. also serves as an adjunct professor at Columbia University, where he teaches a course in electricity market design.

<u>Cost of Capital and "Optimal" Capital Structure</u>

- ***cost of capital calculation for Kingdom of Saudi Arabia:*** For ECRA, A.J. led seven figure engagement with international team assessing the tariff design, modeling, and electricity market evolution in KSA. The engagement resulted in a revised tariff system, including performance based

rates, tolling agreements for generation, and an open access tariff, and involved extensive work on determining the appropriate WACC and "optimal" capital structure for use in the tariff model as a return on the regulated asset base.

- ***recommendations for next Scheme of Control in Hong Kong:*** worked with the Hong Kong government to develop a series of recommendations regarding appropriate allowed returns, calculation of asset base, prevention of over-investment, and rate stability.

- ***cost of capital determination of generation and distribution assets in Philippines and the Caribbean:*** provided detailed analysis of regulatory trends in the Philippines and in selected Caribbean countries. Advised potential buyer on relative risk in each country examined, including country risk, regulatory risk, and fuel supply and load growth issues, and used assessment of risk factors, together with calculations of the cost of debt and cost of equity to determine the relevant WACC for a portfolio of assets.

- ***analyzed the impact of a change in the cost of capital for customer payments charged by a regulated utility***: on behalf of a client facing a takeover bid, analyzed the extent of ring-fencing of the subsidiaries from the parent company, and the implications of a credit downgrade on customer payments for the regulated subsidiaries

- ***developed framework to determine appropriate capital structure and return on equity for OPG's prescribed assets***: AJ led the engagement that developed an overall framework for evaluating the risk to equity and the "optimal" capital structure for Ontario Power Generation's (OPG's) prescribed assets, including analysis of salient risk factors, and examining the characteristics and risk profile of benchmark entities.

- ***determined appropriate marked-based discount rates for Japanese electricity generator in North America:*** AJ led the team that provided an analysis of market-based discount rates at which buyers would be willing to purchase contracted generation assets at the time of the engagement.

Regulatory Economics

- ***design of wheeling tariff and pilot program for Saudi Arabia:*** for ECRA, developed proposed plan for wheeling of power in Saudi Arabia, including proposed pilot program, assessment of impact on incumbent, relative economics of wheeling versus the industrial tariff, and review of associated commercial and regulatory issues

- ***Electricity Industry Restructuring Plan for Saudi Arabia:*** A.J. developed the blueprint for industry restructuring in Saudi Arabia, including unbundling of the current monopoly vertically integrated utility, introduction of wholesale competition, and creation of a Single Buyer

- ***drafting National Renewable Energy Plan for Saudi Arabia:*** on behalf of the regulator, developed proposal for renewable energy plan for Saudi Arabia, including assessment of procurement methods, new institutions required, and determination of resource eligibility

- ***incentive-based contract design:*** for Ontario Power Authority, advised on provisions of power purchase agreement associated with incentives for optimization of production in peak periods for hydro facility owned by a major generator

- ***assessed potential cost of Ontario Green Energy Act:*** explored costs of Green Energy Act, including feed in tariff provisions, grid connection funding, institutional development, loss of local control, and stakeholder mandates

- ***design of incentive rate structure for Alberta utility:*** for a large metropolitan Alberta utility, A.J. advised on design of a proposed incentive based rate structure, including a multi-year term, operating cost incentive structure, and earnings sharing mechanism. Deliverables aided in development of regulatory filings in attempt to move towards light-handed regulation, and included testimony before the Alberta Utilities Board

- ***recommendations regarding market power mitigation and retail market design:*** in two separate engagements, advised the Government of Alberta on alternatives for rate designs for small customers and on measures to monitor, measure, and ameliorate market power; both engagements included extensive modeling of Alberta wholesale market and of retail supply tariffs

- ***lessons from North American experience for Chinese regulators and grid companies:*** for a set of Chinese state-owned companies, including grid operators, the nuclear operating company, and provincial power companies, prepared a series of detailed briefings on developments in electricity market design worldwide, with a particular emphasis on lessons from the North American experience. This experience was then used to highlight the various alternatives for market design in China, and the potential outcomes

- ***implications of restructuring the Japanese power sector:*** for a major Japanese development bank, analyzed the impact of proposed reforms on a Japanese transmission and generation company, including the potential for stranded costs, opportunities for expansion of transmission, and future tariff setting regimes. The engagement included extensive training of the development bank's staff, as well as the creation of a working model of the Japanese power sector

- ***critiquing and improving electricity market structure in Alberta:*** for market institutions and regulators in the Canadian province of Alberta, performed extensive analysis of current industry market structure, including role of Power Pool, Transmission Administrator, Market Surveillance Administrator, the Scheduling Coordinator, and the Balancing Pool. Directed detailed analysis of market power issues associated with divestiture of specific assets and advised on particular market rules to ameliorate strategic behavior

- ***2nd generation PBR in Ontario:*** led Cdn. $1.5 million engagement focusing on design of second generation PBR in Ontario. Key components include estimating total factor productivity (TFP), determining appropriateness of yardstick competition, analyzing demand-side management programs in the context of PBR, and examining service quality indicators

- ***assessment of changes in market power for a FERC Section 203 filing:*** in connection with a proposed combination of generation portfolios, developed testimony concerning the change in market concentration as a result of the transaction, including an assessment of changes in HHIs under various market definitions

- ***implications of performance based ratemaking (PBR) in the Caribbean:*** for a privately owned integrated electric company based on a well developed Caribbean island, directed strategic analysis of implications of PBR, suggested approach to regulators, and provided indicative benchmarking analysis

- ***preparing appropriate framework for private investment in Romanian distribution sector:*** on behalf of a private client, worked with Romanian regulators to develop a consensus on approaches to capital recovery, PBR application, performance standards, supply cost-pass through, and cost of capital. These elements served as preconditions for the private investor's participation in the privatization process

- ***global regulatory review:*** assisted private equity player in assessing electricity markets in Eastern Europe, Turkey, Asia, and Latin America to determine potential regulatory and market issues associated with proposed purchase of diverse portfolio of generation, distribution, natural gas pipeline, and retail fuels businesses

Written and oral expert testimony

- ***valuation of PPAs associated with IPPs in Thailand:*** as an expert witness in an arbitration case, A.J. quantified the change in value resulting from modifications to several PPAs associated with a power project in Thailand. Engagement included review of PPAs, evaluation of Thai power sector restructuring process, extensive modeling of financial aspects of PPAs, and assessment of financing alternatives; client won on all claims

- ***review of Dutch electricity market regulatory dynamics:*** in a case before the US Federal Court of Claims related to economic substance, provided understanding of how Dutch electricity market was structured in the mid-1990s, how it was expected to evolve, and how it did actually evolve. Issues addressed included market structure, regulation, role of non-utility investors, and role of private and international investors

- ***assessment and valuation of quantum meruit claims:*** for advisor and developer of biomass facilities, provided expert opinion on value of services provided based on industry knowledge, review of correspondence, and experience providing or commissioning similar services

- ***conservation and demand management (C&DM) in Ontario:*** wrote testimony related to the alternative ratemaking approaches available regarding C&DM; addressed innovative alternatives and compared and contrasted various schemes in the Ontario context

Electricity and Natural Gas Asset Valuation and Transaction Advisory Work

- ***due diligence and valuation of engineering consulting firm:*** for a Middle Eastern investment fund, A.J. led the evaluation of the acquisition of an engineering consulting firm with offices in the US, Europe, and the Middle East focused on the power sector; the project included creation of a pro forma for the business, evaluation of business prospects and strategy, and an examination of the relevant economic conditions and their impact on value

- ***valuation of Singapore generating asset:*** on behalf of a large Asian generating company, provided revenue forecasts from spot, retail, and vesting contracts for Singapore generator Analysis included review of repowering options, assessment of regulatory evolution, and potential for strategic behavior; A.J. later performed a similar exercise for a second Asian generating company also seeking to purchase a similar set of assets in Singapore

- ***biomass investment evaluation:*** on behalf of growing private equity investor, performed extensive analysis of economics of restart of several biomass plants in California and elsewhere. Tasks included PPA review, examination of permits, assisting in arranging financing, and examination of California market dynamics

- ***advise on purchase of small hydro station:*** for a newly established hydro-focused private equity investor, valued and performed regulatory review associated with successful purchase of a small hydro facility in Maine. Tasks including creating pro forma, reviewing material contracts, negotiating purchase and sale agreement, hiring operator, and monitoring ongoing performance

- ***revenues to wind generators in Alberta:*** A.J. led the examination of merchant revenues to a portfolio of existing and under construction wind generators in the province of Alberta. Tasks included review of market design issues, 20 year scenario analysis for merchant revenues, review of contract terms and conditions, and an examination of the potential for additional revenues from the sale of emissions reduction credits and renewable energy certificates. Deliverables included market study supporting issuance of income trust units

- ***due diligence and valuation of engineering consulting firm:*** for a Middle Eastern investment fund, A.J. led the evaluation of the acquisition of an engineering consulting firm with offices in the US, Europe, and the Middle East focused on the power sector; the project included creation of a pro forma for the business, evaluation of business prospects and strategy, and an examination of the relevant economic conditions and their impact on value

Power, Gas, and Infrastructure Sector Business Development and Strategy

- ***distressed asset acquisition strategy:*** advised a major Japanese utility on entry strategies to the US market, including performing a workshop on due diligence, US regional market analysis, and asset valuation; arranging for introductions to major asset sellers, potential investment partners, and advisors; and creating a screening methodology and database of potential acquisition targets

- ***workshop on performance-based ratemaking strategy:*** for first stand-alone transmission company in North America, conducted day long workshop on issues associated with PBR, including the types of PBR and which one is most appropriate for what type of company, the sources of efficiency gains observed in other transmission companies worldwide, and the impact of performance standards on profitability and flexibility

- ***development of regulatory and financing strategy for transco:*** for first stand-alone transmission company in North America, evaluated key transaction parameters, assessed allowed ROE, proposed strategy for attaining favorable incentive rates, and helped to identify potential cost savings

- ***business development opportunities in India:*** for UK electricity and mining conglomerate, provided detailed assessment of opportunities in construction of integrated mining and mine-mouth power stations and in distribution of electricity

PUBLICATIONS:

Goulding, A.J. and Serkan Bahçeci. "Stand-by rate design: Current issues and possible innovations." *Electricity Journal*, June 2007, pp 87 – 96.

Goulding, A.J. and Bridgett Neely. "Acceding to Succeed" *Public Utilities Fortnightly*, July 2004.

Goulding, A.J. "Avoiding a Canadian California" *Public Utilities Fortnightly*, February 5, 2003.

Goulding, A.J., Julia Frayer, Jeffrey Waller. "X Marks the Spot: How UK Utilities Have Fared Under Performance-Based Ratemaking" *Public Utilities Fortnightly*, July 15, 2001.

Goulding, A.J., Julia Frayer, Nazli Z. Uludere. "Dancing with Goliath: Prospects After the Breakup of Ontario Hydro" *Public Utilities Fortnightly*, March 1, 2001.

Goulding, A.J., Carlos Rufin, and Greg Swinand. "Role of Vibrant Retail Electricity Markets in Assuring that Wholesale Power Markets Operate Effectively." *Electricity Journal*, December 1999.

Adamson, Seabron and A.J. Goulding. "The ABCs of Market Power Mitigation: Use of Auctioned Biddable Contracts to Enhance Competition in Generation Markets." *Electricity Journal*, March 1999.

Goulding, A.J. "Retreating from the Commanding Heights: Privatization in an Indian Context." Columbia University: *Journal of International Affairs*, Winter 1997, pp. 581-612.

Hass, Mark R. and A.J. Goulding. "Impact of Section 29 Tax Credits on Unconventional Gas Development and Gas Markets." Society of Petroleum Engineers: SPE 24889, presented at 67th Annual Technical Conference, Washington, DC, October 6, 1992.