

Resume of Richard L. Levitan

RICHARD L. LEVITAN

SUMMARY

A management consultant experienced in electricity and natural gas procurement, pipeline transportation management and infrastructure assessment, wholesale market design, long-term contracts, transmission pricing, and gas/electric simulation analysis.

PROFESSIONAL EXPERIENCE

- 1989 - **Levitan & Associates, Inc.**
President

- 1980 - 1989 **Stone & Webster Management Consultants, Inc.**
Vice President and Managing Officer (Boston)
Vice President
Executive Consultant
Senior Consultant
Consultant

- 1978 - 1980 **Pacific Gas & Electric Company**
Economist

CONSULTING ASSIGNMENTS

AUCTIONS & PROCUREMENT

Advised Connecticut Department of Energy and Environmental Protection on renewable energy and natural gas pipeline capacity procurement.

Served as Independent Evaluator (IE) on behalf of the California Public Utilities Commission (CPUC) regarding Southern California Edison's (SCE's) 2011 All Source Request for Offers (RFO) and 2012 Renewables RFO.

Served as IE on behalf of the CPUC regarding SCE's Non-Gas QF RFO.

Served as IE on behalf of the CPUC regarding SCE's Gas RFO.

Served as Agent on behalf of the New Jersey Board of Public Utilities (BPU) on the Long-Term Capacity Agreement Pilot Program (LCAPP). Responsible for implementation of the LCAPP Law, including development of Contracts-for-Differences covering 1,947 MW of new combined cycle plants. Applied Minimum Offer Price Rule. Performed simulation analysis of energy price effects. Testified before the BPU and in Federal District Court.

Provided technical support to the Long Island Power Authority (LIPA) regarding new generation and transmission projects, including Neptune Transmission, Caithness, fast track projects, and gas pipeline / local transportation contracts.

Conducted simulation analysis and transmission studies for LIPA in PJM and New England to support firm transmission withdrawal rights.

Responsible for Standard Service procurements for the Connecticut Public Utilities Regulatory Authority (PURA) regarding the standard service solicitations of Connecticut Light & Power (CL&P) and United Illuminating (UI). Procurement oversight has been provided six times per year since 2006.

Prepared the 2012 Connecticut Standard Service Procurement Plan governing changes to the UI and CL&P procurement paradigm, including self-management.

Provided testimony before CT PURA regarding the hedge benefits of long term contracts.

Served as “Prosecutorial” arm of PURA to support the selection of 540 MW of new quick-start peakers in Connecticut to meet ISO-NE’s Locational Forward Reserve Market requirement.

Prepared procurement paradigm and contract framework on behalf of the Maryland Public Service Commission to support four electric distribution companies’ (EDCs’) long term resource requirements.

Provided technical support to four Massachusetts EDCs regarding long term renewable energy solicitation, including NStar’s entitlement to Cape Wind.

Provided transmission and regulatory assistance in PJM in relation to NYPA’s selection of the Hudson Transmission HVDC project.

Managed project team’s market advisory and quantitative assessment of generation, fuel deliverability, and DC transmission options for LIPA’s 2007 RFP. Identified primary risk factors associated with competing long term strategic alternatives. Submitted expert reports to the Governor’s Office to support the selection of the Neptune HVDC project, including expected RTEP cost allocation for firm transmission withdrawal rights.

Managed project team’s due diligence for LIPA regarding the election of Unforced Capacity Deliverability Rights (UDRs) on Neptune and Cross Sound Cable. Technical assessment covered transmission withdrawal rights, auction revenue rights, firm v. non-firm point-to-point transmission rights, and scheduling of internal bilateral transactions.

Evaluated wholesale procurement options for Phelps Dodge Corporation.

Represented Potomac Electric Power Co. in the transference of long term energy purchase contracts to Mirant.

INFRASTRUCTURE ASSESSMENT

Conducted due diligence on behalf of the Nova Scotia Consumer Advocate and Small Business Advocate on the proposed Maritime Link (ML) transmission project from the Lower Churchill Falls in Labrador to Nova Scotia. Assessed the project economics of the ML in relation to other renewable energy and import options to meet Nova Scotia's energy and environmental objectives. Submitted expert testimony before the provincial regulatory board.

Represented LIPA in the technical assessment of gas pipeline and local delivery adequacy on the New York Facilities System to fuel proposed new combined cycle plants.

Conducted due diligence on behalf of NYPA in RFP #5 regarding pipeline and local delivery conditions to support new combined cycle plants in New York City. This effort encompassed extensive production simulation modeling, culminating in the selection of the Astoria Energy combined cycle plant.

Assessed transportation options for Bayonne Energy Center into New York City, including pipeline transport quality assessment on the Transco mainline and Leidy line.

Provided commercial support to LIPA regarding NGrid's on-Island buildout on the New York Facilities System to serve the Fast Track Units. Provided commercial support to LIPA's Executive Management regarding the Omnibus Agreement between LIPA and NGrid governing local transportation service, imbalance resolution, netting, and other commercial provisions.

As LCAPP Agent for the BPU, evaluated delivery conditions on Transco and Texas Eastern to support fuel infrastructure adequacy for proposed new combined cycle plants in central and northern New Jersey.

Conducted due diligence on the proposed Broadwater Floating Storage Regasification Unit for the State of New York, including hydraulic delivery conditions, homeland security, environmental, and economic impacts.

Evaluated pipeline and local gas utility infrastructure to support the proposed quick start peakers in Connecticut on behalf of PURA.

Assessed fuel adequacy assessment for PJM, NYISO, and ISO-NE following hurricanes Katrina and Rita. Recommended risk mitigation measures for the winter of 2005/2006.

Evaluated storage and pipeline deliverability constraints for Stagecoach high deliverability storage field development in the Marcellus Shale basin. Identified

system improvements on Tennessee required for phase two high deliverability expansion.

Advised ISO-NE on fuel diversity issues associated with the potential retirement or conversion of the Salem Harbor generation station.

Conducted steady state and transient flow analyses for PJM of pipeline and storage capability to serve core and non-core loads when contingencies occur.

Advised NextEra on pipeline infrastructure adequacy on Tennessee to serve the combined cycle plant in Rhode Island.

Advised TransCanada on bulk power transmission limitations affecting market options in the Northeast.

GAS/ELECTRIC INFRASTRUCTURE ADEQUACY

Represented PJM, NYISO, ISO-NE, MISO, TVA and the ISO of Ontario on gas / electric interdependencies across the Eastern Interconnection. This multi-year study on infrastructure assessment included extensive mapping of all pipeline, storage and gas-fired generation infrastructure, constraint analysis of the frequency and duration of pipeline bottlenecks affecting scheduled gas-fired generation, hydraulic analysis of the resiliency of the pipeline network under postulated gas or electric side contingencies, and technical assessment of dual fuel capability.

Performed pipeline and storage deliverability assessment for NYISO, including quantification of at-risk generation when gas or electric side contingencies occur. Gas contingencies included assessment of pipeline cybersecurity issues.

Assessed residual oil and ULSD infrastructure across the New York Control Area for NYISO, including economic engineering assessment of dual-fuel capability in relation to firm transportation entitlements.

Assessed market expansion prospects for major pipeline company doing business in PJM.

Managed the Multi-Region Gas Study for PJM, ISO of Ontario, NYISO, ISO-NE, and NERC regarding pipeline and storage adequacy affecting bulk power security. Contingency analysis was conducted using electric and gas hydraulic models to determine the magnitude and duration of generation at risk, and the feasibility of short term pipeline workarounds. Mathematical modeling of supply chain management was performed to identify bottlenecks and throughput patterns under varying demand conditions.

Performed steady state and transient flow analysis of the consolidated network of pipeline and storage resources to serve core and non-core generation load across PJM when gas or electric side contingencies are tested.

Provided support to ISO-NE Market Monitor regarding pipeline delivery conditions and market participant behavior during the cold snap of January 2004. Advised ISO-NE on formulation of cold weather protocols affecting gas-fired generator availability.

Conducted steady state and transient flow analyses for ISO-NE of gas infrastructure capability in New England to serve core and non-core loads when electric and gas side contingencies are postulated.

Advised ISO-NE and NEPOOL System Restoration Working Group on restart procedures governing natural gas plants in New England following a black out.

Conducted due diligence on two proposed off-shore LNG import terminals for the Massachusetts Department of Energy Resources, including hydraulic modeling to evaluate physical flow constraints and capacity benefits.

Assessed transportation deliverability constraints in the transient state on El Paso Natural Gas Co.'s pipeline network across metropolitan Phoenix for Salt River Project.

Evaluated post-restructuring transportation and natural gas supply procurement options for the Canal Unit. Conducted assessment of interruptible transportation quality and capacity release options on Algonquin's "G" lateral from Mendon.

TRANSACTION SUPPORT

Represented the State of Connecticut in its review and approval of the NStar and Northeast Utilities merger.

Represented Con Edison Co. in its proposed acquisition of Northeast Utilities, including risk management assessment and ongoing litigation support following cancellation of the transaction.

Advised global investors on the acquisition of a wind portfolio in New York, New England, and New Brunswick.

Represented AllCapital on the acquisition of power plants located in New York City.

Represented TransCanada on the acquisition of power plants in the Northeast.

Represented Goldman Sachs in the acquisition of the 730 MW Linden generation asset in New Jersey and the 300 MW Variable Frequency Transformer Project into Staten Island.

Represented National Grid (Power Gen) on the acquisition of LG&E.

Provided market support for Public Service Resources Corporation on storage asset lease dispute under FERC jurisdiction.

Restructured long term power purchase agreements (PPAs) for Con Edison, including technical simulation analyses of replacement energy under Standard Market Design and NYSRC reliability procedures.

Restructured long term PPAs for Puget Sound Energy, Potomac Electric Power Co., Commonwealth Electric, Public Service Electric & Gas, and Bonneville Power Administration.

Advised various U.S. and international investors groups regarding the purchase of generation assets divested by the New England Electric System, Boston Edison, Commonwealth Electric, Eastern Utilities Associates, Northeast Utilities, Pacific Gas & Electric Co., among others.

Represented Con Edison on the consensual termination of nine long term PPAs resulting in over \$1.5 billion in ratepayer savings, including transactional support before the NYPSC.

Advised Con Edison on the securitization values of its QF portfolio, including all contracts covering gas supply, transportation, and steam.

Conducted resource planning studies regarding Con Edison's potential repowering opportunities at Ravenswood and Astoria.

Represented Puget Sound Energy, Commonwealth Electric, JCP&L, Bonneville Power Administration, Orange & Rockland Utilities, and PEPCO on the consensual termination or restructuring of long term PPAs.

Advised Associated Industries of Massachusetts on electric utility restructuring initiatives in New England.

Represented the Association Québécoise des Consommateurs Industriels d'Electricité (pulp and paper companies and aluminum smelters) on the potential restructuring of Hydro Québec.

Represented Bay State Gas Co. on the sale of a small power production facility.

Submitted expert testimony regarding competitive effects, market power effects, and opportunity costs attributable to NEES' transfer of non-nuclear assets to USGenNE.

LITIGATION SUPPORT

Represented NJ BPU on LCAPP litigation regarding the standard contract awards to LCAPP awardees, i.e., Hess, NRG, CPV.

Served as expert witness on behalf of NSTAR regarding its proposed 345 kV AC project submittal before the Massachusetts Facilities Siting Board.

Conducted continuing unit operation study of the 400 MW Newington Station for Public Service Co. of New Hampshire. Served as expert witness before NH Public Utilities Commission.

Served as project manager for Puget Sound Energy, Portland General Electric, Avista, Cascade Natural Gas, and Northwest Natural Gas Company on Gas Transmission Northwest rate case before FERC.

Served as expert witness for Southwest Gas Corporation on pipeline transportation matters before FERC.

Served as expert witness to eCORP on financial damages associated with AIG Highstar and West LB's administration of project loan covenants.

Provided support to Con Edison counsel on contract matters pertaining to cogeneration facilities in New York State and New Jersey.

Served as expert witness for Puget Sound Energy and Bonneville Power on diverse matters pertaining to Tenaska Ferndale, Tenaska Frederickson, Encogen and March Point.

Represented a financial estate on the matter of MMWEC's lawsuit arising from delays completing Seabrook.

Performed net income analysis of fossil generation facilities owned by Northeast Utilities and Public Service Co. of New Hampshire for property tax valuations.

Represented Salt River Project, Arizona Public Service Co., Phelps Dodge, Magma Copper, Asarco and Cyprus before FERC on multiple FERC dockets related to transportation management, cost of service and certificate proceedings.

Represented Wheelabrator-Frackville in its contract disputes with Pennsylvania Power & Light on min-gen emergencies and economic dispatch.

Evaluated pipeline alternative cost allocation methods, capacity release mechanisms, buy/sells, and other general rate case issues for the Arizona Directs.

Assessed San Juan and East End certificate applications on gas deliverability and fuel sourcing decisions to accommodate new gas supply production profiles.

Provided expert testimony and litigation support on behalf of Pan Alberta Gas-U.S. on the matter of rolled-in rates on Gas Transmission Northwest.

Represented Northern Municipal Distributors Group and Midwest Region Gas Task Force Association, a group of gas utilities in eight states served by Northern Natural Gas Co.

Represented New England Cogeneration Association before FERC regarding Northeast Utilities' merger with Public Service Co. of New Hampshire. Conducted market power concentration analysis.

Represented Industrial Gas Users group in Northern Nevada before FERC in Southwest Gas Co.'s spin-off of transmission properties to Paiute Pipeline Co.

Directed project team's assessment of El Paso Natural Gas Co.'s transportation service enhancements on behalf of gas and electric utilities in Texas, Arizona and New Mexico.

Conducted fuel supply and transportation analysis on CNG and Columbia including expert testimony on behalf of Doswell Energy Ltd. Partnership in its civil litigation with Virginia Power.

Led project team's assessment of financial risk for major offshore Arctic pipeline (Endicott) owned by British Petroleum, Exxon, Amoco and UNOCAL. Performed analysis of Endicott risks for ratemaking capital structure and return under FERC's trended original cost methodology prescribed in Order Nos. 154-B and C.

Determined appropriate ratemaking capital structure and rates of return for the Cochise Pipeline under Williams methodology.

Assisted in the prudence determination of South Jersey Gas Co.'s Distrigas LNG take-or-pay commitments in light of FERC order No. 380 and merchant service options on Transco.

PROJECT FINANCIAL ANALYSIS (OTHER THAN DIVESTITURE RELATED)

Provided technical support and financial advisory services to a private equity investor interested in acquiring conventional and high deliverability storage fields in New York State.

Conducted real options valuation of the Newington Station for Public Service Company of New Hampshire (PSNH). Performed financial and engineering assessment of PSNH's thermal fleet in light of changing wholesale market design changes.

Evaluated onshore and offshore wind project economics for NRG BluewaterWind, including financial assessment of loan guarantees and production tax credits.

Provided enterprise valuation of eCORP's Stagecoach ownership interest under option value measures.

Represented Westchester County on the potential decommissioning of the Indian Point nuclear power plants, including enterprise valuation analysis under Fair Market Value.

Represented Cornell University on the master energy plan for expansion of generation assets. Conducted real option value (ROV) analysis pertaining to solid fuel and natural gas based energy infrastructure improvements.

Represented University of Rochester on the selection and optimization of a cogeneration facility to meet UR's long term energy requirements.

Represented Rochester Institute of Technology on the selection and optimization of a cogeneration facility to meet RIT's long term energy requirements.

Represented The State University of New York on the development of combined heat and power facilities on 26 campuses.

Represented Great Bay Power Corporation's equity investors in the purchase of a minority share of the Seabrook station.

Evaluated financial merit of power technology options for the Massachusetts Water Resources Authority on Deer Island, including NStar's distribution rate unbundling proposal. Advised MWRA on modifications to operating procedures related to combustion turbine generators served by Spectra Energy off the Hubline lateral.

Evaluated the competitive economic merits of rival steam and power production technology options to serve the UMass at Amherst's energy plant requirements.

Performed fuel-related contract restructuring services for various gas-fired generators throughout New England.

Served as financial advisor to the various pension funds holding Osceola and Okeelanta bonds resulting from Florida Power & Light's *de facto* termination of the PPAs.

Evaluated NUG profitability levels for various developers under alternative project financing arrangements for competitive solicitations.

Evaluated QF power purchase contracts using decision risk analysis for leverage lease transactions and non-recourse debt financing for thermal and hydro projects in various stages of development.

Evaluated the financial and business risks surrounding a proposed new pipeline from Canada to New England. Supervised the market need assessment conducted by Stone & Webster to support Champlain's certificate application at FERC.

Conducted gas valuation condemnation study for City of Mesa, AZ; determined economic value of Mesa's gas properties; advised City Council on strategic options with Southwest Gas.

Evaluated impact of the National Energy Board's proposed market-oriented price regime on TransCanada's transportation toll methodology.

Revised internal accounting procedures for capital budgeting techniques for Union Gas, CentraGas, and Gaz Metro in Ontario and Quebec.

Structured loan guarantees and price supports for Synthetic Fuels Corporation filing on behalf of New England Energy Park coal gasification facility.

Conducted comprehensive review of financial modeling capability of Energy, Mines and Resources (EMR), Canada for a national distribution system expansion program. Derived real cost of capital for EMR used to support distribution system expansion in Ontario, Quebec, and British Columbia.

Performed financial analysis for the Territorial governments of Yukon and the Northwest Territories in regard to local gas distribution systems, small-scale LNG, and methanol.

RESOURCE ASSESSMENT & MARKET DESIGN

Submitted testimony before FERC on behalf of ISO-NE regarding gas/electric scheduling protocols affecting generation unit availability in the Day Ahead Market.

Represented NSTAR on proposed 345 kV AC transmission project from Carver to Cape Cod to provide reliability benefits in Lower SEMA, including production simulation modeling of energy price impacts with the Carver to Cape Cod project relative to other resource options for Lower SEMA.

Assessed long term on-shore and off-shore wind potential in New England for ISO-NE.

Represented the Connecticut Office of Consumer Counsel on the state's two EDCs' 2010 Integrated Resource Plan, including technical assessment of demand side initiatives, renewables, and natural gas infrastructure. Provided testimony before the Department regarding procurement recommendations over a 10-year horizon.

Represented NRG, TransCanada Power, and USPowerGen (in-City generators) on the NYISO Demand Curve Reset procedure, including the derivation of the Cost of New Entry, the econometric determination of net energy profits, and other fuel-related parameters affecting the reset process.

Represented PURA on the potential restructuring of ISO-NE's Forward Capacity Market.

Conducted engineering economic analysis of conventional generation and renewable technology options to meet Maryland's long term resource options for the Maryland Public Service Commission (PSC). Evaluated the impact of backbone transmission projects in SWMAAC. Evaluated onshore and offshore wind options. Assessed the economic merit of the return to rate base regulation in Maryland using stochastic modeling techniques.

Represented Avista, Portland General Electric, Puget Sound Energy, and Northwest Natural Gas on pipeline transportation service options and pricing on Gas Transmission Northwest.

Conducted short and long term fuel price forecasts for ISO-NE.

Represented TransCanada regarding the competitive impacts among merchant generators associated with rival commodity gas pricing arrangements.

Evaluated pipeline decontracting initiatives associated with consensual termination of a large QF's gas supply, transportation and energy purchase contracts for El Paso Merchant Energy.

Conducted market forecasts of merchant income streams for major merchant power producers in New England, New York, and PJM.

Evaluated the feasibility of inside-the-fence cogeneration for Phelps Dodge at primary rod mill production plant.

Evaluated the feasibility of inside-the-fence cogeneration for a large paper mill in the inland southwest.

Evaluated the feasibility of inside-the-fence cogeneration for the MWRA.

Assessed competitive economics and merchant risk of a proposed 1,500 MW pumped storage facility in Ohio for Consolidated Hydro. Negotiated long-term preliminary arrangements for pumping power with Commonwealth Edison.

Evaluated power pricing and contract options for Enron Power's Milford project.

Advised HYDRA-CO Enterprise's cogeneration project at the Domtar Mill in Cornwall, Ontario in response to Vermont Department of Public Service RFP.

Prepared Gas Company of Hawaii's Integrated Resource Plan, including demand side management. Analysis included formulation of DSM strategy and alternative propane supply acquisition strategies.

Conducted market analysis of New England utilities' long-term resource requirements for Texaco's integrated gasified combined cycle plant.

Conducted inter-fuel substitution analyses for KeySpan.

Evaluated pipeline deliverability impacts attributable to El Paso's proposed San Juan Triangle and Northern Mainline expansions, and East End Manifold proposal for the Arizona Directs. Assessed pipeline interconnection arrangements on Northern Natural and Natural Gas Pipeline of America.

Assessed rival NO_x and SO₂ pollution control strategies, emission effects, and compliance costs for Clark Public Utility District, WA.

Responsible for audit of West Ohio Gas Co.'s gas purchase and transportation policies. Conducted management audit of West Ohio Gas purchasing practices under state mandated least cost planning standards.

Responsible for Stone & Webster's audit of Florida Power & Light Co.'s 1988 Resource Plan, including transmission effects and third party project development potential. Assessed impact of Florida Gas Transmission Co.'s expansion on third-party gas use. Advised CEO on investment strategies and investor relations.

Project manager on engineering economic and financial assessment of Texaco's coal gasification technology; examined IGCC merits under various ownership structures; conducted preliminary market study of IGCC suitability in Florida and California.

Acted as project manager for economic/financial analysis of proposed IGCC for Florida Progress Corporation utilizing decision risk-evaluation techniques.

Determined market and resource/economic strategy for the proposed 1500 MW IGCC at New England Energy Park.

Served as project manager for technical/economic assessment of natural gas/liquid fuel substitution prospects in the province of Newfoundland/Labrador, and the Yukon and Northwest Territories.

Evaluated monetary / financial issues related to a natural gas optimization study for the Government of Argentina, Energy Ministry. Activities included derivation of shadow prices for tradable petroleum products and recommended gas rate tariffs.

Determined the economic feasibility of a proposed oil to coal conversion project for GE's Pittsfield Plant.

RETAIL & WHOLESALE CHOICE

Formulated risk management option programs for University of Rochester, Cornell University, Phelps Dodge, and Visy Paper.

Negotiated gas supply and transportation contracts for Texas Instruments. Profiled and aggregated gas and oil usage data from various plant facilities for purposes of energy procurement package.

Designed contract options for natural gas, oil and electricity for CareGroup, a network of Harvard hospitals in Massachusetts and Rhode Island.

Designed RFP and negotiated contracts for natural gas, oil and energy tolling for a Massachusetts municipal electric utility.

Represented GPU Energy on the transition to competitive choice in New Jersey.

Evaluated retail procurement options for the Massachusetts Water Resources Authority.

Evaluated retail purchasing options for Abitibi Consolidated in Ontario and Quebec.

Evaluated retail purchasing options for Visy Paper in New York.

Represented L'Association des Industries Forestières du Québec (Quebec's association of pulp and paper manufacturers) in the matter of design and implementation of unbundled electricity rates under a new regulatory framework in Quebec.

Renegotiated intermediate term retail electricity contracts for Holoyke Industrials, a large group of energy users in Central Massachusetts.

Negotiated contracts for fuel and/or transportation services for various electric utilities in Arizona.

Valued Northern Natural Gas Co.'s Canadian gas supply and transportation contracts for Northern Illinois Gas Co. in the pipelines Order 636 reverse auction.

Renegotiated Paramount Resources gas supply agreement with Selkirk Cogeneration Ltd.

Negotiated preliminary Canadian gas supply contract for major proposed cogeneration venture in Eastern Ontario.

Obtained gas supply from major producer for South Jersey Cogeneration project.

Negotiated gas and transportation contracts with British Gas on behalf of Lakeland Energy (the first commercial IPP in U.K.). Also led consortium negotiations for power sales agreement with the North Western Electricity Board.

Negotiated PPAs for first planned coal gasification facility in New England with Boston Edison, EUA, and MMWEC.

Assisted in the formulation of transportation contracts between New England utilities and Champlain Pipeline Co.

Negotiated power sales agreements for various hydro small power producers with Southern Company affiliates, and various California and New England utilities.

Conducted analysis of power contract pricing terms and conditions, including wheeling provisions, for various cogeneration projects.

Formulated tipping fees and steam power values for proposed Puerto Rican biomass facility. Negotiated letters of intent with cities of San Juan and Guaynabo.

Designed terms and conditions for interruptible and curtailable contract rates for Barbados Light & Power Co.

DUE DILIGENCE

Evaluated transmission requirements and economic impacts associated with firm transmission withdrawal rights to support NYPA's Hudson Transmission Project.

Derived generation asset portfolio value of existing gas assets in New England for Exelon.

Responsible for project financial valuations underlying generation asset valuations for international investors acquiring generation assets in New England, New York, and PJM.

Evaluated LG&E's market exposure in SERC for PowerGen.

Conducted due diligence on behalf of BankBoston regarding Constellation Power's acquisition of EDE Noreste in Panama.

Evaluated short list respondents' fuel supply plans for Clark Public Utilities District.

Provided senior lenders with technical opinions regarding the (re)financing of power plants in New York State.

Analyzed California border and burner-tip gas prices affecting contract avoided costs in loan covenants for Deutsche Morgan Grenfell.

Responsible for Stone & Webster's engineering and financial / economic assessment of Reading Culm circulating fluidized bed facility, including fuel and power purchase contracts with Pennsylvania Power & Light Co. for The Deerpath Group.

Responsible for Stone & Webster's economic, financial, and regulatory risk analysis for The Deerpath Group, the lessor of the 1370 MW Midland Cogeneration Venture.

RATE DESIGN

Evaluated open access transmission tariffs in PJM, New York and New England for import / export from New York State on behalf of EDCs or generation companies.

Evaluated Noreste's distribution rates in Panama under alternative performance based ratemaking methods.

Evaluated commercial implications of various utility unbundling mechanisms for purposes of installing inside-the-fence cogeneration or third-party energy procurement.

Derived transportation rates and competitive impacts under roll-in versus incremental tolling proposals for shippers on Northwest Pipeline, Pacific Gas Transmission, El Paso Natural Gas, Iroquois, and others.

Performed technical rate calculations for LDCs and electric utilities. Conducted or assisted in the preparation of marginal costs studies for electric and gas utilities throughout the U.S., Canada and Barbados.

Assessed the refunctionalization of El Paso's and Northwest's transportation rates under FERC Policy Statement and Orders 637/636/500.

Formulated rates for firm/non-firm cogeneration purchases for various utilities. Applied various revenue reconciliation methods for marginal cost-based rates.

Evaluated Bonneville Power Administration's trigger price rate proposal for Intalco Aluminum Co., an aluminum manufacturer in the Pacific Northwest.

Determined promotional off-peak power rates for Barbados Light & Power.

PRIOR BACKGROUND

UTILITY EXPERIENCE

Conducted production simulation analysis to support long term cogeneration rates for standardized contracts for Pacific Gas & Electric Co. Assisted in cost of service studies and rate cases (1978-1980).

OTHER INDUSTRY

Evaluated the impact of airline deregulation on the major U.S. trunk carriers as a Research Assistant at the Harvard Business School (1977-1978).

EXPERT TESTIMONY (ADMINISTRATIVE ONLY)

Federal Energy Regulatory Commission

- ISO-NE (Day Ahead Market Scheduling Change)
- Pan Alberta Gas (Pacific Gas Transmission)
- Con Edison Co. (Decertification)
- Con Edison and Central Hudson Gas & Electric (Information Disclosure)
- Arizona Directs (El Paso Natural Gas Co., multiple dockets)
- Northern Municipal Distributors Group (Northern Natural Gas Co.)
- New England Cogeneration Association (Northeast Utilities)
- Northern Nevada Industrial Gas Users (Paiute Pipeline Co.)
- East-of-California Customer Group (Mojave Pipeline Co.)
- Dome Petroleum Ltd. (Cochin Pipeline Co.)
- Endicott Pipeline Co. (British Petroleum, Exxon, UNOCAL, Amoco)

Connecticut Public Utilities Regulatory Authority

- United Illuminating Company (multiple rounds)
- Connecticut Light & Power Company (multiple rounds)
- Peaking Docket (Prosecutorial Arm)
- Office of Consumer Counsel (IRP docket)
- Northeast Utilities / NSTAR merger

New York Public Service Commission

- Consolidated Edison Co. (nine dockets)
- Orange & Rockland (three dockets)

New Jersey Board of Public Utilities

- Orange & Rockland (three dockets)
- GPU Energy
- LCAPP Selection Process

Hawaii Public Utility Commission

- The Gas Company of Hawaii

Maryland Public Service Commission

- MD PSC (IRP)
- Eastalco Aluminum Company

Massachusetts Department of Public Utilities

- NStar (Carver to Cape Cod Transmission Line)
- Enron Capital & Trade

New Hampshire Department of Public Utilities

- Public Service Company of New Hampshire (Newington CUO)
- Enron Energy Services

Rhode Island Public Utilities Commission

- Enron Energy Services

Public Service Commission of Ohio

- West Ohio Gas Co.

Bonneville Power Administration

- Intalco Aluminum Co.

California Public Utilities Commission

- Pacific Gas and Electric Co. (Contracts)

Indiana Public Service Commission

- Southern Indiana Gas and Electric Co. (multiple dockets)

Nova Scotia Utility and Review Board

- Consumer Advocate / Small Business Advocate (Maritime Link)

Régie De L'Énergie du Québec

- L'Association des Industries Forestières du Québec (Industry Restructuring)

EDUCATION

Cornell University

B.A., Arts & Sciences, 1975 (Phi Beta Kappa).

Harvard University

Masters, specialization in Energy Economics, 1978.

Stanford University

Post-graduate Industrial Organizational Management Program, Department of Electrical Engineering, 1979.

INDUSTRY PRESENTATIONS & PUBLICATIONS

“Chronology of Technical Assessments Affecting Pipeline Deliverability to New England,” New England Roundtable, November 2015.

“Pipeline to Reliability,” IEEE Power & Energy, Volume 12, Number 6, December 2014.

“EIPC Gas-Electric System Interface Study” Northeast Power Coordinating Council 2014 General Meeting, December 2014

“Finding Practical Solutions to Fuel Supply and Generation Capacity Problems” Infocast Northeast Energy Summit, September 2014

“Update on Gas-Electric Coordination in the Northeast” Infocast Northeast Energy Summit, September 2014

Regional Market Trends Forum “Ten Years After” Gas & Power in Perspective,” May 2014.

“Infrastructure and Reliability Challenges for the Northeast Fuels Market,” New England Energy Conference and Exposition, May 2014.

“BuildingEnergy14 Understanding Our Energy Distribution Systems” Northeast Sustainable Energy Association, March 2014.

“Understanding Our Energy Distribution Systems: Gas Infrastructure and Deliverability in New England,” Northeast Sustainable Energy Association, March 2014.

“Polar Vortex Forensics: Initial Review of Key Drivers Affecting Power Prices in NYISO” Northeast Sustainable Energy Association, February 2014.

“Gas/Electric Interdependence: Challenges & Opportunities,” New England Consumer Liaison Group Meeting, June 2013.

“How Coal Plant Retirements Will Drive Midstream Investment in the Midwest and Northeast,” Infocast b2bwebinars, June 2013.

“Maine Energy & Environment Policy: Priorities for the 126th Legislature” March, 2013.

“Market Dynamics Affecting Deliverability, Pricing and Strategic Opportunities in New England,” September, 2012

“Natural Gas / Electric Dependencies in a Clean Tech Economy,” Harvard University School of Engineering and Applied Sciences Industry Presentation, Cambridge, Massachusetts, September 2012.

“Viewpoints on Current Events,” NECA Fuels Conference Panel, Newton, Massachusetts, September 2012.

“A New Englander’s Perspective: Shale Gas-Quantities, Price and What’s to be Done?” NECPUC Symposium, Samoset, Maine, May 2012.

“Leaning on Line Pack,” Public Utilities Fortnightly,” January 2011.

“Growth Prospects for Appalachian Gas: Good Access Trumps Market Fundamentals,” Platts 3rd Appalachian Gas Conference, October 2010.

“Future of Natural Gas in New England and Interaction with Electricity Markets,” New England Roundtable, April 2010.

“Managing Inter-Dependencies Across Gas and Electricity,” Carnegie Mellon University, Department of Electrical Engineering, December 2008.

“Capacity Price Frameworks in the Greater Northeast: Can you take them to the bank?” Infocast, Washington, D.C., June 2007.

“North American Gas Demand: How Gas & Power Markets are Reacting to Higher Prices and Weather Effects,” Zeus Development Forum, Houston, December 2006.

“Does the Northeast Energy Market Grade an ‘A,’ ‘F’ or Something in Between?” LNG Express, Boston, September, 2006.

“Functionality of Northeast Capacity Markets Under RPM, the Demand Curve and LICAP,” Northeastern Power Supply Forum, Infocast, Philadelphia, June 2006.

“How Much Gas is Enough? Finding Incentives to Lessen the Gas Overbuild,” Platts Northeast Power Markets Forum, Washington, D.C., March 2006.

“How LNG fits into the Regional Market,” New England Roundtable, Boston, February, 2006.

“Outlook on Natural Gas and LNG in New England,” New England Roundtable, November, 2004.

“Market Dynamics Driving LNG Growth Prospects,” INFOCAST, Boston, October 2004.

“An Outlook on Gas Commodity Prices and Market Fundamentals in The Northeast,” before The Energy Committee of The New York Bar Association, New York, April 2003.

“Value Drivers Affecting Pipeline & Storage Entitlements,” INFOCAST, Houston, September 2002.

“The Big Picture on Power Market Dynamics and Storage,” INFOCAST, Houston, June 2002.

“2002 Outlook on Gas Supply and Deliverability,” INFOCAST, Boston, January, 2002.

“Technical Assessment of New England’s Natural Gas Pipeline Adequacy,” on behalf of ISO-NE, before New England Association of Energy Engineers, April, 2001; U.S. Department of Energy, Wye Workshop on Strategic Initiatives for Coal and Power, March, 2001; Northeast Energy and Commerce Association, March, 2001; Boston Bar Association, February, 2001; Massachusetts Roundtable, February, 2001; NEPOOL Reliability Committee, January, 2001; and, NEPOOL Participants Committee, January, 2001.

“Forecasting Equity Returns for Merchant Power,” INFOCAST, Atlanta, GA, September, 2000.

“Maximizing the Value of QFs and IPPs in a Restructured Environment,” INFOCAST, Santa Monica, CA, July 2000.

“Valuing Transmission and Distribution Assets,” INFOCAST, Orlando, FL, January, 2000.

“Build v. Buy: New Commercial Benchmarks,” International District Energy Association, Boston, MA, June, 1999

“Monetizing Key Value Drivers,” INFOCAST, Buying & Selling Utilities’ Generation Assets, Boston, MA, November, 1998.

“A Business Perspective on the Competitive Transition of the Electric Utility Industry,” American Bankruptcy Institute’s Fifth Annual Northeast Bankruptcy Conference, Falmouth, MA, July 1998.

“Uncertain ESCO Margins in New England’s Transitional Energy Markets,” Con Edison Energy conference on Supplying New Retail Markets, New York City, June 1998.

“PPA Buyouts and Restructurings: War Stories from the Trenches,” Exnet conference on Industry Restructuring, Washington, D.C., 1997.

“Monetizing NUG Opportunity Costs,” Sloan School of Management, Massachusetts Institute of Technology, August 1996.

“Natural Gas Procurement Options for Power Generators in New England,” presented to New England Cogeneration Association’s New England Gas Markets Conference, May, 1995.

“The Emerging Secondary Market for Idled Transportation Capacity in the Northeast,” presented to Executive Enterprise’s Northeast Gas Markets Industry Conference, April, 1994.

“Outlook for Gas-Fired Electric Power Generation in the Northeast through 2000,” presented to Executive Enterprise’s Northeast Gas Markets in the Post 636 Environment, November, 1993.

“Gas Supply and Transportation Contract Issues: Implications for Cogeneration Project Financing,” presented to annual symposium on Energy Planning sponsored by Niagara Mohawk Power Corporation, May, 1993.

“A Post-Merger Outlook on Wheeling in New England: FERC Precedent Cloaked in a Merger,” presented to Executive Enterprise’s Second Annual Northeast Power Market Conference, May, 1992.

“Transmission of Non-Utility Generation in New England,” presented to Executive Enterprise’s Third Annual Industrial & Utilities Conference, Chicago, IL, October 1990.

“Capital Structure and Rate of Return for Regulated Entities: the State Perspective v. FERC’s View, Accounting Association of Oil Pipelines,” Houston, Texas, February, 1986.

“Demand-Side Management (DSM) Technologies for Island Utilities,” St. Lucia West Indies, September, 1985.

“Alternative Marginal Cost Methodologies since PURPA,” Center for Professional Advancement, New Brunswick, NJ, May, 1983.

“Utility Resource Selection-Decisions and New Challenges,” Department of Electrical Engineering, Tufts University, April, 1982.

Participated in biannual Stone & Webster Utility Management Development Program on gas price and Federal regulatory developments, cogeneration and marginal costs, 1982-1989.

ASSOCIATIONS (CURRENT AND PAST)

American Gas Association

International District Energy Association

Northeast Gas Association

Northeast Energy and Commerce Association (prior Board Member)

Resume of Alexander J. Mattfolk**ALEXANDER J. MATTFOLK**

SUMMARY

An Executive Consultant with experience providing research support and quantitative analysis critical to investment decisions, project economics, rate impacts, and regulatory decisions, specializing in chronological dispatch simulation and economic input-output modeling.

PROFESSIONAL EXPERIENCE

2011 - **Levitan & Associates, Inc.**
Executive Consultant
Senior Consultant
Consultant
Assistant Consultant

CONSULTING ASSIGNMENTS

Supported the New Jersey Board of Public Utilities (BPU) concerning FERC's MOPR Order in docket EL11-20 pertaining to the LCAPP program to create 2000 MW of new combined-cycle generation in New Jersey.

Provided technical support for a FERC technical conference addressing the impact of the LCAAP on PJM's Base Residual Auction. Provided litigation support for the BPU's defense of the LCAPP in Federal Court.

Provided modeling assistance and litigation support in Maryland Public Service Commission (PSC) Case No. 9271 on behalf of the MD PSC regarding the merger application of Exelon and Constellation.

Estimated socioeconomic benefits of combined cycle plant construction in St. Charles County, MD to support a bidder in the long-term RFP issued by the MD electric distribution companies (EDCs). Performed socioeconomic analysis of project benefits using IMPLAN model. Conducted analysis of environmental benefits.

Provided analytical support as part of the Independent Evaluator team on Southern California Edison's (SCE) All Source procurement for the California Public Utilities Commission. Reviewed supply agreements and monitored contract negotiations.

Developed wholesale electricity and gas price comparisons and investigated electricity and gas market developments for the Ameren standard service procurement on behalf of the Illinois Power Authority (IPA). Provided procurement analytic support for IPA.

Evaluated LNG import and export infrastructure and regulatory environment for conversions to construct a primer on American natural gas development for foreign investors. Identified changing flow patterns in North America.

Researched and projected renewables buildout in ISO-NE, NYISO, Quebec, and Ontario to produce a renewable energy certificate (REC) price forecast for NSTAR's assessment of Cape Wind.

Reviewed standard offer service procurement strategies utilized by various states and analyzed load migration from standard service and LRS for the CT Public Utilities Regulatory Authority (PURA). Assessed impact of regulatory changes such as ISO credit policies and Dodd-Frank regulations on procurement strategies. Assisted in the formulation of CT's Standard Service Procurement Plan.

Developed board presentation for Unitil covering gas and energy market dynamics in New England.

Assessed potential Performance Standards for CT Office of Consumer Counsel regarding storm response and distribution hardening initiatives. Reviewed Connecticut and other state developments to determine outage response protocols.

Advised NYISO on quarterly gas updates affecting gas/electric interdependencies across the New York Control Area (NYCA). Maintained Electronic Bulletin Board database of Northeast pipelines to monitor flow, maintenance, and other developments.

Developed throughput database, researched gas demand forecasts, and estimated infrastructure costs for the NYCA Pipeline Congestion and Infrastructure Adequacy Assessment report, prepared for NYISO. Assessed gas deliverability constraints across NYCA for the heating and cooling seasons. Performed an analysis of emissions from dual fuel generation units to determine fuel switching characteristics.

Provided research and assisted in drafting testimony on behalf of the Vermont Public Service Department Staff. Critiqued applicant testimony concerning the renewal of a certificate good for the continued operation of Vermont Yankee, including economic and socioeconomic impacts.

Provided research and assisted in drafting testimony on behalf of Mississippi Public Utilities Staff. Reviewing a potential spin-merge transaction between Entergy Mississippi and ITC Holdings Corp., reviewed rate effects and management issues. Assessed testimony of Entergy regarding production cost model results. Provided litigation support to PUS for purposes of LAI testimony on transactional demerits.

Provided dispatch analysis and comparable sales research to support Public Service Company of New Hampshire's valuation of its generation portfolio. Developed basis forecasts and other inputs for valuation model.

Estimated socioeconomic benefits and developed fuel supply plan for combined cycle plant construction in Orange County, New York to support a bidder in the long-term RFP issued by the New York Power Authority. Utilized engineering cost estimates and IMPLAN to estimate direct and indirect socioeconomic benefits of plant construction and operation. Engineering estimates included natural gas pipeline and metering station. Determined dual fuel supply feasibility for project site and developed a potential approach to procuring backup fuel.

On behalf of a water utility, analyzed costs for electricity, natural gas, propane, and fuel oil to determine costs and benefits of various procurement methods for future bulk energy and fuels purchases. Memorialized gas benchmarking and developed process flow documents for procurements. Performed background research to determine potential merits of REC procurement.

Drafted Factor Inputs and a Final Report describing the capacity benefits of the New Jersey Energy Link (NJEL) project for Atlantic Grid Development. Determined input assumptions for PROMOD modeling, including plant retirements, ancillary services offsets, and emissions prices, and compared input assumptions to PJM's TEAC case assumptions. Input assumptions, calculation methods, and end results were reported in a presentation to the BPU.

Provided wholesale market design support for the Long Island Power Authority (LIPA), including participation in ISO committees and task forces, including the Capacity Senior Task Force, the Capacity Review Senior Task Force, the Capacity Performance Enhanced Liaison Committee, the Electric-Gas Coordination Working Group, the FRR-ARR Senior Task Force, the Market Issues Working Group and the Gas Electric Senior Task Force.

Provided research and analysis for the Eastern Interconnect Planning Collaborative (EIPC) Gas-Electric Coordination Study. Determined applicable OPIS rack pricing and resupply methods for backup fuels at potential dual fuel generation sites. Reviewed and analyzed output data from AURORAxmp simulation model. Researched and specified generation resources and unit characteristics for simulation model inputs. Evaluated non-firm transportation tariffs on pipelines and LDCs throughout the Eastern Interconnection, including gas utility demand forecasts filed with state regulatory agencies. Analyzed ISO planning documents to determine transfer limits between and within the various Participating Planning Authorities (PPAs). Researched and discussed existing and proposed LNG import and export facilities. Developed modeling templates for interstate pipelines through review of FERC filings. Reviewed mitigation strategies employed by stakeholders including RTOs, utilities, generators, and interstate pipelines to manage gas and electric contingency events.

Performed dispatch simulation modeling with AURORAxmp software to calculate energy market impacts of the New England Clean Power Link transmission project on behalf of TDI New England. The results of the analysis are included in a certification filing with the Vermont Public Service Board. Assisted in drafting expert testimony

supporting the project's energy market impacts, emissions impacts, and regional benefits due to fuel diversity.

Performed dispatch simulation modeling with AURORAxmp software to calculate energy market impacts of an HVDC transmission project within the PJM/NYISO footprint.

Developed a wholesale energy price forecast using AURORAxmp for a private equity firm owning a biomass generator in New England. Created forecasts for a base case and several alternative scenarios to illustrate pricing sensitivities to power and gas market developments. Pricing forecasts were utilized to determine contract risk and market risk for investors.

Developed wholesale energy price forecasts for a proposed combined cycle facility in PJM.

Guided the design and drafting of regulations and a solicitation supporting off-shore wind on behalf of the MD PSC. Currently developing "reference case" for AURORAxmp, the platform to be used for deriving wholesale price benefits.

Providing support for the CT Department of Energy and Environmental Protection (DEEP) long term solicitations for the New England Clean Energy RFP, a multi-state solicitation for Tier 1 renewables and hydropower. Responsible for modeling "portfolios" of bidded projects to determine wholesale energy price impacts.

Providing support to DOE using AURORAxmp to analyze future generator gas demands in the Eastern Interconnection based on three of NREL's Standard Scenarios with CPP compliance. Stretch goals regarding carbon free energy sources in 2050 are being tested across an array of scenarios encompassing renewable fuel and storage resources. Technical work will support DOE's 2016 Quadrennial Energy Review.

Assisted in developing spark spreads and gas price forecasts for various projects involving valuation and procurement.

EDUCATION

Massachusetts Institute of Technology, Cambridge, MA
B.S. Chemical Engineering, June 2011

INTERNSHIPS AND RESEARCH

Mass Life Sciences Center Funded Intern, JEF Core Inc., Weston, MA, Summer 2010

MIT Extern, Naval Postgraduate School, Monterey, CA, January 2010

Solar Cell Researcher, MIT Hammond Group, Cambridge, MA, 2009

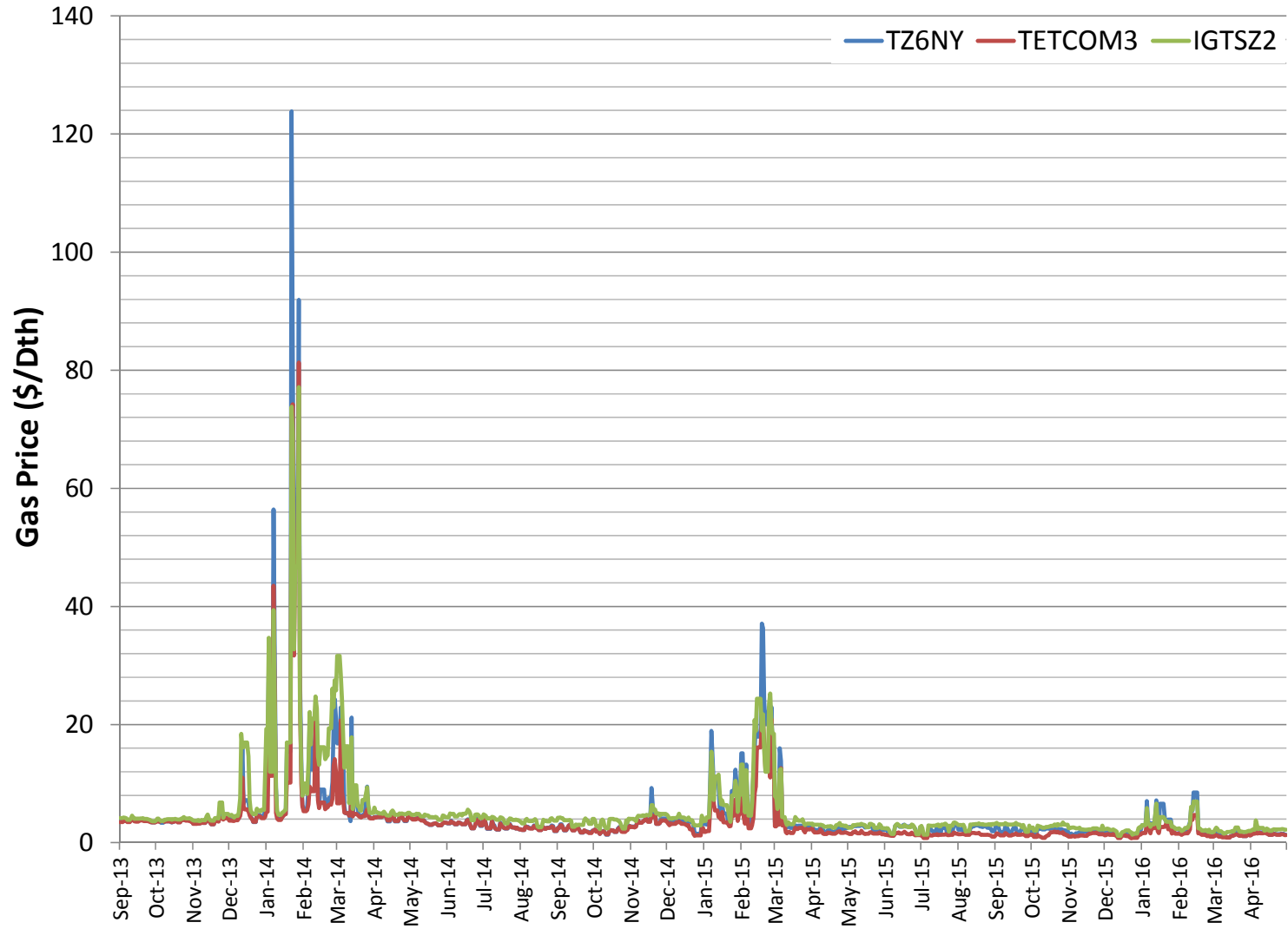
MIT Extern, Percivia Inc., Cambridge, MA, 2009

PRESENTATIONS AND PUBLICATIONS

2012. “Working Jointly to Develop Offshore Wind,” *North American Wind Power*, October, pp. 26-30 (with S.G. Parker).

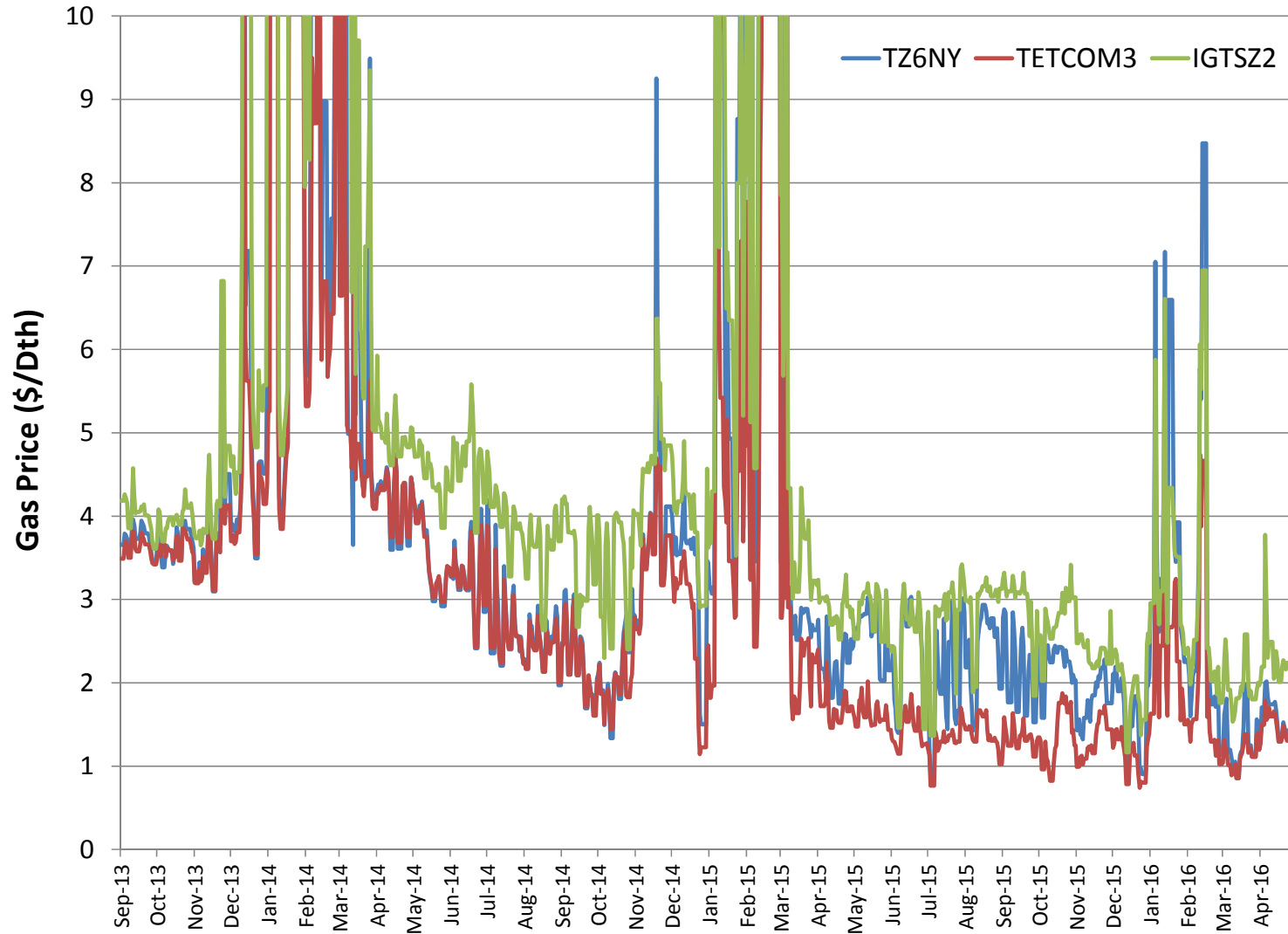
2012. “Natural Gas / Electric Interdependence in a Clean Tech Economy,” Presented at Harvard University, School of Engineering and Applied Sciences. Boston, MA, September 28 (with R.L. Levitan).

Price History for Relevant Indices

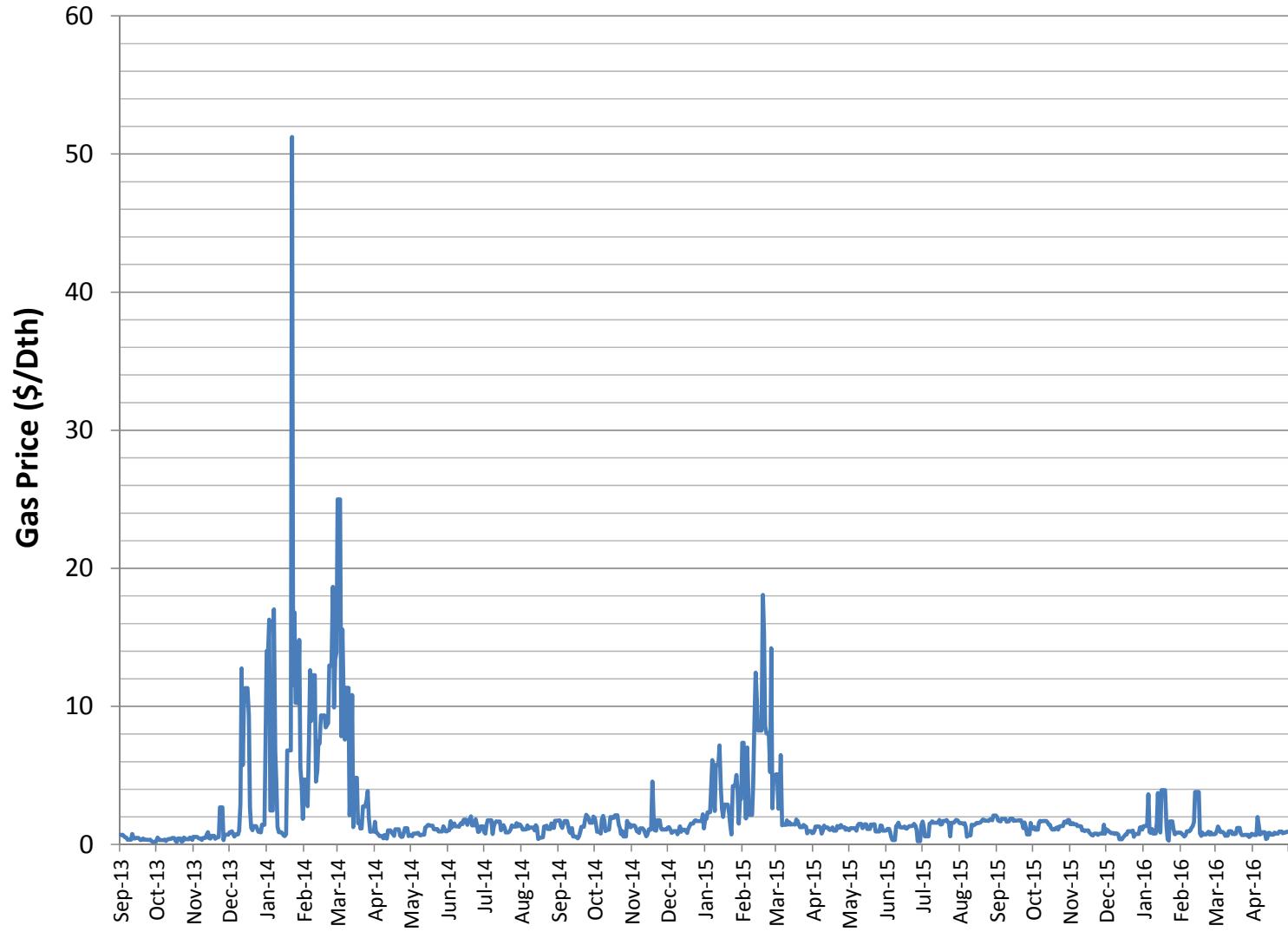


Source: Platts Gas Daily

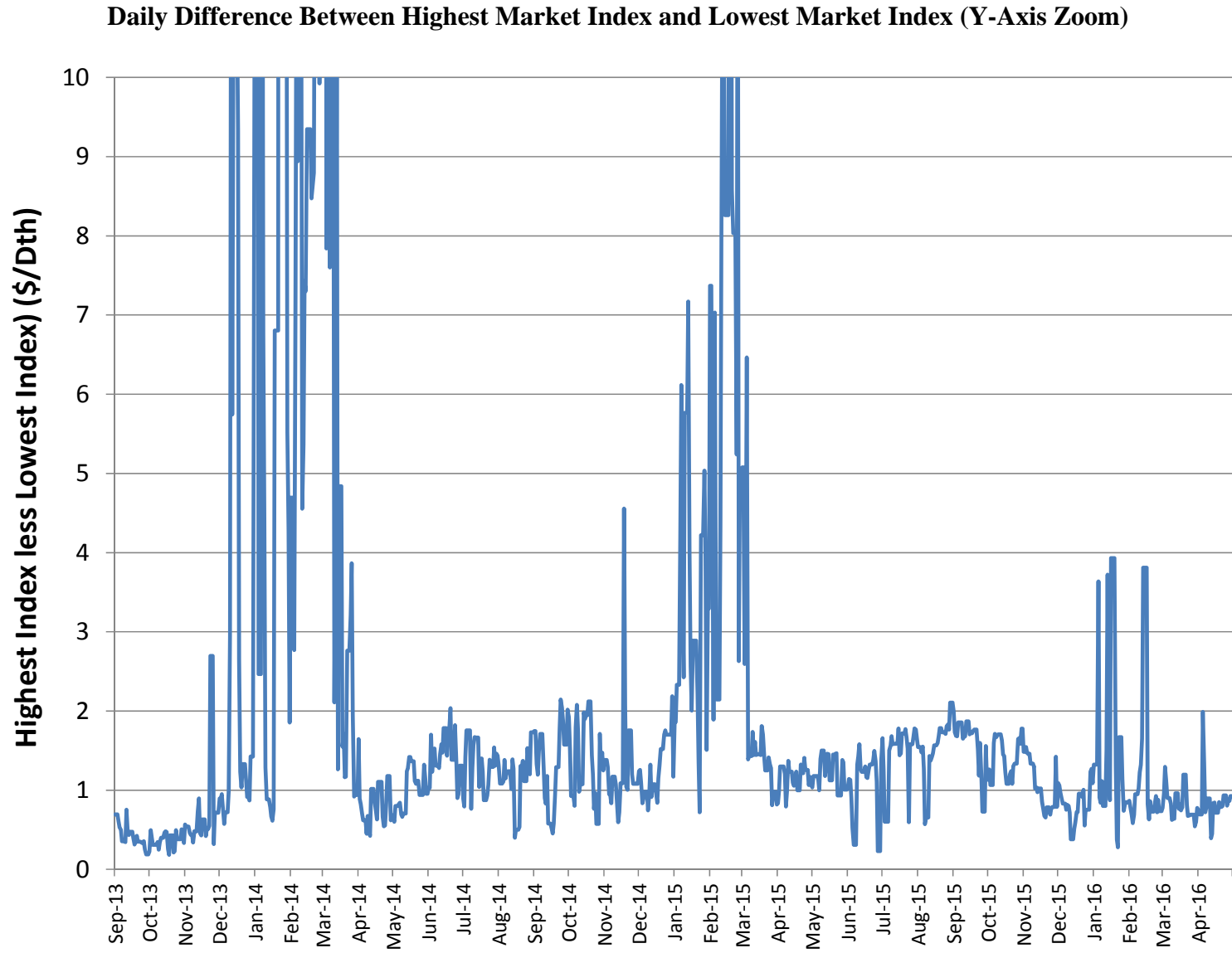
Price History for Relevant Indices (Y-Axis Zoom)



Daily Difference Between Highest Market Index and Lowest Market Index

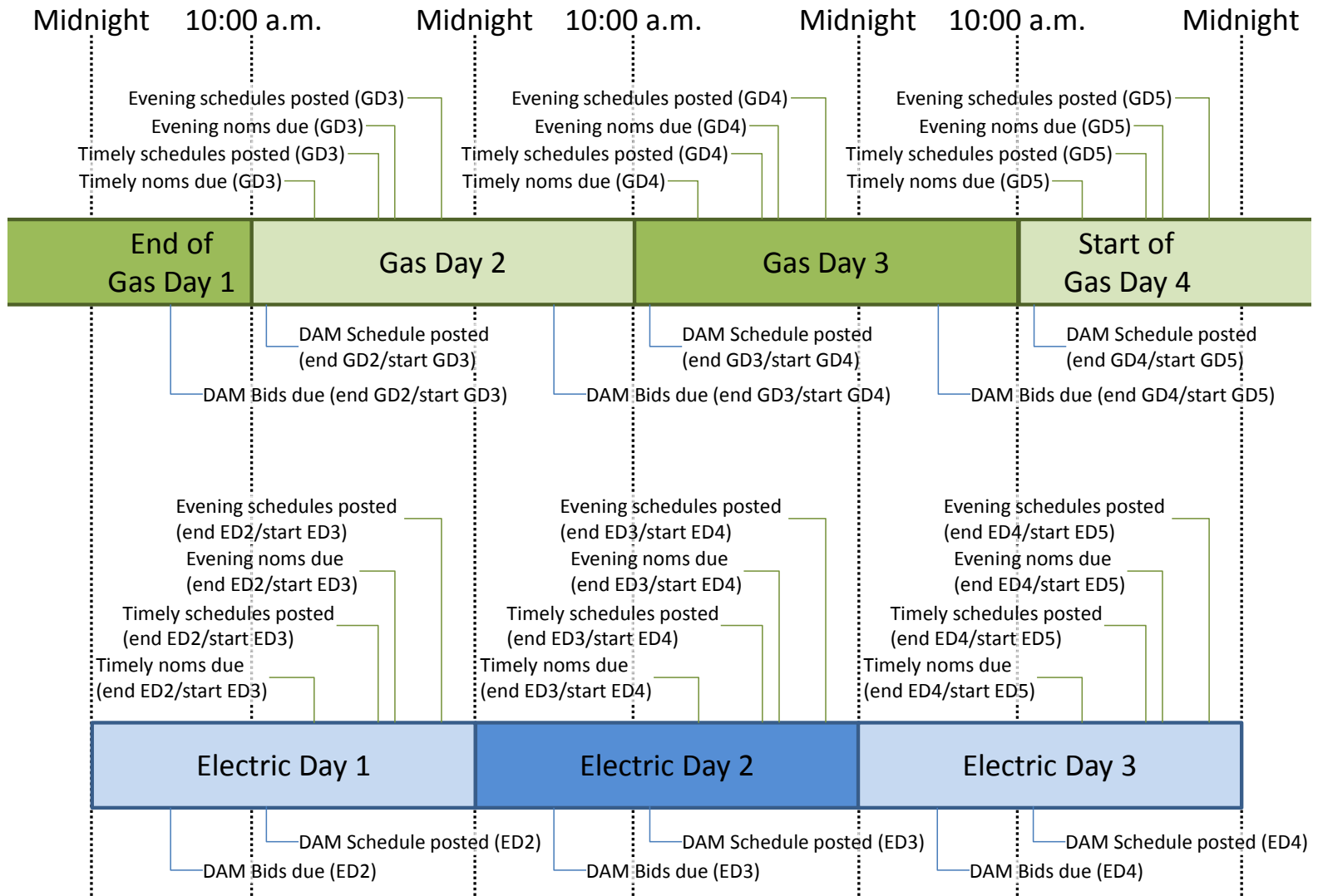


Source: Platts Gas Daily

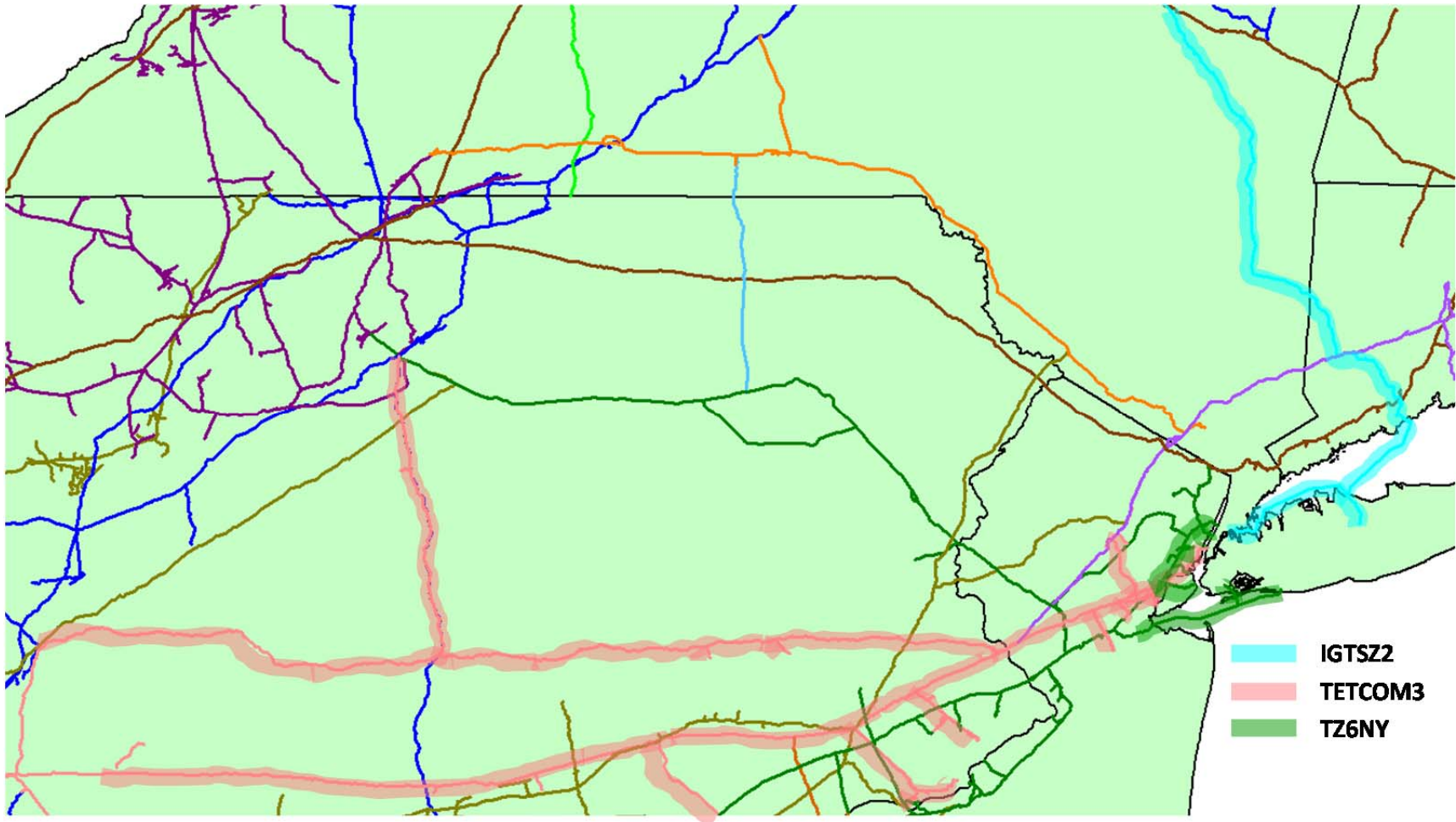


Source: Platts Gas Daily

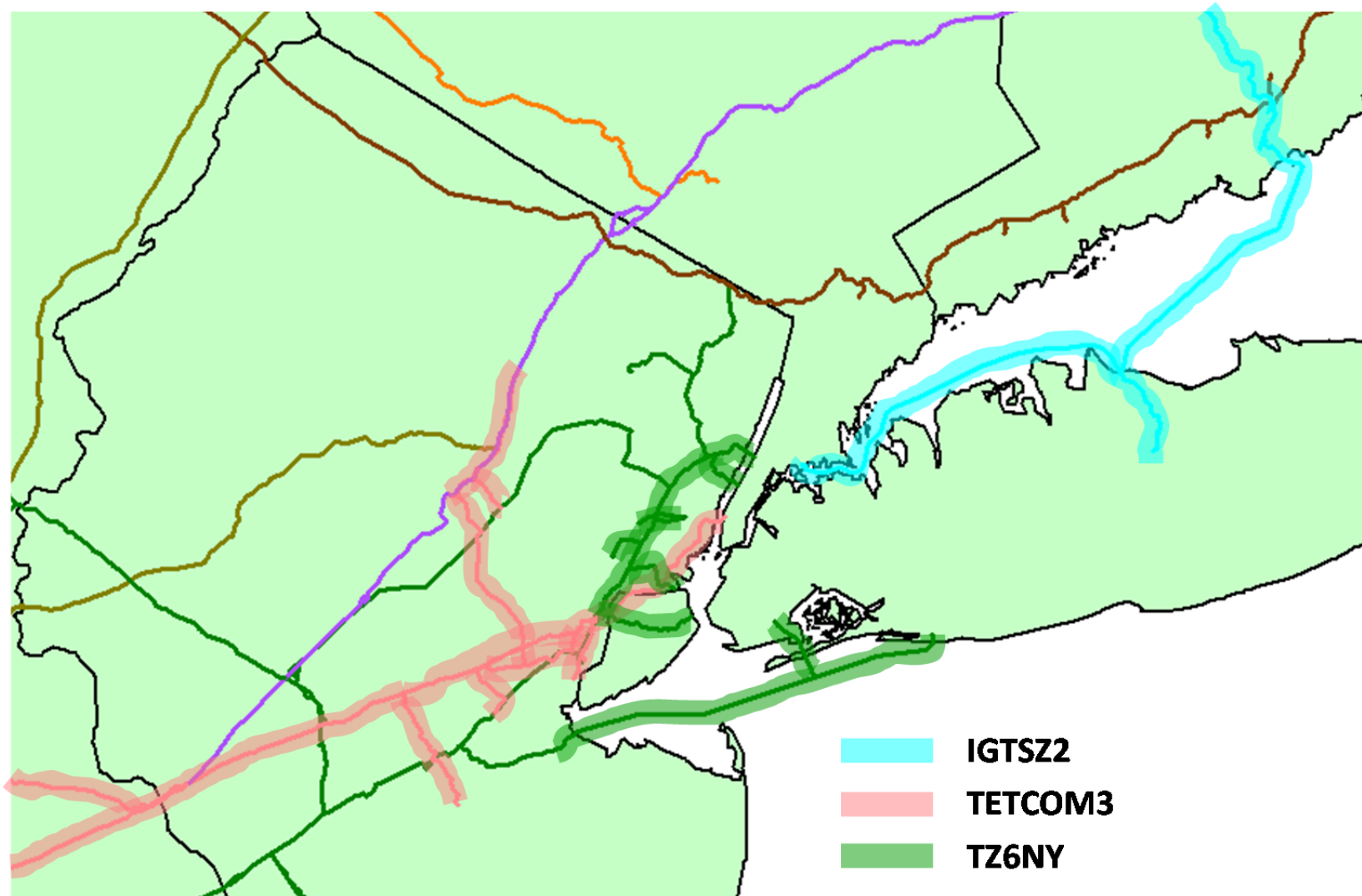
Day-Ahead Gas and Electric Day Schedules



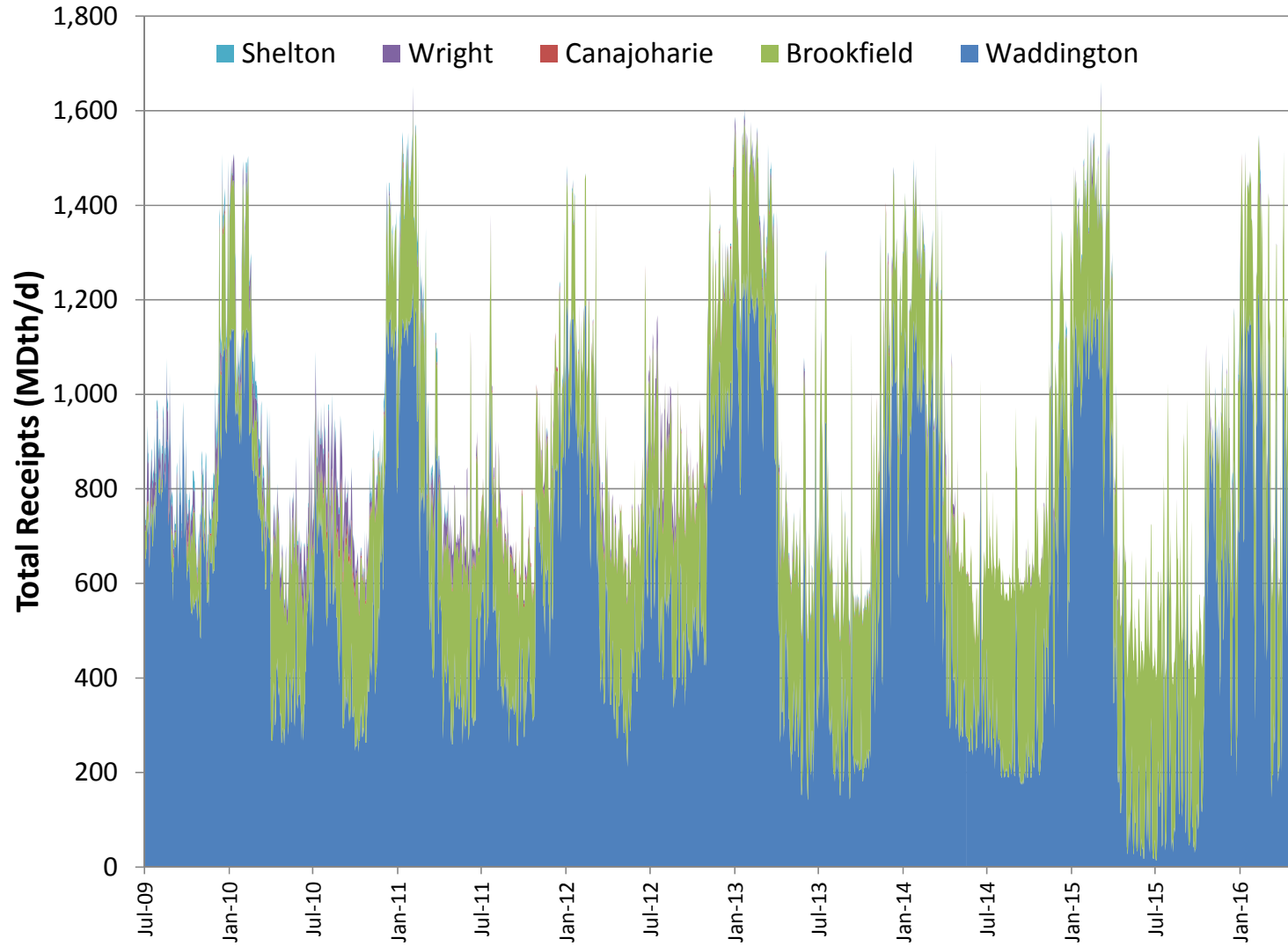
Pricing Index Locational Definitions



Pricing Index Locational Definitions (Zoom-In)

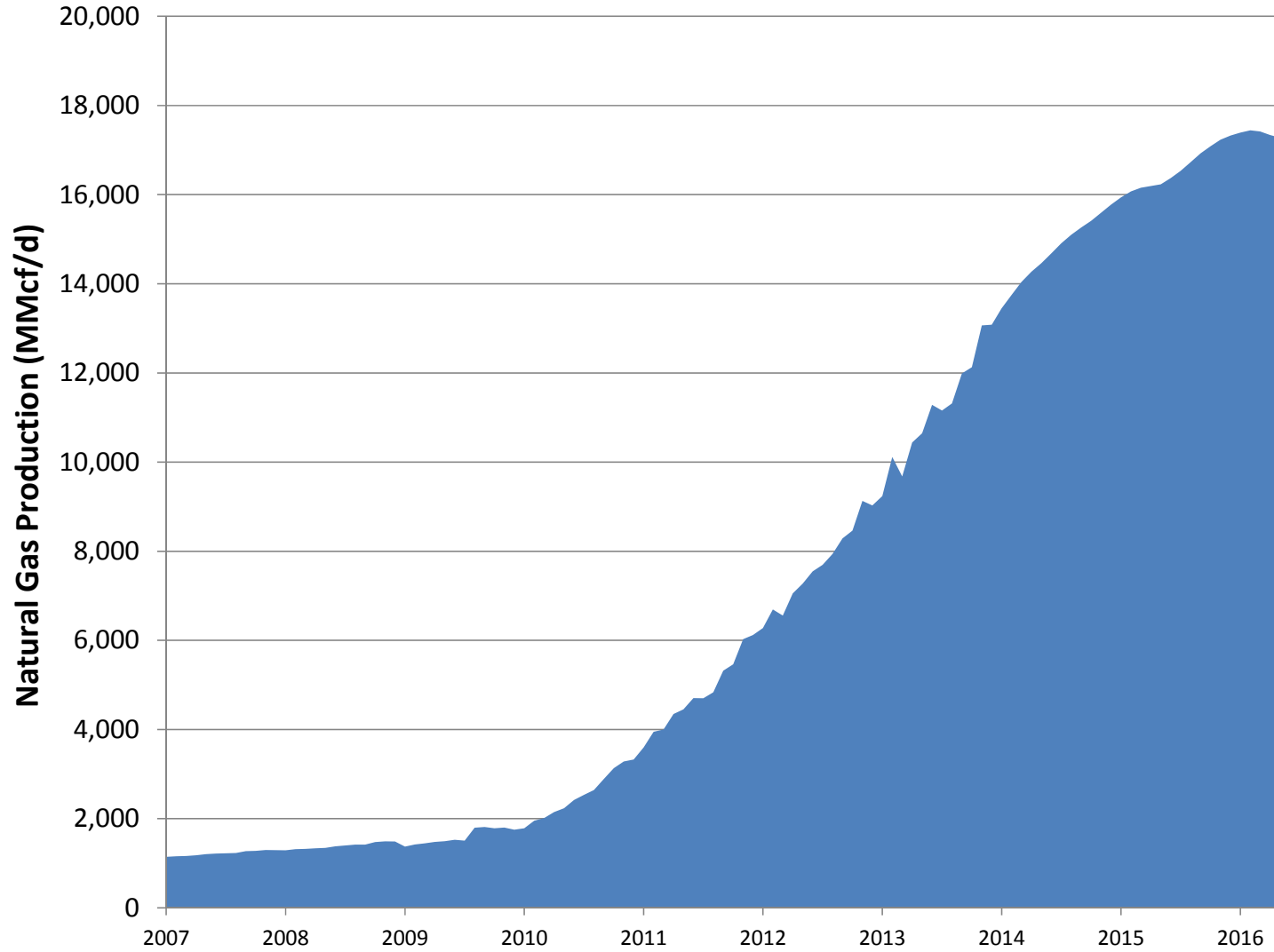


Iroquois Receipts by Pipeline Interconnection



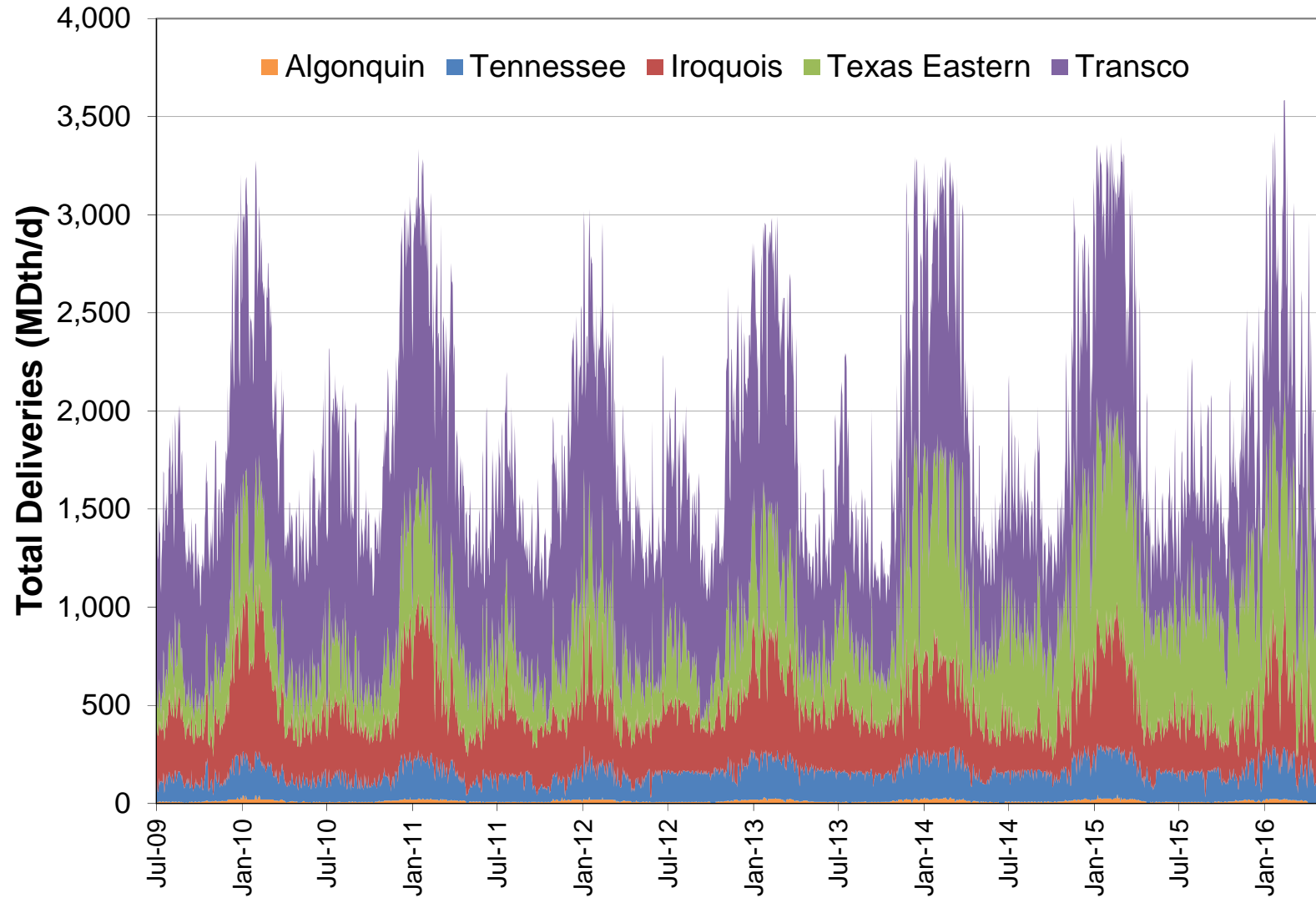
Source: Pipeline Electronic Bulletin Board

Marcellus Region Natural Gas Production

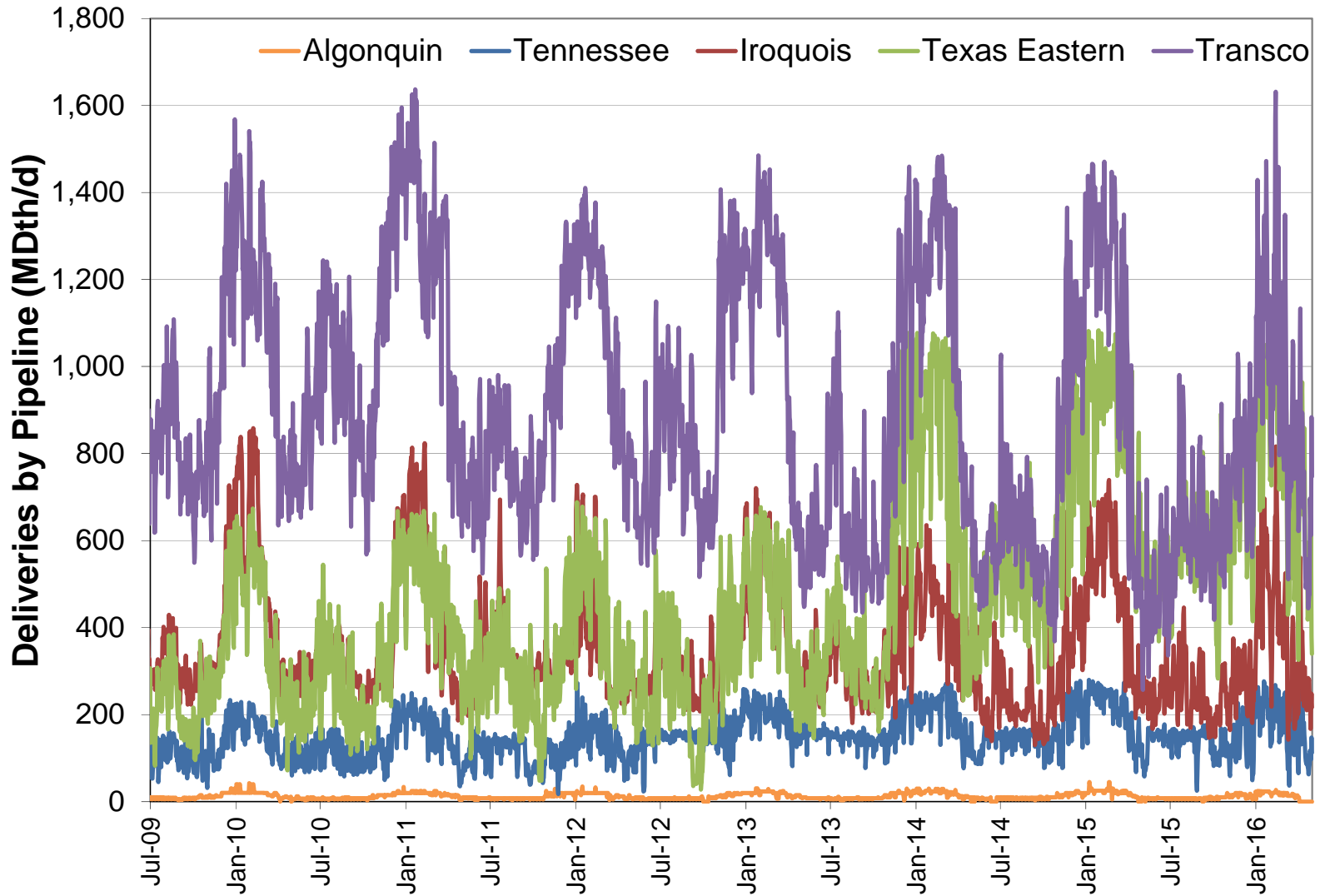


Source: Energy Information Administration,
April 2016 Drilling Productivity Report

Gas Deliveries into the New York Facilities System (Total)



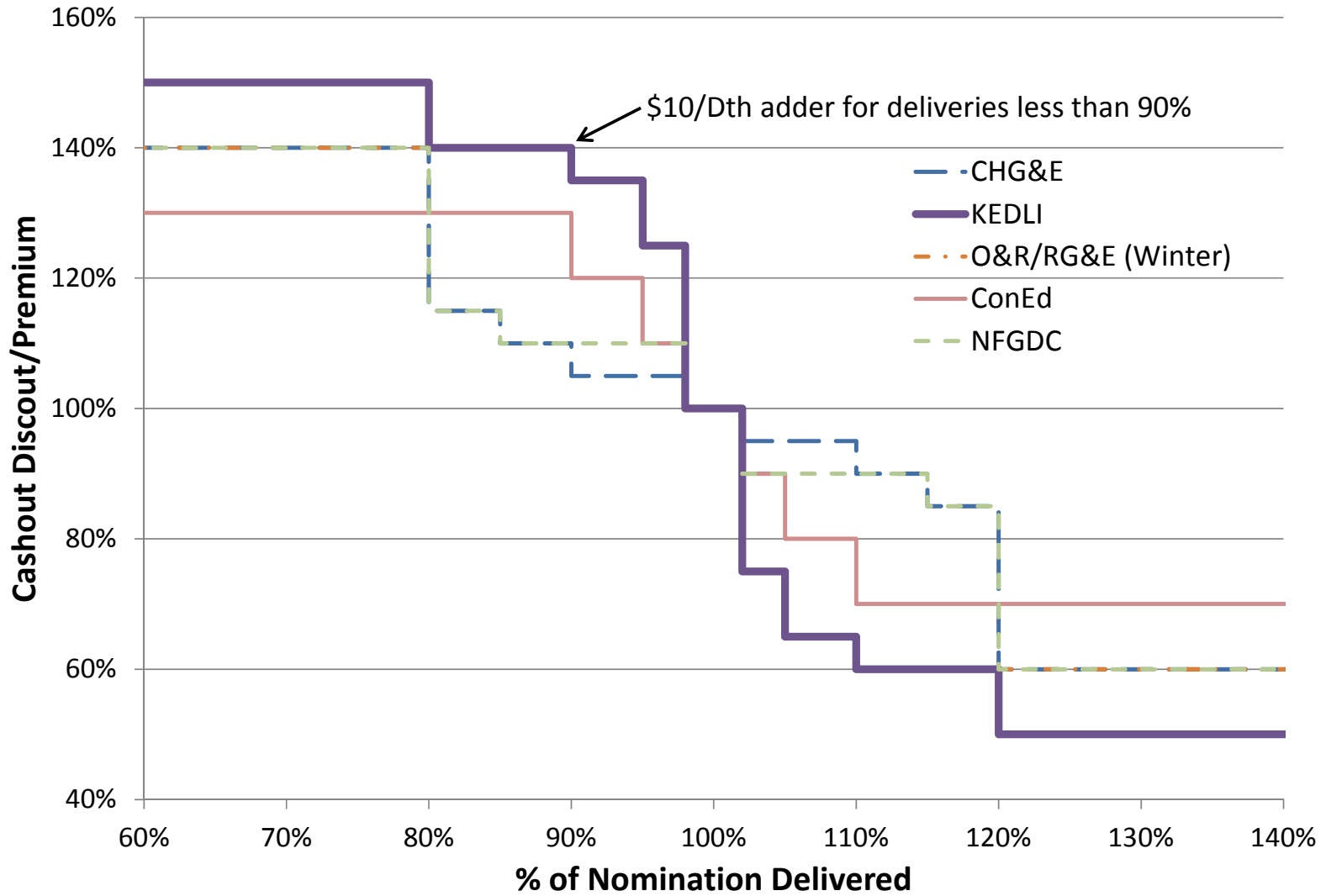
Gas Deliveries into the New York Facilities System (By Pipeline)



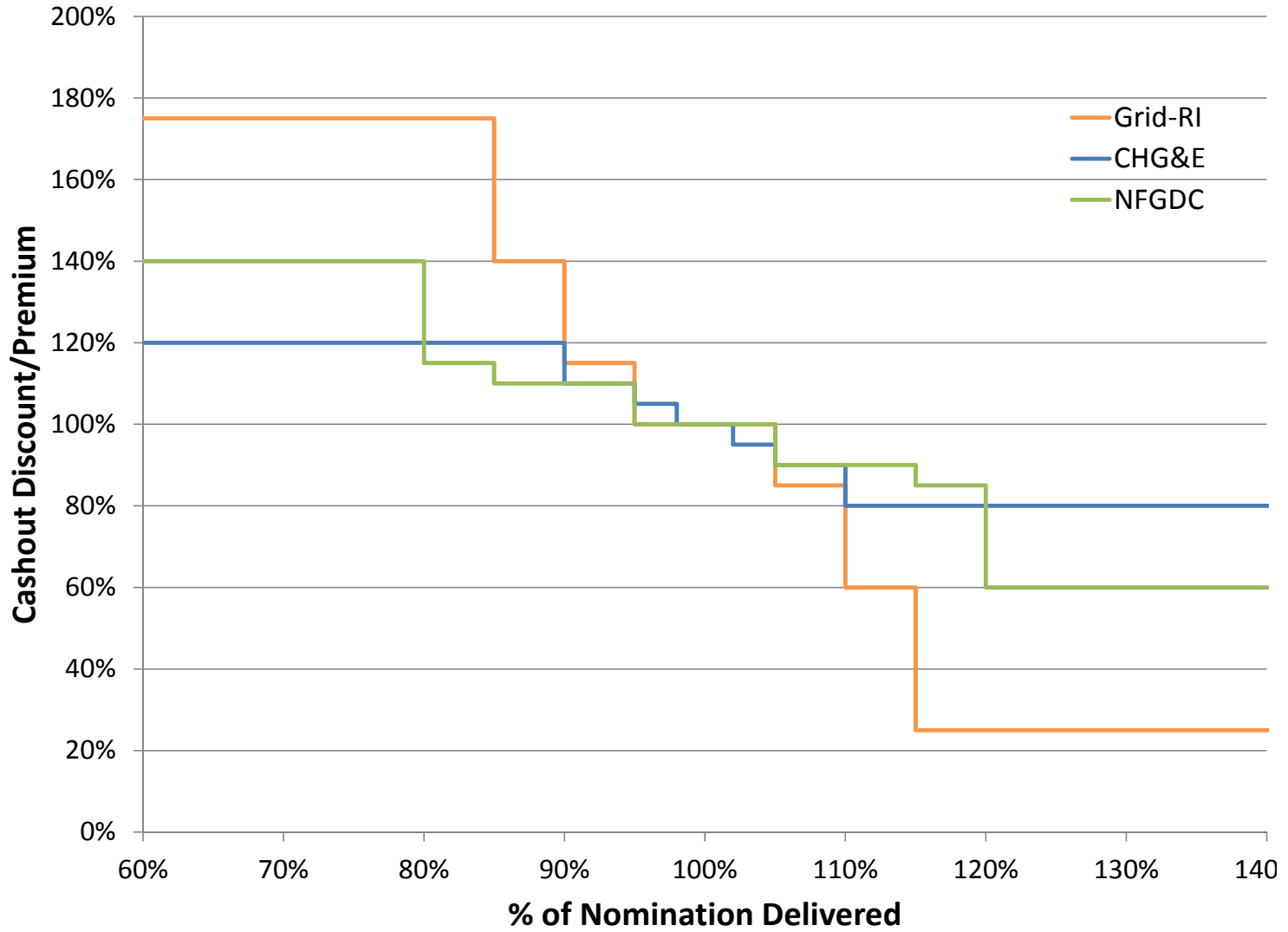
References to Balancing Provisions in Other LDCs' Tariffs

Gas Utility	Tariff Service Classification	Page Reference
NFGDC	SC-21	Leaf 290
Con Edison	SC-9	Leaf 300.1
CHG&E	SC-14	Leaf 198,203
RG&E	SC-10	Leaf 151, references Leaf 127.32
KEDLI	SC-14	Leaf 190
O&R	SC-14	Leaf 191.2
PSE&G	NFT	Sheet 119
Grid-RI		Schedule C Sheet 25, references Schedule C Sheet 15

Daily Cashout Tariff Rates for Surveyed LDCs



Monthly Cashout Tariff Rates for Surveyed LDCs



OFO and Unauthorized Use Tariff Rates for Surveyed LDCs

Company	OFO Penalty	Unauthorized Use
CHG&E	Over: LDC charges; Under: \$25 per Dth	120% of applicable wholesale electric rate
Corning	Interstate penalties	\$25 per Dth minimum
KEDLI	\$100 per Dth	\$100 per Dth
KEDNY	\$100 per Dth	\$100 per Dth
NYSEG	\$25 per Dth	\$25 per Dth
Niagara Mohawk	\$25 per Dth minimum, 125% highest company supply cost	
O&R	\$25 per Dth	Greater of 2x Daily CoG or 9x SC-9 Supply Charge
RG&E	50% cashout penalty factor outside 10% tolerance	\$25 per Dth minimum, 3x market price
Con Edison	\$45 per Dth minimum, 120% wholesale electric rate or \$25 per Dth plus market gas price	
NFGDC	Up to greater of \$10 per Dth, 125% company cost	Greater of \$25 per Dth or 125% company cost, plus \$7 per Dth
NGrid-RI, NGrid-MA	5x market index for >2% overpulls	5x market index
PSE&G	10x highest daily price for all underdeliveries	10x highest daily price