Connor Waldoch

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PROFESSIONAL EXPERIENCE

Potomac Economics — Fairfax, VA
Associate — August 2016-Present
Market Monitoring Role in NYISO and ISO-NE

- Screen generators on a daily basis for physical withholding, external transaction cuts, and over production; then track and research generator conditions to determine potential for market impact and mitigation results
- One-off investigations into generator conduct, reference levels, fuel choice, and market participation
- Conduct significant self-directed development and analysis projects in Python, Excel, and SAS to automate screening processes and analysis
- Communication and collaboration with market participant stakeholders, ISO staff, and FERC on ongoing market conditions and development of new products and tariff changes on a consistent basis
- Fulfill all market monitoring obligations in the NYISO and ISO-NE tariffs as relevant to the above topics in accordance with FERC orders

Market Monitoring Role in RGGI

- Development and maintenance of Python webscraping modules for daily RGGI data collection
- Prepare and analyze marketplace results and allowance transfers for monthly and annual reports
- Preparation of quarterly Secondary Market Reports, focused on activity in the financial markets for RGGI products, including metrics such as options-implied volatility and concentration of open interest
- Screen marketplace and auction participation behavior for potential market power issues, track ownership of facilities participating in RGGI
- Consult on program design changes and conduct literature review in relevant economic and policy disciplines

Oak Ridge National Laboratory — Oak Ridge, TN
Researcher for Renewable Energy Economics and Market Analysis (Post-Masters) — February 2014-July 2016
Energy-Water Resource Systems Group

- Economic analysis of hydropower, energy storage, and renewable energy cost drivers
- Integration of capacity expansion modeling work from the National Renewable Energy Laboratory
- Development and maintenance of Python packages to support cost modeling, analysis, and visualization
- Synthesis of renewable energy incentives and market structures in relation to specific technologies
- Independent management of cost modeling and development projects
- Verify new economic analyses across multiple scientific computing platforms (Python, R)
- Collaboration with multi-disciplinary stakeholders across federal, public, and private organizations

Indiana Geological Survey — Bloomington, IN
Graduate Research Intern - *Center for Geospatial Data Analysis* — January-December, 2013

- Development of Matlab scripts to model ground source heat pump installations
- ArcGIS analysis of populations in different heating regions
- Conducted sensitivity analysis on industry modeling methodologies
- Independent research on relevant cost drivers and industry economics

Lawrence Livermore National Laboratory — Livermore, CA
Graduate Research Intern - *Global Security: E Program* — May 2012-November 2013

- Conducted system-level resource and energy utilization analysis for specific cities
- Conducted literature review of city sustainability and modeling publications

EDUCATION

Indiana University — Bloomington, IN
Master of Public Affairs in Energy Policy and Economics — December, 2013
Master of Science in Environmental Science, Energy Resources, and Pollution

University of Illinois — Urbana-Champaign, IL
Bachelor of Science in Earth Systems, Environment, and Society — May, 2011

TECHNICAL SKILLS

Computer Skills

- Programming: Python, Matlab, PHP, SQL, HTML, CSS, VBA
- GIS/Remote Sensing: ArcMap, ArcCatalog, QuantumGIS, ERDAS Imagine 2011
- Statistical: R, STATA, SAS, SPSS, Pyomo,
- Python Packages: Pandas, Matplotlib, numpy, scipy, selenium, beautifulsoup, nltk, bokeh, statsmodels
- Microsoft Office: Excel, Access, Word, Powerpoint, Sharepoint
- Adobe: Premiere, Lightroom

Language Skills

- Basic Spanish

PUBLICATIONS AND RESEARCH

Potomac Economics

- Contribute to annual and quarterly reports for NYISO and ISO-NE, developed price heat maps and fuel security analysis section for ongoing reports.
- Primary maintainer of analytical tools for monthly, quarterly, and annual reports to RGGI.

Oak Ridge National Laboratory

- Lead author on paper "*Analysis of Renewable Energy Incentive Policy on the Optimum Design of Hydropower at Non-Powered Dams*.", to be presented at the 2016 HydroVision International Conference.
- Lead author on the Methods section of the Hydropower Vision Report Modeling Chapter, 2016.
- Lead author on the Tech and Cost Assumptions Appendices of the Hydropower Vision Report, 2016.
- Contributing editor to the Markets, Market Segments, and Market Enhancement sections of the Hydropower Vision Report, 2016.
- Updated NREL's Annual Technology Baselines for Hydropower in 2016 with new economic analysis.
- Co-author on paper "*Assessing the Impact of Economies of Scale on Hydropower Plant O&M Cost*", presented at the 2015 HydroVision International Conference.
- Contributor on report "*2014 Hydropower Market Report*", published April, 2015.
- Development of a webscraper tuned to aggregate permits from the FERC e-Library.
- Development and maintenance of Python scripts to generate supply curves of financial and technical parameters for the National Renewable Energy Laboratory's Regional Energy Deployment System (ReEDS) Model, and analyze results to identify and graphically visualize specific deployed plants.
- Contributed to development of an integrated hydropower plant performance sizing and optimization model utilizing mixed integer programming, and Excel-Python interface techniques.
- Co-development of GLM-based hydropower plant benchmarking technique for performance metrics

Indiana Geological Survey

- Co-Author on paper no. 387-4 presented at the 2013 Geological Society of America Annual Meeting "*Heat transfer controls in soil: recommendations for improved ground source heat pump system design based on results from the Indiana Shallow Geothermal Monitoring Network*."
- Co-Author on publication: "*Soil thermal properties and controls on ground-coupled heat exchange – implications for improving ground source heat pump design*."
- Development of ground source heat pump sizing and project cost analysis model in Matlab.

Indiana University School of Public and Environmental Affairs

- Co-author on a capstone report for The Northern Indiana Public Service Corporation (NIPSCO): "*Challenges from Natural Gas Supply and Demand Growth: Transportation and Electrical Generation*".
- GIS-based geospatial risk and cost assessment of Jasper County, IL for feasibility of Underground Coal Gasification (UCG).
- Literature review of algal fuel production techniques and current economics.

Lawrence Livermore National Laboratory

- Synthesis of internal report on the application of lab research towards increasing the sustainability of cities.
- Development of first ever city-level Sankey flow diagrams, modeling resource and energy flows and waste in several US cities