

REXON JOE CARVALHO

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EDUCATION

Rochester Institute of Technology (RIT), Rochester, NY
Sustainable Systems, Master of Science

Expected Oct. 2018

Institute of Chemical Technology, Mumbai, India
Dyestuff Technology, Bachelor of Technology (Chemical Engineering)

May 2013

CORE COMPETENCIES

Electricity Markets, Energy Modeling, Statistical Modeling, Data Analysis, Energy and Climate Policy Analysis, Financial Modeling, Energy Economics, Integrated Assessment Models, Sustainable Development, Project Economics

PROGRAMING AND SOFTWARE SKILLS

R programming, Python, Matlab, Vensim DSS, Microsoft Office Suite, Tableau, C and C++

MASTER'S THESIS

Evaluating the Future of Natural Gas as a Bridge Fuel for Electricity Generation in the US

- Modeled the energy, ancillary service and capacity markets' operations of a Natural Gas Combustion Turbine (NGCT) power plant operating in different US power markets (ERCOT, PJM, NYISO) to estimate the cost of operation and the revenue generated
- Performed financial analysis using the cost, revenue and other financial indicators to estimate the payback period to make capacity expansion planning recommendations

WORK EXPERIENCE

World Resources Institute
Research Assistant, Climate and Economics

Washington, DC
Apr. 2018-Aug. 2018

- Managed and supervised development of the web tool Climate Watch Pathways which hosts a climate and economic scenario database
- Developed and executed the outreach programs around the tool to engage policy decision makers, researchers, and modelers and to expand the database and user community

World Resources Institute
Intern, Climate Watch and Low Carbon Modeling

Washington, DC
Oct. 2017- Mar. 2018

- Researched methodologies, qualitative and quantitative modeling inputs/outputs and scenarios of integrated assessment models and curated a database
- Assisted in development of a web tool called Climate Watch Pathways to host the data and display it in a structure appealing to policy decision makers and researchers

Rochester Institute of Technology
Graduate Assistant, Funded by National Science Foundation

Rochester, NY
Aug. 2016-Dec. 2016

- Analyzed policies related to feed in tariff, net metering, tax credits, renewable energy credits, and subsidies for residential Solar Photovoltaics (PV) in Germany, Japan, United States and China and calculated the Net Present Value (NPV) of investment in a solar PV system
- Performed a non-linear regression analysis to model and quantify the relationship between adoption and NPV and identified that it follows an error function implying higher increase in adoption for marginal increase in NPV

- Analyzed and visualized energy consumption and other performance data for a period of 3 years of various systems related to cooling of a LEED platinum certified building to identify the cause of high cooling load
- Identified a faulty valve in the HVAC system, replacing which would potentially decrease the cooling load by 20% and increase the overall system efficiency

PROJECTS

Statistical Modeling of Energy Demand of a US Population Sample

Jan. 2016-May 2016

- Performed Multivariate Linear Regression Analysis and Time Series Analysis to model and forecast the energy consumption using Regional Energy Consumption Survey Data
- Forecasted the residential energy consumption to increase by 12% while housing demand to increase by 27% by 2040 compared to that in 2015 implying a substantial increase in building energy efficiency

Environmental-economic Analysis of Solar Photovoltaics

Aug. 2015-Dec. 2015

- Evaluated the effect of carbon tax on economics of Solar PV in state of California, Arizona and New York
- Identified that with a 21\$/ton CO₂ eq. carbon tax and absence of other subsidies, solar PV will be economically feasible only in the state of California, implying a need for higher carbon tax

PUBLICATION

Williams Eric, Eric Hittinger, **Rexon Carvalho**, and Ryan Williams. "Wind power costs expected to decrease due to technological progress." *Energy Policy* 106 (2017): 427-435.