

Zachary Clement

Data Scientist - U.S. Dept. of Energy

Washington, DC - Email me on Indeed: indeed.com/r/Zachary-Clement/ee5fe3392c755ca1

Willing to relocate

Authorized to work in the US for any employer

WORK EXPERIENCE

Data Scientist

U.S. Dept. of Energy - 2013 to Present

Python: scientific computing with pandas, graphlab create

- Analysis techniques including regression, machine learning, optimization, simulation, GIS
- Database management with SQL and SQLite
- API interfacing and web scraping with BeautifulSoup
- Visualization with matplotlib, seaborn
- Perform analysis and modeling in the following subject matter areas:
 - Electricity generation, transmission, and storage operations
 - Energy markets (electricity, natural gas, oil, wind, solar)
 - Commodity and transportation networks
 - Mineral and material market analysis
 - Techno-economic and policy barriers
- Write technical papers and create data visualizations to communicate analysis findings
- Present findings at conferences, workshop, and internally to disseminate findings
- Manage project teams, serving as project lead and subject matter expert
- Coordinate scientific studies and project outcomes with high level program goals
- Synthesize knowledge across DOE to direct future objectives, planning, and scheduling

General Engineer

U.S. Dept. of Interior - 2010 to 2013

Lead technical research to advance offshore energy production and safety

EDUCATION

Master's in Industrial Systems Engineering

Virginia Polytechnic Institute and State University - Blacksburg, VA

January 2012 to May 2014

BS in Environmental Systems Engineering in Environmental Systems Engineering

Pennsylvania State University

2005 to 2010

Certificate in Machine Learning

University of Washington

Certificate in Applied Data Science

University of Michigan

Certificate in Computer Science

Rice University

SKILLS

Python (2 years), Modeling (4 years)

MILITARY SERVICE

Service Country: US

Branch: Army

Rank: Specialist

August 2001 to June 2005

PUBLICATIONS

Water Energy Nexus: Challenges and Opportunities

<https://energy.gov/sites/prod/files/2014/07/f17/Water%20Energy%20Nexus%20Full%20Report%20July%202014.pdf>

June 2014

Water resource scarcity, variability, and uncertainty are becoming more prominent both domestically and internationally. Because energy and water are interdependent, the availability and predictability of water resources can directly affect energy systems. We cannot assume the future is like the past in terms of climate, technology, and the evolving decision landscape. These issues present important challenges to address.

Fuel Use and Greenhouse Gas Emissions from the Natural Gas System

https://energy.gov/sites/prod/files/2015/07/f24/QR%20Analysis%20-%20Fuel%20Use%20and%20GHG%20Emissions%20from%20the%20Natural%20Gas%20System,%20Sankey%20Diagram%20Methodology_0.pdf

July 2015

Substantial quantities of methane (CH₄) and carbon dioxide (CO₂) emissions occur throughout the natural gas infrastructure. In 2012, approximately 155 million metric tons CO₂ equivalent (MMt CO₂e) of CH₄ were emitted as a result of inadvertent leakage and routine venting. In the same year, the natural gas industry emitted a similar amount of CO₂ (approximately 164 MMt CO₂e), primarily from the combustion of natural gas that is used as a fuel for compression and flared gas but also from the removal of non-hydrocarbon gases from raw gas by processing plants. Combined, these “midstream” and “upstream” emissions from natural gas infrastructure accounted for approximately 20% of total 2012 greenhouse gas (GHG) emissions from natural gas systems; the other 80% of GHG emissions from natural gas result from gas combustion by end-use consumers. The Sankey diagrams in this paper examine these emissions in some detail, focusing in particular on the production, processing, transmission and storage, and distribution segments of natural gas infrastructure.