Bryan Murray, P.E.

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Experience

2021 - 2023 **Master's Studies in Distributed Energy**

- Distribution grid modeling
    - Time dimension: shiftable, dispatchable, curtailable load impacts
    - Spatial dimensions: hosting capacity analysis, "electrocartography"
    - Power Systems Modeling: OpenDSS, Simulink, PandaPower, others
- Power electronics modeling and controls
    - Inverter-based resource (IBR) controls development
    - Simulation-based studies for grid-wide power quality impacts
- Automating other simulation engines using Python

2015 - 2021 **Cofounder, Electrical Lead**
CalWave Power Technologies

- Electrical Engineering Lead for Dept. of Energy research and development contracts
- Electro-hydraulic power train – designed, built, and commissioned
    - Unique multi-axis, four-quadrant, high-power traction system design
    - Realized using both COTS and bespoke components
    - Hardware-in-the-loop testing and at-sea commissioning
    - Anti-islanding and grid interconnection planning
    - Internal protection compliant with relevant codes (NEC, ANSI)
- Battery backup and SCADA design
    - SCADA architecture and sensor selection and installation
    - Li-ion BESS and inverters for on-board backup power
- Data Science and Market Analysis (Python)
    - Hindcast/forecast time series from large external databases
    - Techno-economic forecasting

2012 - 2015 **Oceanographic Engineer**
NOAA National Ocean Service

- Software development: wrote and automated Python tools for tidal, GPS, and accelerometer time series analysis

Education

2021 - 2023 **M.S. Electrical Engineering**
University of Oviedo, Spain

2007 - 2012 **B.S. Electrical Engineering**
Virginia Polytechnic Institute and State University

Professional Networks

2022
- California Professional Engineer

2021-2022
- Collaborator, IEC 62600-30 U.S. "Shadow Committee"
    - This group is adapting power quality standards from other industries for marine energy applications.

2020
- U.S. Collaborator, IEC Technical Committee SC8b
    - Our temporary working group developed "use cases" to evaluate the adequacy of TS 62898 Microgrids where microgrids must rely on highly variable renewables such as wave or tidal power.