



Troy Barrie
Chief Technical Officer
Email: troy@ariyafinergy.com

- **Experienced engineering team leader managing multi-faceted teams covering multiple countries**
- **Familiar with design and installation of multiple technologies including solar, batteries, boilers, motor loads and biogas**
- **Leading the design effort behind solar, battery storage projects, mini-grids and power quality solutions across Kenya, North America and Asia**
- **Created and implemented software specifications for integrating solar+ storage**

Education and Professional Qualifications

2009 **University of British Columbia**, Bachelor of Applied Science: Eng. Physics, Mechanical Option

Membership in Professional Societies

- Association of Professional Engineers and Geoscientists, British Columbia
- Non-Executive Director, Pacific Energy Innovation Association

Career History

2018 – Present Ariya Finergy Holdings Limited, Nairobi, Kenya

Chief Technical Officer

- Responsibilities include: Managing and developing the engineering department, identify new technical solutions, technical oversight of design and installation of systems, overview of comprehensive energy studies, identifying and managing procurement and construction contractors
- Heat transfer, thermodynamic, thermal energy efficiency, solar PV, solar thermal, and heat generation studies and project implementation for industrial clients throughout Kenya

2018 – Apr-Jun Sanergy, Nairobi, Kenya

Energy Systems Engineer

- Evaluated energy consumption of key equipment: solar, boilers, motors, thermal drying.
- Designed and tested thermal generation system for re-using waste biomass to generate heat for the drying cycle of the product.
- Designed and built prototype black soldier fly larvae separation device; a multi-stage vibration sieve.

2016 – 2017 Avalon Battery, Vancouver, Canada

Solar Systems Engineer

- Project engineer leading the design and implementation of solar panel and storage combined projects. Solar panels and batteries integration on a DC coupled bus and control

2014 - 2016 Imergy Power Systems, California, USA

2016 Imergy Power Systems, California, USA
Battery Design Lead

- Led a team of seven engineers through mechanical, electrical and software product development and deployment of Imergy's core product, a 50kW 200kWhr energy storage flow battery.

- Integrated solar energy production into battery mini-grids to replace diesel generators
- Designed, Installed & Maintained solar + storage projects in India, South Africa, USA, Korea and China
- Set the direction for Imergy's manufacturing cut-in process at two contract manufacturers (India + China) requiring employees to follow rigorous product documentation processes.
- Led the development team for control software developed to integrate solar and energy storage solution for demand response, load shifting and distributed energy Aggregation.
- Developed strong understanding of start-up strategy

**2015-2016 Imergy Power Systems, California, USA
Director of Systems Engineering**

- Documented critical VRB flow battery design criteria for design process of ESP5 and ESP50 products.
- Designed, sized & commissioned off-grid & grid-connected (with flickerless islanding to grid-forming capability) battery systems.
- Wrote software specifications for PLC & PC based control systems, selected hardware components and assembly process for control panel and tested integration of code and hardware on a prototype.
- Designed controller features for a communication interface to the outside world – facilitating demand response, local/remote dispatch control as well as server data & alarm management.
- Conducted holistic approach to product integration

**2014-2015 Imergy Power Systems, California, USA
Energy Engineer**

- Solar PV & battery integration at multiple sites: US Navy, Robert Bosch, Battery Innovation Centre
- Responsible for developing repeatable power stack bench test and field system testing protocols.
- Analyzed bench and field data, comparing to baseline characterization testing to develop acceptable ranges for performance. Developed and implemented early-failure warning alarms.

**2011 - 2014 Prudent Energy, Vancouver, Canada
Project Engineer**

- Designed and led the install of a solar, battery, biogas and fuel cell project at an agribusiness in USA.
- Lead engineer managing a contracting team of civil engineers, pipefitters, electricians, and software programmers to install a \$7MM, 3.6MWhr Energy Storage Battery, being Prudent Energy's first commercial deployment in North America.
- Created & implemented software specifications for the application-level PLC that controlled three independent batteries as one system.
- Created a controls platform that allowed remote operation of the battery.
- Lead & sole company representative throughout a federal US court lawsuit resulting from a tank failure. Lawsuit was successfully won in federal US court.

Other Experience

2010 - 2018 Co-Founded a non-profit & registered Canadian charity that utilizes vacant commercial properties and builds publicly accessible community gardens and urban farms.

2017 - 2018 1.5 years overseas experience with Engineers Without Borders as African Programs Staff implementing change management within the Ghana Ministry of Food & Agriculture.