The Company
Redback Technologies is a Brisbane based renewable energy startup engaged in the development of energy storage hardware and software technologies for domestic and markets. Check out more on our website: www.redbacktech.com

Project Overview
The Redback Technologies hybrid inverter enables storage of excess solar energy in the home, and the later use of that energy to power loads in the home. The inverter also enables the management of dispatchable loads in the home to take advantage of excess solar energy. Optimal management of the battery and the loads requires complicated heuristics with many inputs.

The scope of this project is to develop and then implement the set of rules that will determine the control strategy for the battery and loads. The rules will take into account local variables such as battery state, solar input and local loads. The rules will also take into account external variables such as meteorological data, tariff rates, and local grid conditions. Both local and external variables need to take into account historical values in addition to current conditions. The rules engine that is to be developed will be split between both cloud and on-machine implementations, and rules must be settable dynamically based upon local and predicted conditions.

Alignment with Company Objectives
This project is aligned with the strategic direction of the company. To this date, the Redback Technologies has a hardware solution, and cloud-based monitoring software. The next generation of the product will include the battery and load optimisation engine.

Challenges Addressed
This project will provide the rules engine, which Redback Technologies does not currently have the expertise on staff to complete.

Innovation
Residential Energy storage is a rapidly growing part of the renewables industry in Australia. Redback Technologies is a highly innovative startup in this space, and battery and load optimisation will provide a valuable extension to Redback Technologies’ innovative products.

Business Outcomes
Successful implementation of the battery and load optimisation project will provide a competitive edge to Redback Technologies in the global renewable energy / storage industry.

Project Feasibility
This project has well understood inputs and outputs, and the anticipated 12 month timeframe should be sufficient to identify the appropriate data sources, build the rules engine, and implement interfaces to those data sources. The project is also scalable, i.e. the number and type of rules to be supported can be adjusted to suit time constraints or technical difficulties.

Risk Identification
The risks to the rules engine project are well understood and manageable. Most of these risks relate to availability of the data sources for rule implementation, and as mentioned above can be managed by reducing the total rule set if certain rules are unmanageable.
Timeframes
As described above, the project can be scoped to fit within the 12 month timeframe as the difficulty of implementing the rules engine, and accessing the data required is better understood. As a minimal case, many rules can be implemented from existing data, with no additional datasets required.

Key Skills required
- Bachelors or Masters degree in Software Engineering or Degree in IT or similar
- Strong experience with OO programming paradigms (c# / .NET preferred, java or similar acceptable)
- Strong understanding of web protocols (web services, xml, REST APIs, authentication mechanisms etc.)
- Knowledge of and practice with architecture design patterns
- Excellent communication skills / Team working skills

Contact
Chief Information Officer Paul Liddell
paul@redbacktech.com