Title: Demonstration of Transactive Control for Energy Management in Microgrid Systems

**Brief Description:** Write 2-3 sentences/bullets to describe the project development area and the necessary partnerships
- Scalability – Account for devices inside of building to full external market
- Theoretical grounding – transactive
- Graceful degradation

**Challenges:** Identify the anticipated challenges for creating a workable demonstration or testbed for the concept
- Formal simulation experience
- Larger test bed – Alstom - Gridstar

**PROJECT APPROACH**

**Major Tasks:** Describe a possible approach to developing the project, including 3-5 major tasks
- Conduct requirements gathering scenarios
  - Performance targets
- Develop theory/design/simulate
- Develop software/test
- Refine above
- Conduct analysis of regulatory aspects

**Major Milestones with dates:** Define 3-5 milestones that can be used to measure progress (what markers can we use to measure and assess progress in development?)
1) Requirements
2) Design
3) Develop
4) Test
5) Analyze

**Performance Targets:** Identify 1-5 (quantitative) performance targets that define a successful outcome.
- Graceful degradation
- Microgrid as participant
- ADR
- Measure of load following signal
- Improve achieved value of microgrid

**Limits:** What parameters should be used to define the realistic limits to use of the system/platform
- Extent of automation needed
- Flexibility of system

**PROJECT IMPACTS and DEMONSTRATION**

**Impacts:** Describe the anticipated economic benefits (new products, jobs, economic growth, exports, tax base, etc.) as well as impacts on energy, health, safety, environment, and other quality of life aspects
- Overall reduce carbon footprint
- Lesser initial capital expenditure
- Changed perception of Transactive business model
  - Improvements to the regulatory process

**Demonstration vehicle:** Describe how you might demonstrate the project concept (physical or virtual)
- Simulation
- Physical Grid Demonstration

**Status of Commitment:** Please advise on the current status of the CPS idea detailed on this worksheet (underline/circle one):
- LAUNCHED
- Ready for Public Announcement
- In Deliberations / Negotiations
- Concept only Stage / No partners yet

**Team Lead:**
- Jennifer Worrall, Cleanspark – Project Management, Software Development

**Participants and Roles:**
- Allen Jones, Independent Consultant – Requirement development
- Jorge Camacho – Regulatory analysis
- Paul Heitmann, IEEE – Interconnection, testing development
- Li Song, Univ. of Oklahoma

**Participants and Roles: (continued)**
- William Cox, Energy Mashup Lab – Architecture
design
- Larisa Dobriansky, General Microgrids – Regulatory analysis
- Ranjeet Vaishnan, Tata Consultancy – Technical
- Thomas Nudell, MIT – Algorithm development and methodology

**Additional Notes:**