PG&E Demand Response Reference Platform

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Project Description

The U.S. Department of Energy (DOE) has developed an open source, secure platform, VOLTTRON™, which is capable of supporting PG&E's ADR program, supporting existing customer BAS equipment and facilitate expanded customer and grid functionality such as energy efficiency, demand response (DR), optimal renewable utilization, grid-responsive loads, and ancillary services.

This proposed effort will develop, test, and demonstrate an open-source reference design for a DRAS using the VOLTTRON™ platform. This reference design can be used as a target procurement specification to be met by suppliers of DRAS. This will widen the supplier base for such automation systems and potentially reducing the cost of operating the ADR program and simultaneously facilitate the deployment of intelligent algorithms for improving energy efficiency.

Major Project Goals

► An evaluated reference design for deployable demand response automation system using open-source VOLTTRON™ platform

► VOLTTRON™ networked RTUs (both existing and new) can maintain persistent energy savings through deployment of automated fault detection and diagnostics (AFDD); both on the airside and the refrigerant side (between 10% and 15%)

► VOLTTRON™ networked RTUs can support automated DR that provide benefits to both ratepayers by decreasing their utility costs and investor owned utilities (IOUs) by increasing grid reliability

► VOLTTRON™ networked refrigeration systems (RS) can provide significant energy and cost savings by managing refrigeration defrost and using refrigeration loads for temporary demand relief

► VOLTTRON™ networked lighting controls can provide significant cost savings by supporting automated DR.

► VOLTTRON™ based solutions provide high return on investment leading to a cost-effective solution

► That there are **no** significant practical application and implementation issues.