

Integrated Wireless Control Solutions for Energy Management and Demand Response in the Small and Medium Business Sector

Submitted by
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There are approximately 55,000,000 sqft of low-rise commercial office space in Orange County representing more than 1,500 Class B and C buildings. Majority of these buildings use rooftop package units to provide heating and cooling. Smaller rooftop units are typically controlled individually. For example a 20,000 sqft building may have 12 roof-top units, each with an independent thermostat that controls one and only one unit. For this example building, central control thermostats (tstat) is not possible since site staff must adjust each tstat separately (see Exhibit 1 for schematic). In most cases site staff are not present. Energy management is difficult, at best. Demand response is impossible. The advent of wireless controls and wireless thermostats can provide centralized control allowing energy management strategies such as off-hour controls and dead band. By changing out existing thermostats, which again control one and only one unit, with newer networked wireless thermostats, a building can be controlled centrally, from a laptop, ipad, smart phone or any other device with a web connection. These buildings can now be controlled and monitored remotely. A new class of service providers can provide monitoring and feedback on energy usage or fully manage energy remotely for small and medium businesses. These businesses and their owners have many other competing objectives besides energy management. Additionally service providers can offer demand response through remote control of the thermostats. Finally, in one service the promise of IDSM for SMB can be realized.

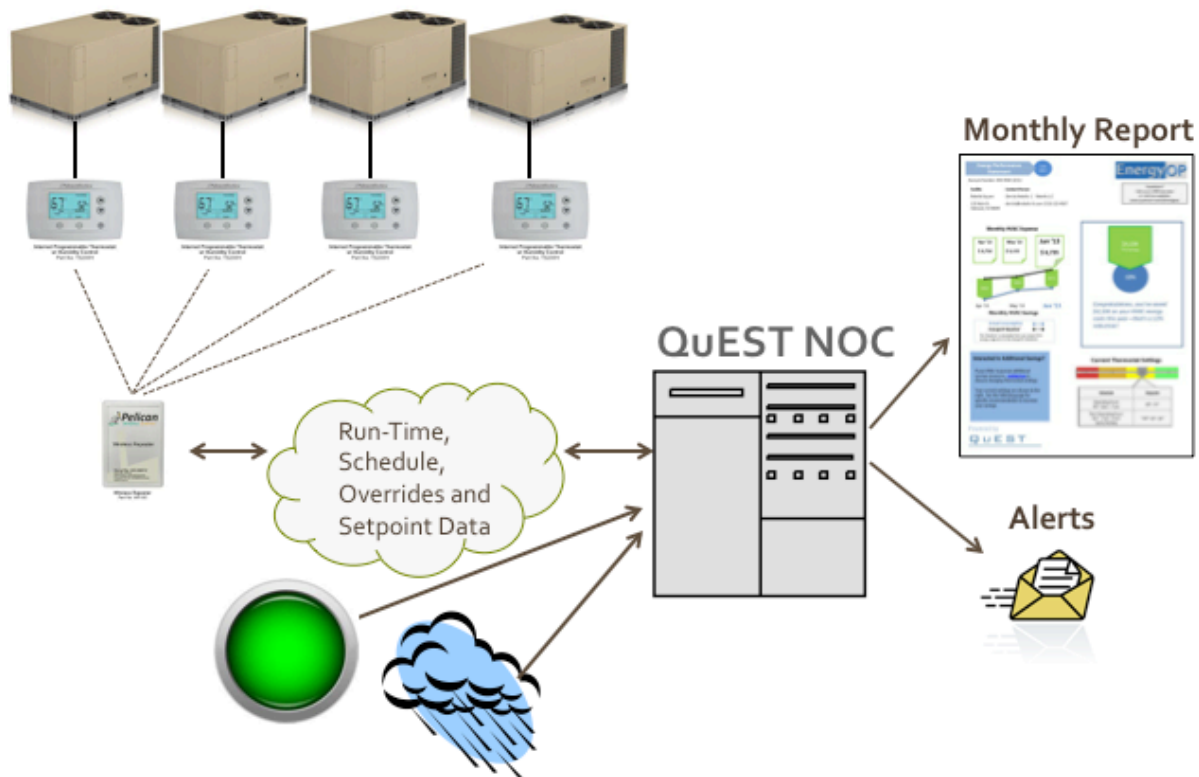
Exhibit 1
Sample of Roof-top Units with Individual Thermostat Control



The wireless controls technologies have been around for a number of years. Many technologies are products of state investments such as PIER, or IOU Emerging Technologies Programs. Advances in wireless and the ability to use the cloud to manage data and control buildings has improved, while prices have come down. It's worth asking whether a program that just offers remote control of thermostats without monitoring or third party control is viable. We believe that in some cases the users will do the right, however our experience serving the SMB sector tells us that the savings will not be sustainable. The biggest reason is competing

objectives. Most small and medium business owners serve as sales, procurement, contracting, accounting and so on. Managing energy for SMB is likely to be very low on the list. We believe that integration of wireless controls, and third party monitoring and reporting is a stronger and more lasting solution – See Exhibit 2. Further, out-sourcing energy management, so long as savings materializes, may be a sound business decision for the over-worked building owner.

Exhibit 2
Integrated Wireless Controls with Monitoring and Feedback



The advantage of allowing this new class of service provider is that they can serve an untapped market for both energy management and demand response. Additionally the SMB buildings are prevalent in the target areas, and are deployable at the circuit level. Another advantage, touched on above, is it offers true Integrated Demand Side Management (IDSM) for a class of customer, SMB, that has been historically underserved. Further it provides the right solution as even with the correct tools it is unlikely that these business owners will have the time to actively manage energy for them. A service that provides energy management and reports monthly on the savings impact, in dollar terms, has better chance of success.

QuEST welcomes the opportunity to further discuss our approach to actively serving the SMB sector with both energy management and demand response. Further questions can addressed to:

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