



2016 ACEEE Intelligent Efficiency Conference
Austin, Texas
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2016

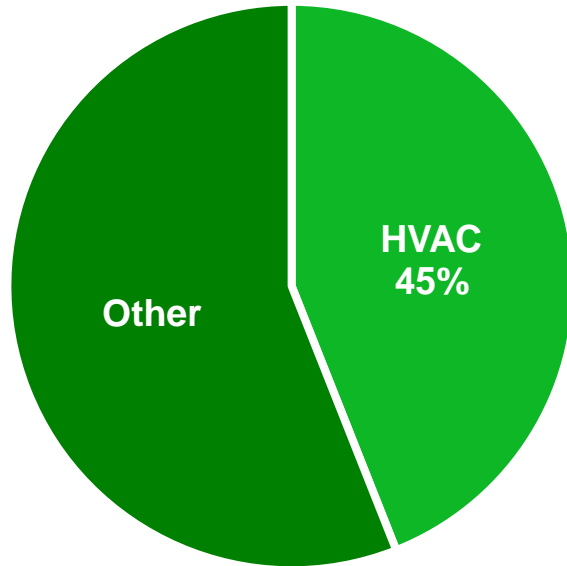
Presented by:
Michael Serour, B. Eng
VP Sales & Marketing



our history



- Manufacturing technology for over 30 years
- Over 70 US & International Patents
- OEM products for LG, Carrier, Fujitsu, GE, etc.
- Verdant brand launched in 2008
- Over 1,000 hotels in NA using Verdant EMS
- Endorsed Partners: Hilton, IHG, Marriott, etc.



~45%

energy in hospitality properties is used for heating and air-conditioning;

2nd

largest expense after labor



hospitality occupancy
patterns are totally random

unlike residential or other commercial environments

Many compartmentalized
rooms with independent
temperature control

unlike residential or other commercial environments



Verdant thermostats are equipped with embedded infrared occupancy sensors

They constantly scan room for motion & body heat and automatically adjust temperature when room is unoccupied



Patented “Night Occupancy” feature ensures guest comfort at night. Verdant EMS thermostats suspend setback at night while guests are asleep, even if occupancy is not detected.

Dynamic Intelligent Recovery calculates the “slew rate” in each room to ensure that a desired temperature can be restored quickly when the guest returns.

$$\begin{aligned} & \max_{0 \leq x \leq 1} x e^{-x^2} \\ & \lim_{n \rightarrow \infty} \left(1 + \frac{1}{n} \right)^n \\ & \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} \end{aligned}$$



- Reduction of guestroom HVAC runtimes by 35% to 40%
- Reduction of overall energy consumption of 10% to 20%

wireless network



Online Connection Kit
connects to any
open internet port



Wireless Communication
between Online Connection Kit
and up to 1,000 Thermostats



Thermostats can be monitored
and configured from
any computer, tablet
or smart phone

remote management



Location-free Access

Remote management can be accessed from any computer, tablet or smartphone connected to the internet.

Comprehensive Remote Management

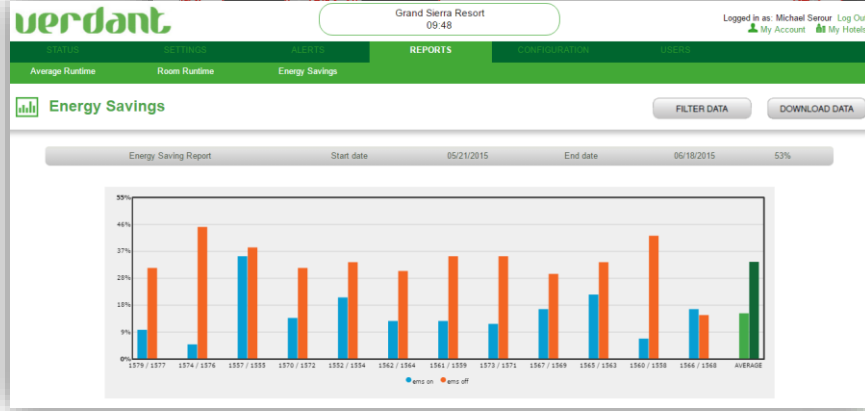
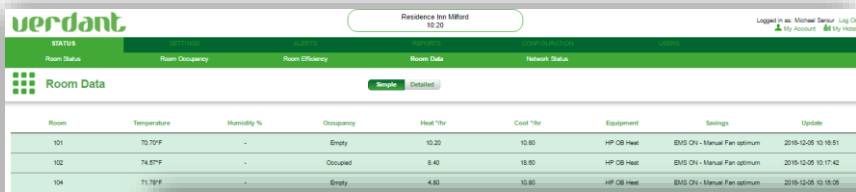
Web-based remote management application allows around-the-clock remote monitoring and configuration.

Notifications Messaging

Built-in diagnostic tools allow sending e-mail notifications when issues are detected.



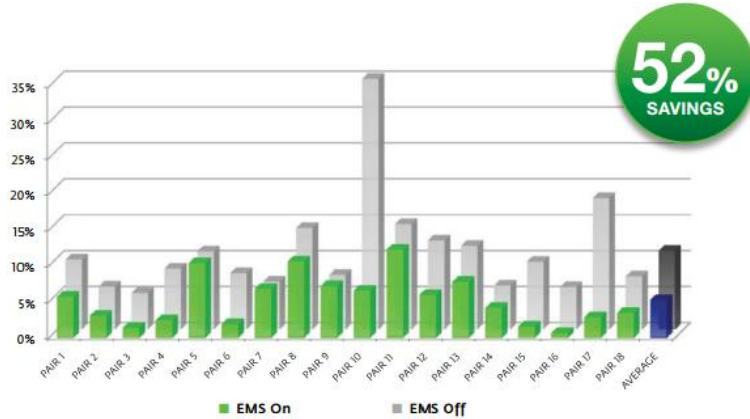
data mining



Data from over 1,000 hotels across North America

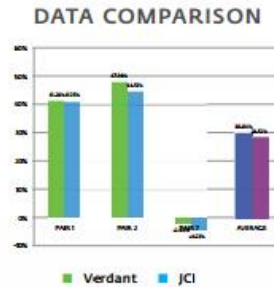
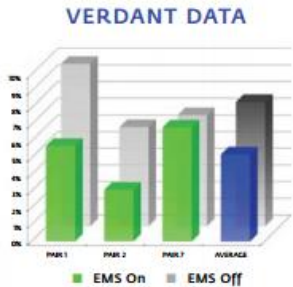
- EMS runtime reductions
- Seasonal variations
- Geo variations
- Peak consumption

energy savings reports



"Verdant has reported a savings percentage of 30.1% compared to JCI's data on the same rooms and dates that show a savings percentage of 28.4%. It is therefore within the accuracy of our analysis to state that savings is very likely occurring anywhere from 25% to 30% ... and thus confirms the Verdant reporting methodology and savings for those rooms compared."

Gary Storch, CEM
Performance Assurance Engineer
Johnson Controls



| Pair Number | Runtime EMS On | Runtime EMS Off | Reported Savings |
|--------------|----------------|-----------------|------------------|
| PAIR 1 | 35.7 | 60.8 | 41.3% |
| PAIR 2 | 19.3 | 37.1 | 48.0% |
| PAIR 7 | 42.6 | 41.6 | -2.2% |
| TOTAL | 97.6 | 139.5 | 30.1% |

| Pair Number | Runtime EMS On | Runtime EMS Off | Reported Savings |
|--------------|----------------|-----------------|------------------|
| PAIR 1 | 33.9 | 57.6 | 41.1% |
| PAIR 2 | 17.7 | 31.9 | 44.5% |
| PAIR 7 | 39.4 | 37.8 | -4.1% |
| TOTAL | 91.0 | 127.3 | 28.4% |

| Pair Number | Verdant Savings | JCI Savings | Savings Difference |
|--------------|-----------------|--------------|--------------------|
| PAIR 1 | 41.3% | 41.1% | 0.20% |
| PAIR 2 | 48.0% | 44.5% | 3.50% |
| PAIR 7 | -2.2% | -4.1% | 1.90% |
| TOTAL | 30.1% | 28.4% | 1.70% |

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COVERED BY ONE OR MORE OF THE FOLLOWING PATENTS. US PATENTS: 7,918,406; 7,232,075; 7,185,825; 7,156,318; 7,152,806; 7,145,110; 7,050,026; 7,028,912; 6,902,117; 6,789,739; 6,786,421; 6,619,555; 6,581,846; 6,578,770; 7,838,803; 7,841,542; D556,061; D518,744; RE40,437; CANADIAN PATENTS: 2,633,113; 2,633,200; OTHER PATENTS PENDING.

Verdant Environmental Technologies reserves the right to make changes, without notice, in design or components as progress in engineering and manufacturing methods may warrant. Product appearance may vary.