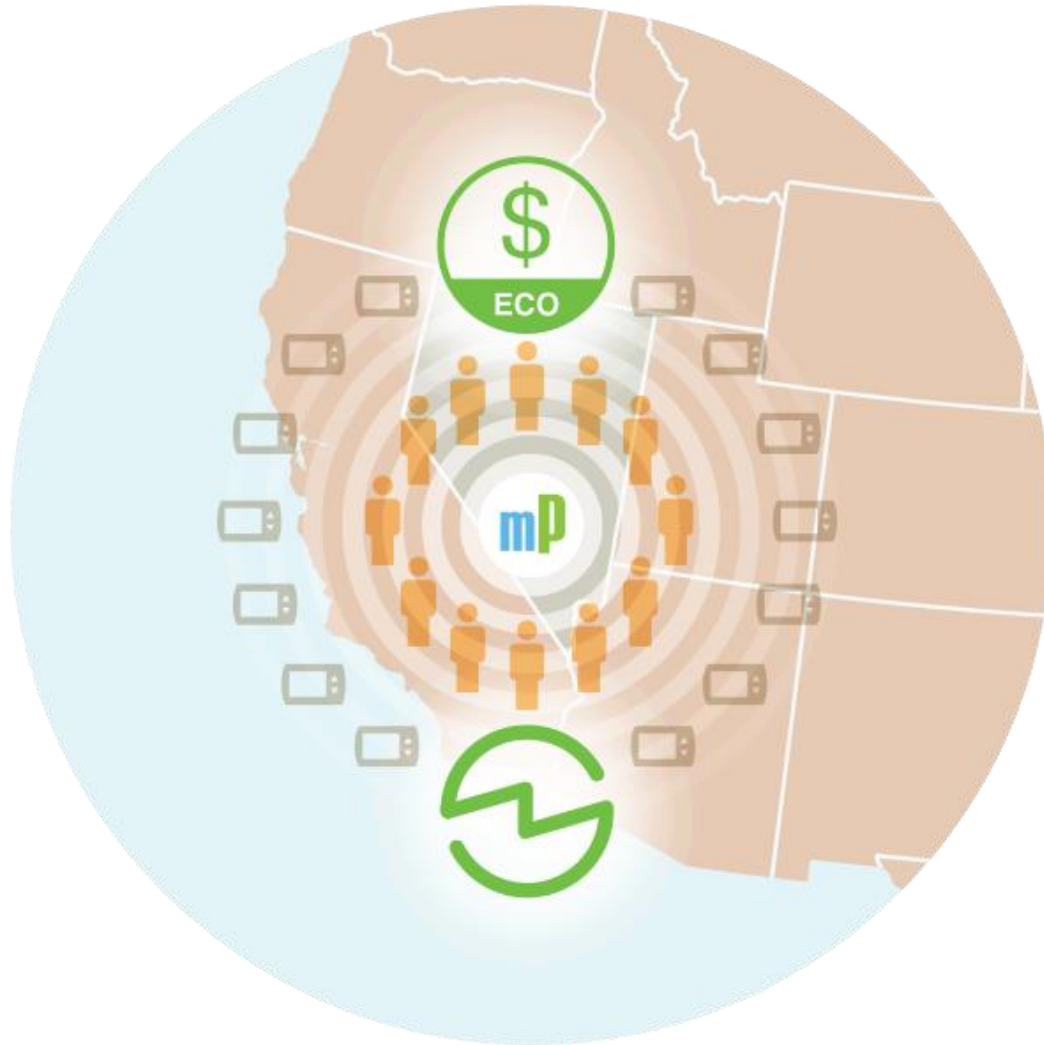


Results from Residential IDSM program in Southern Nevada

Rodrigo Sanchez Bredee, February 2015

NV Energy mPowered program



mPowered™

- Powegrid International Project of the Year 2015
- One of the largest and most successful IDSM programs in the country
- Publicly launched in October 2012
- By the end of 2013: 14,500 customers participating and 21,000 thermostats installed
- More than 22,000 customers and more than 34,000 thermostats deployed to date

mPowered in NV Energy website

NV Energy

Residential Business Community Environment Outage

MvAccount

mPowered: Home Energy Management

Access your thermostat. Join mPowered.

[Desktop Login](#) [Mobile Login](#) [Learn More](#)

Be mPowered. Save Energy.

Did you know that 50% of your energy bill goes toward cooling & heating your home? But mPowered makes saving easy. In fact, it does all the work for you. The average home will save \$100–\$150 every year. Play the video for more information.

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During the calendar year of 2013, third-party verification has shown that the average mPowered customer saved \$100 in energy costs. That savings continues to grow with continued participation in mPowered. [View a recent article](#) about how the mPowered program is helping NV Energy customers save energy.

Successful Demand Response

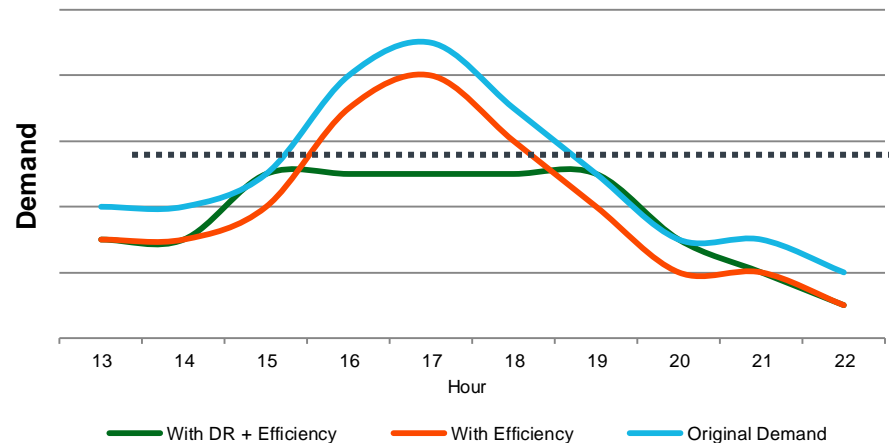
Primary Goal: Maximize peak to reduction avoid expensive capacity

Secondary goal: Maintain satisfaction - keep consumers comfortable so they remain in the program and consistently shed load

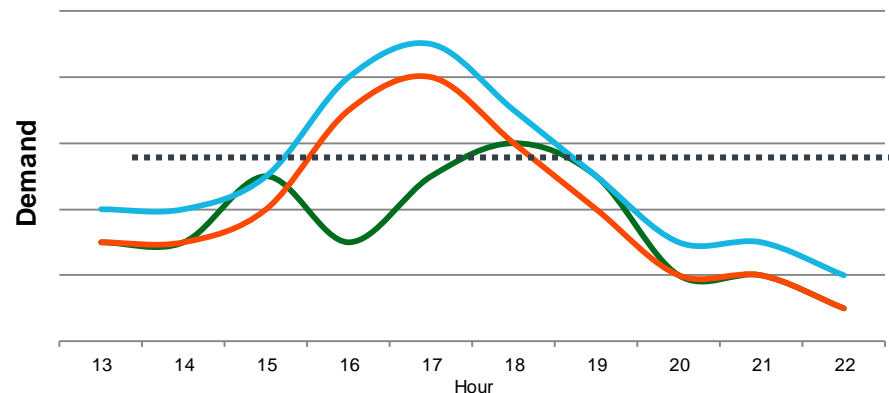
Considerations when scheduling DR:

- Estimate how much demand an event will cut based on:
 - Outside temperature
 - Historical non-responding and manual override rates
 - DR capacity available
 - Type of event: Advanced warning vs. Emergency
- DR is maximized in the first hour after it is called and falls off after that

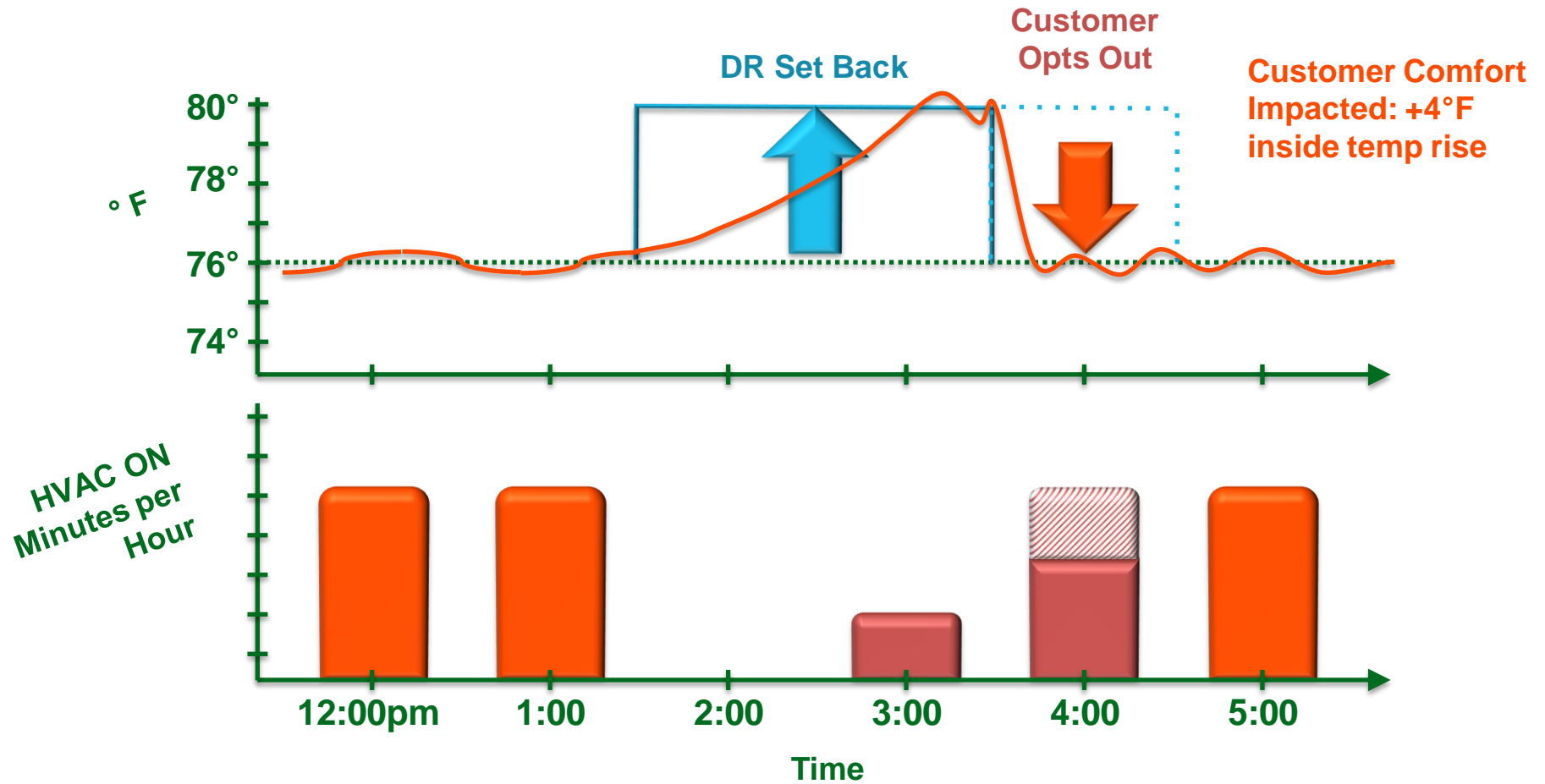
Ideal handling of DR



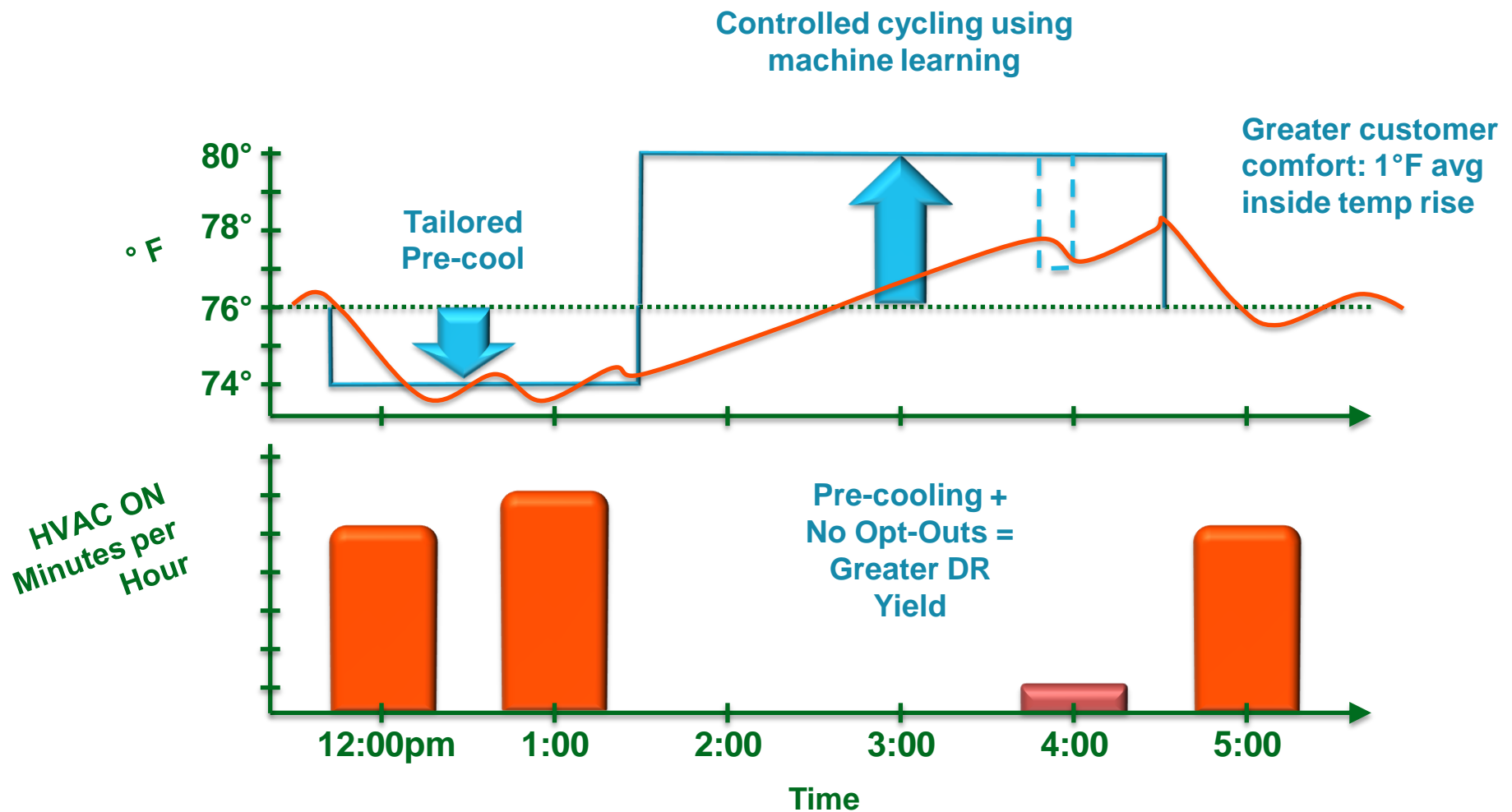
Actual handling of DR



Traditional thermostat-based DR

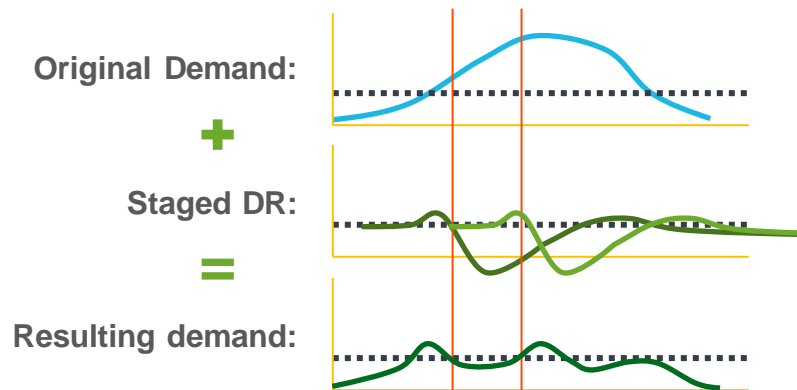


EcoFactor's occupant-centric approach to DR



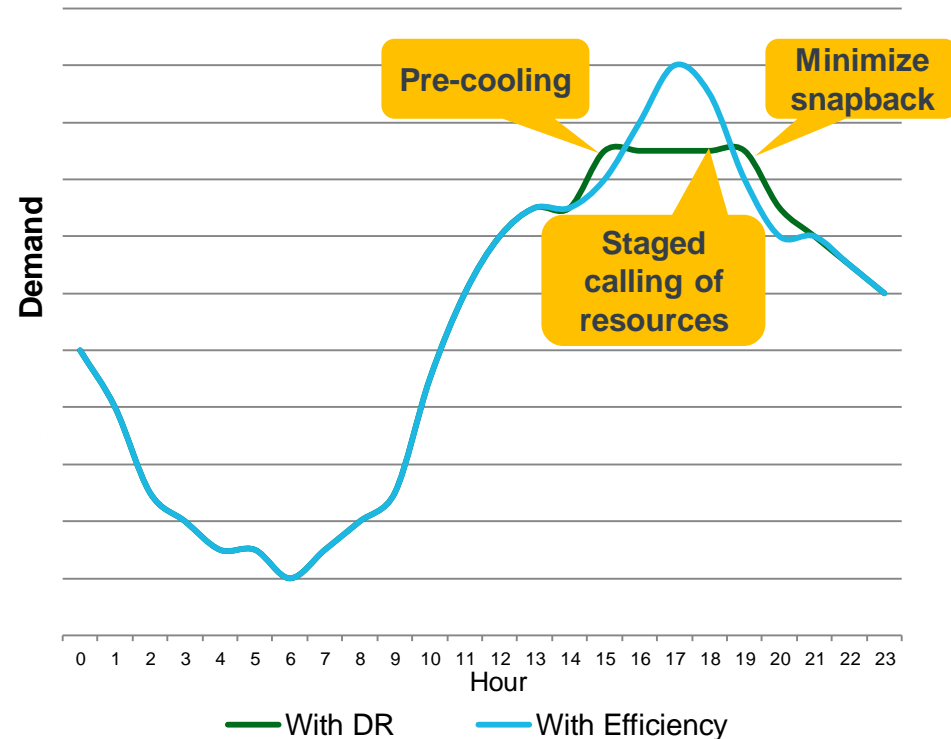
EcoFactor approach to DR at aggregate level

1. **Precooling:** Makes consumers more comfortable for longer when AC is off increasing event energy savings
2. **Staged Resource Calling:** Calling resources in waves flattens the curve



3. **Minimize snapback:** Spread out when consumers turn AC on over 15 minutes so there is no spike

Ideal handling of DR



mPowered M&V(*) results – Customer Sat

Drove Sustained Participation and High Customer Satisfaction

- 86% overall customer satisfaction rating
- Sustained customer participation in 28 DR events in 2013 and in 2014
 - Including a stretch of 8 consecutive days with DR events in 2013
- 12% fewer Manual Overrides than next-best performing residential two-way PCT program in report
- \$100/year in savings (635 kWh + 18 Therms)

(*) Independent Measurement and Verification report published by ADM associates, submitted to PUCN in July 2014

mPowered M&V results – Utility Value Add

Delivered Best Value to the Utility

- EcoFactor DR+EE program had a TRC benefits-to-cost ratio of 1.33 in 2013, expect 1.89 in 2014
- More than 63MW avoided capacity
- Events dispatched directly from Utility DRMS to EcoFactor platform via Auto-DR API
- ~22,000 MWh saved since 2012
 - 5,922 MWh achieved in 2013 + 8,954 MWh potential annual savings from devices installed previously
 - Incremental annual EE Savings of 7,055 MWh from new installs in 2014

Integrated Demand Side Management works

Dual Benefits of DR + EE= Increased Savings in both Capacity and Energy

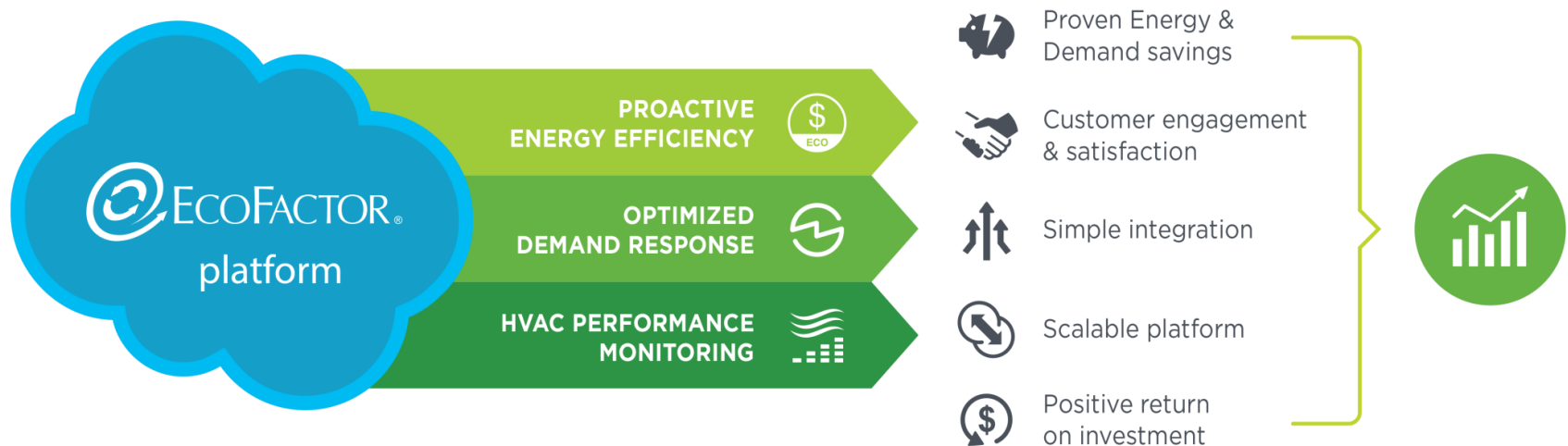
	Demand Savings (kW)	Energy Savings (kWh)
DR	3.1 kW load reduction per home (***)	24.2 kWh/season Savings per home
EE	0.5 kW “latent” load reduction per home	94.7 kWh/month Savings per home (*)
Overall IDSM Benefit	> 3.5 kW per home	1,162.4 kWh / year per home (**)

(*) Control group that included homes with PCTs. Figures are for summer months.

(**) Electric and natural gas equivalent kWh combined

(***) Dispatch-ready Peak load factor at 105°F Outside Temperature

EcoFactor provides EM services for connected devices



21+ patents issued



Spotlight Customers



EcoFactor's Smarts-as-a-Service approach

