

SkyCentrics

DREAM Platform

Demand Response Energy & Asset Management
For Commercial and Residential Buildings



CTA-2045 Standard

Consumer
Technology
Association™

EPRI

ELECTRIC POWER
RESEARCH INSTITUTE



AC powered
First to UL 916
June 2016


SkyCentrics



DC powered

 **USNAP**
ALLIANCE

 **openADR™**

 **OPEN
FMB**

CTA-2045 Standard

Consumer
Technology
Association™

EPRI

ELECTRIC POWER
RESEARCH INSTITUTE



AC powered
First to UL 916
June 2016


SkyCentrics



DC powered



April 2016





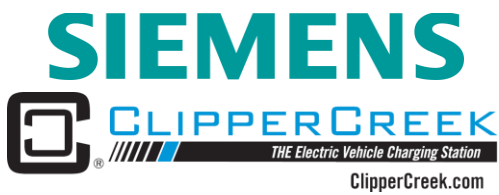
The CTA-2045 EcoSystem

Electric Vehicle Chargers

Hot Water Heaters

Thermostats, Mini-Splits, PTACs

Pool Pumps





Compelling Customer Experience

The Portal is POWERFUL

The screenshot shows the SkyCentrics web portal interface. On the left is a 'Devices Tree' with a hierarchical view of building systems. The main area displays a detailed view of a device, 'CT-32 Thermostat', with tabs for 'Devices', 'Properties', 'DR', and 'TCO'. Below the tabs are sections for 'Plugs & Strips', 'SkySnaps', 'RTU', and 'Dimming Lights'. Each section contains a table of data. The 'RTU' section is expanded, showing a table with columns for Name, Group, Relay, Dimmer, Power (W), Current (A), Voltage (V), Frequency (Hz), Power Factor (PF), and Sensors. A list of 18 sensors is displayed on the right side of the RTU section.

Name	Group	Relay	Dimmer	Power (W)	Current (A)	Voltage (V)	Frequency (Hz)	Power Factor (PF)	Sensors	Last Heartbeat
Master controller	SF Office	ON	100	13.615	0.133	119.548	59.958	0.856	---	2015/10/23 10:34:27
Temp Sensor Hub 1	SF Office	ON	0	0.000	0.000	0.000	0.000	0.000	Show Data	2015/10/23 10:34:29
Master controller	SF Office	OFF	100	17.217	0.153	121.845	59.958	0.922	Sensor 0: 74.075 Sensor 1: 74.075 Sensor 2: 74.075 Sensor 3: 74.075 Sensor 4: 74.075 Sensor 5: 74.1875 Sensor 6: 74.075 Sensor 7: 74.4125 Sensor 8: 74.3 Sensor 9: 73.85 Sensor 10: 73.7375 Sensor 11: 73.85 Sensor 12: 74.4125 Sensor 13: 73.625 Sensor 14: 73.9625 Sensor 15: 73.85 Sensor 16: 74.4125 Sensor 17: 73.85 Sensor 18: 73.9625	1-1 of 1

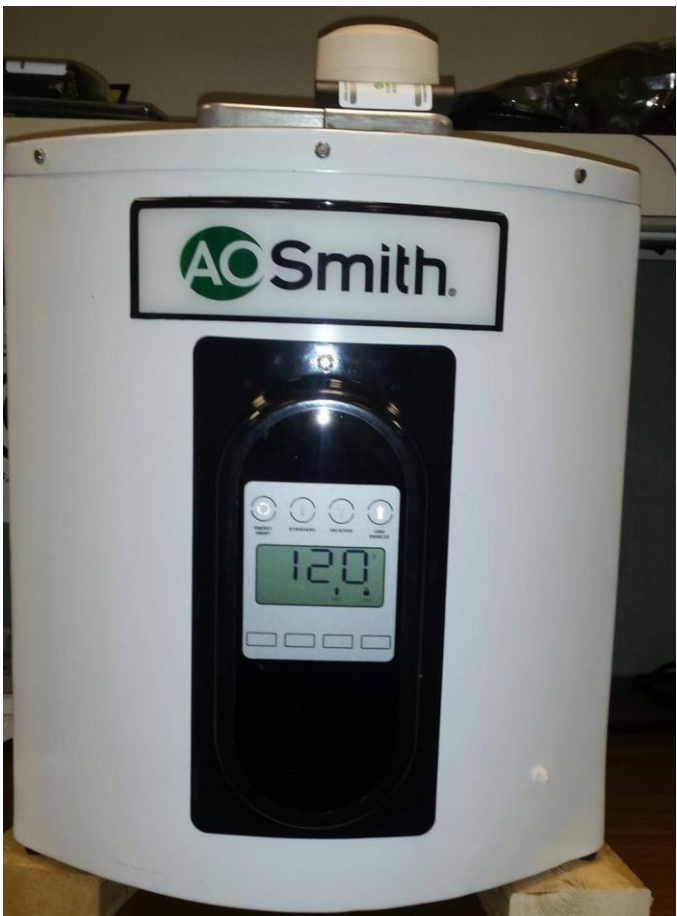
The App is EASY

The screenshot shows the SkyCentrics mobile app interface for a thermostat. The screen displays 'Cam Tstat2 at Floor 6' with a large temperature reading of 74.5°F. A target temperature of 70°F is shown in red. Control buttons include 'OFF Timed Hold', 'HEAT Mode', 'AUTO Fan', 'SAVE ENERGY', and 'HOLD'. The status 'RadioThermostat' is visible at the bottom.

The screenshot shows the SkyCentrics mobile app interface for a heater. The screen displays 'AO Smith - Electric Resistance Heater' with a status of 'Running Normal'. A power gauge shows 4.500 kW. A heater unit illustration is shown on the right. Control buttons include 'On', 'Heat', 'Vacation', and 'Advanced'. The 'Last Update: 2016-08-06' is shown at the bottom.



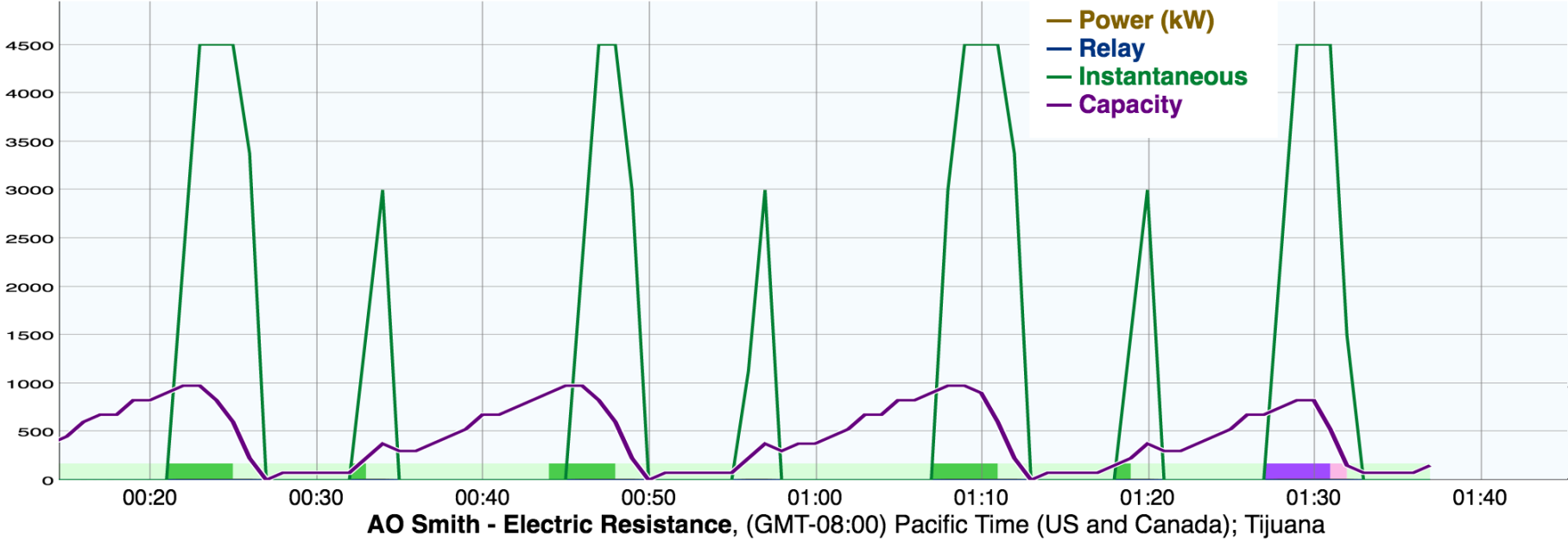
AO Smith Water Heater



AC
Wi-Fi
Module

Why AO Smith Water Heaters?

Reports both Power usage AND storage capacity



Responds to "Load Up"

Running Heightened

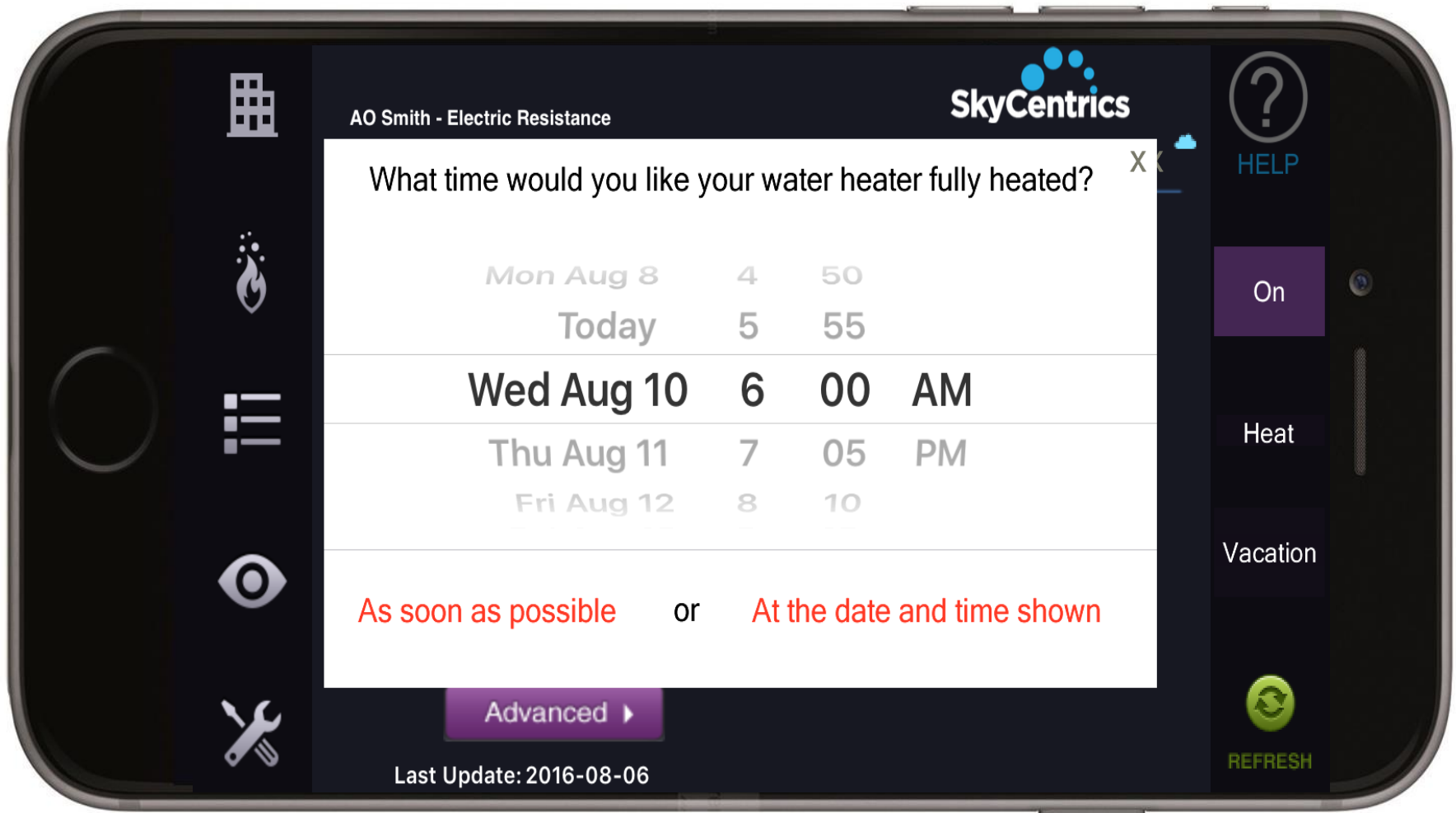
Emerson Water Heater Switch





How does SkyCentrics add value?

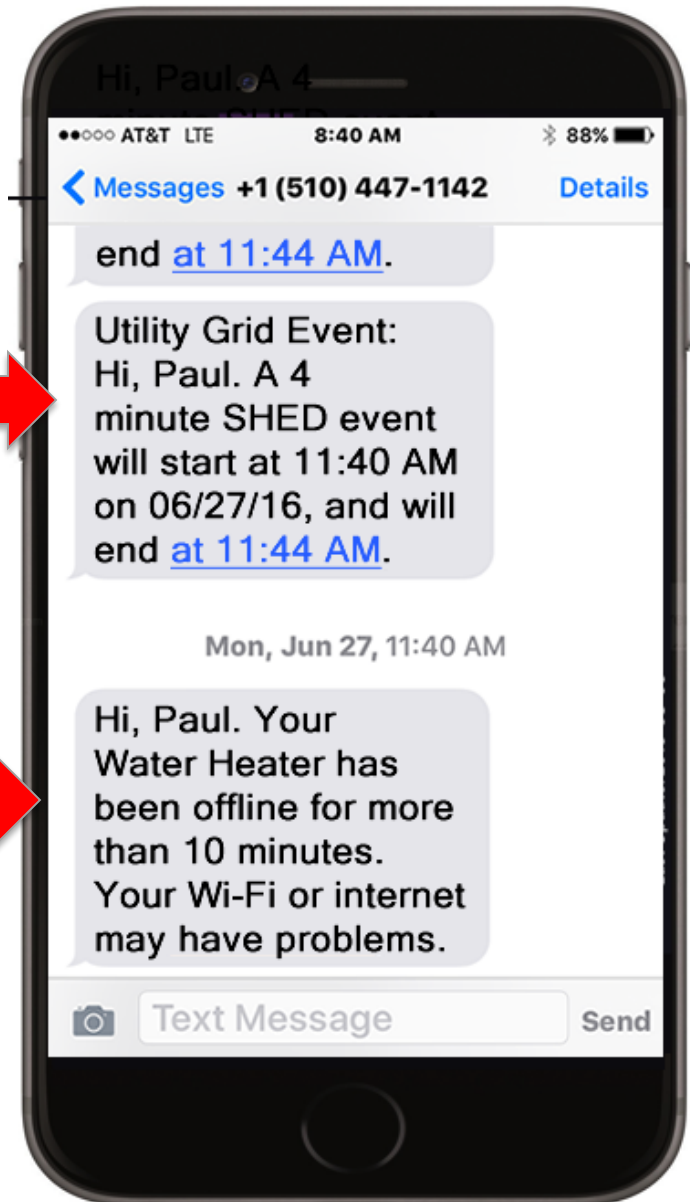
Comfort on demand or on schedule.



Customer Engagement

We deliver value to the building owner with engaging apps, or valued communication that motivate him to keep his devices online.

When that does not work, we can also deliver email and text alerts.





UTILITIES can group
customer devices
by substation

A screenshot of a software interface titled "Utility ABC". The interface has a blue header bar with a question mark icon and a back arrow icon. Below the header is a "Devices Tree" section with a search bar and a close button. The tree structure is as follows:

- Remote Office
 - Computer Room plug
 - Kitchen plug
 - Fridge plug
- Customer Devices
 - SubStation 1
 - SubStation 2
 - Substation3
 - Water Switch Kitchen
 - Emerson Upstairs
 - Living Room
 - LED Lights
 - Fan
 - EV Charger Office Garage
 - Home Water heater switch
 - EV Charger Garage
 - Fridge Sensors

Calendar Interface for creating DR events



Peter Power

Utility ABC

Devices Properties DASH DR Admin DR Scheduler

today < > January 2017 month week day

Devices Tree

- Remote Office
- Customer Devices
 - SubStation 1
 - Grocery
 - Office - Conf. Room
 - Office - Kitchen
 - Office - Lobby
 - Lunara 2X2
 - SubStation 2
 - Hotel
 - Substation 3
 - Substation 4
 - Small Sign LED
 - substation 6
 - PS-0D65
 - pool
 - USNAP 3D24
 - Office WH - old switch
 - Thermostat
 - PS-0D69
 - PS-EFC5


Save Tree



Saved Graphs

Saved Trees

Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	2	3	4	5	6	7
8	9	10	11	12	13	14
	7a Event 12p Event	7a Event 12p Event	7a Event 12p Event	7a Event 12p Event	7a Event 12p Event	
15	16	17	18	19	20	21
	10a Event 5p Event	10a Event 5p Event	10a Event 5p Event	10a Event 5p Event	10a Event 5p Event	
22	23	24	25	26	27	28
	8a Group 1 9a Event	7a Event 12p Event	10a Event 5p Event	10a Event 1p Event	10a Group 2 11:32a Group A 12p Group 3 1p Event	1p Event
29	30	31	1	2	3	4
		10:30a Event				
5	6	7	8	9	10	11

Schedule 1,000 devices with one click

Devices ▾ Properties DR TCO Front Lobby #96 

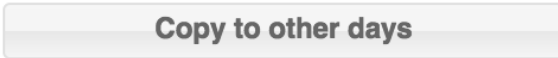
Schedules: Summer Normal ▾  

Monday

Sync Heat and Cool

Times:

Time	Heat°	Time	Cool°
6:30am	68	6:30am	80
8:30am	62	8:30am	88
4:00am	62	4:00am	80
10:0...	60	10:0...	88




Tuesday

Sync Heat and Cool

Times:

Time	Heat°	Time	Cool°
6:30am	68	6:30am	80
8:30am	62	8:30am	88
4:00am	62	4:00am	80
10:0...	60	10:0...	88




Wednesday

Sync Heat and Cool

Times:

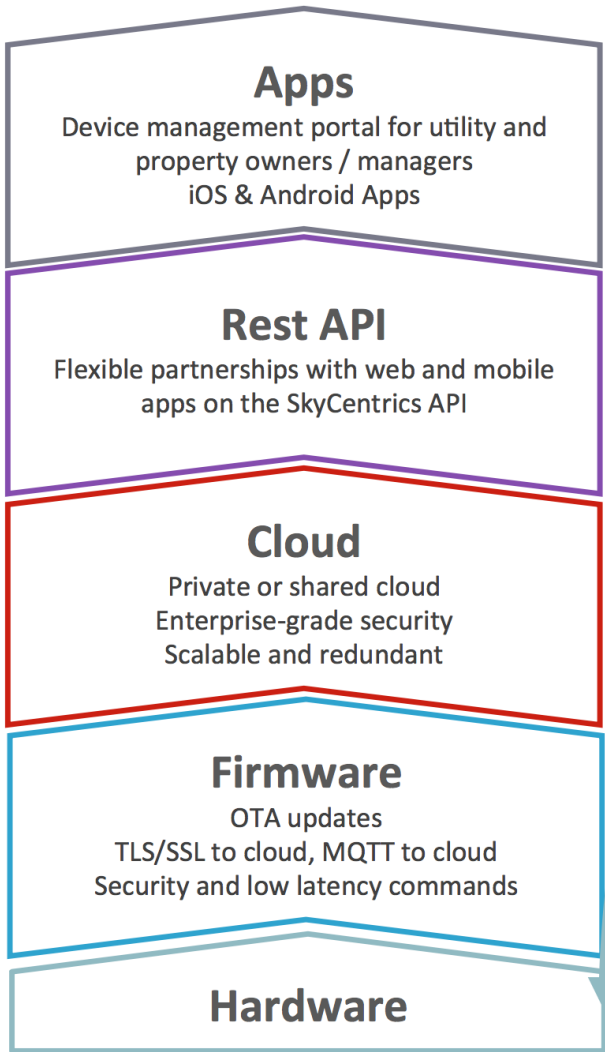
Time	Heat°	Time	Cool°
6:30am	68	6:30am	80
8:30am	62	8:30am	88
4:00am	62	4:00am	80
10:0...	60	10:0...	88






The DREAM Platform

Demand Response, Energy & Asset Management




Plug & Play Sensors



SkySnap 100
BLE Sensor Gateway
Temp, Humidity, Pressure
Door Open/Close
Water Leak
Microphone




CTA-2045 Device Controllers






USNAP (AC)
Water Heaters
Pool Pumps
PTAC / AC

USNAP (DC)
Thermostats
EV Chargers
Water Heaters
Mini-splits

Flexible Communications

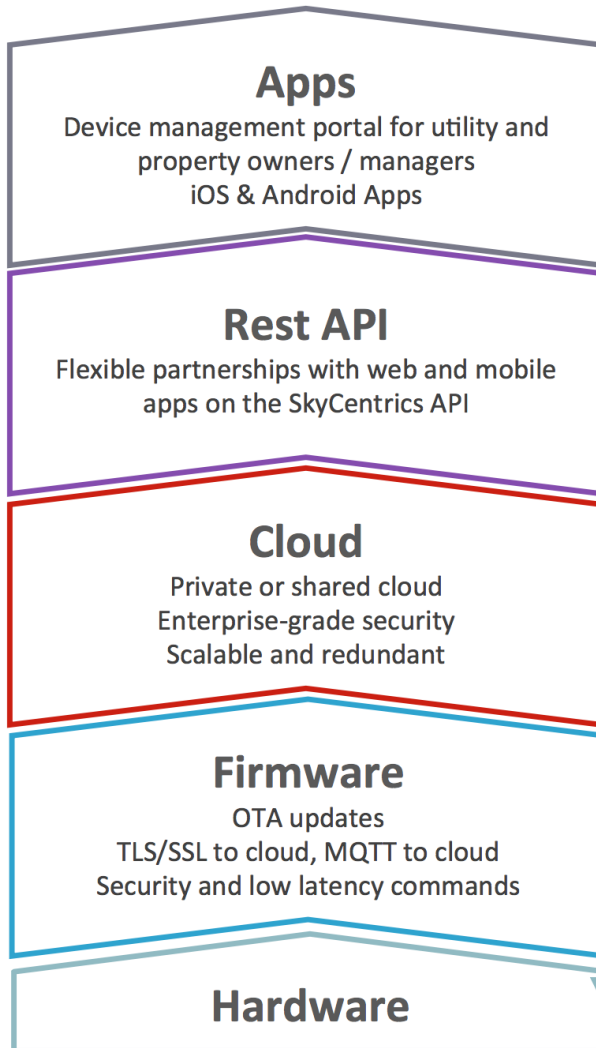




SkySense Sensors

The DREAM Platform

Demand Response, Energy & Asset Management



Plug & Play
Peel & Stick
Set & Forget
Open Standards

Idle and Running Normal



Utility ABC

Devices Properties DR TCO DASH DR Admin

Name	Group	On/Off	Energized?	Sensor 1	Override	Commodity	Op. State	Power (W)	Utility	Last Heartbeat
Master controller Apply <input type="text"/>										
Water Heater 1	Offic...	ON	No	73	No	Show Info	Idle No...	0	Sho...	2016/02/22 13:40:13

IslandAire – PTAC Units



Page 1 of 1

Name	Group	Temp	Mode	Fan	Set Point #1	Offset	Override	Commodity	Op. State	Power (W)	Utility	Last Heartbeat
Master controller Apply <input type="text"/>												
Room 212	PTAC 212	72 F	Heat	High	65 F	0 F	No	Show Info	Idle Normal	89	Show Info	2016/02/22 13:40:06

AO Smith – Resistance Water Heaters *



Page 1 of 1

Name	Group	Temp	Set Point #1	Set Point #2	Offset	Override	Commodity	Op. State	Power (W)	Utility	Last Heartbeat
Master controller Apply <input type="text"/>											
AC2011-001DC915C692	Hotel ABC	70 F	65 F	N/A	4 F	No	Show Info	Idle Nor...	500	Show Info	2016/02/22 13:39:26
AC2011-20F85ED3633A	Hotel ABC	72 F	67 F	N/A	2 F	No	Show Info	Idle Nor...	500	Show Info	2016/02/22 13:39:26
AO Smith	Hotel ABC	-----	-----	-----	-----	No	Show Info	Idle Nor...	4500	Show Info	2016/02/22 13:40:10

ClipperCreek - EV Chargers *



Page 1 of 1

Name	Group	Override	Commodity	Op. State	Power (W)	Utility	Last Heartbeat
Master controller Apply <input type="text"/>							
EVSE	Family ABC	No	Show Info	Running Normal	7680	Show Info	2016/02/22 13:40:13

Axis Cameras



Page 1 of 1



Conf. Camera



Lobby Cam

Load and Capacity Real Time Data

emp	Mode	Fan	Set Point #1	Offset	Override	Commodity	Op. State	Power (W)	Utility	Last Heartbeat
2 F	Heat	High	65 F	0 F	No	Show Info	Idle Normal	89	Show Info	2016/02/22 14:4

	Temp	Set Point #1	Set Point #2	Offset	Override	Commodity	Op. State	Power (W)	Utility	Last Heartbeat
C	70 F	65 F	N/A	4 F	No	Show				2/22
C	72 F	67 F	N/A	2 F	No	Show				2/22
C	-----	-----	-----	-----	No	Show				2/22

Override	Commodity	Op. State	Power (W)	Utility	Last Heartbeat
No	Show Info	Running Normal	7680	Show Info	2/22

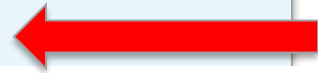
code: 0
name: Electricity Consumed
units: W & W-hr
estimated: 1
instantaneous: 0
cumulative: 6450

code: 6
name: Total Energy Storage Capacity
units: W & W-hr
estimated: 1
instantaneous: 0
cumulative: 3630

code: 7
name: Present Energy Storage Capacity
units: W & W-hr
estimated: 1
instantaneous: 0
cumulative: 450



Instantaneous Load



Instantaneous Capacity

Idle and Running Normal

The image displays two overlapping screenshots from the SkyCentrics system. The background is a web interface showing a table of devices with columns for 'Commodity', 'Op. State', 'Power (W)', 'Utility', and 'Last Heartbeat'. The foreground is a mobile app interface for 'Water Heater 1 at Office ABC 2'. The app shows a power gauge at 0.000 kW, an 'ON' toggle, and a status of 'Idle Normal'. A detailed view of the 'AO Smith Heater' is also shown, featuring a circular power gauge with a needle pointing to 0.000 kW, a 'not energized' status, and a 'HELP' button. The mobile app interface includes a top status bar with 97% battery and 3:52 PM, and a bottom navigation bar with icons for home, settings, and refresh.

Water Heater 1 at Office ABC 2

ON

not energized

Idle Normal

Power: 0.000 kW

Override: No

Advanced

Last update: 22 Feb 2016 15:52:02

AO Smith Heater

Idle Normal

kW

0.000

Advanced

Last Update: 2016-02-22 16:17:27

HELP

On

Off

REFRESH

Commodity	Op. State	Power (W)	Utility	Last Heartbeat
	Running Normal	7680		2016/02/22 13:40:13

Axis Cameras

Conf. Camera

Lobby Cam

Idle and Running Curtailed (during event)

The screenshot displays a mobile application interface for a Building Management System (BMS). A foreground control panel for 'AO Smith at Hotel ABC' is shown, with a power status of '0.000 kW' and 'Idle Curtailed'. The background shows a data table with columns for 'Energized?', 'Sensor 1', 'Override', 'Commodity', 'Op. State', 'Power (W)', 'Utility', and 'Last Heartbeat'. The table lists several units, with 'Op. State' values of 'Idle Curtailed' and 'Running Curtailed'.

Energized?	Sensor 1	Override	Commodity	Op. State	Power (W)	Utility	Last Heartbeat		
No	73	No		Idle Curtailed	0		2016/02/22 15:30:12		
Mode	Fan	Set Point #1	Offset	Override	Commodity	Op. State	Power (W)	Utility	Last Heartbeat
Fan	Auto	77 F	0 F	No		Idle Curtailed	89		2016/02/22 15:30:23
Temp	Set Point #1	Offset	Override	Commodity	Op. State	Power (W)	Utility	Last Heartbeat	
F	65 F	4 F	No		Idle Curtailed	500		2016/02/22 15:30:03	
F	67 F	2 F	No		Idle Curtailed	500		2016/02/22 15:30:03	
---	-----	-----	No		Idle Curtailed	4500		2016/02/22 15:30:12	
de	Commodity	Op. State	Power (W)	Utility	Last Heartbeat				
			1920		2016/02/22 15:30:13				
		Running Curtailed							

Customer Override Indicators

The image shows a mobile application interface for 'Utility ABC'. A foreground overlay displays a customer override indicator for 'AO Smith at Hotel ABC'. The indicator shows a toggle switch set to 'OFF', the status 'not energized', 'Idle Normal' in a green box, and a power reading of '0.000 kW'. Below this, it says 'Override: Yes' in red and has an 'Advanced' button. The last update is '22 Feb 2016 15:49:32'.

The background dashboard is titled 'DR Admin' and contains several data tables. The top table has columns: Energized?, Sensor 1, Override, Commodity, Op. State, Power (W), Utility, and Last Heartbeat. It shows a row with 'No', '73', 'No', 'Show Info', 'Idle Curtailed' (pink box), '0', 'Show Info', and '2016/02/22 15:30:12'. Below this is a control bar with icons for help, settings, refresh, stop, warning, and graph, and a page indicator 'Page 1 of 1'.

The middle table has columns: Mode, Fan, Set Point #1, Offset, Override, Commodity, Op. State, Power (W), Utility, and Last Heartbeat. It shows a row with 'Fan', 'Auto', '77 F', '0 F', 'YES', 'Show Info', 'Idle Normal' (green box), '89', 'Show Info', and '2016/02/22 15:30:23'. Below this is another control bar with the same icons and 'Page 1 of 1'.

The bottom table has columns: Set Point #1, Offset, Override, Commodity, Op. State, Power (W), Utility, and Last Heartbeat. It shows three rows:

- Row 1: '65 F', '4 F', 'No', 'Show Info', 'Idle Curtailed' (pink box), '500', 'Show Info', '2016/02/22 15:30:03'
- Row 2: '67 F', '2 F', 'No', 'Show Info', 'Idle Curtailed' (pink box), '500', 'Show Info', '2016/02/22 15:30:03'
- Row 3: '-----', '-----', 'No', 'Show Info', 'Idle Curtailed' (pink box), '4500', 'Show Info', '2016/02/22 15:30:12'

 Below this is a control bar with the same icons and 'Page 1 of 1'.

At the very bottom, there is a table with columns: Commodity, Op. State, Power (W), Utility, and Last Heartbeat. It shows a row with 'Show Info', 'Running Curtailed' (red box), '1920', 'Show Info', and '2016/02/22 15:30:13'. Below this is a control bar with the same icons and 'Page 1 of 1'.

The bottom-most section is titled 'Axis Cameras' and shows two camera thumbnails. The left one is labeled 'Conf. Room' and the right one is labeled 'Lobby'.

Infinite Grouping



BCS 1

Devices Tree

- SF Office
 - NY Office
 - SF Sign
 - Big LED Sign
 - LED Light
 - CT-32 Thermostat
 - Lunera 2x2
 - Heater Plug
 - Temp Sensor Hub 1
 - RTU1
 - Zoom Cam
 - My PTAC
 - Kitchen
 - Mashup

Properties | DR | TCO

CT-32 Thermostat SF Office 79 Heat Off On Off 85 62 2015/10/23 10:34:22

Plugs & Strips

Name	Group	Relay	Dimmer	Power (W)	Current (A)	Voltage (V)	Frequency (Hz)	Power Factor (PF)	Sensors	Last Heartbeat
Master controller										
Heater Plug	SF Office	ON	100	13.615	0.133	119.548	59.958	0.856	---	2015/10/23 10:34:27

SkySnaps

Name	Group	Relay	Dimmer	Power (W)	Current (A)	Voltage (V)	Frequency (Hz)	Power Factor (PF)	Sensors	Last Heartbeat
Master controller										
Temp Sensor Hub 1	SF Office	ON	0	0.000	0.000	0.000	0.000	0.000	Show Data	2015/10/23 10:34:29

RTU

Name	Group	Relay	Dimmer	Power (W)	Current (A)	Voltage (V)	Frequency (Hz)	Power Factor (PF)	Sensors	Last Heartbeat
Master controller										
RTU1	SF Office	OFF	100	17.217	0.153	121.845	59.958	0.922	Show	

Dimming Lights

Name	Group	Relay	Dimmer	Power (W)	Current (A)	Voltage (V)	Frequency (Hz)	Power Factor (PF)	Sensors	Last Heartbeat
Master controller										
Lunera 2x2	SF Office	ON	21	4.667	0.091	121.864	59.987	0.423	---	

3 Sensors

Name	Group	Relay	Dimmer	Power (W)	Current (A)	Voltage (V)	Frequency (Hz)	Power Factor (PF)	Sensors	Last Heartbeat
Master controller										
Fridge	Kitchen	ON	40	60.296	0.496	122.102	59.968	0.996	Show	

Emerson - Water Heater Switch

Sensor 0: 74.075
Sensor 1: 74.075
Sensor 2: 74.075
Sensor 3: 74.075
Sensor 4: 74.075
Sensor 5: 74.1875
Sensor 6: 74.075
Sensor 7: 74.4125
Sensor 8: 74.3
Sensor 9: 73.85
Sensor 10: 73.7375
Sensor 11: 73.85
Sensor 12: 74.4125
Sensor 13: 73.625
Sensor 14: 73.9625
Sensor 15: 73.85
Sensor 16: 74.4125
Sensor 17: 73.85
Sensor 18: 73.9625



Thank you

Tristan de Frondeville info@skycentrics.com 415.962.1505