Better Buildings
U.S. DEPARTMENT OF ENERGY

Best Practices in Industrial Data Management

Moderator: Paul Scheihing, AMO

U.S. DEPARTMENT OF ENERGY

Session Overview

- Brief overview of strategic importance of industrial data management
- Presentation by Edwin Willhite of Schneider Electric on “Energy, Data Management, Reporting”
- Presentation by Richard Russell of Nissan North America on “Energy Data Management and Analysis”
- Q & A

Industrial Data Management

What is energy data management?

- Monitoring
- Recording
- Analyzing
- Reporting
- Verification

Strategic Importance of Robust Data Management

- Provides data with a purpose
  - Without purpose, you can lose focus and drown in all of the data
- Results in high quality data
  - Useful data must be accurate and ready to use when needed
  - Data validation
  - Data normalization is important
    - May explain unexpected poor performances due to other variables (e.g. changes in weather data or production data)
- Reveals the big picture and next steps
  - Even if started only for cost allocation, it can identify larger opportunities to take things to the next level
  - A good interface can help decision-makers visualize the impact and the progress made

Current Related AMO Activities

- Better Plants
  - Corporations set a goal, establish baseline, track energy use, and report data
- Superior Energy Performance (SEP)
  - Facility-level certification and recognition program to demonstrate energy management excellence and sustained energy savings

Energy, Data Management, Reporting

Energy Operation

Schneider Electric

Design the Strategy | Deliver Efficiency | Sustain Results

Schneider Electric – the global specialist in energy management

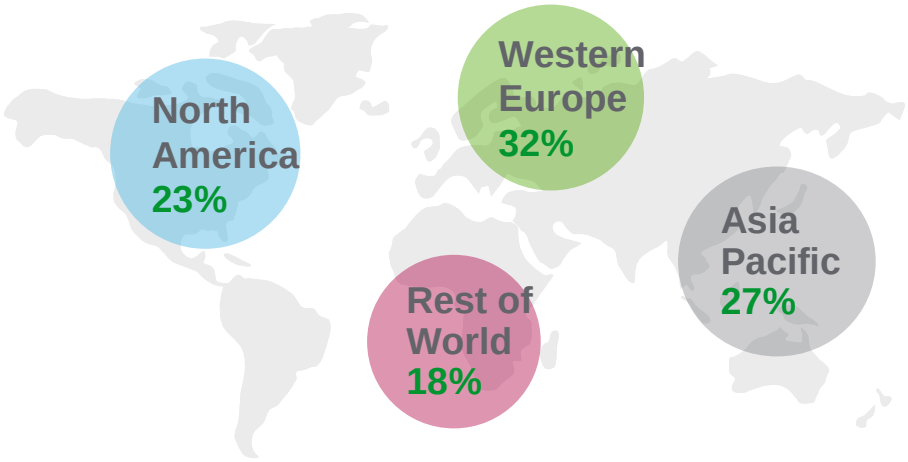
22.4
billion € sales
(last twelve months)

39%
of sales in new economies
(last twelve months)

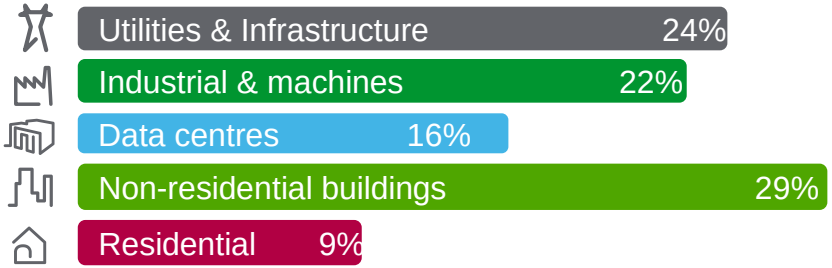
130 000+
people in 100+ countries

4–5%
of sales devoted to R&D

Balanced geographies – FY 2011sales



Diversified end markets – FY 2011 sales



Enterprise-wide Facility Management

Demographics

- 72 buildings
- 55 locations
- 12 M ft^2
- 105 people
- 7 Regional managers
- 26 facility managers
- 79 techs
- Across North America
- Across all Businesses

How are you currently managing your energy data?

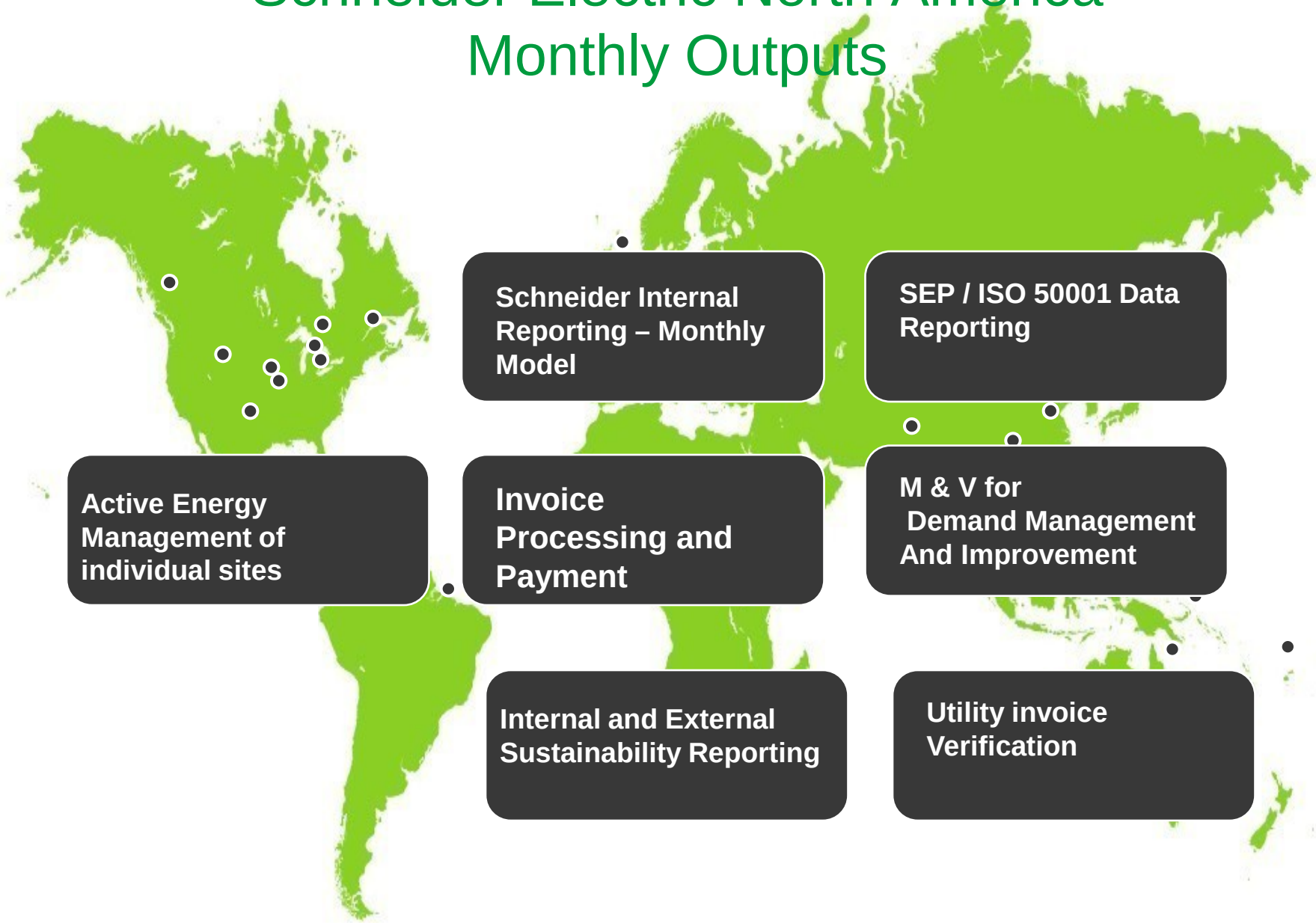
- Is your energy data collected manually, and stored in a spreadsheet?
- Is your data hard to scale, error prone, stored in a reliable and secure location?
- Is your data stored on one server, is it accessible to other locations?
- Can you easily share and integrate your data with other sites, users?
- Do you need skilled resources to analyze your data? Are you outsourcing this function?

Enterprise-wide Facility Management

Data from 55 sites

- 2600 Utility invoices/year, Managed by Resource Advisor
- 1320 Production data points
- 1320 Weather Data Points
- 1320 Utility Data Points
- Main Meter and Sub Meter data from 290 meters, @ 15 minute intervals – more than 10,000,000 data points / year
- All data points are stored in Energy Operation.

Schneider Electric North America Monthly Outputs



Schneider Internal Reporting – Monthly Model

SEP / ISO 50001 Data Reporting

Active Energy Management of individual sites

Invoice Processing and Payment

M & V for Demand Management And Improvement

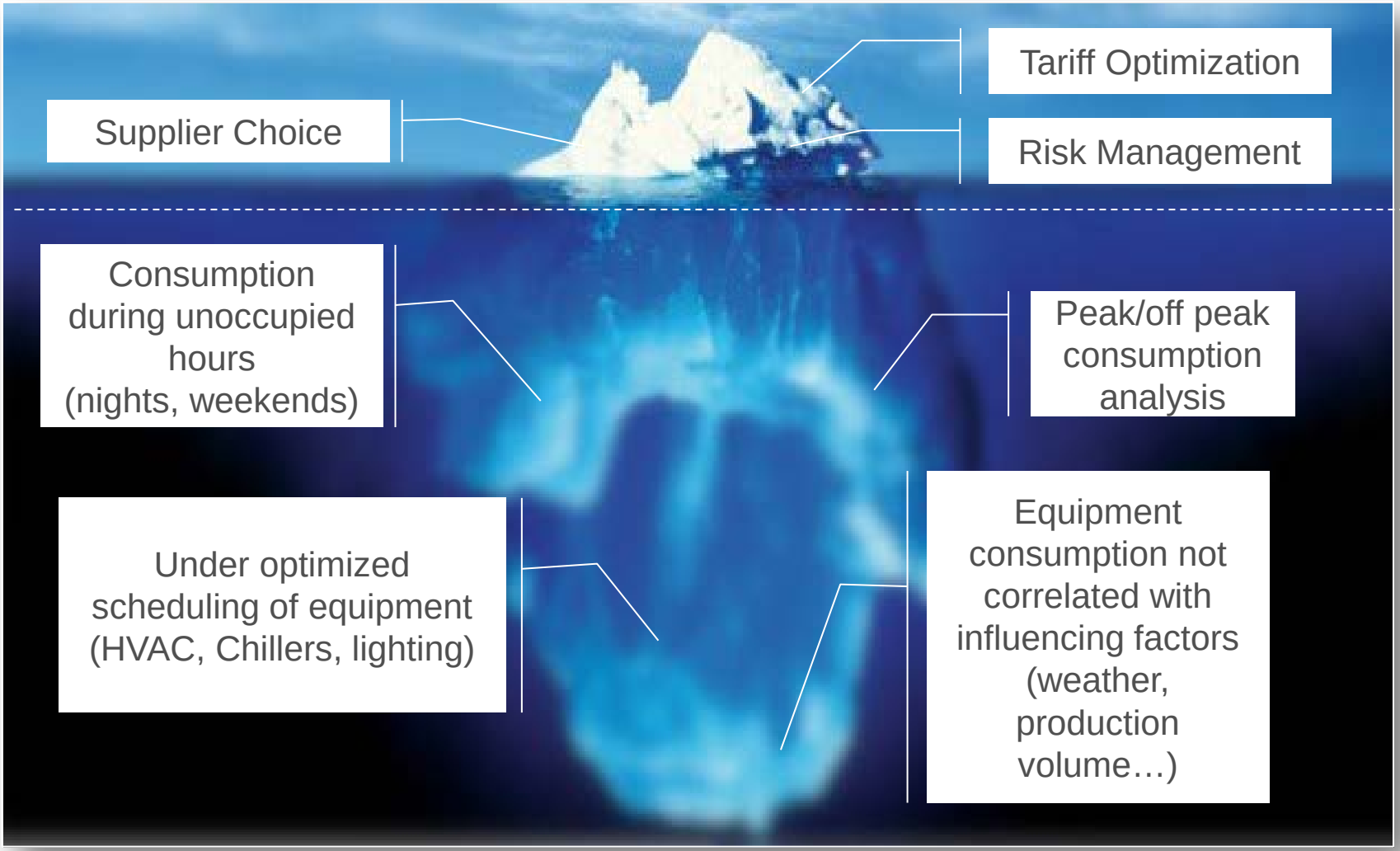
Internal and External Sustainability Reporting

Utility invoice Verification

Monthly data is just the tip of the iceberg

Monthly data

Interval data



Manage our data in three components
Data is worthless if you don't use it,
If you don't understand it,
Can't find it or organize it.

Modeled Performance EnPi Tool

Site	Jan-13	Feb-13	Mar-13	Apr-13	May-13	Jun-13	Jul-13	Aug-13	Sep-13	Oct-13	Nov-13	Dec-13	'13 vs '12 Baseline		Elec	Gas
Cedar Rapids	-3%	-4%	3%	10%	-1%	-10%	-5%	-7%	-11%	4%	4%	-12%	-3%		-3%	-3%
Des Plaines	1%	-5%	10%	22%	20%	-1%	12%	23%	6%	6%	-13%	-11%	3%		4%	0%
Lincoln	-16%	-14%	-6%	-9%	-1%	-1%	2%	3%	1%	4%	1%	2%	-3%		3%	-17%
Missouri	-2%	-22%	-17%	-7%	-7%	-4%	-10%	-29%	-8%	-5%	-12%	9%	-10%		-12%	63%
Palatine	4%	4%	0%	1%	1%	7%	-2%	-2%	5%	1%	4%	2%	2%		2%	2%
Rockford	3%	-5%	-7%	4%	-26%	-13%	-5%	-17%	-14%	-17%	-4%	2%	-6%		-4%	-8%
St. Louis	-12%	-10%	-19%	-21%	-18%	-16%	-14%	-15%	-13%	-17%	-18%	-20%	-16%		-17%	610%
	-5%	-8%	-4%	0%	-5%	-5%	-1%	-5%	-4%	-2%	-2%	-2%	-4%		-2%	-9%
Dayton	-6%	-15%	-8%	-5%	-11%	-26%	-30%	6%	31%	35%	19%	25%	1%		3%	0%
Fishers	-8%	-6%	-3%	-8%	1%	-1%	9%	6%	-1%	-13%	-9%	-9%	-5%		2%	-14%
Huntington	1%	-6%	-3%	-5%	-4%	0%	4%	4%	11%	0%	-6%	-5%	-1%		2%	-5%
Lexington	-1%	-6%	-1%	-6%	2%	-3%	8%	5%	4%	-2%	-2%	-7%	-1%		3%	-4%
Oxford	-7%	-4%	13%	-2%	5%	5%	9%	4%	6%	-8%	0%	8%	2%		-3%	5%
Peru	3%	2%	6%	7%	3%	1%	9%	8%	8%	9%	13%	28%	8%		5%	11%
West Chester	-4%	-8%	-10%	2%	6%	-1%	5%	-4%	-15%	-20%	3%	18%	-2%		-7%	7%
	-2%	-4%	3%	-2%	2%	-1%	7%	5%	5%	-1%	1%	5%	1%		2%	1%
Billerica	-12%	-14%	4%	9%	5%	2%	16%	38%	48%	50%	35%	17%	13%		18%	2%
Brossard	-21%	-17%	-9%	-1%	10%	14%	17%	20%	7%	50%	22%	-16%	-2%		13%	-15%
Leesport	-2%	-3%	-4%	-5%	2%	14%	5%	-3%	-17%	-15%	-11%	-14%	-5%		-8%	-2%
Marlborough	3%	-10%	0%	6%	4%	2%	-8%	1%	2%	7%	-2%	-8%	0%		0%	
McLaughlin	-10%	-17%	-15%	-3%	8%	7%	29%	18%	8%	-2%	-16%	-20%	-8%		-8%	-6%
Mechanicsburg	-4%	-9%	-10%	5%	-8%	2%	11%	-3%	-3%	-2%	-1%	-1%	-4%		-2%	-6%
Middletown	8%	-3%	8%	13%	0%	-4%	0%	3%	1%	5%	-21%	-6%	0%		1%	-2%
North Andover	-13%	-11%	-2%	3%	0%	0%	2%	0%	-6%	-4%	5%	-14%	-5%		-4%	-6%
West Kingston	1%	-6%	1%	5%	6%	4%	1%	-3%	-9%	2%	6%	10%	1%		1%	3%
	-4%	-8%	-3%	2%	2%	5%	5%	2%	-5%	0%	-3%	-6%	-2%		-1%	-3%
Centro Logistico	-12%	-15%	-1%	10%	-14%	-11%	-16%	-15%	0%	-13%	-11%	-6%	-9%		-9%	
Monterrey P2	-6%	-4%	-12%	5%	1%	-4%	3%	-5%	-6%	8%	-8%	-15%	-3%		0%	-7%
Monterrey P3	1%	-13%	-17%	-11%	-14%	-15%	-7%	-11%	-6%	2%	-5%	1%	-9%		-9%	
Monterrey P4	10%	-8%	-12%	-3%	-7%	-12%	-17%	-22%	-24%	-20%	-39%	-42%	-17%		-17%	
Monterrey P5	-4%	47%	14%	30%	-8%	-22%	-19%	-12%	9%	8%	8%	-4%	-1%		-1%	
Pacifico	-8%	-8%	0%	-2%	5%	3%	1%	1%	1%	-2%	-2%	-8%	-1%		-1%	
Rojo Gomez	-2%	-11%	-9%	-6%	-8%	-7%	-2%	1%	-6%	-8%	-10%	-13%	-7%		-7%	
Tlaxcala	0%	-4%	-4%	0%	3%	7%	10%	13%	12%	20%	24%	1%	6%		11%	-2%
	-2%	-6%	-7%	-1%	-4%	-7%	-3%	-3%	-2%	2%	-2%	-8%	-3%		-3%	-4%
Columbia	5%	-1%	0%	7%	8%	8%	6%	10%	5%	8%	-4%	-12%	3%		0%	10%
Greensboro	5%	2%	14%	-2%	-10%	-16%	-11%	-9%	-14%	-10%	-8%	-1%	-5%		-5%	2%
LaVergne LifeSpace	0%	5%	14%	14%	-3%	-2%	5%	2%	0%	0%	-16%	-17%	-1%		0%	-3%
LaVergne PMO	-14%	-19%	-13%	2%	8%	2%	3%	-3%	5%	1%	-21%	-9%	-6%		-2%	-20%
Nashville	-10%	-13%	-7%	6%	1%	4%	5%	-8%	-3%	-4%	-12%	-15%	-5%		1%	-24%
Raleigh	-2%	-2%	8%	5%	-6%	-10%	-8%	-7%	-17%	-18%	-13%	-1%	-5%		-8%	4%
Salisbury	6%	2%	5%	39%	14%	8%	11%	13%	11%	22%	-7%	8%	8%		8%	8%
Seneca	-5%	-13%	-6%	1%	2%	-3%	-5%	-8%	-10%	-7%	-15%	-11%	-7%		-7%	-7%
Smyrna	-10%	-16%	-10%	5%	-5%	-6%	-3%	-8%	-17%	-24%	-23%	-16%	-11%		-10%	-12%
	-3%	-8%	-3%	5%	2%	-1%	-1%	-3%	-7%	-7%	-13%	-10%	-4.3%		-4.5%	-4%
Athens	-15%	3%	-11%	0%	-3%	7%	8%	17%	13%	18%	-7%	0%	2%		9%	-19%
Burnaby	18%	21%	12%	-8%	-7%	-3%	-9%	-8%	-8%	-12%	-10%	11%	1%		1%	2%
Carrollton	-5%	-2%	4%	-4%	2%	-3%	3%	-2%	-1%	1%	-7%	-13%	-3%		-2%	-17%
Chino	-9%	-11%	-10%	-4%	19%	24%	19%	14%	20%	19%	21%	22%	10%		10%	
Clovis	-10%	-19%	-11%	-10%	-5%	-5%	-5%	-1%	3%	10%	-5%	-3%	-5%		-8%	1%
Edmonton	-13%	14%	-15%	-12%	4%	-6%	-1%	8%	20%	19%	-3%	-4%	-2%		-3%	-2%
El Paso	-1%	-21%	-29%	6%	-1%	3%	23%	5%	16%	55%	-20%	-9%	-2%		4%	-12%
Portland	-13%	-5%	-2%	-11%	-8%	-6%	9%	15%	12%	-12%	-12%	-27%	-7%		2%	-28%
Richmond	-5%	8%	1%	10%	10%	3%	8%	5%	24%	12%	23%	-1%	6%		5%	7%
Salt Lake City	-5%	-12%	-2%	-6%	-12%	-16%	-17%	-19%	0%	5%	18%	5%	-4%		-14%	4%
Victoria	4%	-6%	4%	-3%	0%	2%	10%	8%	2%	-5%	-7%	5%	1%		2%	-1%
	-5%	-8%	-6%	-8%	-3%	-3%	-1%	1%	4%	6%	-5%	-3%	-3%		-3%	-2%
	-4%	-7%	-2%	-1%	-1%	-2%	1%	0%	-1%	-1%	-3%	-3%	-2%		-2%	-3%

	-4%	-7%	-2%	-1%	-1%	-2%	2%	0%	-1%	-1%	-4%	-2%	-2%		-2%	-3%
	0%	2%	-1%	-5%	-1%	1%	3%	2%	0%	-1%	-4%	-2%	-1%		0%	-2%
	-2%	-6%	-7%	-1%	-4%	-7%	-3%	-3%	-2%	2%	-2%	-8%	-3%		-3%	-4%

Modeled Performance EnPi Tool
Past Tense

Region	Site	Dec-13	'13 vs '12 Baseline		Elec	Gas
South Total		**-8%**	**-3%**		**-3%**	**-4%**
Southeast	Columbia	-12%	**3%**		0%	10%
Southeast	Greensboro	-1%	**-5%**		-5%	2%
Southeast	LaVergne LifeSpace	-17%	**-1%**		0%	-3%
Southeast	LaVergne PMO	-9%	**-6%**		-2%	-20%
Southeast	Nashville	-15%	**-5%**		1%	-24%
Southeast	Raleigh	-1%	**-5%**		-8%	4%
Southeast	Salisbury	8%	**8%**		8%	8%
Southeast	Seneca	-11%	**-7%**		-7%	-7%
Southeast	Smyrna	-16%	**-11%**		-10%	-12%
Southeast Total		**-10%**	**-4.3%**		**-4.5%**	**-4%**

Modeled and Project Performance
Future Tense

		2012				2013				2014				3-year total	
Location	*Region*	*Projected Savings (kWh)*	*2011 Total Energy Usage (kWh)*	*Projected % Difference*	*Actual % Difference (Model)*	*Projected Savings (kWh)*	*2012 Total Energy Usage (kWh)*	*Projected % Difference*	*Actual % Difference (Model)*	*Projected Savings (kWh)*	*2013 Total Energy Usage (kWh)*	*Projected % Difference*	*Actual % Difference (Model)*	*Projected Savings (kWh)*	*% Diff. vs. 2011*
Cedar Rapids	Central 1	2	283	-2.1%	-2.5%		1,926	-2.8%	-2.9%	5	35	-4.2%	-7.0%	1	-8.8%
Des Plaines	Central 1	6	370	-9.8%	-10.6%		,735	-2.5%	2.8%		24	0.0%	-20.0%		-12.1%
Lincoln	Central 1	7	925	-2.8%	-1.4%	1	,561	-6.3%	-3.4%	2	01	-1.0%	-7.7%	2	-10.0%
Missouri	Central 1	1	461	-2.3%	-8.5%		,692	-2.5%	-9.7%	2	95	-4.1%	-8.0%		-7.1%
Palatine	Central 1		412	-2.1%	-17.3%		,738	-11.2%	2.2%		86	-2.8%	10.0%		-14.8%
Rockford	Central 1	2	854	-1.6%	-14.9%	1	),182	-7.7%	-6.1%	5	60	-3.8%	-19.4%	2	-11.0%
St. Louis	Central 1	1	756	-9.2%	-16.7%		,677	-1.3%	-15.7%	1	25	-8.7%	-2.7%		-16.5%
St. Louis SETC	Central 1	5	157	-7.4%			,771	-2.6%			07	-0.1%			-10.1%
	Central 1 Total	**2,**	**217**	**-3.4%**	**-7.3%**	**3**	**,281**	**-5.1%**	**-3.8%**	**1,8**	**82**	**-2.3%**	**-11.4%**	**8**	**-10.2%**
Dayton	Central 2		799	0.0%	7.6%		),126	0.0%	1.1%		00	-6.3%	18.0%		-6.8%
Fishers	Central 2	2	056	-17.3%	-6.8%		,550	-21.7%	-4.8%		16	-0.2%	-2.3%		-37.0%
Huntington	Central 2	2	219	-7.4%	-6.1%		,067	-3.3%	-1.0%		59	-0.5%	2.0%		-10.9%
Lexington	Central 2	1,(	261	-2.7%	-7.6%		),589	-0.9%	-1.0%	3,8	69	-9.5%	-5.6%	5	-13.3%
Oxford	Central 2	4	149	-2.9%	0.7%		),691	-2.8%	2.0%	1,4	43	-8.9%	-11.1%	2	-15.8%
Peru	Central 2	4	327	-3.0%	1.8%		,065	-2.8%	8.5%	3	19	-1.8%	-6.2%	1	-7.8%
West Chester	Central 2		011	0.0%	-9.5%		,220	-4.7%	-1.8%	1	09	-7.5%	-9.5%		-11.5%
	Central 2 Total	**2,**	**822**	**-3.2%**	**-4.0%**	**1**	**,307**	**-2.2%**	**1.4%**	**5,8**	**15**	**-7.2%**	**-6.4%**	**9**	**-12.9%**
Billerica	Northeast		381	0.0%	9.5%		,415	0.0%	13.0%		96	0.0%	-2.2%		0.0%
Brossard	Northeast		582	-4.4%	-17.8%		,336	-1.8%	-2.3%		26	0.0%	-2.2%		-5.9%
Leesport	Northeast	2	125	-2.0%	-2.4%		,030	-5.1%	-4.7%		01	-0.8%	0.0%		-7.4%
Marlborough	Northeast		114	0.0%	6.5%		,354	0.0%	-0.5%		42	0.0%	-3.3%		0.0%
McLaughlin	Northeast		747	-2.1%			,468	-16.3%	-7.6%		98	-2.1%	-1.6%		-24.1%
Mechanicsburg	Northeast		534	-2.7%	-0.1%		,603	-6.4%	-3.5%	1	42	-3.6%	-13.8%		-11.9%
Middletown	Northeast	1	277	-2.4%	-2.5%		,669	-0.8%	0.0%	3	47	-7.0%	-7.6%		-9.5%
North Andover	Northeast	2	109	-2.9%	0.5%		,229	-1.3%	-4.6%		70	0.0%	-1.2%		-4.2%
West Kingston	Northeast	1,(	362	-11.7%	-16.7%		,147	-3.3%	1.4%	6	27	-8.1%	-6.8%	2	-21.5%
	Northeast Total	**1,**	**230**	**-4.6%**	**-5.4%**	**1**	**,252**	**-3.8%**	**-1.9%**	**1,2**	**49**	**-3.5%**	**-4.9%**	**4**	**-11.0%**
Centro Logistico	South		505	-13.1%	-14.6%		,366	-10.9%	-9.4%		95	-5.2%	-12.5%		-26.5%
Monterrey P2	South		374	-0.8%	-6.2%		,149	-16.0%	-3.2%	1	10	-3.5%	3.4%		-20.4%
Monterrey P3	South		290	-1.2%	-4.1%		,853	-2.2%	-8.7%	1	80	-3.6%	-1.8%		-6.2%
Monterrey P4	South		024	-0.2%	-3.9%		,930	-5.5%	-17.2%	1	97	-6.5%	-24.3%		-13.0%
Monterrey P5	South	2	138	-3.4%	-13.5%		,762	-4.1%	-1.4%	4	54	-15.6%	12.6%		-12.5%
Pacifico	South	2	608	-6.0%	-7.1%		),721	-1.4%	-1.4%		41	-1.6%	-4.1%		-9.1%
Rojo Gomez	South	5	164	-7.2%	-7.9%		,878	-1.9%	-6.7%	2	45	-1.1%	-19.8%	1	-15.2%
Tlaxcala	South	6	942	-8.5%	-13.7%		,753	-5.9%	6.5%		87	-1.0%	8.4%	1	-15.1%
	South Total	**1,**	**045**	**-4.8%**	**-8.5%**	**1**	**,413**	**-4.1%**	**-3.5%**	**1,3**	**60**	**-2.8%**	**-8.3%**	**5**	**-13.0%**
Columbia	Southeast	1,(	517	-7.9%	-5.5%		,554	-6.5%	3.2%	9	23	-7.2%	-12.7%	2	-21.1%
Greensboro	Southeast		886	-0.5%	-3.0%		,695	-7.7%	-4.6%		10	-3.7%	-8.1%		-11.5%
LaVergne LifeSpace	Southeast		744	-0.1%	-3.1%		,063	0.0%	-0.8%		28	0.0%	-10.7%		-0.1%
LaVergne PMO	Southeast		107	-0.1%	-16.5%		,750	0.0%	-6.1%		64	0.0%	10.8%		-0.1%
Nashville	Southeast		840	-1.4%	1.4%		,562	0.0%	-5.3%		09	0.0%	-14.1%		-1.4%
Raleigh	Southeast	9	079	-16.7%	-1.4%		,471	-2.8%	-5.3%		77	-0.9%	-20.3%	1	-20.2%
Salisbury	Southeast	2	991	-16.4%	-6.6%		,221	-4.0%	8.0%		92	-0.3%	-6.6%		-20.2%
Seneca	Southeast	2,(	193	-11.8%	-11.0%		,337	-5.9%	-7.0%	6	18	-4.1%	-15.6%	3	-20.4%
Smyrna	Southeast	2,5	729	-26.0%	-25.7%		,758	-4.7%	-11.2%	1,0	93	-13.2%	-15.8%	3	-41.2%
	Southeast Total	**6,**	**087**	**-12.5%**	**-9.1%**	**2**	**,411**	**-4.9%**	**-4.3%**	**2,7**	**13**	**-5.6%**	**-13.7%**	**12**	**-22.1%**
Athens	West		550	-3.4%	-12.2%		,982	-0.1%	1.7%		65	-1.4%	22.5%		-4.7%
Burnaby	West		439	0.0%	11.3%		,828	0.0%	1.4%		88	0.0%	-7.7%		0.0%
Carrollton	West		644	-2.9%	2.1%		,837	-0.6%	-2.6%		11	-0.5%	0.6%		-3.9%
Chino	West		102	-0.1%	-10.3%		),512	-0.3%	10.2%		87	0.0%	1.2%		-0.4%
Clovis	West	1,4	351	-5.6%	-6.6%		,802	-3.4%	-5.1%	1	88	-0.7%	6.0%	2	-9.3%
Costa Mesa	West		764	-0.4%			),573	-0.1%		1,9	27	-26.1%		1	-29.1%
Edmonton	West		514	-0.7%			,510	-0.2%	-2.4%		18	0.0%	1.9%		-0.9%
El Paso	West		461	-2.1%	-1.8%		,448	-1.2%	-1.9%		67	-3.0%	1.0%		-6.5%
Portland	West		388	0.0%	2.7%		),225	0.0%	-6.6%		97	0.0%	-9.0%		0.0%
Richmond	West	1	828	-12.0%	-14.6%		,982	-3.5%	6.1%		28	0.0%	1.2%		-15.2%
Salt Lake City	West		028	0.0%	-15.2%		),073	0.0%	-3.5%		28	0.0%	2.4%		0.0%
Victoria	West	8	343	-20.8%	-39.9%		,327	0.0%	1.2%		89	0.0%	-9.0%		-20.8%
	West Total	**2,**	**409**	**-4.7%**	**-7.5%**		**,099**	**-1.8%**	**-2.8%**	**2,1**	**44**	**-4.2%**	**1.9%**	**5**	**-10.2%**
	Grand Total	**18,**	**810**	**-5.3%**	**-7.1%**	**12**	**),764**	**-3.6%**	**-2.2%**	**15,1**	**63**	**-4.4%**	**-7.7%**	**45**	**-13.1%**

Modeled and Project Performance
Future Tense

		2012				2013				2014				3-year total	
Location	*Region*	*Projected Savings (kWh)*	*2011 Total Energy Usage (kWh)*	*Projected % Difference*	*Actual % Difference (Model)*	*Projected Savings (kWh)*	*2012 Total Energy Usage (kWh)*	*Projected % Difference*	*Actual % Difference (Model)*	*Projected Savings (kWh)*	*2013 Total Energy Usage (kWh)*	*Projected % Difference*	*Actual % Difference (Model)*	*Projected Savings (kWh)*	*% Diff. vs. 2011*
Columbia	Southeast	1,(	517	-7.9%	-5.5%		,554	-6.5%	3.2%	9	23	-7.2%	-12.7%	2	-21.1%
Greensboro	Southeast		886	-0.5%	-3.0%		,695	-7.7%	-4.6%		10	-3.7%	-8.1%		-11.5%
LaVergne LifeSpace	Southeast		744	-0.1%	-3.1%		,063	0.0%	-0.8%		28	0.0%	-10.7%		-0.1%
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Raleigh	Southeast	9	079	-16.7%	-1.4%		,471	-2.8%	-5.3%		77	-0.9%	-20.3%	1	-20.2%
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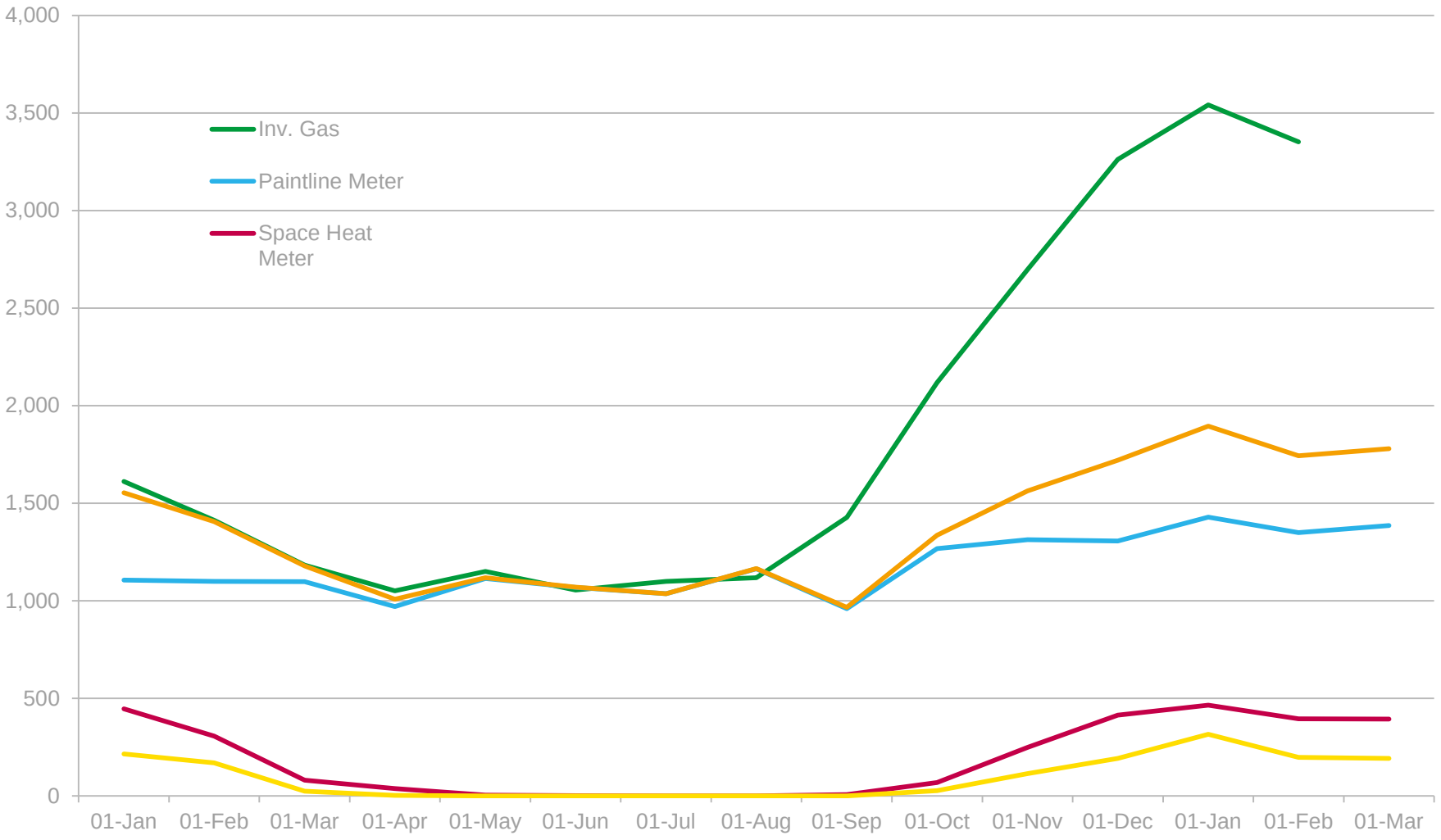
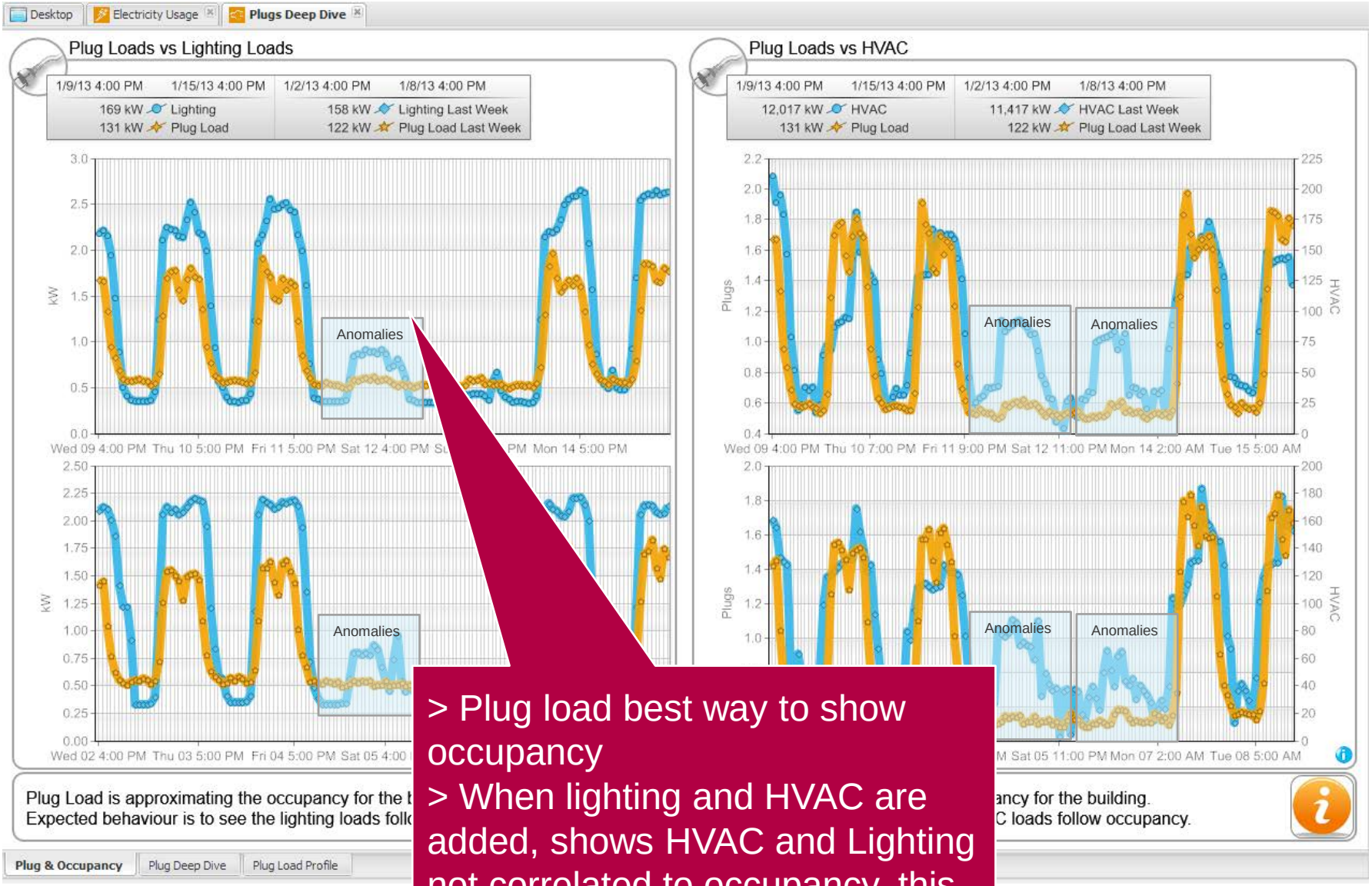
	Southeast Total	**6,8**	**087**	**-12.5%**	**-9.1%**	**2**	**,411**	**-4.9%**	**-4.3%**	**2,7**	**13**	**-5.6%**	**-13.7%**	**12**	**-22.1%**
	West Total	**2,(**	**409**	**-4.7%**	**-7.5%**		**,099**	**-1.8%**	**-2.8%**	**2,1**	**44**	**-4.2%**	**1.9%**	**5**	**-10.2%**
	Grand Total	**18,5**	**810**	**-5.3%**	**-7.1%**	**12**	**,764**	**-3.6%**	**-2.2%**	**15,1**	**63**	**-4.4%**	**-7.7%**	**45**	**-13.1%**

Invoice Analysis – Meter Data vs Invoice Data



Weekend Analysis – Plugs Vs HVAC & Lighting

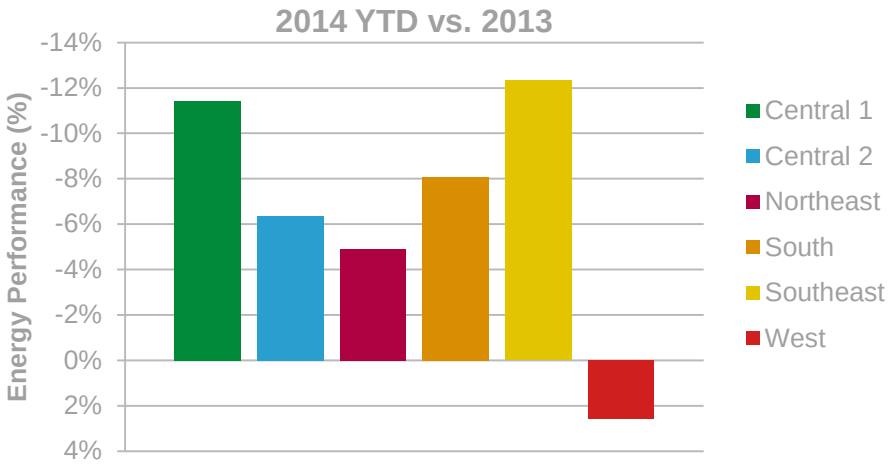


> Plug load best way to show occupancy
> When lighting and HVAC are added, shows HVAC and Lighting not correlated to occupancy, this requires further investigation

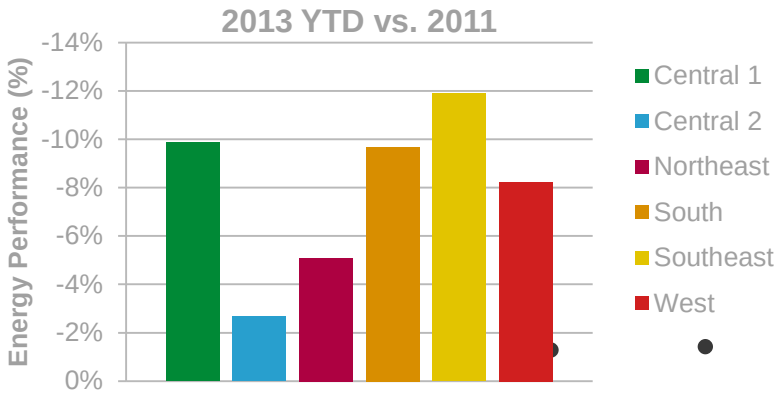
Schneider Electric North America
Results

Enterprise wide energy management information system that **aggregates** energy and resource data from **multiple systems** for **reporting , analysis** and **communication**

NAM Regional Energy Performance



NAM Regional Energy Performance [2013 vs. 2011]



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Results

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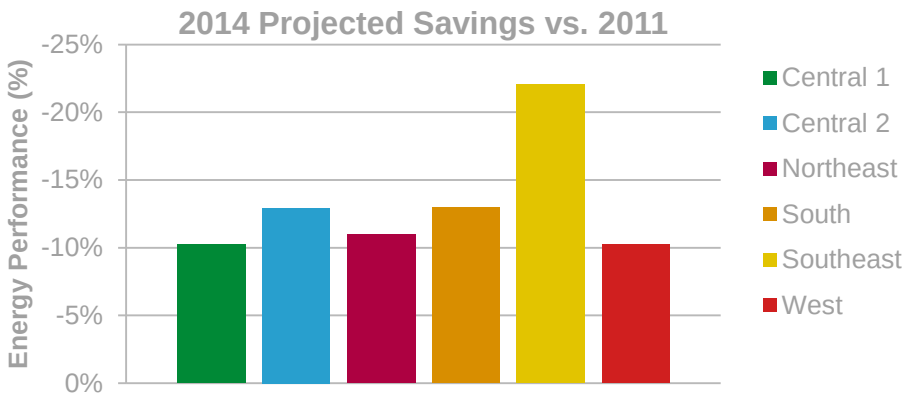
NAM Regional Energy Performance



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Results

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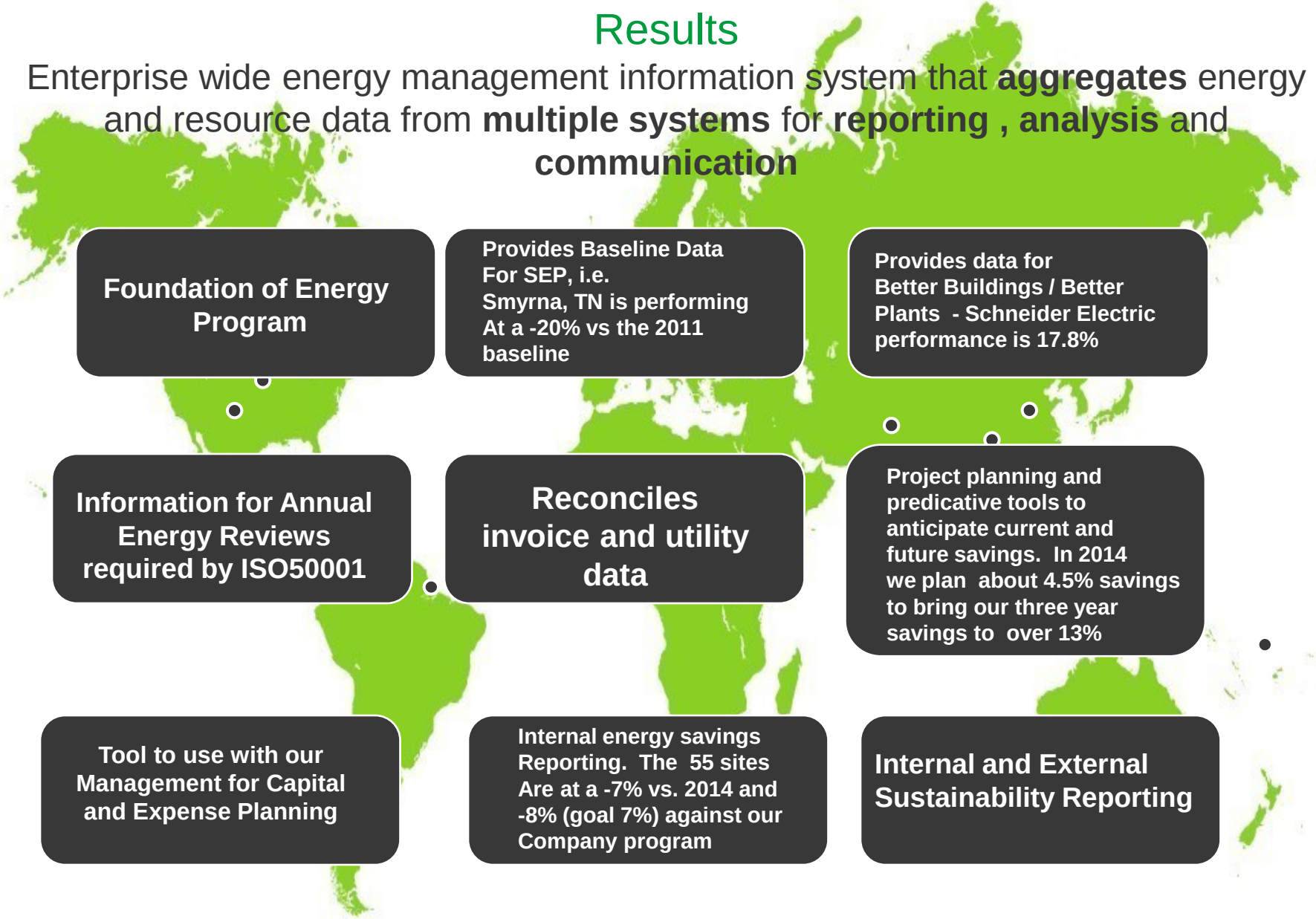


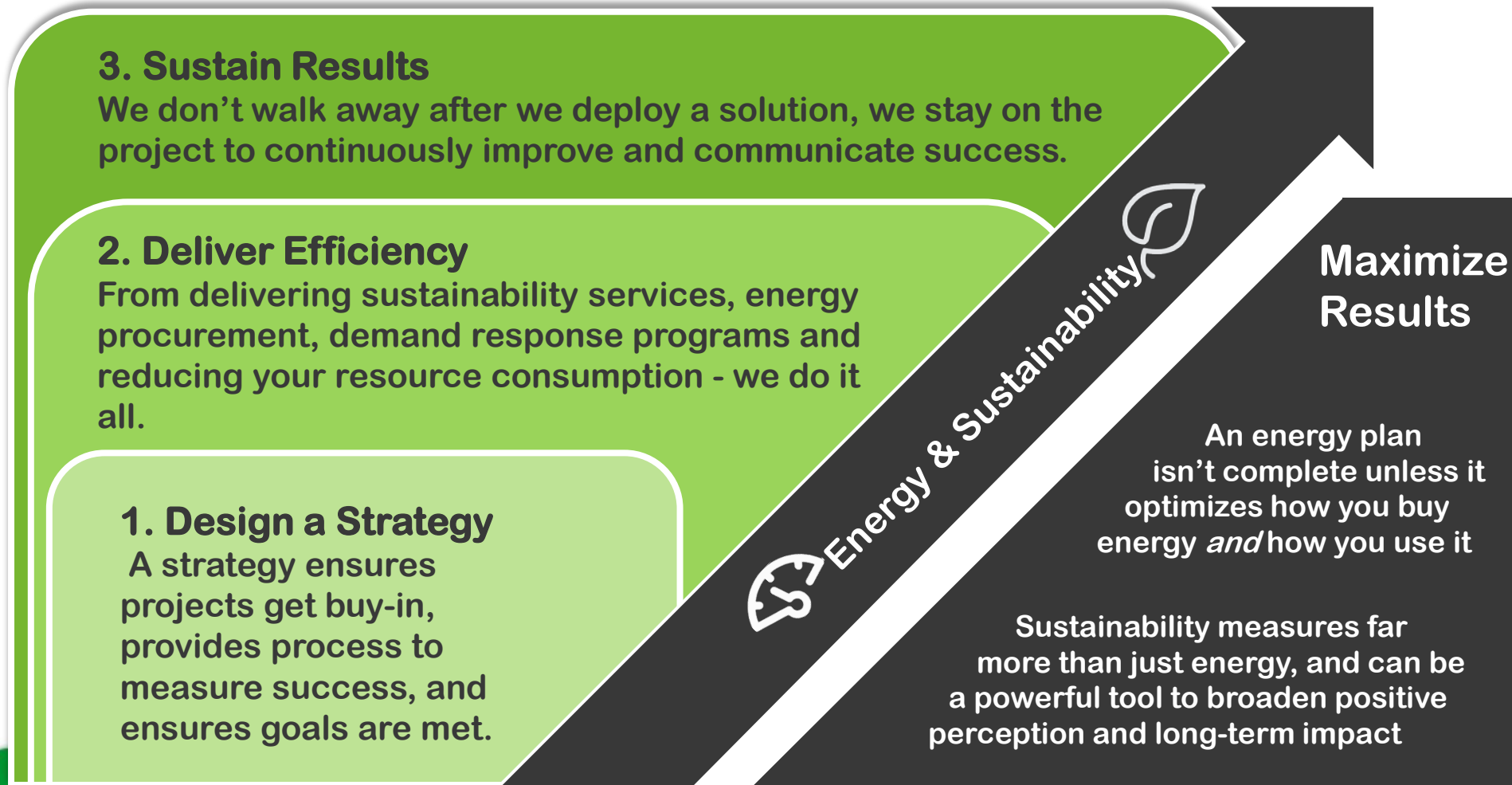
Energy Operation

Enterprise wide energy management information system that **aggregates** energy and resource data from **multiple systems** for **reporting , analysis** and **communication**

The Customer Dilemma

- Companies are increasingly challenged to aggregate disparate pieces of information in a heterogeneous environment across the entire enterprise
- Automates the data collection process through the use of an open, scalable and secure **E**nergy **M**anagement **I**nformation **S**ystem.
- Collects large volumes of device data from control systems or meters and **enables** analytics to find hidden inefficiency opportunities
- Serves as a tool to **communicate the results and performance** in a meaningful manner for a shared understanding across your organization

Schneider Electric understands both sustainability and energy management, and delivers on three parts of a successful program



Schneider Electric North America

Results

Enterprise wide energy management information system that **aggregates** energy and resource data from **multiple systems** for **reporting , analysis** and **communication**

Questions
Comments