Walmart's Global Presence
2012

US Retail Units
4,400

International Retail Units
5,600

Associates
2.1 million worldwide

Walmart Goals

Be supplied 100% by renewable energy

Create zero waste

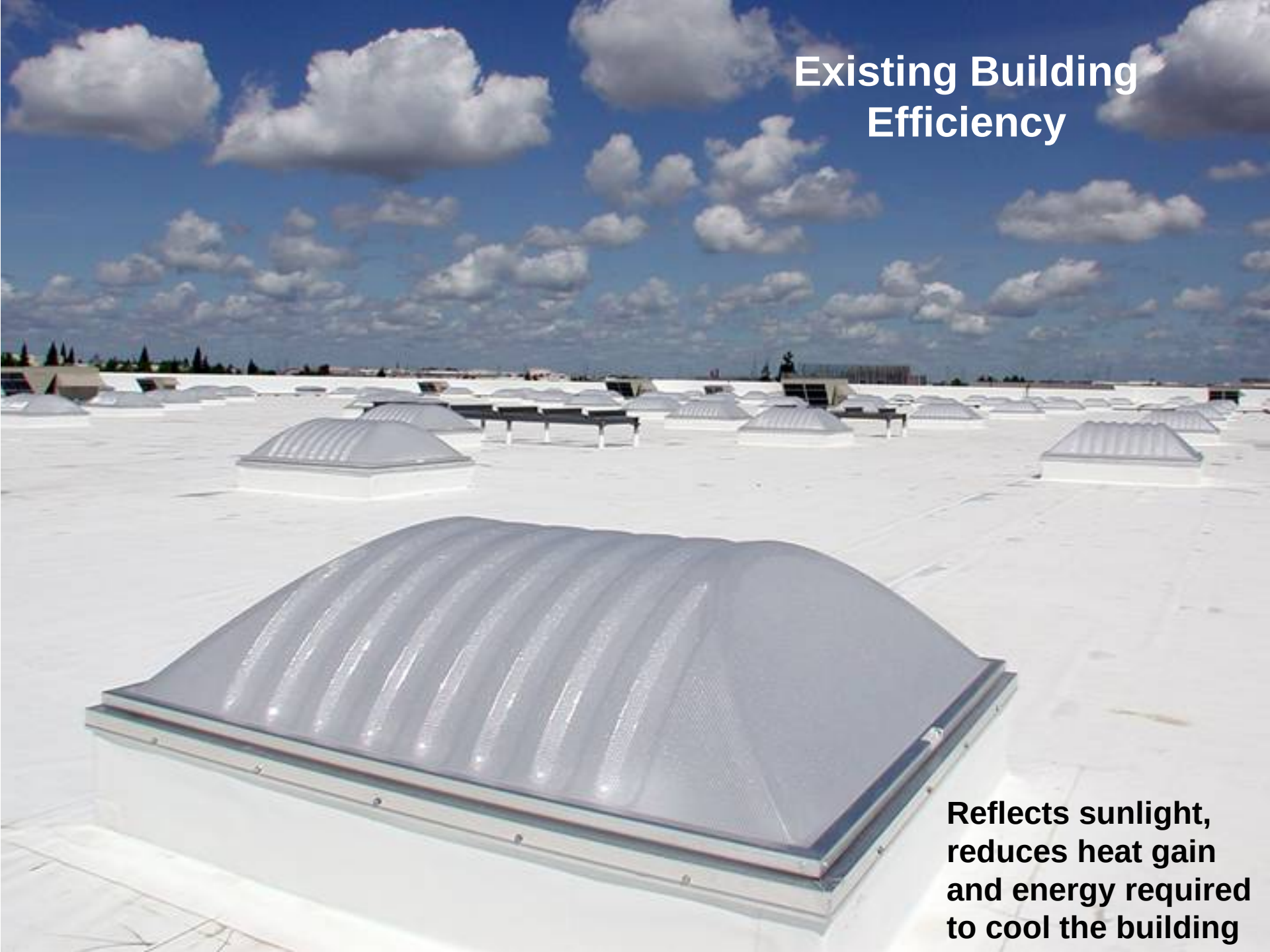
Sell products that sustain our resources and environment

Energy Efficiency

Taking the lead on sustainability

High Efficiency HVAC	**White Membrane Roofs**	**Heat Reclaim System**
Active Dehumidification	**Energy Management System**	**T-8 fluorescent lamps**
LED low Temp Case lighting	**Daylight Harvesting System**	**Occupancy Sensors**

Walmart


Existing Building
Efficiency
Reflects sunlight, reduces heat gain and energy required to cool the building

Energy Efficiency, Can Flourish When…

- The business sector in competitive venues assist customers simply for the opportunity to earn new business, which also can create, additional jobs in these markets.
- Regulation/Legislation supports customers retaining current and future environmental attributes even when rebates are utilized (which are funded by the ratepayers/taxpayers).
- Customer EE ROI's or cash flows are improved when no extra costs or incentives are added in during rate proceedings for energy efficiency customer investments…which encourages more customer investment in energy technology.
- Customers have free access anytime to their own data and consumption information.

Walmart

Energy Efficiency, Can Flourish When…

Benefits should flow to the customers

Exact wording from various contracts:

- _____ Program: Reflective Roof Coating-Rebate Application
  - "In consideration of this rebate, customer assigns all rights to any and all environmental attributes and or credits, including any renewable energy credits, carbon offsets credits, or similar environmental credits derived from the energy conservation associated with this rebate to **customer** for **utility** use as it may choose."
- _____Project Completion Agreement 20XX
  - "In exchange for the incentive payment, Applicant transfers all rights for energy efficiency credits that result from the energy efficiency measures for which the incentive is paid to the benefit of _____ for compliance with the State of ___ renewable energy portfolio standard."
- _____Incentive Agreement (____ Schedule____)

  Negotiated language
  - "Customer and _____ agree that the acquisition or retaining of renewable energy certificates associated with demand side management project associated with this agreement will be subject to all terms and conditions as determined by the Commission in a rulemaking as described in statute or another appropriate proceeding."
- Rebate Agreement Form
  - "As an eligible ____ customer, I certify that the indicated energy efficiency measures, which will be demonstrated with supporting documentation required by ____, were installed after **Date** Any and all environmental credits generated by the project described in this application will be retained by **utility.**"

Challenge the Change
Consider the Customer Who Implements Energy Efficiency

Equipment

Program Costs on Utility Bill

Rate Structure

Incentive Assigned to Utility

Decoupling/Associated Reduced ROE

Environmental Credits

Customer Funded

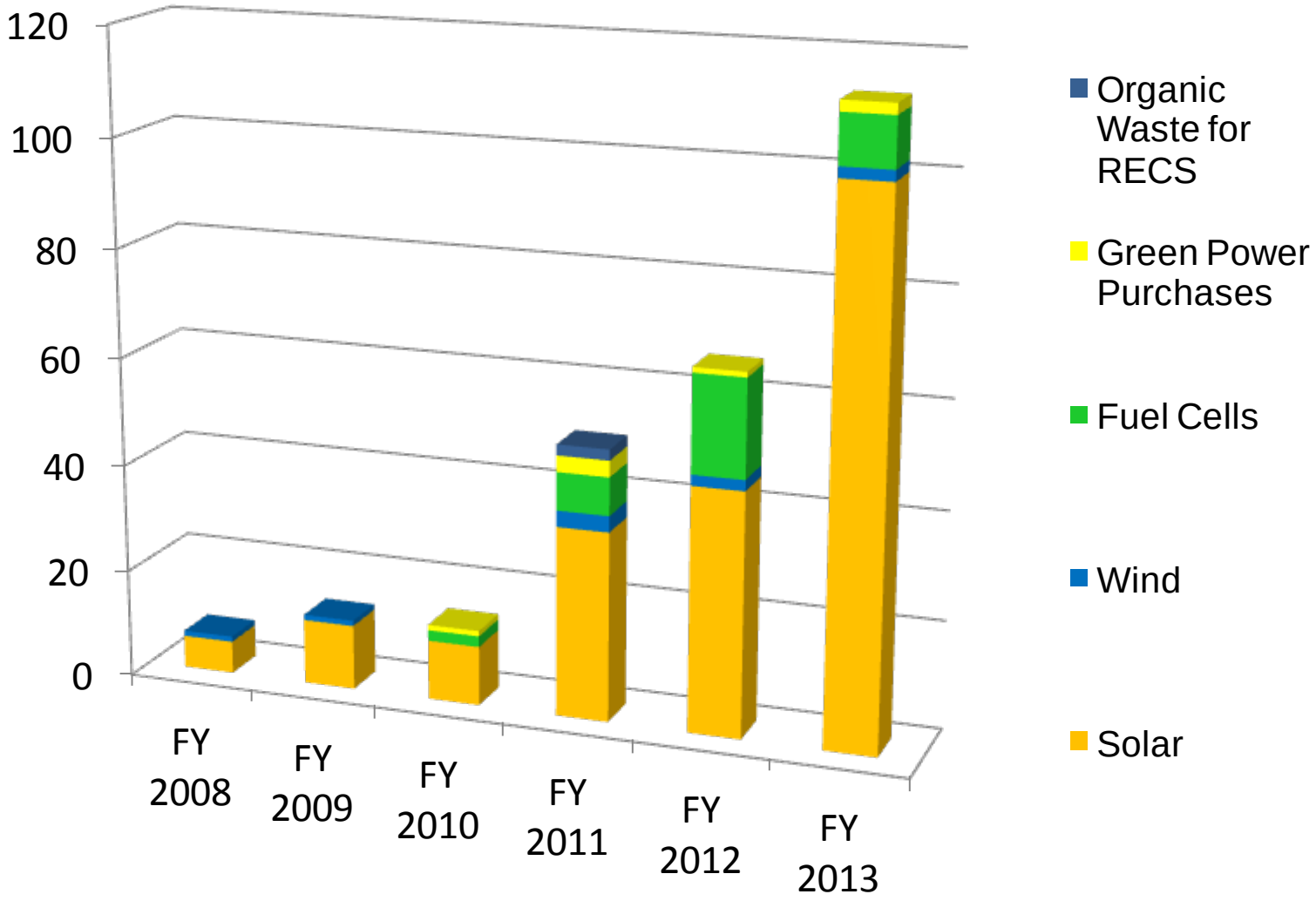
Walmart
Save money. Live better.

Renewable Energy

Taking the lead on sustainable resources

Walmart

Walmart Renewable Projects Completed/Executed



Solar Energy - Ground Mounted / Roof Mounted

Apple Valley, CA Distribution Center
1 MW ground mounted system.
SunEdison

Chino, CA Supercenter
500 kw Roof mounted system.
BP

Casa Grande, AZ
DC 07-7013

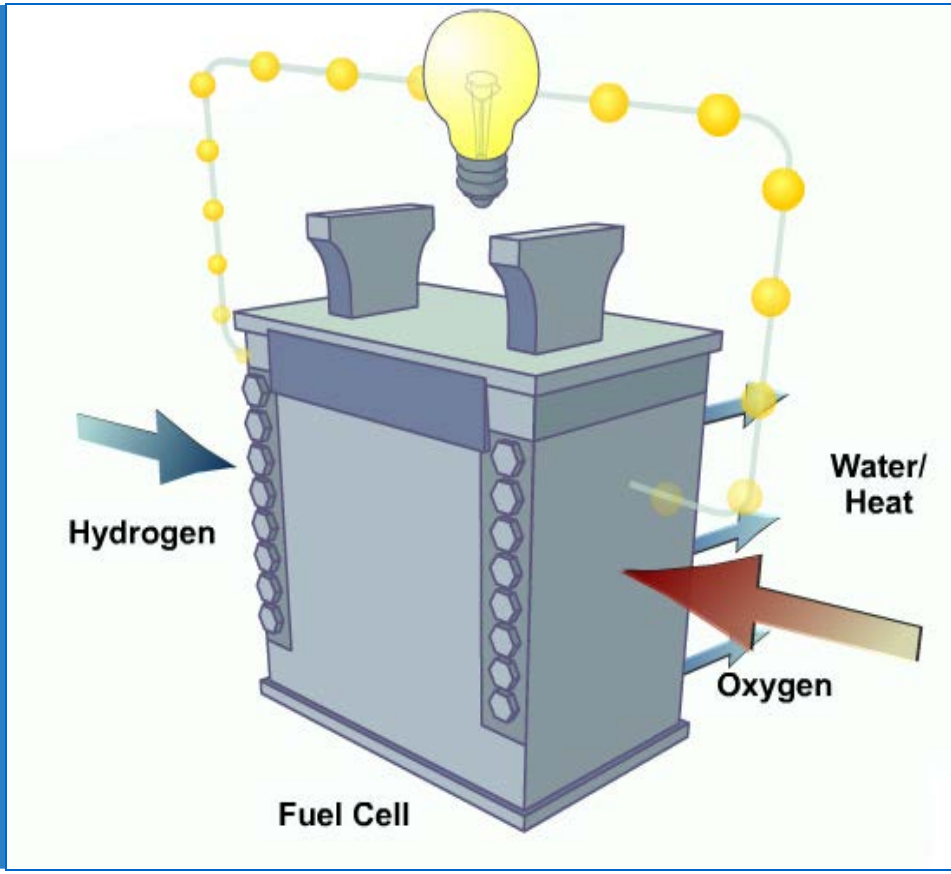
Carport Concept New in FY 12

Buckeye AZ Solar

3.5 MW of Solar
Produces 30% of facility's needed electricity
- **Roof Mounted**
- **Carport**

Walmart

Bloom Energy
Fuel Cell Pilot Project



Fuel Cell Technology

- 26 existing fuel cell locations in California
- Fuel cells supply 40% to 60% of the site's electricity
- Walmart purchases the renewable energy
- Renewable Energy as fueled by Biogas

Wind Energy

Notrees, Texas Wind Farm

Purchase electricity to power up to 15% of our energy load at 360 stores in Texas.

The farm generates roughly 226vmillion kilowatt-hours of renewable power each year, equal to:

- ✓ Enough energy to power more than 20,000 average American homes annually
- ✓ Avoiding more than 139,000 metric tons of CO_2 emitted into the atmosphere per year

Large Scale Onsite Wind Energy

Installation of a 1.0 megawatt turbine at Red Bluff, CA DC

GE 1.5 Turbine

Status:
Under Construction

Microwind Parking Lot Installations

Projects:

- South Rogers, AR installation of the Southwest Windpower Skystream 3.7
  - Expansion pilot - Palmdale, CA
  - Expansion pilot - Worcester, MA
- South Rogers, AR installation of the OmniWind ProWind 800
  - Current expansion pilot to Pratt, KS (Complete)
  - Expansion pilot Lanoka Harbor, NJ (planned)
  - Expansion pilot Pleasantville, NJ (planned)

For Renewables, To Flourish…

- Development of new fair policy to eliminate tug-of-war with environmental attributes on projects and satisfy objectives.
- Antiquated laws or regulations concerning generation of electricity and classification of generator that are hindering growth should be updated.
- Renewable Energy projects need to be properly valued and favored by the ISO or utility as a distributed generation solution or alternative to needed new centralized generation plants and investments in transmission and distribution.
- Billing and credit settlements should be reconciled with the customer on a schedule that fits with existing systems and budget schedules.

For Renewables, To Flourish…

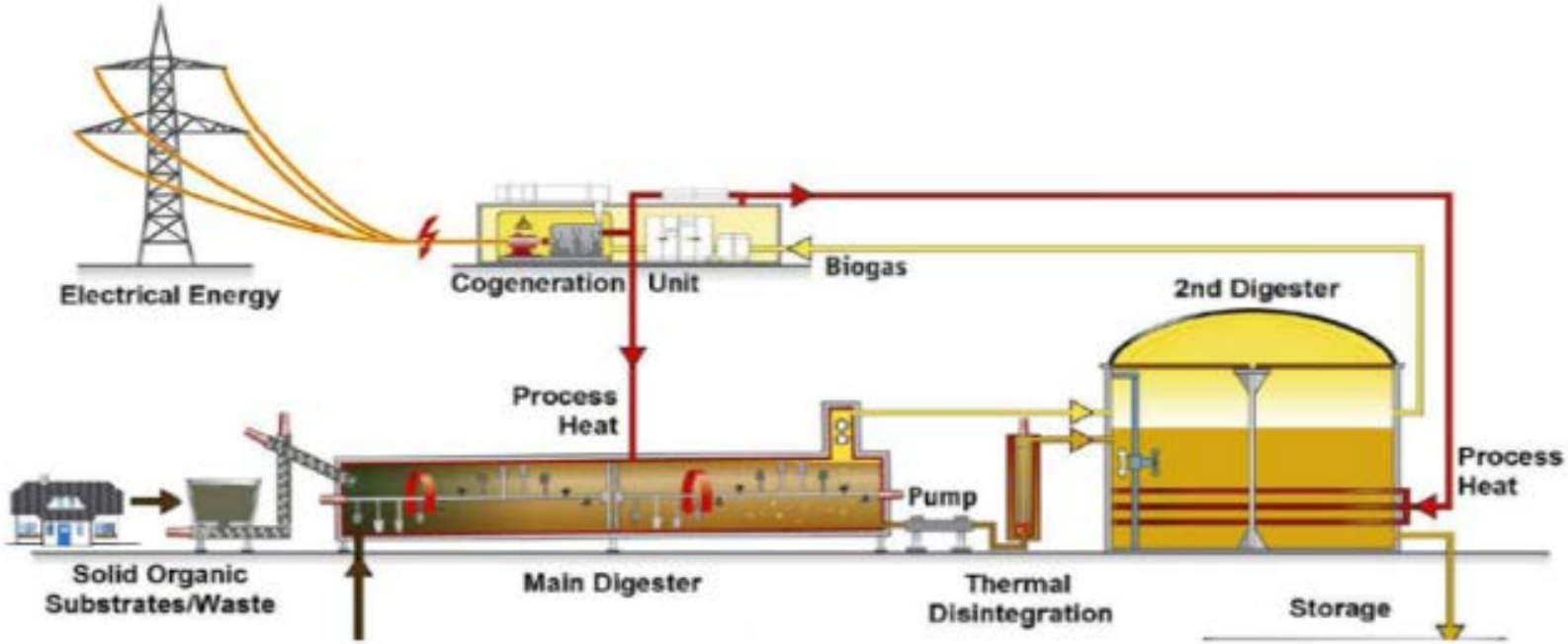
- If Feed-in-tariffs are used, establish method to ensure the customer with the renewable system installed behind the meter is allowed to use power generated for the needs of that location.
- Feed-in-tariffs need to take into consideration different types of contracts, such as system purchase, PPA's, and leases vs. one form fits all so this tariff does not change contract terms between private entity and vendor.
- Local permitting process needs streamlined, shorter timeline and more cost effective utilizing standardized language to address the installation of technologies.

Waste To Energy

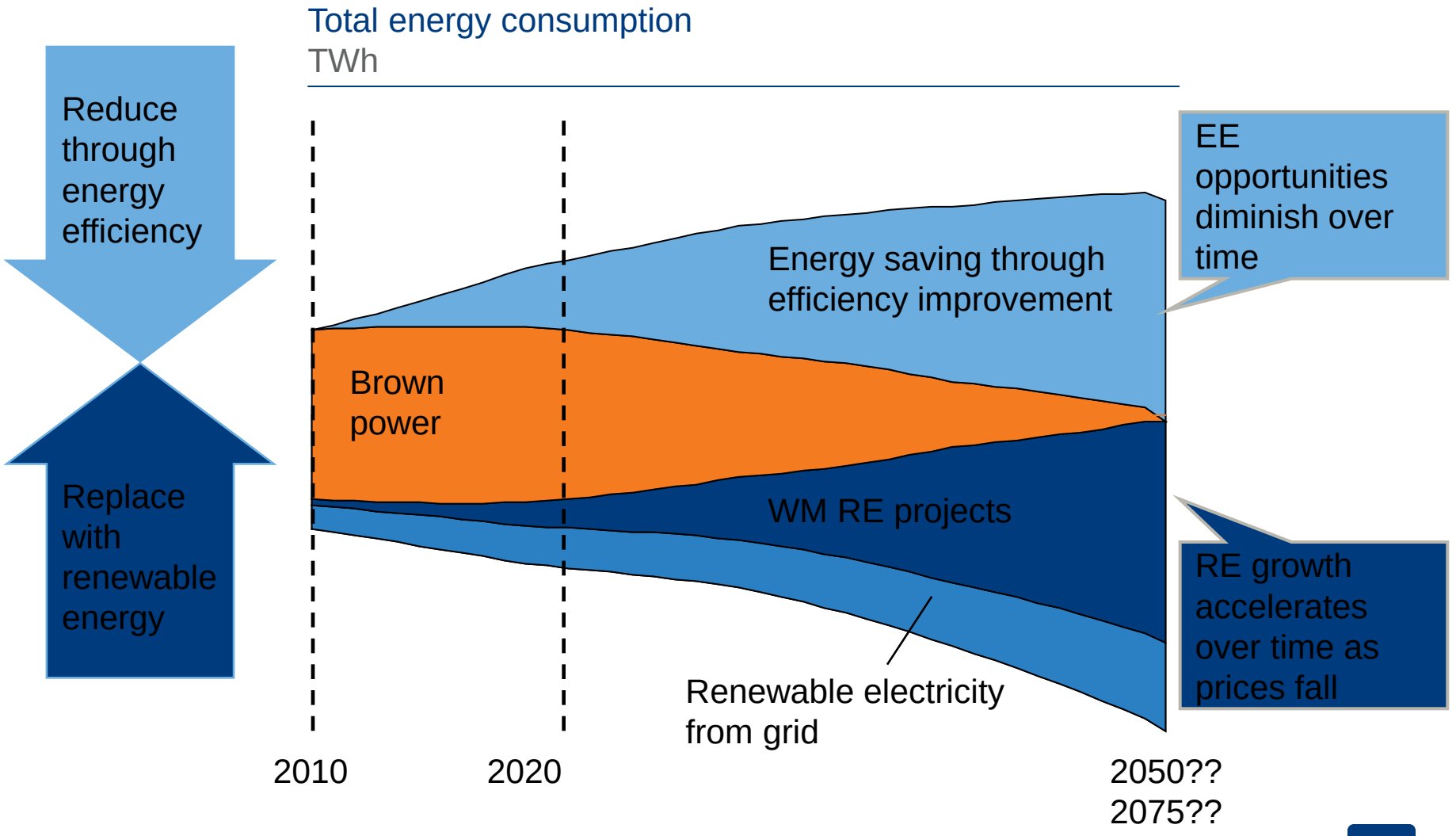
Waste to Energy

Anaerobic Digestion using Walmart Organic Waste

- **Working with Waste SVN**
- **21 Facilities supplied by less than**
- **1% Renewable Energy**



How do we accelerate our path to 100% Renewable Energy?



Adding It All Up

- **We're producing/procuring over 850 million kilowatt-hours per year of Renewable Energy**
  - **Enough to serve over 65,000 homes**

- **EPA Green Partners Leader**
  - **2nd largest purchaser among US retailers**
  - **Largest onsite generator among retailers; 2nd overall**
  - **3rd largest purchaser in the Fortune 500**

- **Each project is modeled to save the site money**

- **Contributing to our corporate sustainability goal to be sourced 100% by Renewable Energy**

Demand Response

Taking the lead on energy management

Walmart

Demand Response

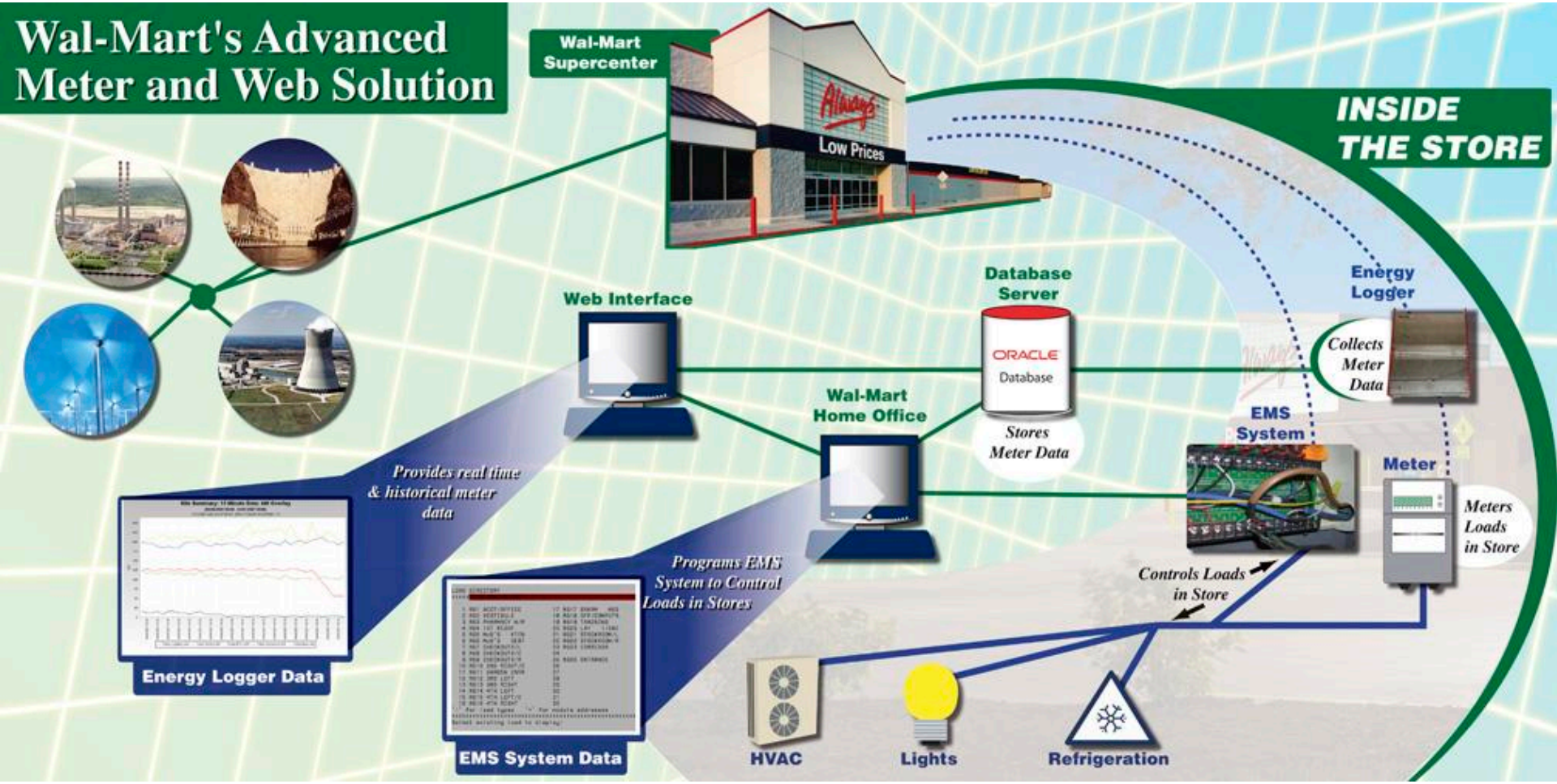
- Walmart and Sam's Club have participated in 17 demand response programs with municipalities, utility and ISO's, including approximately 1,300 locations in 23 states

Elements of a Successful Demand Response Program

- FERC Order 719 and 745. Thank you FERC.
- Aggregation
- No minimum threshold per site
- Consistent baseline across state and ISO borders
- Critical need
- Notification
- Meter ownership
- Price transparency
- **Benefits should flow to customer as all ratepayers and utilities in the region also benefit**

```
                                                SYSTEM:  1980 CTef,    PUTNAM
                                                   EP2:     1 HVAC/LIGHTS
LOAD DIRECTORY
±±±±±>> ALARM ON UNIT  1  2                                              <<±±±± 65±

   1 RG1 ACCT/OFFICE          17 RG17 BRKRM   NOS        33
   2 RG2 VESTIBULE            18 RG18 OFF/COMPUTR        34
   3 RG3 PHARMACY W/P         19 RG19 TRAINING           35
   4 RG4 1ST RIGHT            20 RG20 LAY   1/2AC        36
   5 RG5 McD'S   KTCN         21 RG21 STOCKROOM/L        37
   6 RG6 McD'S   SEAT         22 RG22 STOCKROOM/R        38
   7 RG7 CHECKOUTS/L          23 RG23 CORRIDOR           39
   8 RG8 CHECKOUTS/C          24                         40
   9 RG9 CHECKOUTS/R          25 RG25 ENTRANCE           41
  10 RG10 2ND RIGHT/C         26                         42
  11 RG11 GARDEN CNTR         27                         43
  12 RG12 3RD LEFT            28                         44
  13 RG13 3RD RIGHT           29                         45
  14 RG14 4TH LEFT            30                         46
  15 RG15 4TH LEFT/C          31                         47
  16 RG16 4TH RIGHT           32                         48
':' for load types   '*' for module addresses                      Tab 1 of 3
±±±±±±±±±±±±±±±±±±±±±±±±±±±±±±±±±±±±±±±±±±±±±±±±±±±±±±±±±±±±±±±±±±±±±±±±±±±±±±±±±±±
Select existing load to display:
                                                   04/02/07 - 07:24:37am
```



Walmart
Save money. Live better.

For Demand Response, Why We Do More…

- Payments
- Renewable Energy Credits/White Certificates/EE credits
- Service of curtailment
- To be compensated comparable with generators
- To install more, and improve the ROI of our own meters and other energy technology
- Measurement and Verification
- Remove unreasonable regulations by sharing our experience
- Full, frequent and easy access to meter information

For Demand Response…

- ISO programs that best fit our business needs.
- Earn available environmental attributes in ISO programs.
- We can aggregate curtailment load throughout most regions/states within an ISO.

Sub-Metering

In order to ensure we are implementing energy saving solutions that work, we must be able to measure and validate the results.

Business benefits:

- Load forecasting/procurement of energy
- Verify savings from energy improvement projects
- Track energy and GHG reductions
- Maximize demand response

Engineering benefits:

– Set baseline energy usage by prototype
– Identify performance improvements greater savings
– Validate equipment upgrades
– Enables quick response to equipment or system failures

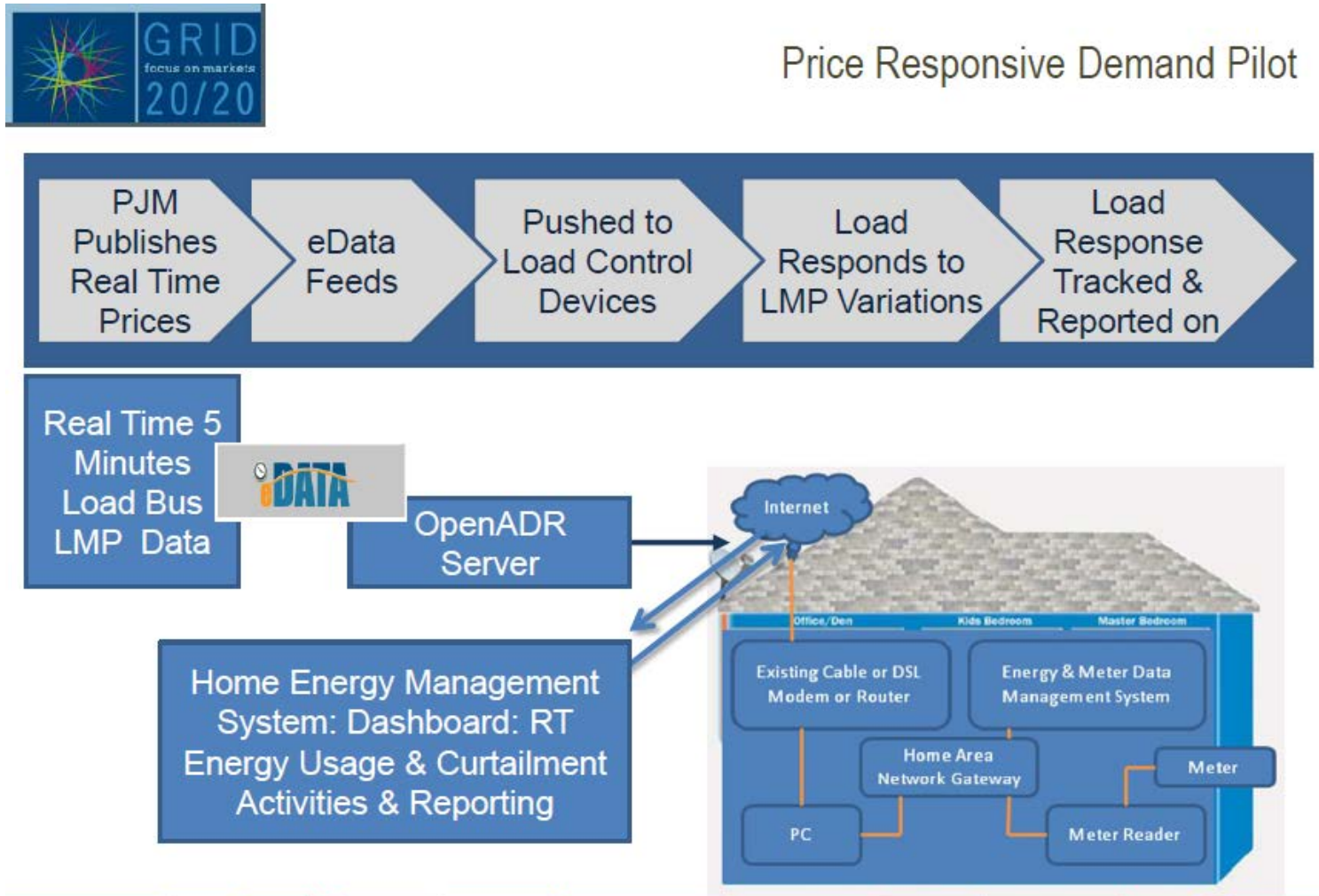
Management benefits:

– Assist in making financial decisions on equipment upgrades

For Microgrids, we would like to see…

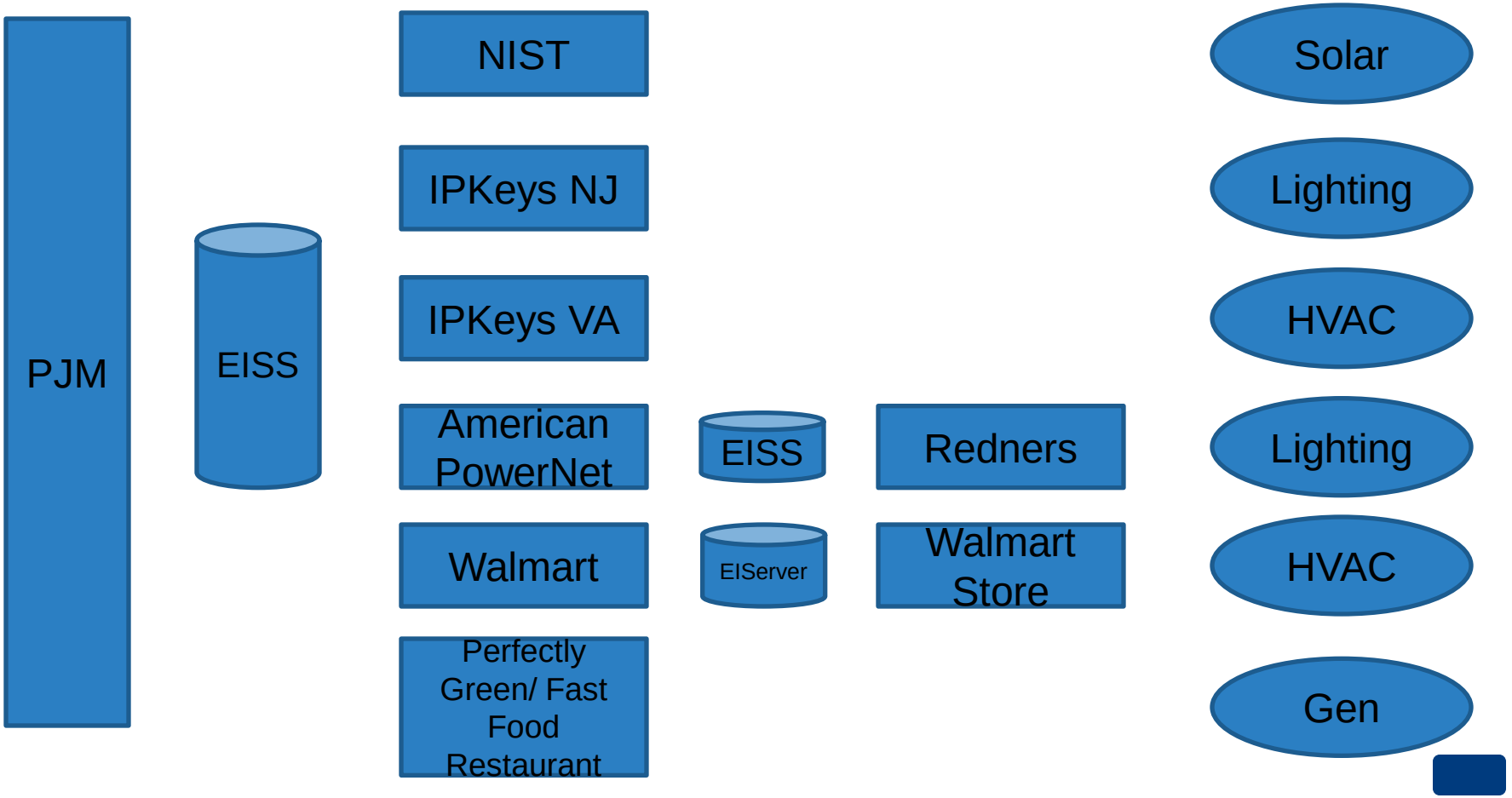
- Customer freedom to choose and invest in a meter that will fit our own business needs. This can mitigate or eliminate stranded costs for obsolete meters.
- Real transparent rates for energy with correct cost allocation to generation, transmission or distribution and fixed and variable cost within each area.
- More flexibility to allow proactive customers to participate and contribute within the microgrid.
- Customer full control and choice behind the meter with competitive providers of EE products and DR programs.

PJM / IPKeys Pilot



Walmart

Participants and Roles



Use Cases

- Demand Response Event
  - OpenADR 2.0 event called and confirmation received
- Price Based Demand Response
  - Preset price levels at the end point are exceeded and confirmation returned to the server
- Verification with Telemetry
  - Event and price based load shed verified with near real time (NRT) meter telemetry

Web Services

  - Poll: most participants
  - Push:EnergyICT / Walmart