REINHOLD ENVIRONMENTAL Ltd.

2016 NOx-Combustion-CCR Round Table Presentation

February 1 & 2, 2016, in Orlando, FL / Hosted by OUC

Embracing Change During Challenging Times

2016 NOx-Combustion – CCR Roundtable

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Vice President – Electric & Water Production

Overview

- About Orlando
- Background on OUC
- How OUC (and the industry) has adapted to change in the past
- How OUC is positioning itself for a very challenging future

Orlando – You Don’t Know the Half of It

- Central Florida is the nation’s largest hub for simulation technology
- The University of Central Florida’s Institute for Simulation & Training developed the nation’s first master’s and Ph.D. programs in modeling and simulation

- *Entrepreneur Magazine* and *Biz Journals* rank Orlando as “one of the best places to start or grow a small business”

Orlando – You Don't Know the Half of It

- *Forbes* names Orlando as one of "the next big boom towns in the U.S."
- Top 10 in U.S. for "Best Cities for College Grads" – *CareerBliss.com*
- *Techie.com* put Orlando on its list of the "most promising tech hubs to watch in 2014"
- Modis named Orlando "the #3 city to find an IT job"

RELIABLE • AFFORDABLE • SUSTAINABLE

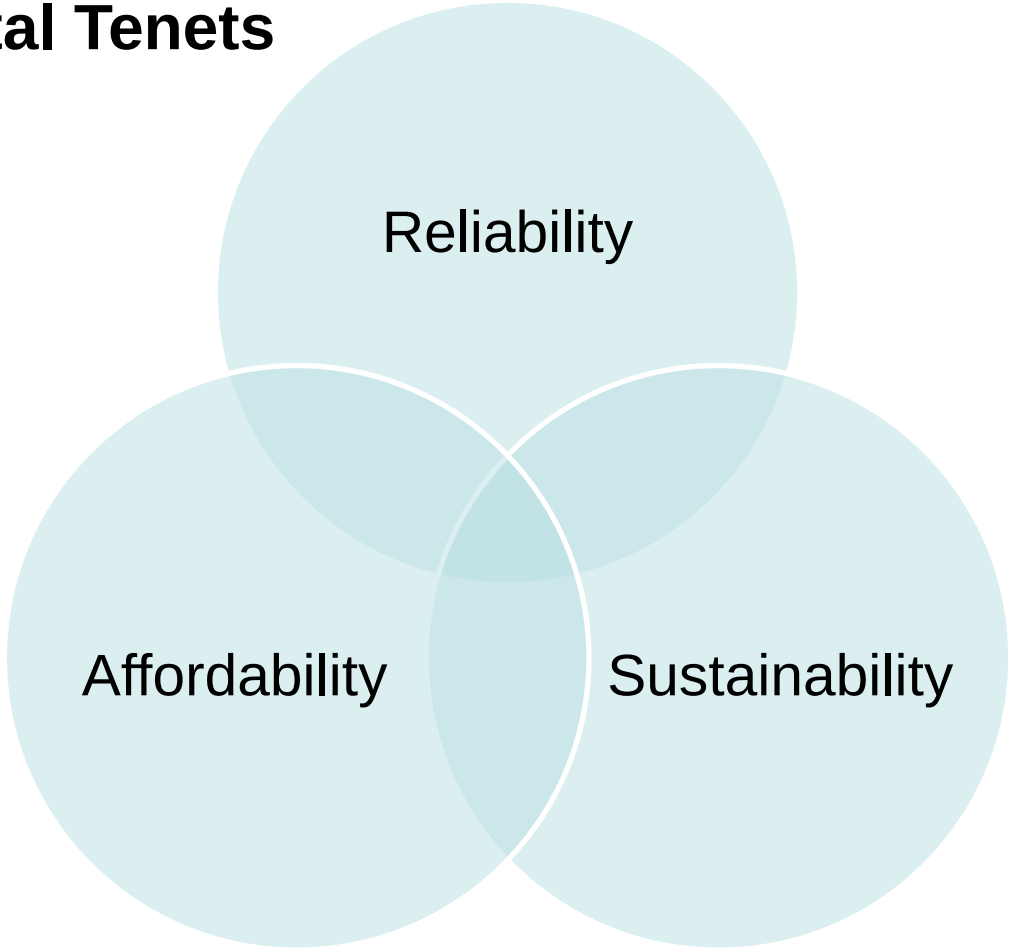
OUC The Reliable One®

OUC Background

- Orlando Utilities Commission (OUC)
- Established 1923
- Municipal Electric and Water Utility
  - 2nd largest in Florida
  - 14th largest in U.S.
- City of Orlando
  - St. Cloud, Vero Beach, Bartow, Lake Worth, Winter Park
- Statutory Commission
  - Governed by five member board
  - Customers are OUC's "stockholders"

OUC Background

Fundamental Tenets

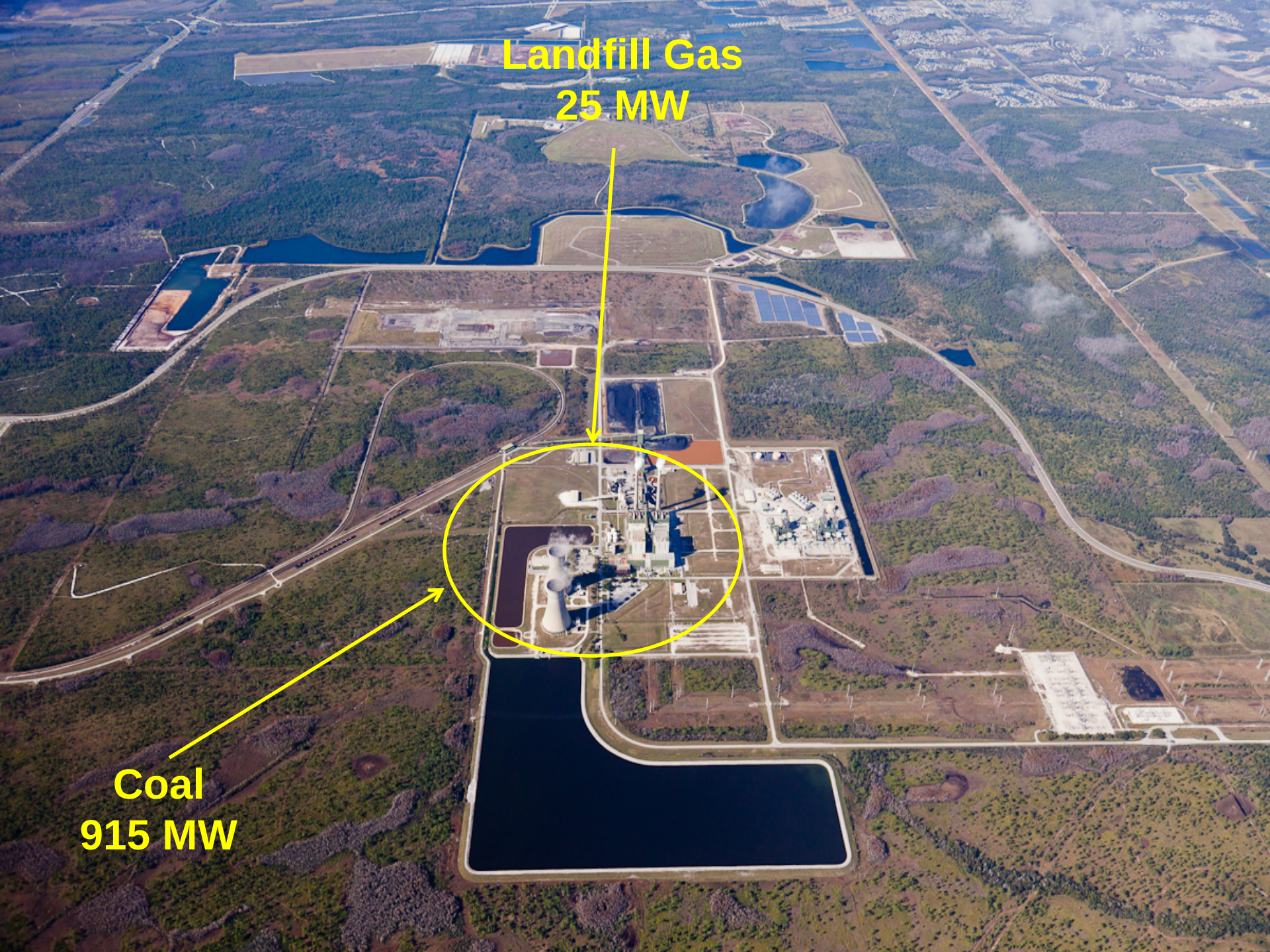


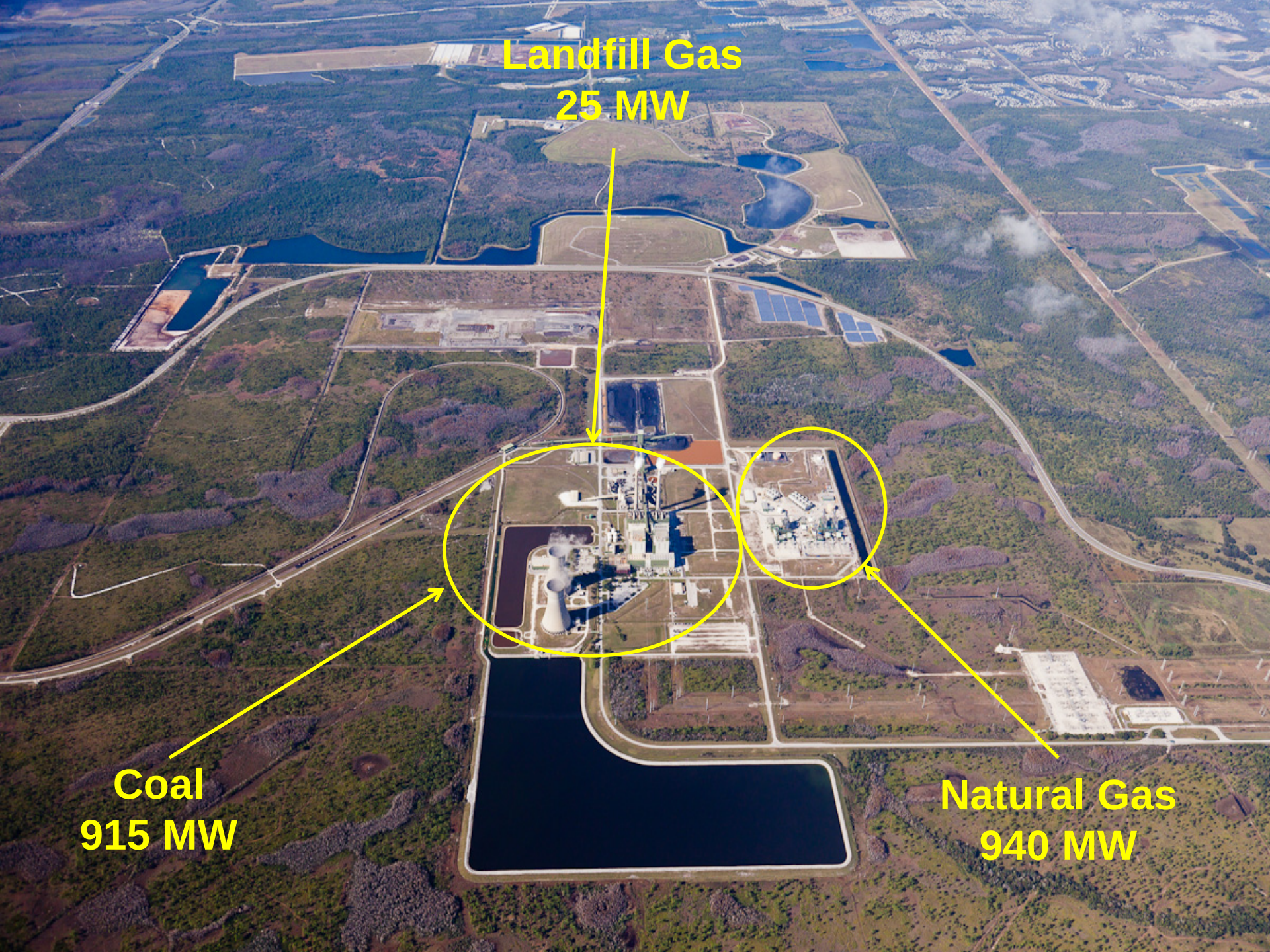
Stanton Energy Center

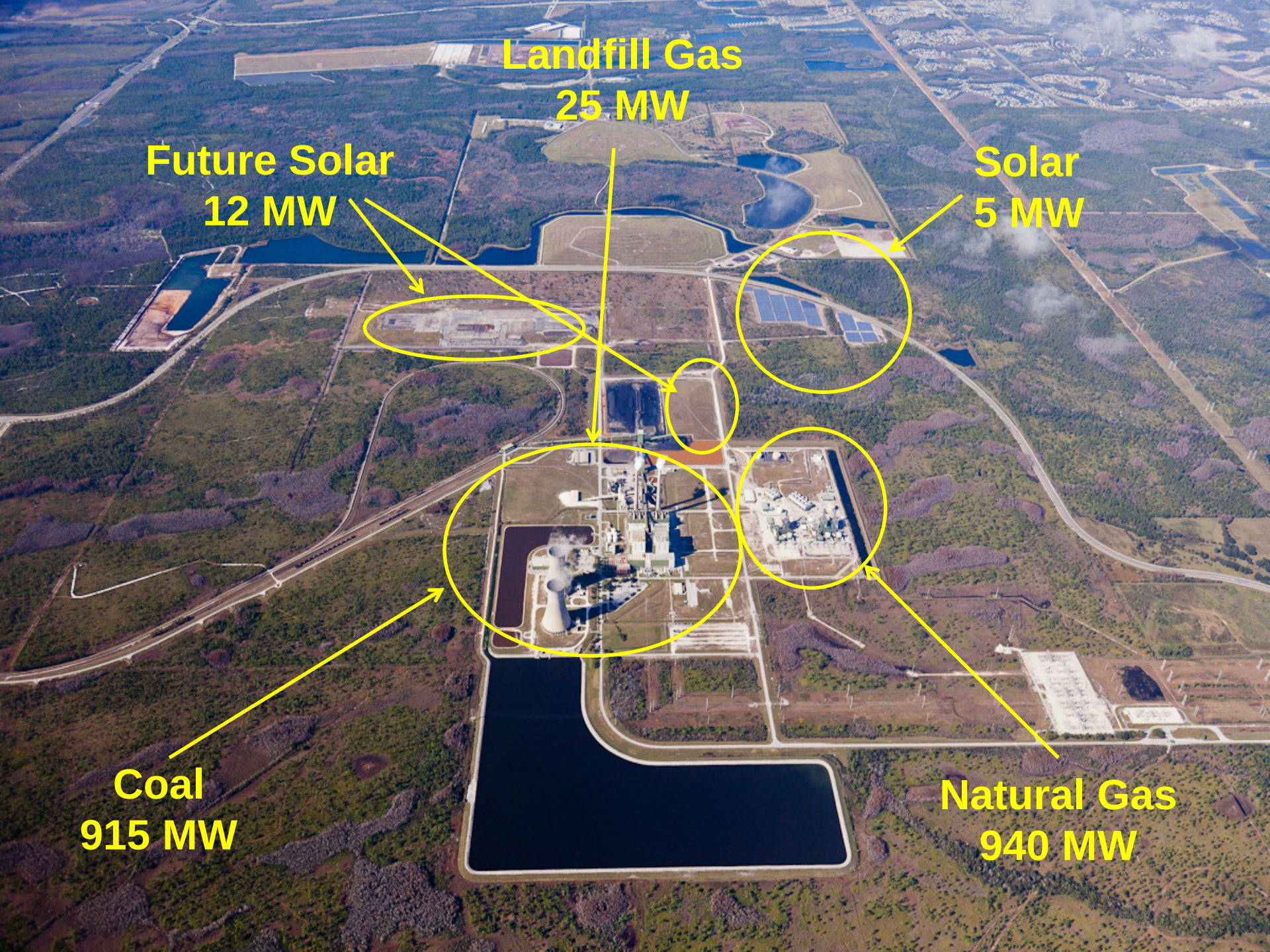
Stanton Energy Center – A Unique Site

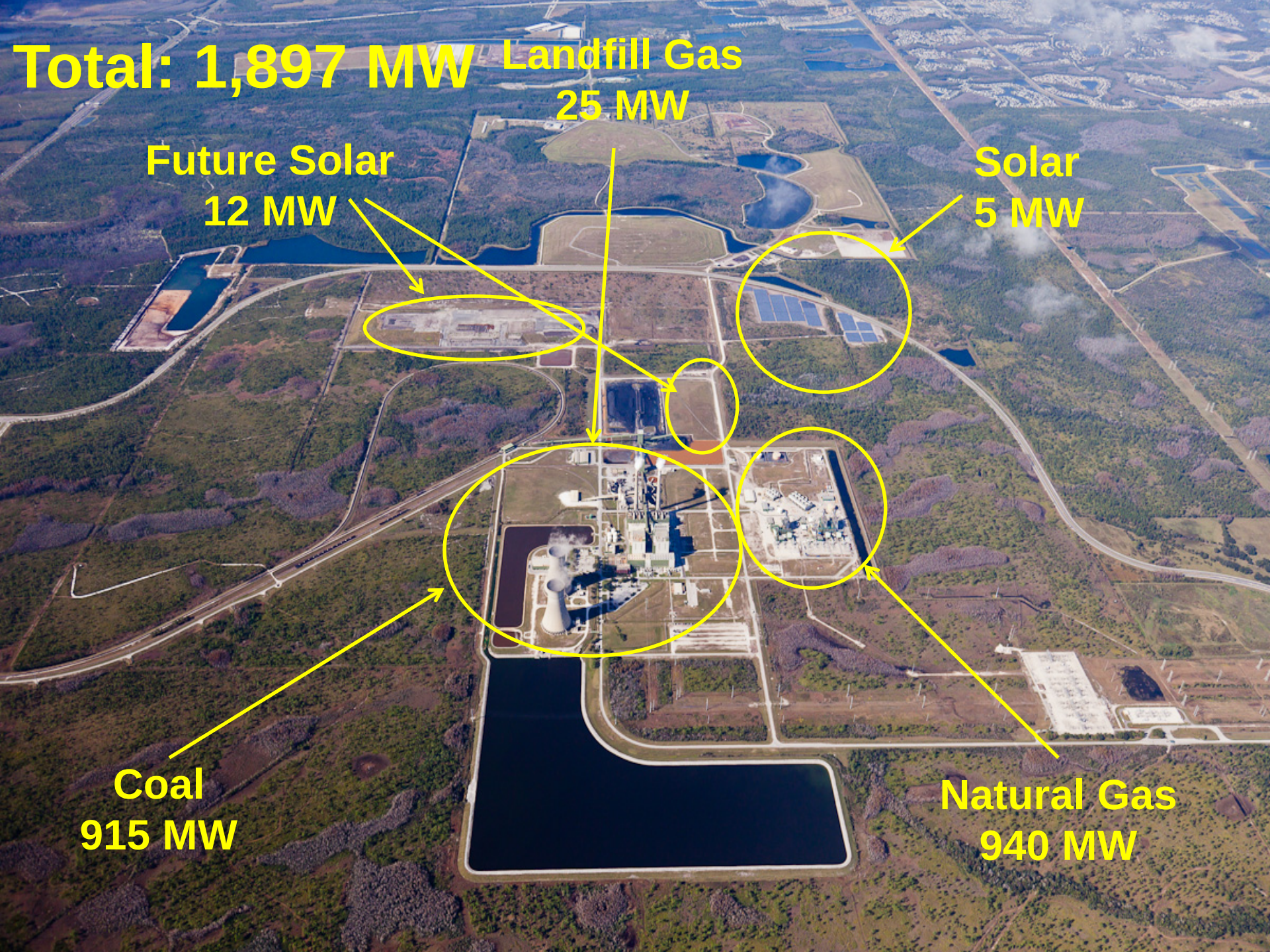
- 3,200 acre site
  - 2,200 acres dedicated as wildlife refuge and habitat
- Total 1,897 megawatts
- Four different types of fuel
- Zero Liquid Discharge (ZLD) facility
- List of "Firsts" *(as far as we know)*:
  - 1st SCR installation on large pulverized coal unit
  - 1st co-firing of landfill gas with coal
  - One of 1st ZLD sites in the US
  - Largest installed capacity of Brine Concentrators in US
  - 1st solar farm on coal by-product landfill


Coal
915 MW


Landfill Gas
25 MW
Coal
915 MW


Landfill Gas
25 MW
Coal
915 MW
Natural Gas
940 MW


Landfill Gas
25 MW
Future Solar
12 MW
Solar
5 MW
Coal
915 MW
Natural Gas
940 MW


Total: 1,897 MW
Landfill Gas
25 MW
Future Solar
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Natural Gas
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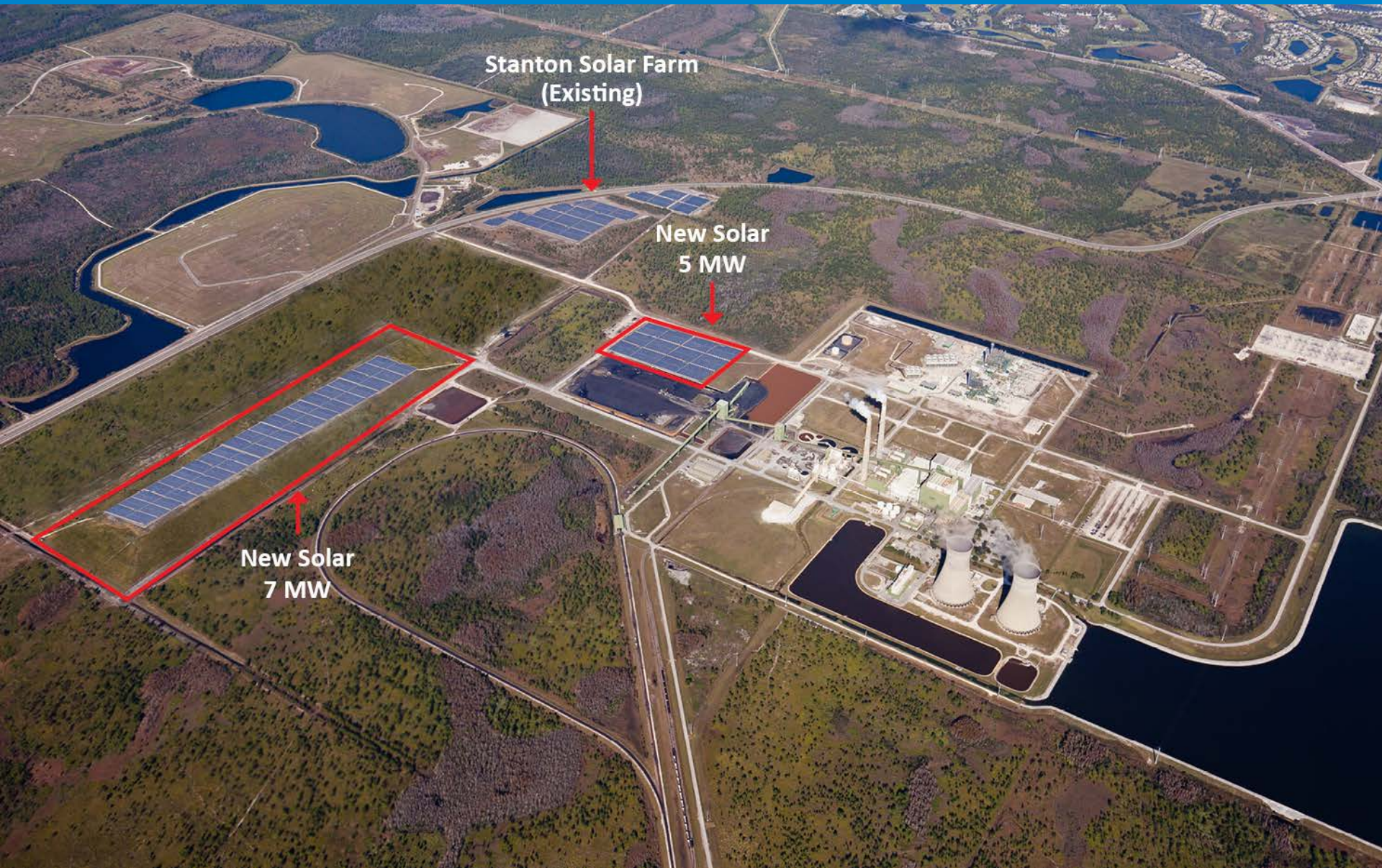
New Stanton Solar Layout

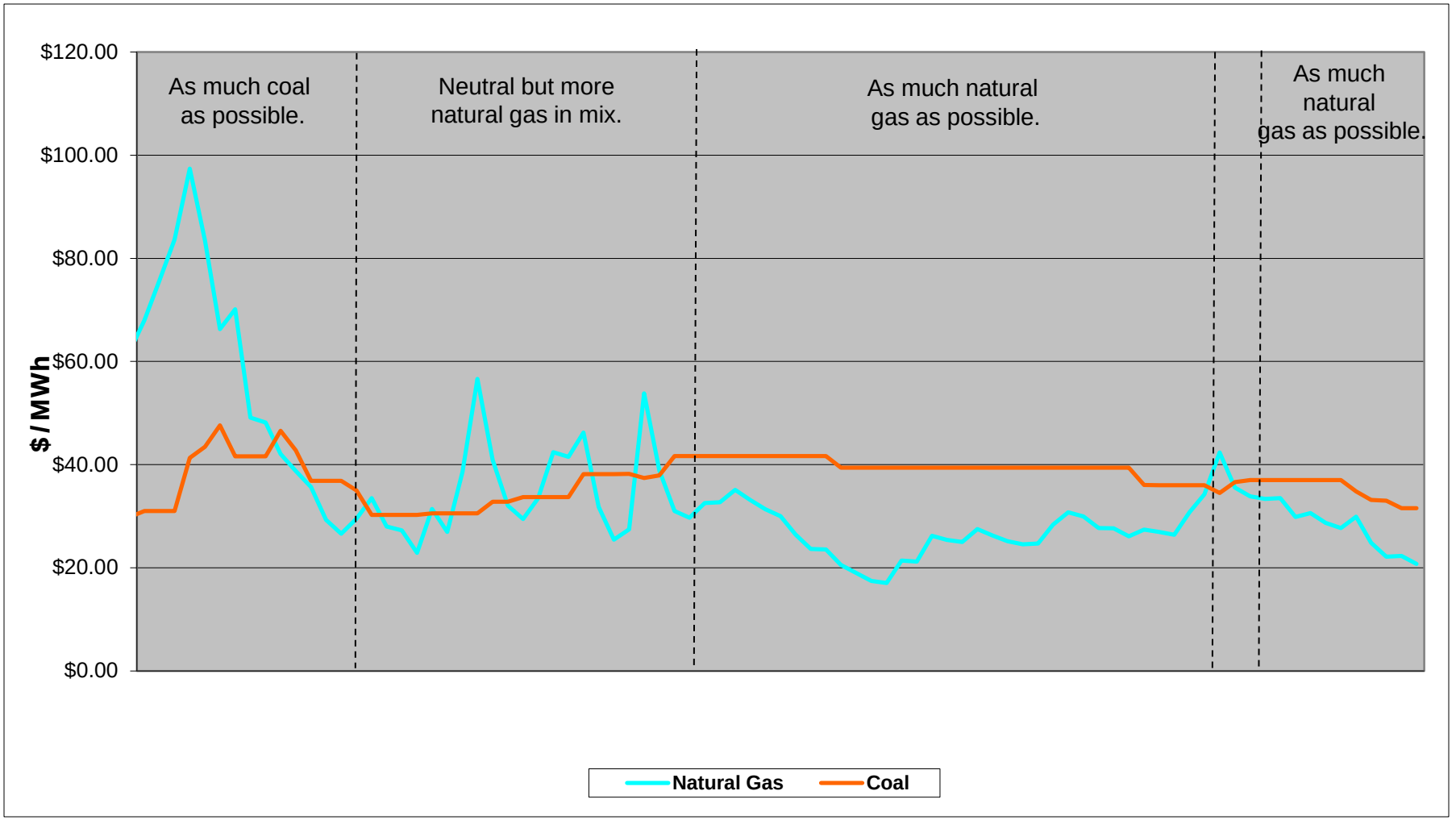


Value of Operating Flexibility

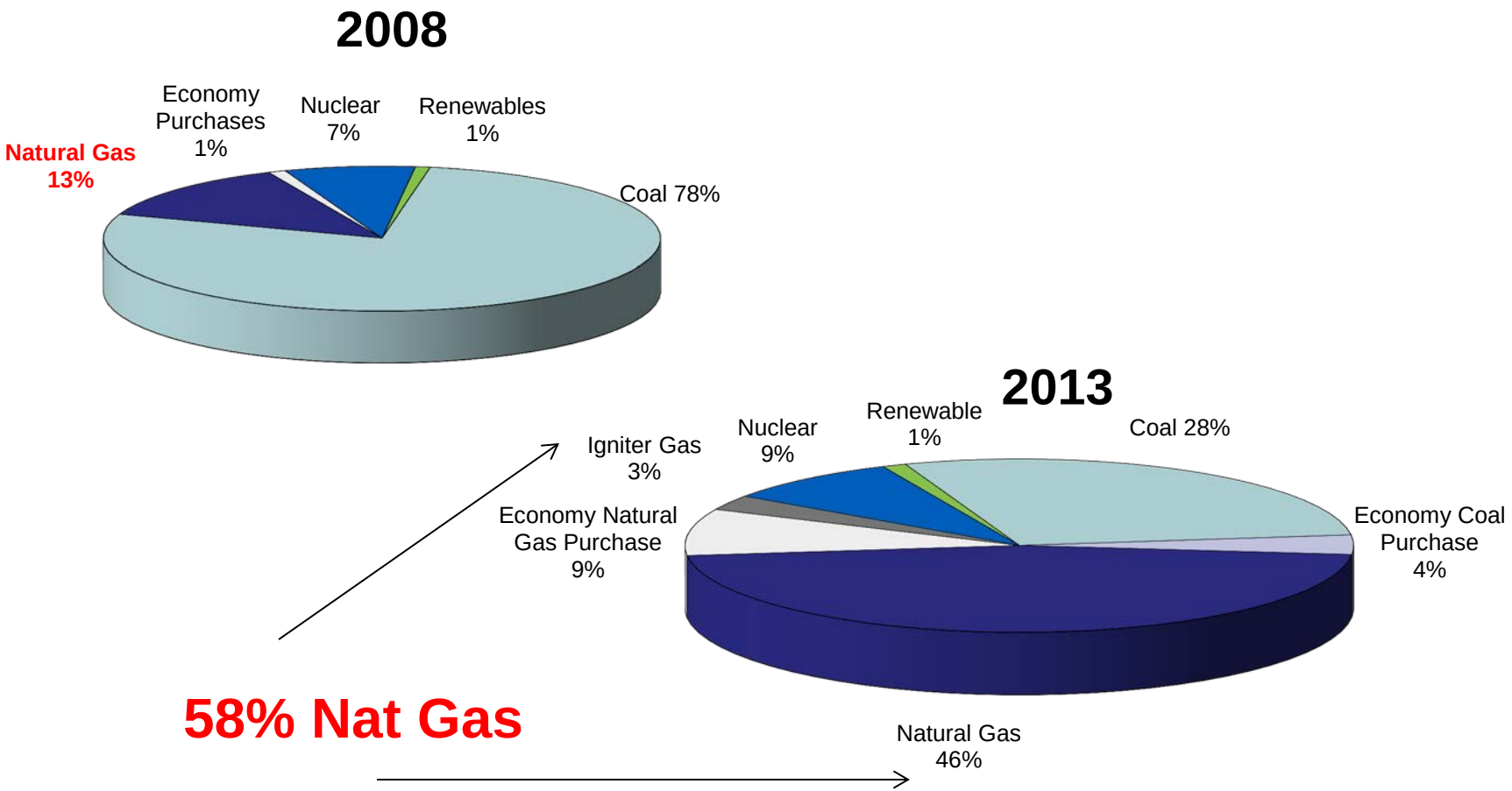
Value of Operating Flexibility

- Diversity of generation assets allow resource flexibility
- Adapt to natural gas price fluctuations
  - 2012: $2.50/MMBTU
  - 2014: $8.00/MMBTU
  - 2015: $2.75/MMBTU
- Stanton natural gas igniters
  - Operating range: 90 MW to 460 MW
    - 80% turndown capabilities compared to 40-50% industry
    - Reduce need for repeated shut down/start up
    - Significant cost savings during off-peak periods
      - $3 million per year

Economic Dispatch



Fuel Mix for Retail Energy



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OUC The Reliable One®

How OUC (and the Industry) Adapted To Change

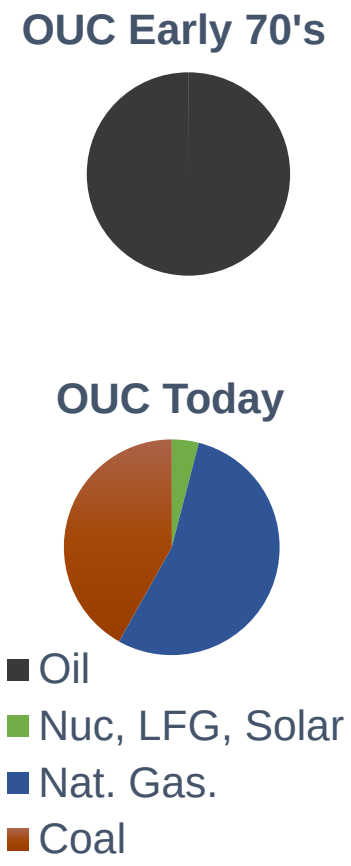
The 1970s

- Rising use per customer
  - Technology advancements including central A/C
- Oil embargo highlighted the nation's oil dependency
  - Electric utilities primary fuel source was oil
  - Caused rates to increase dramatically
  - Prompted state and federal legislation

Changes Impacting the Industry

Supply-Side Improvements

- Diversification of generation
- Advancement in environmental control technology
- Advancement in power plant efficiency
  - Combined cycle facilities 35-50% more efficient and emit 2/3 less CO_2 than coal
- Introduction of utility-scale renewable energy options
- Advancements in equipment automation and distributed control systems



Unregulated Services

- Chilled Water Services
  - Five chilled water districts
    - Similar to thermal (steam) districts
  - 50,000 tons
  - Largest thermal storage tank in U.S. – 17 million gallons

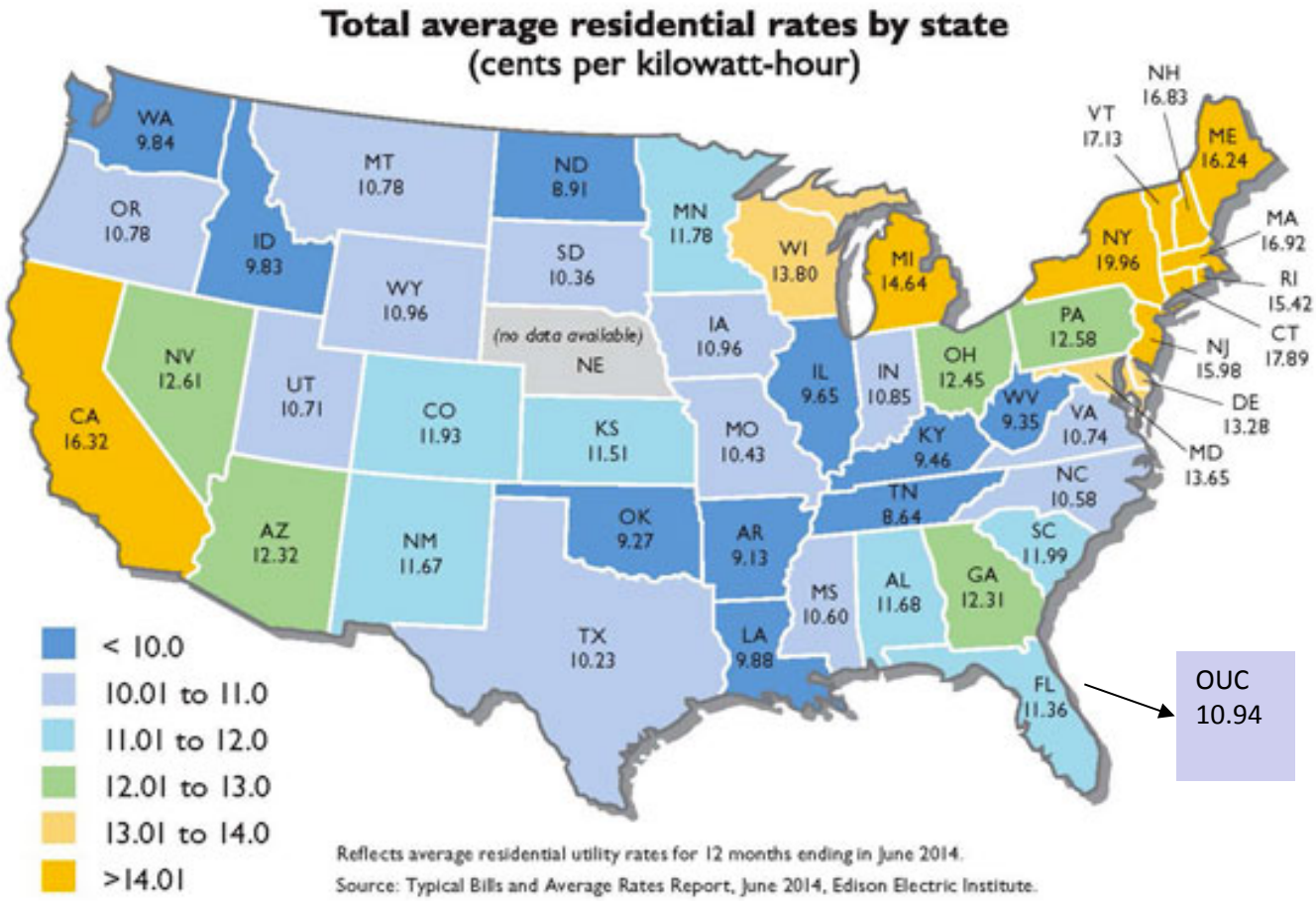
- Convenient Lighting
  - Complete outdoor lighting service for commercial and residential applications
  - Customer enters into a 20 year Lighting Contract at a fixed monthly rate

Drivers Shaping the Industry Today

Industry Drivers

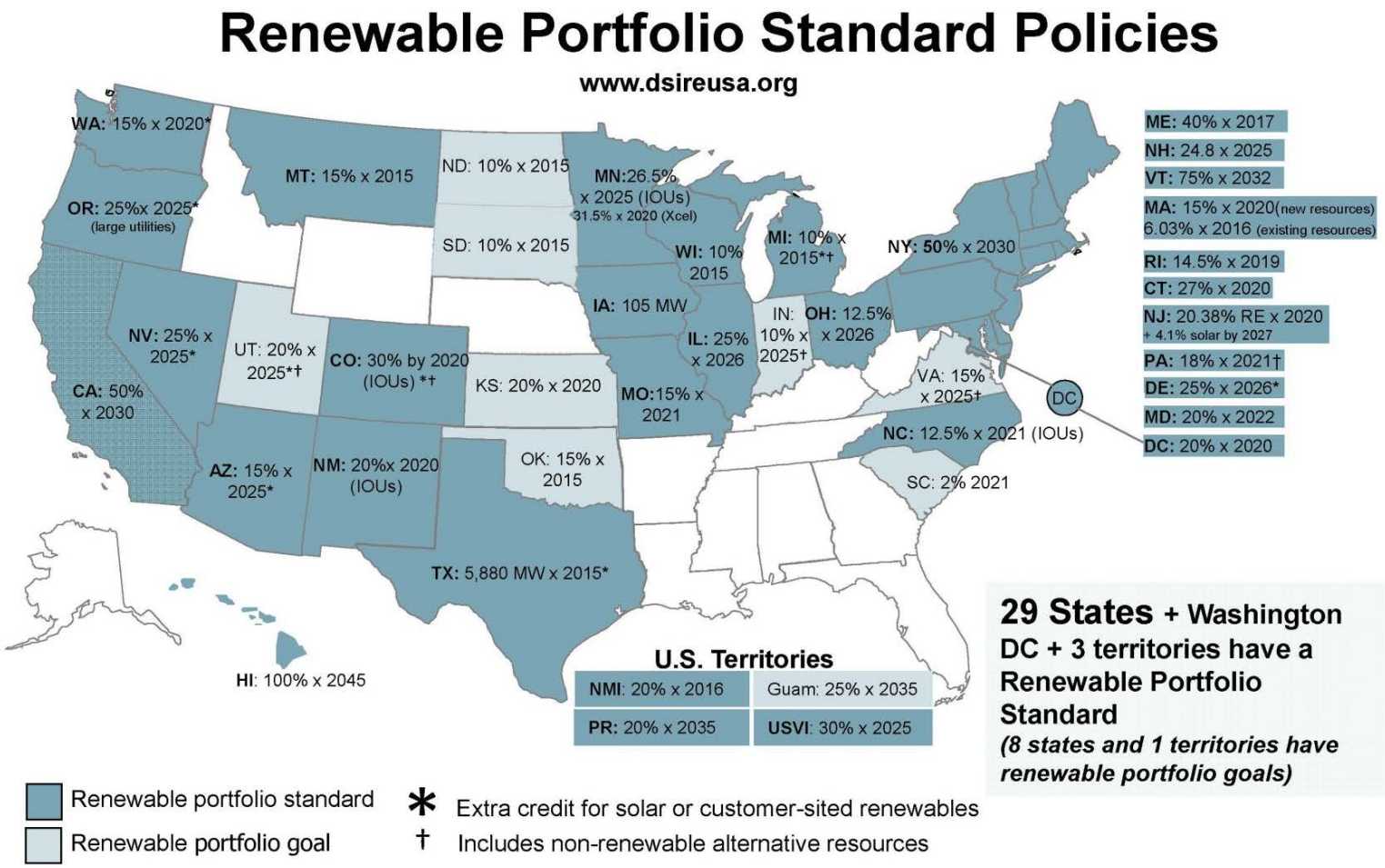
Economics and Rates

- Higher rates increase viability of alternative energy sources
- Changing barriers to market entry

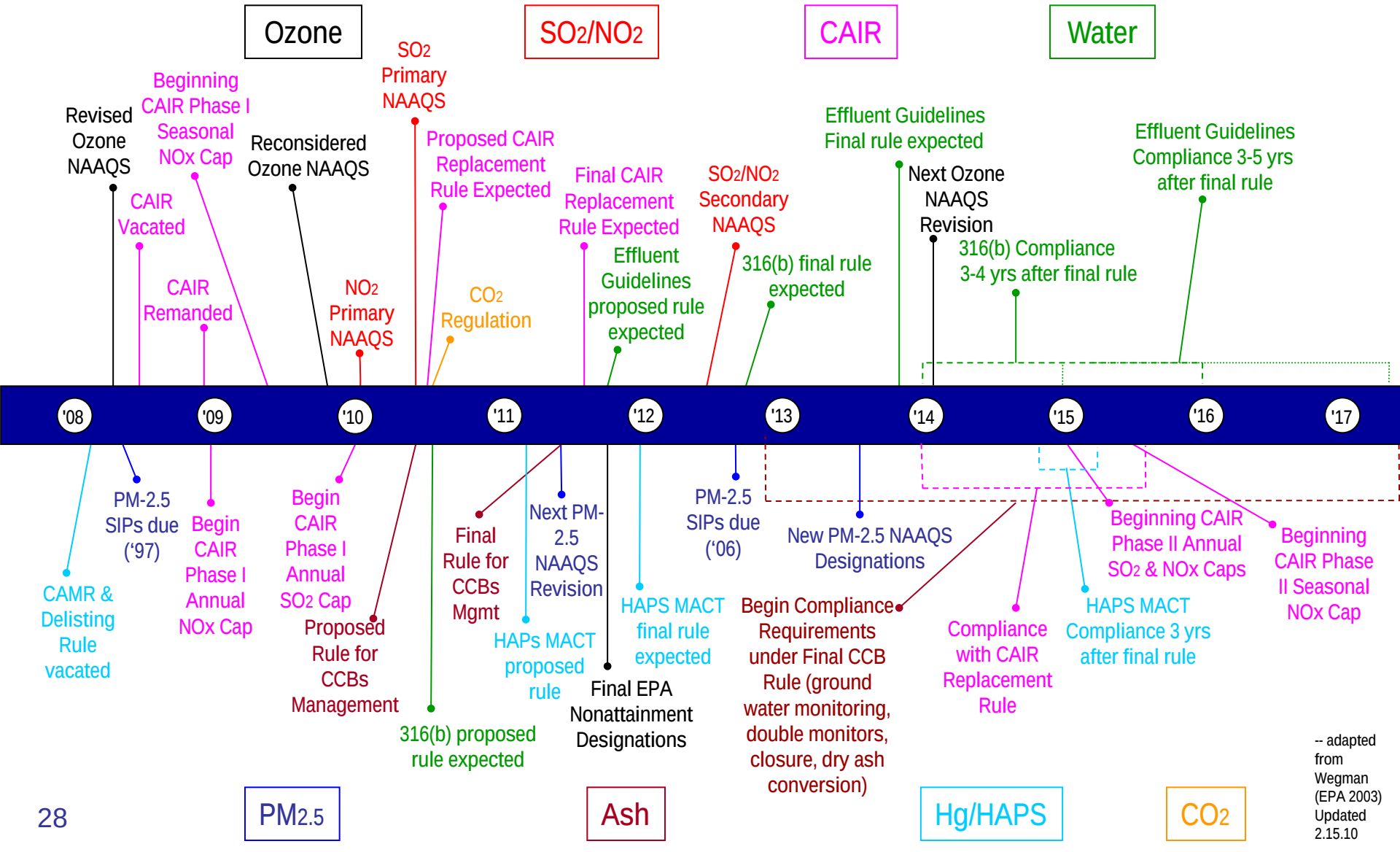


Regulatory Drivers

State Level



Regulatory Drivers
Federal Level



-- adapted from Wegman (EPA 2003) Updated 2.15.10

Regulatory Drivers

- Clean Power Plan
  - Proposed rule is very controversial and is expected to change prior to final issue.
  - If implemented as proposed
    - Electric rate impacts
    - Reliability impact
      - Florida is an island?

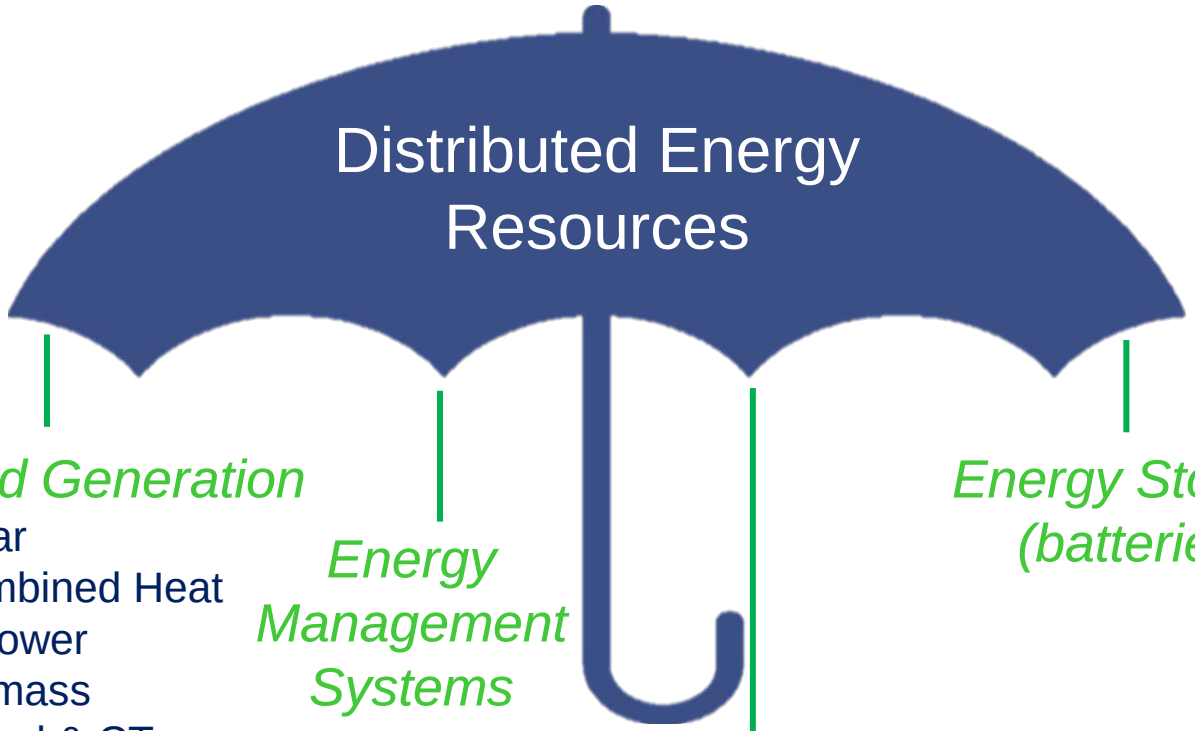
Customer Drivers

Smart Technology

- Customer's increasing expectations to monitor and reduce their utility bills
- Increased accessibility of lower cost digital metering solutions including prepaid
- Development of in-home smart technologies

Customer Drivers

Distributed Energy Resources



Distributed Generation

- Solar
- Combined Heat & Power
- Biomass
- Diesel & CT Generators
- Wind
- Small hydro

Energy Management Systems

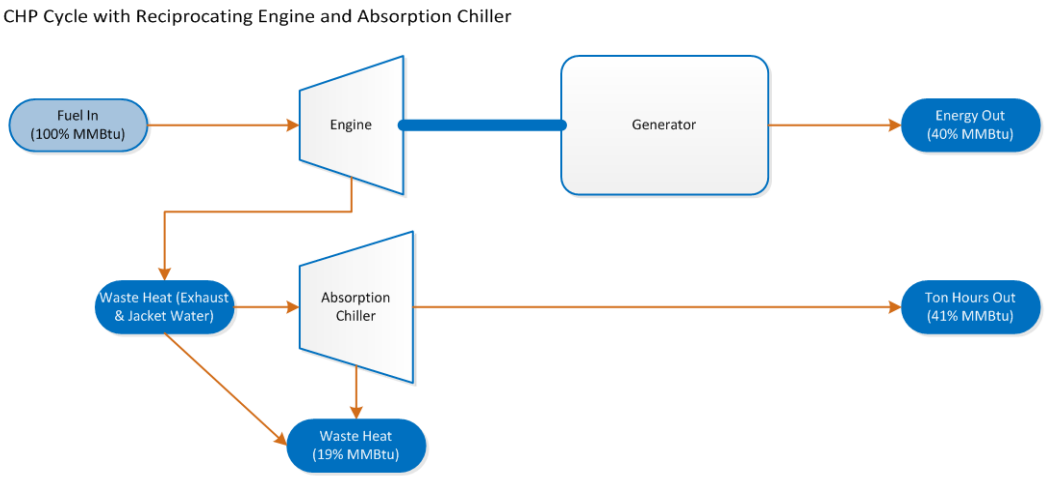
Micro & Nano Grids

Energy Storage (batteries)

Customer Drivers

Distributed Generation/CHP

- Waste heat is utilized for a secondary use
- Main reasons for customers considering
  - Lower utility costs
  - Better reliability and power quality
  - Redundancy/backup
  - Corporate sustainability goals
  - Equipment vendor influence



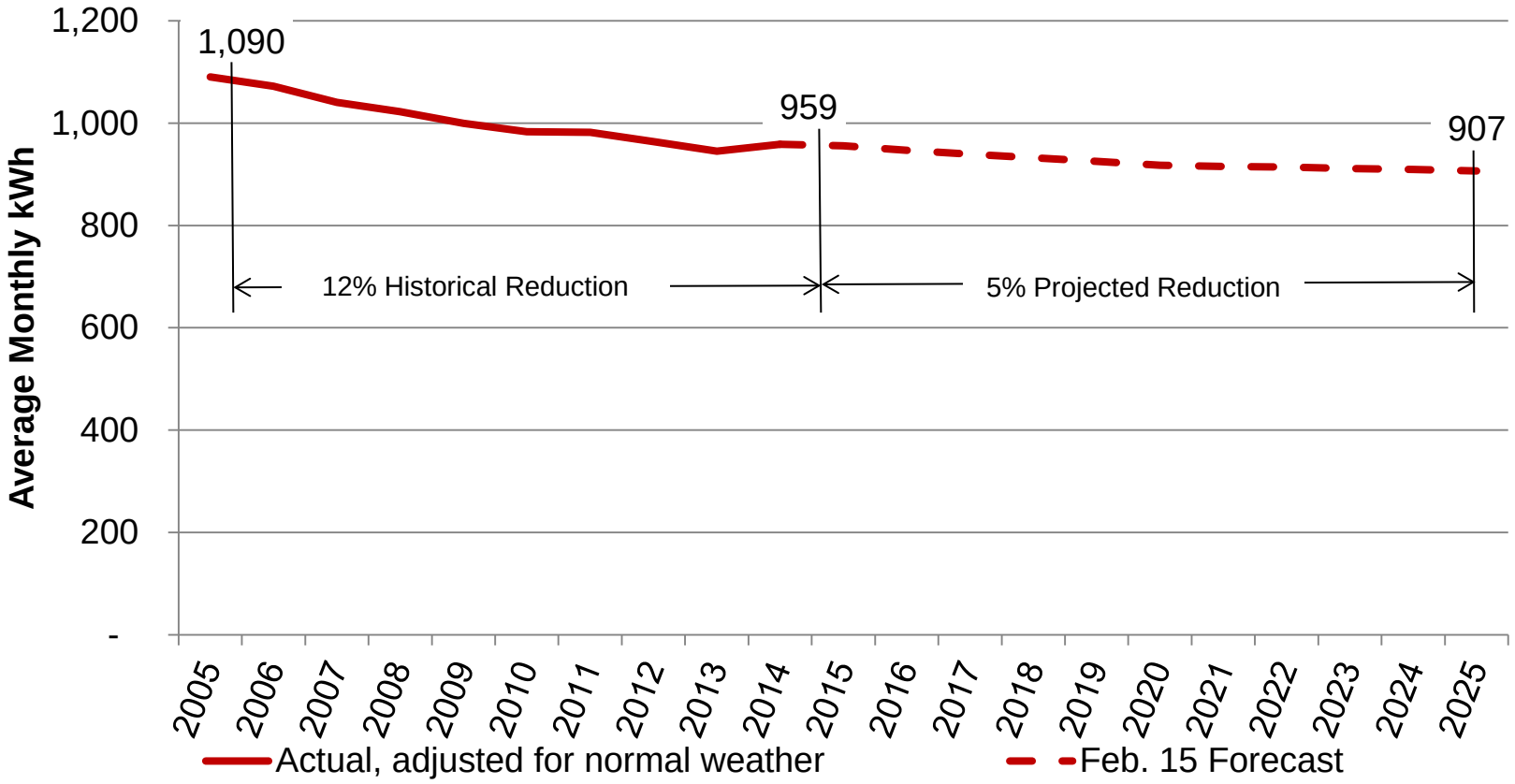
Customer Drivers

Battery Storage Advancements

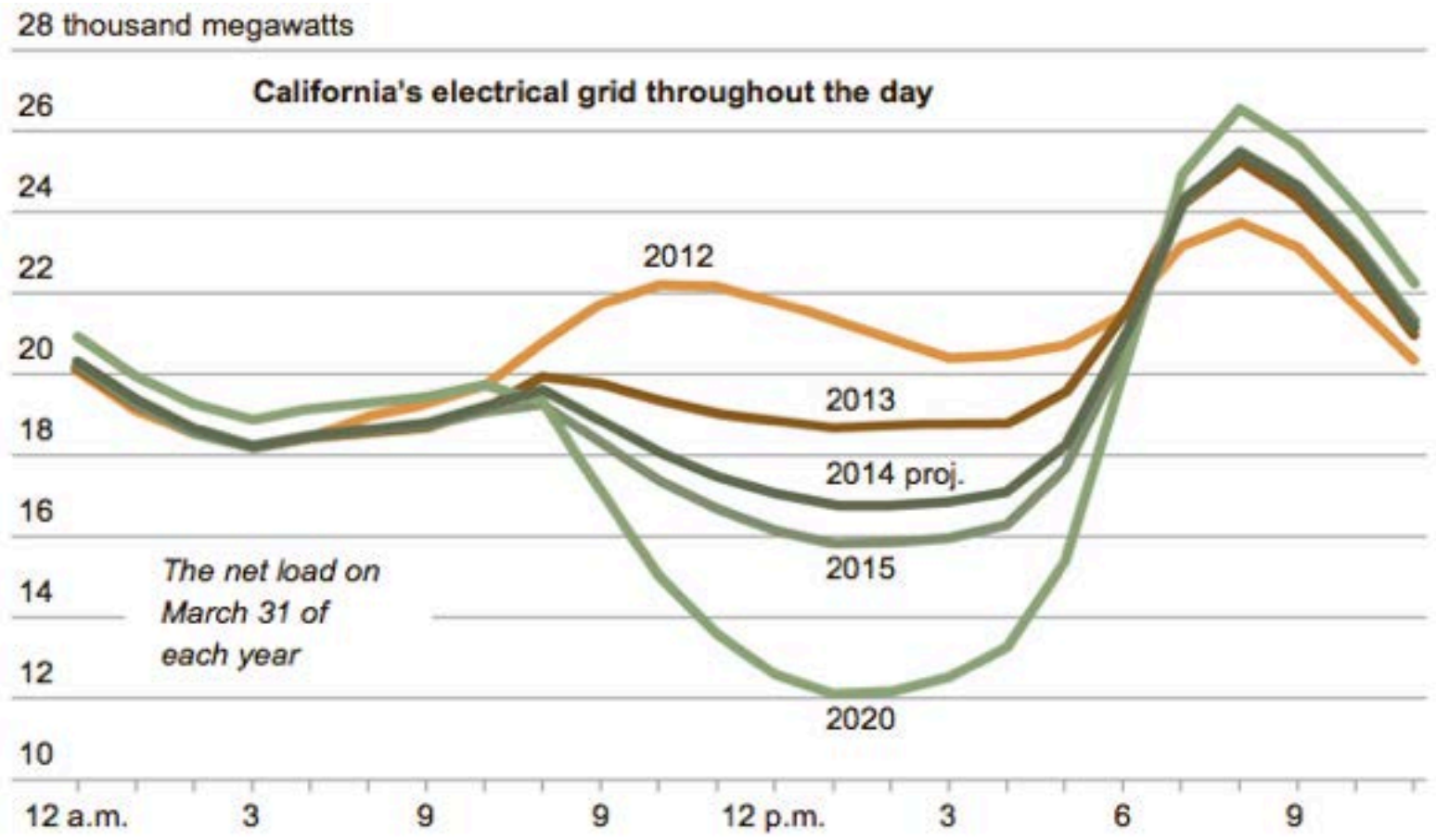
- To gain widespread adoption, price must fall 75%
- Currently receiving extensive research and development funding
- Offers potential demand reduction
- Future EVs may become the battery itself

Market Drivers

Residential Electric Average Use



Duck Curve Problem

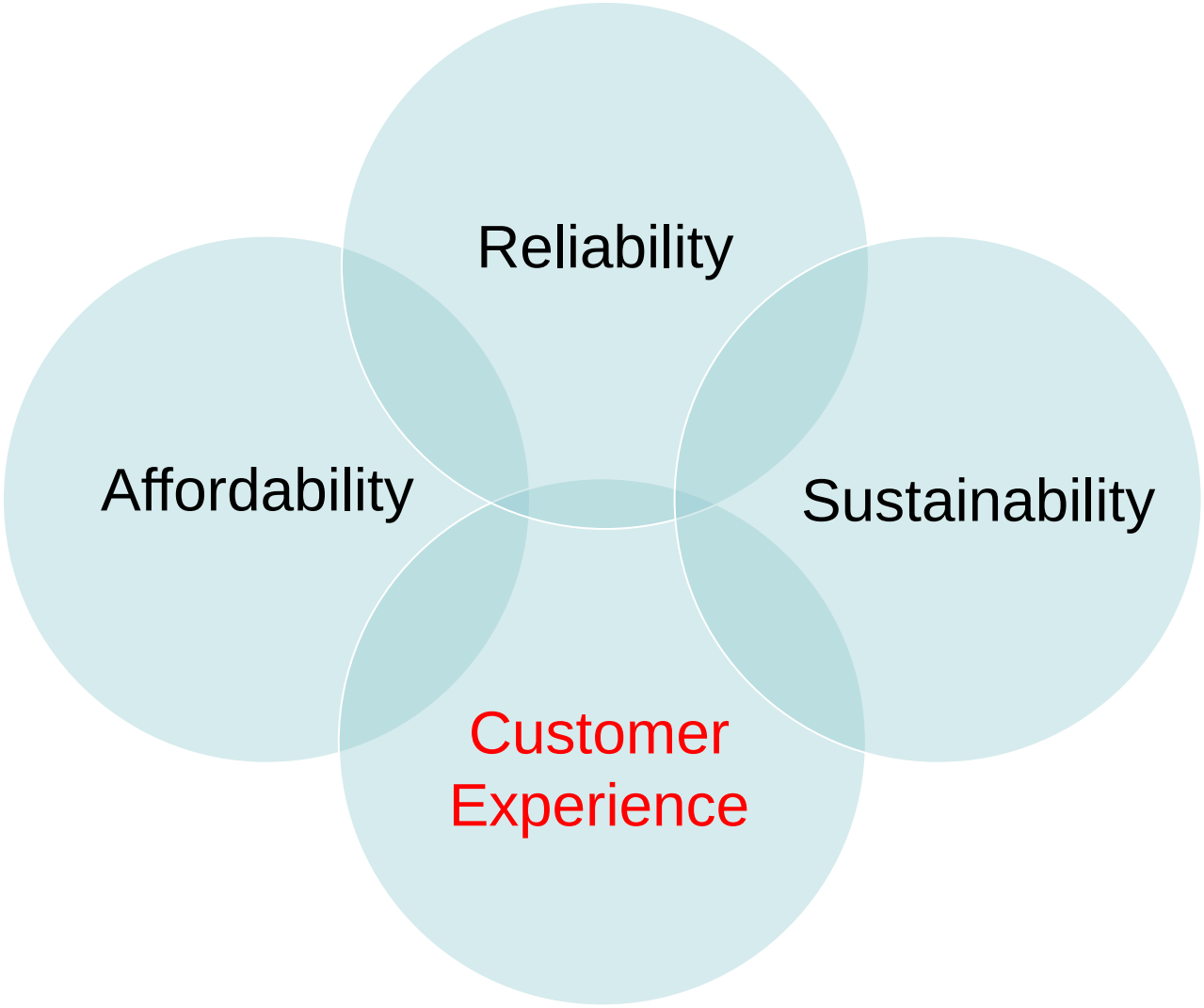


Source: CalISO

Positioning for the Future

Industry will need to leverage technology to improve the customer experience, reduce costs and find new sources of revenues

One New Fundamental Tenet



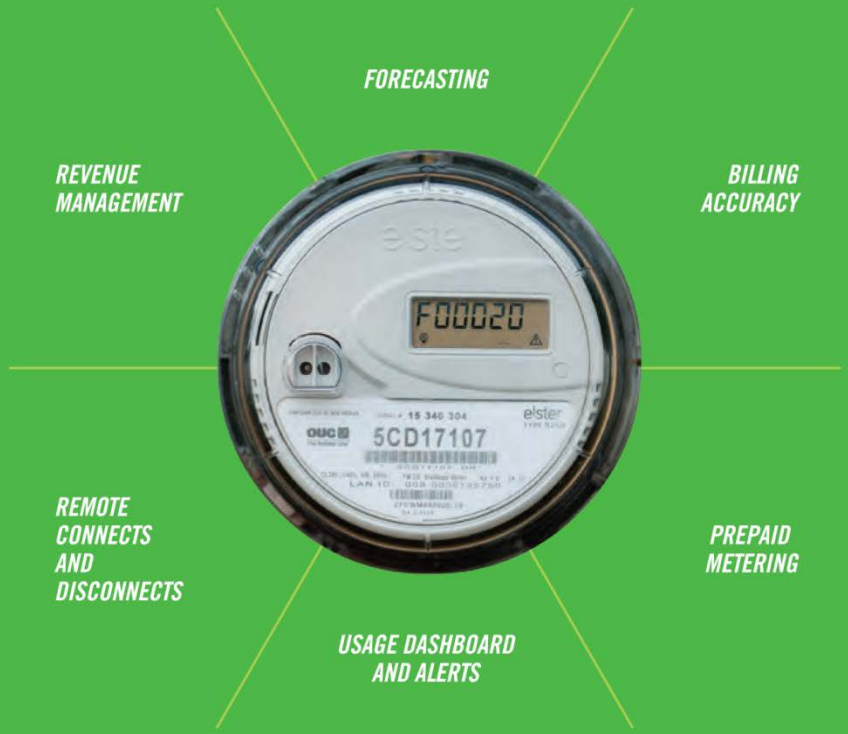
Customer Experience

- Leverage technology to meet customer expectations
  - Smart Grid
  - Meter Data Management
  - Home automation
  - Real-time communications
- Leverage existing unregulated business models to create new ones
  - Solar offerings
  - Distributed Generation/CHP
    - New installations
    - Existing installations
  - EV's and EV Charging

Optimize Quality Customer Experience

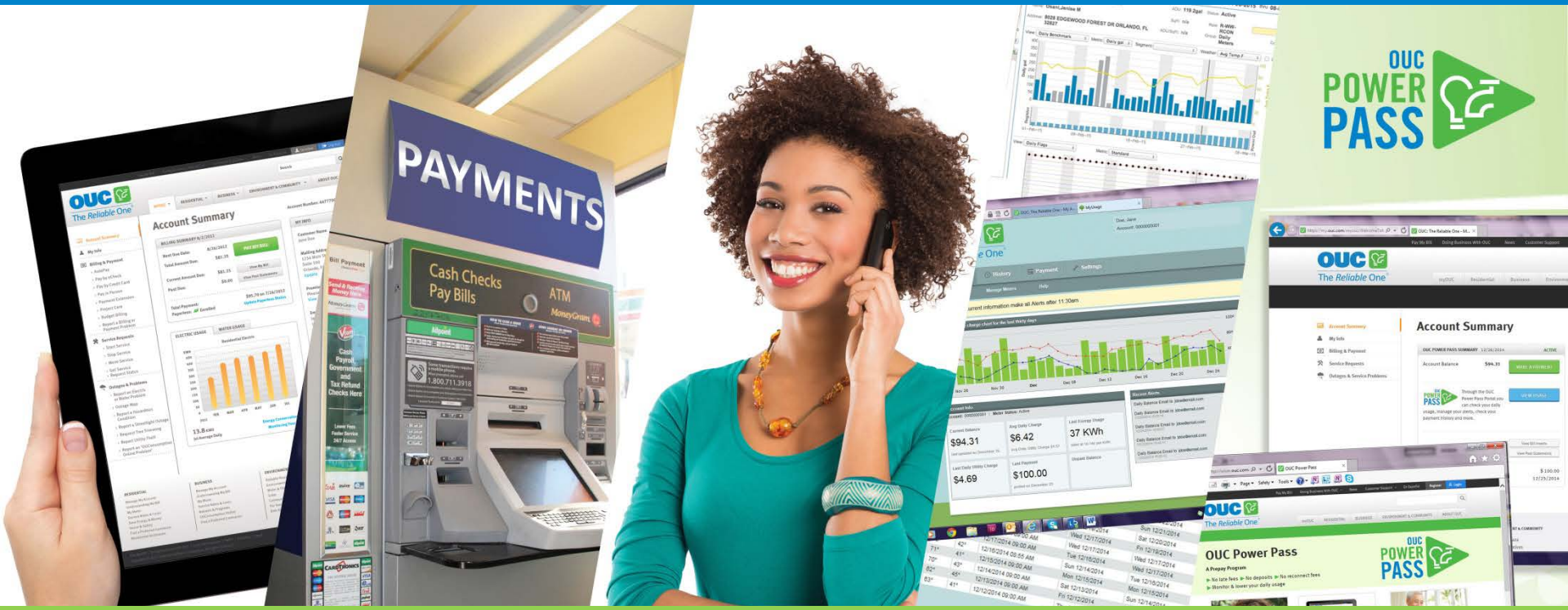
Smart Grid Strategy

- Smart Grid
  - Electric and Water AMI
  - Meter Data Management (MDM)
    - MDM is the “big thing” for utilities – a “must have” for Smart Grid
    - Enables prepaid meters
    - Automates connects and disconnects
    - Completed infrastructure and interfaces in 12 months



Optimize Quality Customer Experience

A Portfolio of Customer Innovation Projects



Self-Service Web (HTML 5)	Real-Time Payment	Advanced IVR	Data Analytics & Dashboards	OUC Power Pass (Prepaid Metering)

Capitalize on our previous investments, revolutionize customer interactions, and reduce administrative labor costs, uncollectible expenses and field expenses

Optimize Quality Customer Experience

Transforming the Way We Do Business

- OUC made award winning investments in technology based on low cost, high benefit and fast implementation
  - Smart Grid
    - 2014 Best Smart Grid Infrastructure in North America*
  - Customer Innovation
    - 2015 Best Customer Innovation in North America*
  - Reliability
    - Best Electric Reliability in Florida for 17 years based on the Florida Public Service Commission
    - Among the top in North America over past 10 years

** Awarded by Electric Light & Power Magazine and CS Week in the Large Utility Category (utilities with more than $500 million in revenues)*

Distributed Generation Business Opportunities

- Rooftop Solar
  - Commercial & Residential
  - Solar Cities model
    - OUC makes initial investment
    - 20-year agreement
- Commercial Distributed Generation
  - Straight DG or Combined Heat & Power (CHP)
    - Natural gas-fired
    - Absorption chillers
    - Fuel cells
  - Similar to OUC Chilled Water & Convenient Lighting business models
- Aggregation of Existing Distributed Generation
  - Existing Commercial/Industrial customers with installed emergency generation
  - Credit in exchange for OUC control

Commercial EV Charging Station Program

- Revenue opportunity
- Encourages adoption of Electric Vehicles (EV)
- Customer options
  - Charge It
  - Own It
- Started marketing charging stations in September 2015

Electric Vehicle Infrastructure

- 140 charging stations installed
  - Level 2 = 135 units
  - DC FC = 5 units (fast chargers)
- Accessible to public and employees
- Over 20,000 charging sessions to date

Partnerships with the Community

Customer Products & Services

- Chilled Water
- Solar Programs
- Indoor Lighting
- Outdoor Lighting
- EV Charging Stations
- Hydration Stations
- Solar Sculptures
- Mobile Recharge Stations
- Education Outreach