

CenterPoint Energy Houston Electric

Competitive Retailer Workshop

April 30, 2014



Kenny Mercado

Sr. Vice President, Electric Operations

April 30, 2014

Our Vision: Refreshed to support our core gas and electric utility businesses



Our Vision

Lead the nation in delivering energy, service and value

LEAD THE NATION

We are the premier domestic energy delivery company

- Perform at peer-leading levels
- Invest and operate assets in the continental U.S. market

DELIVERING ENERGY

Delivering energy is CenterPoint Energy's core business

- Operate our businesses safely, effectively, and efficiently
- Invest in infrastructure and technology to ensure system reliability, resiliency and enhanced monitoring and control
- Deliver customer-focused services that complement our energy delivery capabilities

DELIVERING SERVICE AND VALUE

Delivering service and value applies to all stakeholders

- Shareholders: Peer-leading returns with low-risk growth
- Customers: Reliable, affordable and innovative services
- Communities: Corporate citizenship and environmental stewardship
- Employees: Dynamic work environment that drives success

Our Core Values support our vision and define our culture



“Safety” has now been incorporated as a core value to reflect its importance at all times

SAFETY

We are always committed to safety. We strive to instill a culture of safety excellence at all levels of our company. We will perform our duties safely or we won't do them.

INTEGRITY

We do what is right for our customers, our communities, our shareholders, our business partners and each other. Without fail, we follow our values, our rules and policies, and the law.

ACCOUNTABILITY

We are straightforward in our actions and truthful in our relationships. When we say we will do something, we follow through and keep our commitments. We accept personal responsibility for our decisions. We are all accountable for making sure our own conduct reflects and supports our values-based culture.

INITIATIVE

We are not afraid to take bold and innovative action. We make hard decisions and tackle tough choices. We speak up. We use our resources and assets wisely.

RESPECT

We show respect to everyone. How we treat our fellow employees and customers is just as important as the results we achieve. We are considerate and show appreciation for diverse thinking. Every individual with whom we work deserves our best efforts. We are responsible to our stakeholders and work to earn their trust every day.

- **Houston Mayor signs Dig Safely Proclamation:** CenterPoint Energy and other stakeholders in the excavation industry attended a meeting with City of Houston Mayor Annise Parker to accept a proclamation claiming “April as Safe Digging Month” (Although we all know every month needs to be safe digging month).
- View a tweet about the proclamation at <https://twitter.com/energyinsights>



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Electric Technology

Bob Frazier, Sr. Director, Electric Technology
Esther Kent, Manager, Electric Technology

04302014

- Smart Meter Texas
 - 2014 Implementations
 - AMWG CR 2013 017 - REP API for Interval Usage for SMT
 - Faster Adhoc Historical 15 Minute Interval Usage Data for Existing Customers
 - Subscription for New Customer Historical Usage
 - 3rd Party Project (Including Ratings & Reviews/Usability Enhancements)
 - Timeline
 - Advanced Metering Working Group (AMWG)
- Energy Insight Center
 - History
 - Technology on Display
 - Tour Information

- Backfill of Historical Usage Data for Existing Customers
 - Ability for the REP of Record to request a one-time retrieval of historical interval usage data (up to 12 months) for some or all of its existing customer base (backfill requests)
 - Short term solution - in production and available for use
 - Long term permanent solution - scheduled for future release
 - Documentation and forms are available on the AMWG website at:
<http://www.ercot.com/committees/board/tac/rms/amwg/>
- Subscription for New Customer Historical Usage
 - Ability for the REP of Record to subscribe to automatically receive a one-time report of historical interval usage data (up to 12 months) for customers/ESIIDs that are newly served by them (new enrollments)
 - Short term solution - in production and available for use
 - Long term permanent solution -scheduled for future release
 - Documentation and forms will be made available on the AMWG website at:
<http://www.ercot.com/committees/board/tac/rms/amwg/>



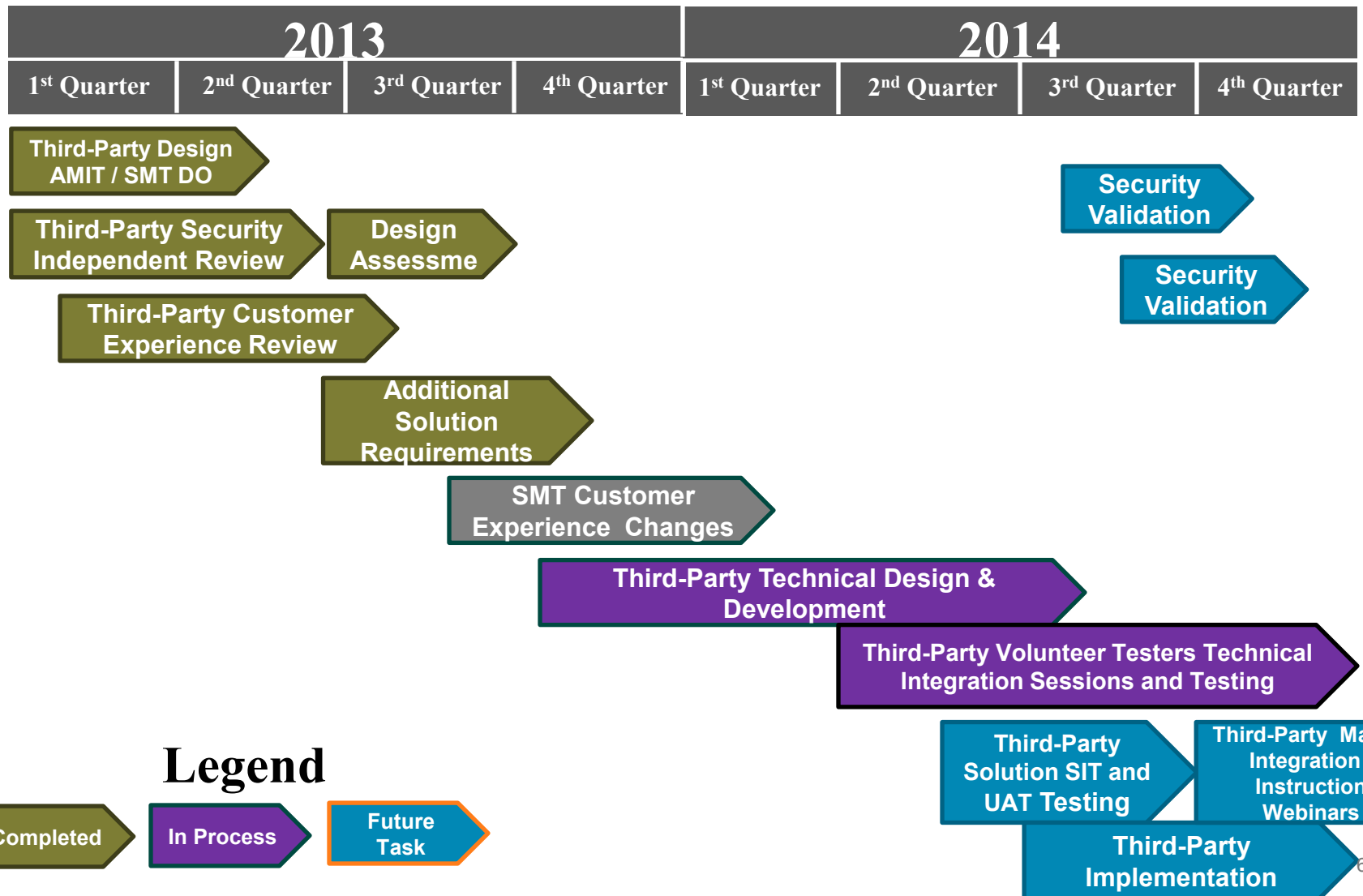
Smart Meter Texas 2014 Implementation Continued



- Third Party
 - One-Time Access To Customer's Energy Data
 - On-Going Access To Customer's Energy Data
 - Ability to Provision / De-Provision Customer HAN Device
 - Ability to Provide Customer with HAN Services
- Ratings and Reviews
 - Will allow customers to rate the third party they do business with and will be provided an avenue for them to see previous ratings by other customers when they receive an invitation from the third party
- Usability Enhancements
 - Dashboard (authenticated landing page), navigation, registration and content improvements



Smart Meter Texas 3rd Party Project Timeline



- Created March 2013 when the Advanced Metering Implementation Team (AMIT) was sunset and the technology identified in original requirements for SMT was implemented (except 3rd party)
- Is a Retail Market Subcommittee (RMS) working group
- Created to provide an avenue to follow technology advances and provide feedback on market and customer needs pertaining to Smart Meter Texas, Third Party Access, Service Level Agreements, Technological advances etc.
- 2014 AMWG Co Chairs are John Schatz with TXU and Esther Kent with CenterPoint Energy

Advanced Metering Working Group – Continued



- 2014 Goals

- Continue to receive issues/suggestions from market participants and submit Change Requests related to AMS/SMT data and processes to support technological advances, market and customer needs to RMS
 - Support and contribute to 3rd Party Access at Smart Meter Texas
 - Establish a document storage strategy for working documents related to SMTDO, AMWG and SMT
 - Support RMS and other market forums as issues arise related to AMS data
 - Maintain 'TDSP AMS Data Practices' matrix to support current business processes
 - Conduct monthly meetings as needed and encourage market participation
- 2014 Goals

Advanced Metering Working Group – Continued



- Change Requests to date:
 - Reporting
 - AMWG CR 2013 001 - AMWG CR 2013 010
 - Functionality Enhancements
 - AMWG CR 2013 011 - AMWG CR 2013 017
- Detail and status updates for AMWG Change Requests are reviewed at the Monthly AMWG meetings and can be found on the AMWG website at <http://www.ercot.com/committees/board/tac/rms/amwg/>
- Meeting schedule is posted on the ERCOT Calendar at <http://www.ercot.com/>

Energy Insight Center



- Constructed in 2005
- Continually Updated to Showcase Technology Advances
- 730 tours to date including guests from Federal and State Elected Officials, Public Utility Commissioners and staff, Utility Executives, National and Local News media, FERC Commissioners, International utility companies from all over the world and many more.
- Current technology on display: Advanced Metering, Intelligent Grid, Smart Meter Texas, Smart Charging, Smart Appliances, Home Area Network (HAN) Display and Lab, Smart Street Light Monitoring, Power Outage Notification, HAN Lab and more.

Energy Insight Center - Continued



- You Tube Video

<http://www.bing.com/videos/search?q=centerpoint+utube&FORM=VIRE3#view=detail&mid=22E8090B169FDE5B287D22E8090B169FDE5B287D>

- For Tours of 10 to 29 people, contact Connie Pena at

connie.pena@centerpointenergy.com or at 713-207-6359

– Available Monday – Friday upon request (first come first serve typically)

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Advanced Metering Data Analytics

William Bell

Technology Director Analytics & Data Services

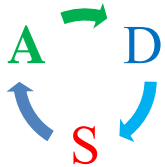
April 30, 2014

New Corporate Blueprint Announced



Our Vision

Lead the nation in delivering energy, service and value



Analytics and Data Services – Refined Mission Scope

The Analytics Team is responsible for developing CenterPoint’s analytics strategy, implementing and supporting analytics solutions that ensure CenterPoint is the industry leader in delivering safe and reliable service, while providing value to our customers, communities, and shareholders

Mission

Turning Data into Information and Information into Insight supporting CenterPoint Energy’s mission to “Lead the nation in delivering energy, service and value”

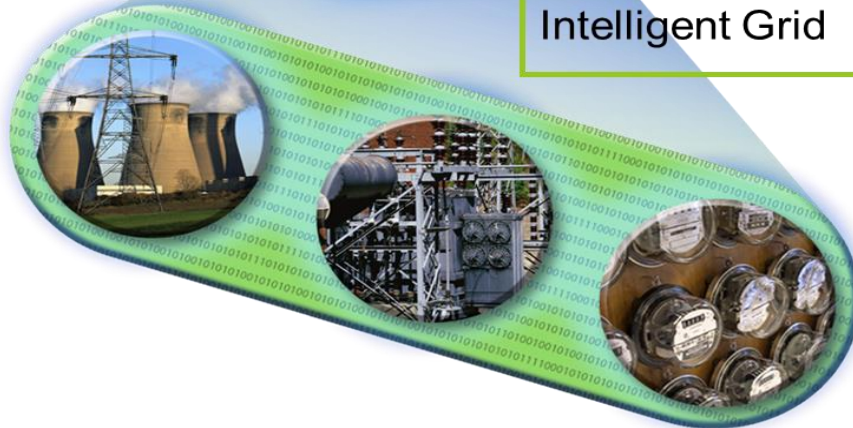
Why Analytics ???

Analytics as a Discipline™ is taking that which we knew, that which we know now, and enrichment from other sources, and coalescing all that data into simple, actionable insight.™

Expanded Energy Sources



Intelligent Grid



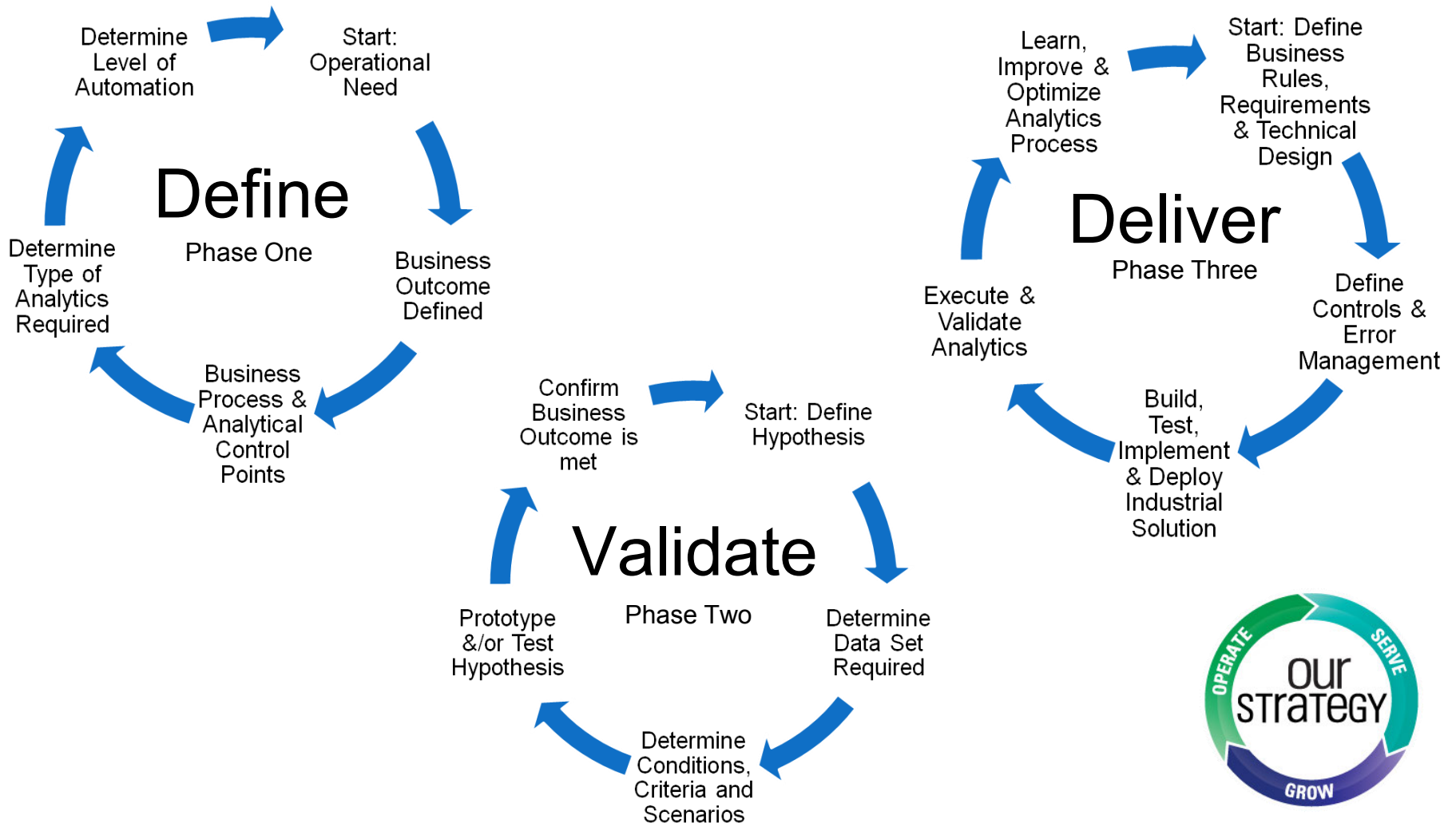
Smart Meters

“Analytics as a Discipline”™



- "Analytics is a discipline, or a craft,"™ something to be studied, trained in and practiced like the law or medicine."™
- Analytics as a discipline is the practice of taking data in any form and from whatever resource and turning that data into actionable information and enabling automation for the benefit of our constituent clients in whatever business venture they may be involved."™.
- "Analytics Discipline"™ takes systems, data, speed of delivery, etc. into account applies the training, learning and out of the box thinking to turn data into information and information into insight and insight into action which includes automation to deliver economical and viable results for the constituent clients"™.

How to Define, Validate and Deliver Analytics?



Progression of Analytics at CNP



CenterPoint Energy

Outage Case Summary

Case Summary	Cases/Referred	Cases Assigned	Cases Out	Reliability Performance (Planned & Outages)
Total	41,414	17,772	23,642	
Case Description				
Circuit Lockouts	0	0	0	
Partial Circuit Outages	0	0	0	
OH Line Poles Blown	0	0	0	
OH Transformer Poles Blown	0	0	0	
Burned Up OH Transformers	0	0	0	
OH Primary Down	0	0	0	
OH Secondary Down	0	0	0	
URD Terminal Poles Blown	0	0	0	
URD Transformer Poles Blown	0	0	0	
Burned Up URD Transformers	0	0	0	
URD Primary Failure	0	0	0	
URD Secondary Failure	0	0	0	
Major US Line Pole	0	0	0	
Major US Transformer Pole	0	0	0	
Major US Transformer BU	0	0	0	
Major US Primary Failure	0	0	0	
Major US Secondary Failure	0	0	0	
Poles Down	0	0	0	
Burned Up Disconnects	0	0	0	
Drops Down	0	0	0	
Meter Burned Up	0	0	0	
Total Customers	1,186,511	0	58,575	0

CenterPoint Energy

Storm Report

4/27/2013 @ 15:28 through 4/28/2013 @ 19:28

Case Count (Total # of cases)

Outage Description	Total Cases	Total Cases Unresolved (includes extensive cases)	Total Extended Cases (4 hrs or more)	Total Extended Cases Unresolved (4 hrs or more)
Circuit Operations	641	0	0	0
Circuit Lockouts	52	0	19	0
Partial Circuit Outages	11	0	4	0
OH Line Poles Blown	416	0	223	0
OH Transformer Poles Blown	312	0	168	0
Burned Up OH Transformers	100	0	56	0
OH Primary Down	106	0	54	0
OH Secondary Down	87	0	41	0
URD Terminal Poles Blown	127	0	73	0
URD Transformer Poles Blown	5	0	1	0
Burned Up URD Transformers	19	0	19	0
URD Primary Failure	26	0	24	0
URD Secondary Failure	3	0	2	0
Major US Line Pole	0	0	0	0
Major US Transformer Pole	1	0	0	0
Major US Transformer BU	0	0	0	0
Major US Primary Failure	1	0	0	0
Major US Secondary Failure	0	0	0	0
Poles Down	20	0	10	0
Burned Up Disconnects	24	0	14	0
Drops Down	109	0	41	0
Meter Burned Up	19	0	14	0
Total Customers	1,186,511	0	58,575	0

Equipment Count (Total # of pieces of equipment replaced)

	Overhead	URD	Major US
Line Poles/Terminal Poles	417	125	9
Transformer Poles	311	3	0
Burned Up Transformers	113	21	0
Primaries	119	26	1
Secondaries	97	3	0
Poles Down	20		
Burned Up Disconnects	24		
Drops Down	117		
Meters Burned Up	19		

Predictive Analytics

Situational Awareness

Reports



A blue downward-pointing arrow with the word "Value" written inside in white text.

Value

- Develop Analytics Delivery Value Model
- “Analytics as a Discipline”™©

A green downward-pointing arrow with the word "Foundations" written inside in white text.

Foundations

- Define and build Analytics Foundational Technologies
- eMA (All things Meter); ISAS (Correlations); Streams (Real Time)
- Basic Visualization (Google Earth); Tivoli (alerts and Geospatial Rendering);
- Data Services (data movement); BOBJ (client interface)

An orange downward-pointing arrow with the text "Top 5" written inside in white text.

Top 5

- Diversion Analytics (continues to evolve and improve)
- Financial Unbilled Revenue Reporting (in production for almost 2 years)
- Transformer Load Management (continues to involve into Equipment Load Management)
- Meter Alert Trending (used in Diversion, Outage, Comms reliability and others)
- Load Profile Flag (deemed unnecessary by clients)

2013 Analytics Successes



Situational Awareness

- Provide real time situational awareness and correlations for Telecomms, Outage, Distribution Dispatching and Distribution Operations
 - (“Correlating data in real time to enable Operations to Affect the Outcome”)
- Provide Instant Replay Capabilities for Training and Storm Preparedness
- Provide Real Time Solutions to Identify Data Anomalies in support of Corporate Security
 - (“Eyes on the Horizon Threat Detection”)

Revenue & Asset Protection

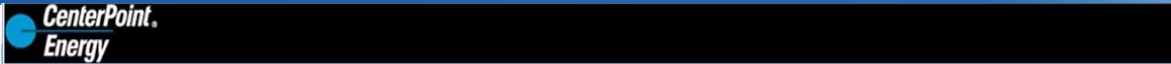
- Enhanced Diversion Detection and Dispositioning combined with Usage
 - (“Stop the tax of energy theft in days rather than months or years”)
- Enhanced Transformer Load Management, Connectivity and Predictive Loading also enabling Fuse and Step Transformer Load Management
 - (“Protect the assets before they fail, enable preventative maintenance”)

Business Transformation

- Support for Business Transformation Initiatives, Right Crew, Right Place at Right Time, Proactive Resolution of Equipment Issues and Fleet Support
 - (Know Where Your Crews Are and Protect your Equipment”)
- Financial and Regulatory Month End Revenue Estimation
 - (“Move from 90% estimation to a .01% estimation, Know your revenues”)

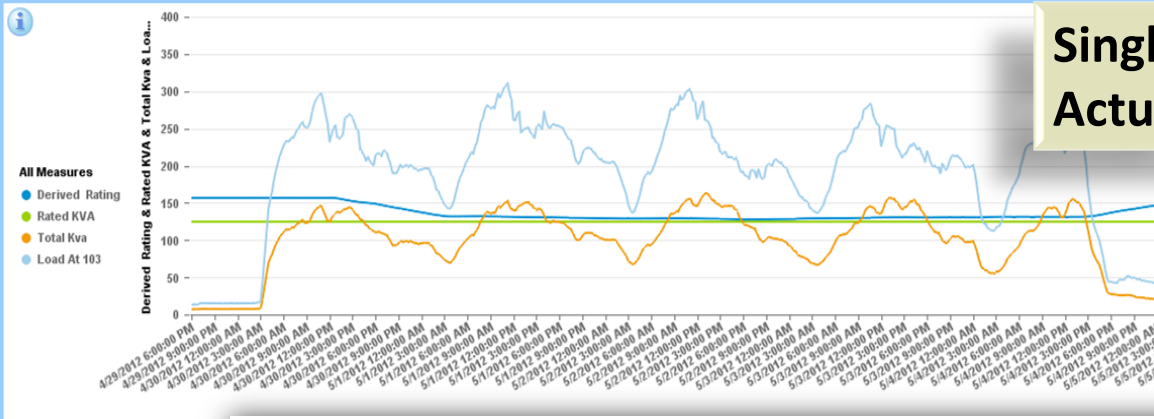
Analytics Capabilities

Transformer Monitoring & Theft Detection



Total KVA Over Time

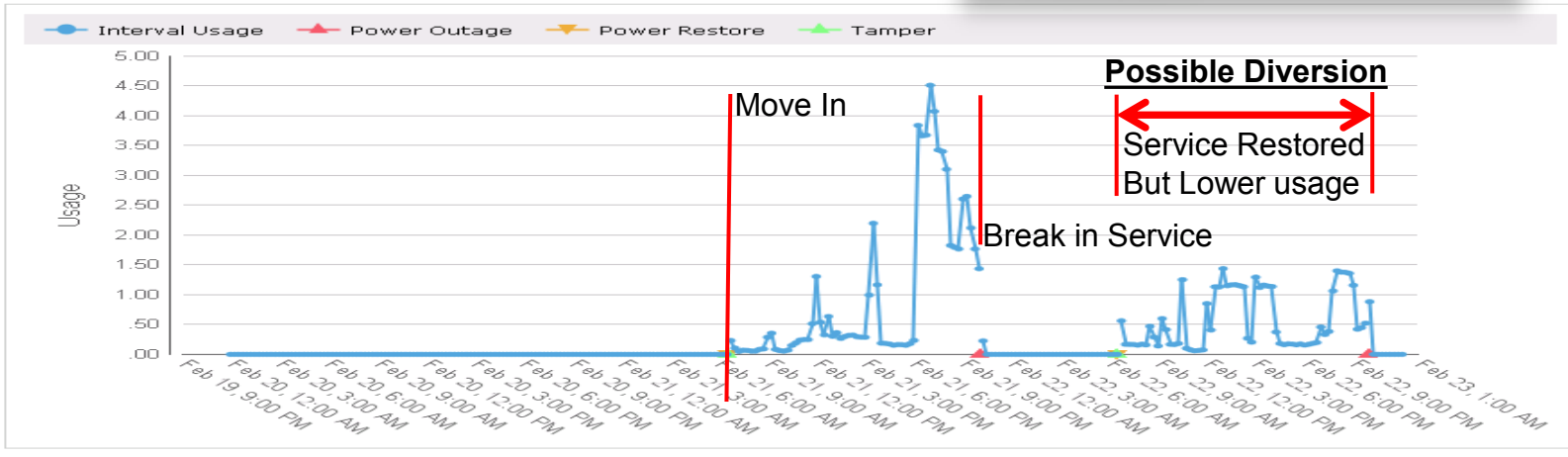
2/26/2013 8:41:02 AM



Single Transformer Report with Actual & Predicted Load

Diversion (Theft) Detection

Device Events and Usage for an SDP
02/20/2011 12:00 AM - 02/23/2011 12:00 AM
SDP ID: 1008901018191494705100



Real-Time Situational Awareness

Outage Monitoring & Management



- Recent big storm generated > 2M PONs/PRNs in 2 hours
- Fuses created, localized, and dispatched without calls
- Real time view of all outages, truck locations and now have real time overlay of weather/wind in each service area
- Since IG, reducing customer outage minutes and improving SAIDI and Improving crew on time statistics
- Voltage alerts discovering transformer aging, vegetation, loose lugs/clamps, tampering, bad T-saws

AMS Outage Data Analytics

We localize outage cases much quicker with PONs



Case Localization (Monthly)

Start Month: 18 Months Prior

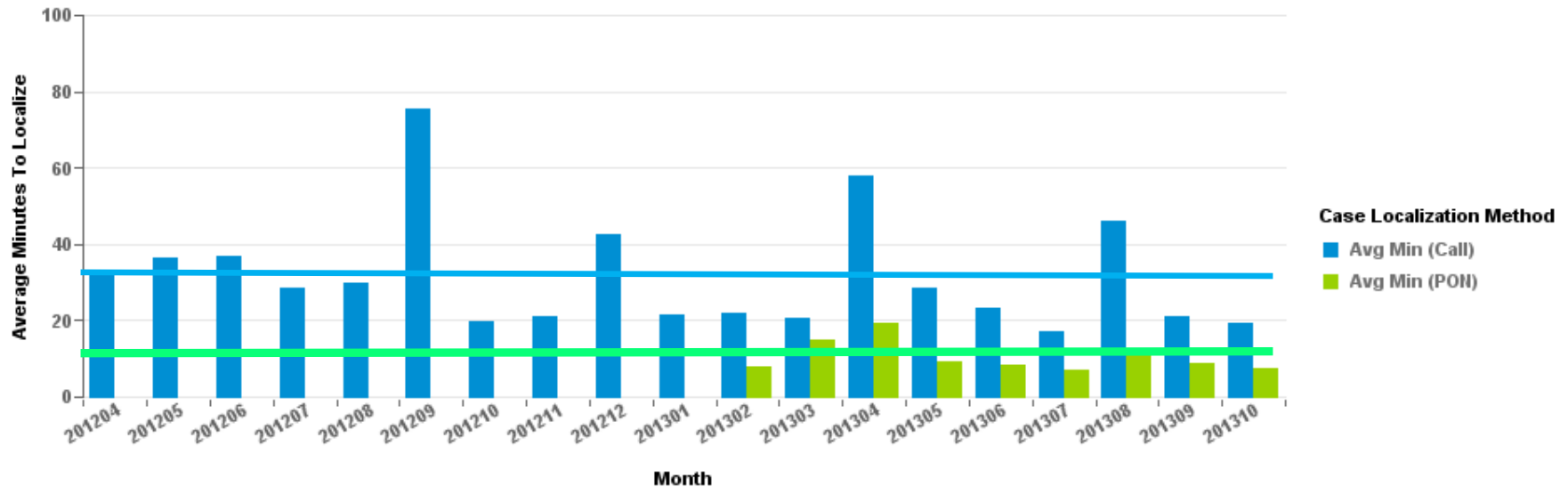
End Month: Current Year Month

Service Center: ALL

Trouble Level: ALL

Shift: ALL

Data excludes momentary and crew related cases



AMS Outage Data Analytics

We're resolving outages with no customer interaction



No Customer Call (Monthly)

Start Month: 201304

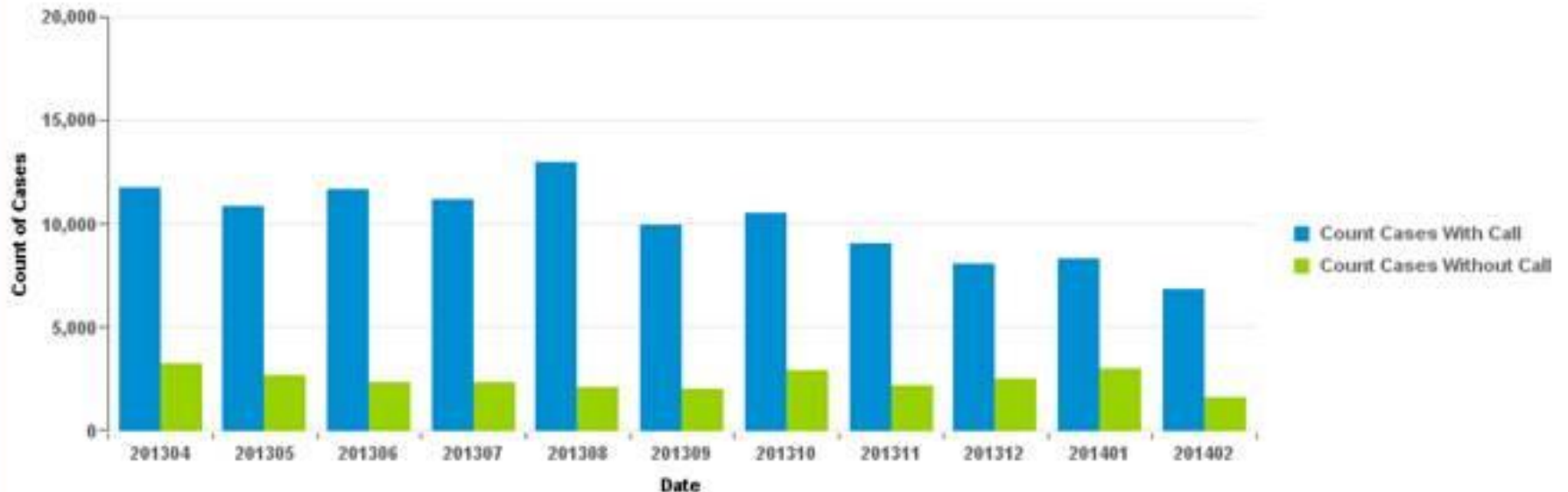
End Month: 201402

Service Center: ALL

Trouble Level: ALL

Shift: ALL

Data excludes momentary and crew related cases



- Outage
 - Real-time view of all outages, truck locations
 - Outage cases created, localized, dispatched without calls
 - ◆ 62% improvement in localizing fuse-, transformer-level outages
- Revenue protection
 - PON/PRN, tamper alerts, load-side voltage, disconnect
 - ◆ Almost \$2 million in recovered revenue/prevented loss from electricity theft
- Revenue forecasting
 - From 90% estimated revenue to 0.1% estimated revenue

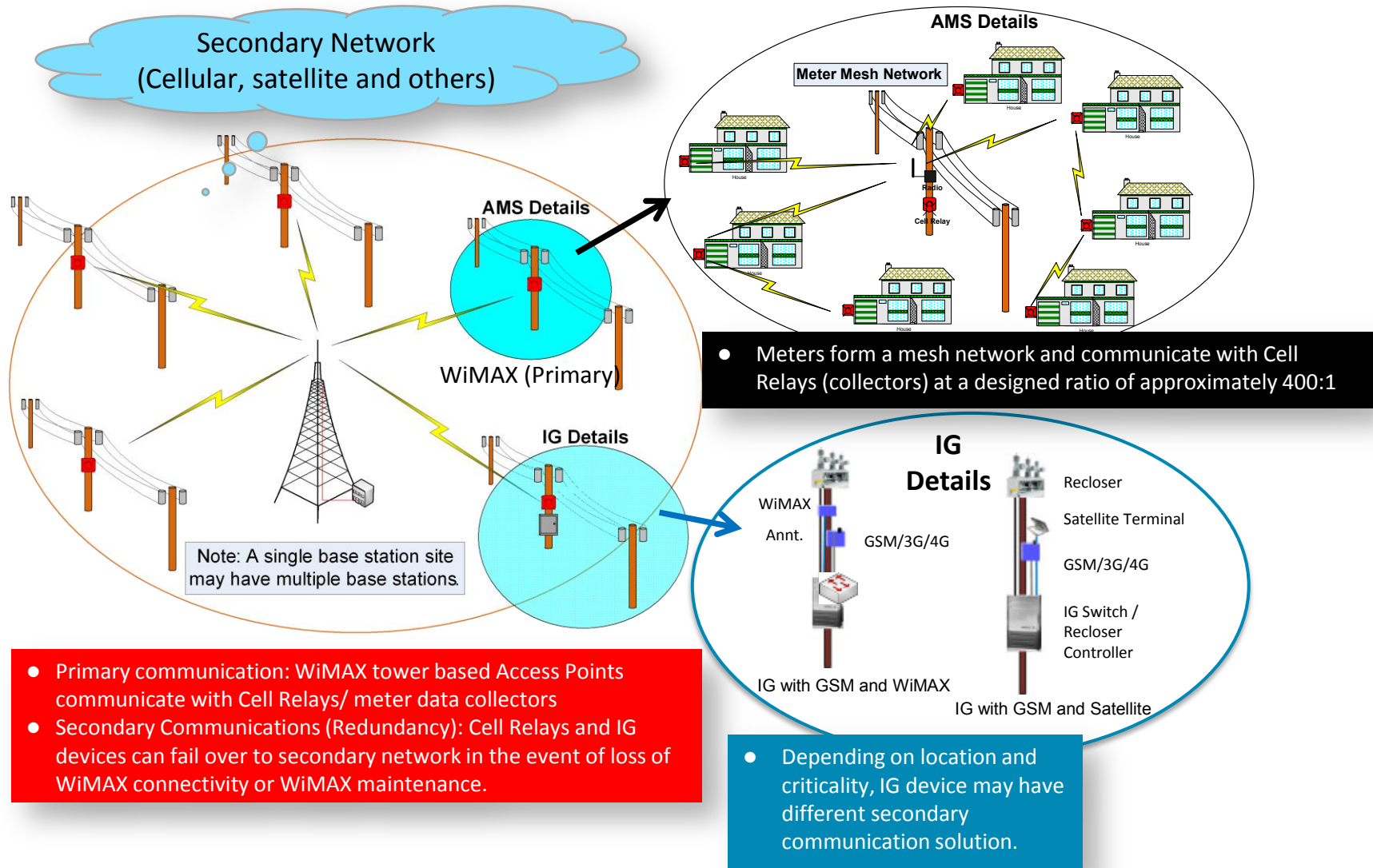


Power Alert Service Deployment to electric customers



- AMS meter PONs/PRNs
- Customer alerts via
 - Email
 - Phone
 - Text
- Currently enrolled: 363,204
 - Customers
 - Employees
 - Retirees
 - Family
 - Friends
- Deploying to additional customers throughout 2014

Telecomms Environment at CNP



Telecom Control Center (TCC)



- AMS and IG depends on a highly reliable and resilient communications network
- TCC provides end-to-end communications network management (Monitoring and Control)
- Includes fiber, microwave, wireless, and mesh networks
- TCC consists of 18 consoles, stations and video wall of 63 monitors

TCC manages over 7000 sites and 25,000+ pieces of equipment.

- The Center focuses on proactive identification of issues in an effort to reduce or eliminate network outages.
- Analytics takes data and provides insight and enables automation to ensure that the communications network remains up and stable
 - Strong Read Rates
 - Automated Service Orders
 - Right Crew to the Right Place
 - Faster Completion of Market Transactions

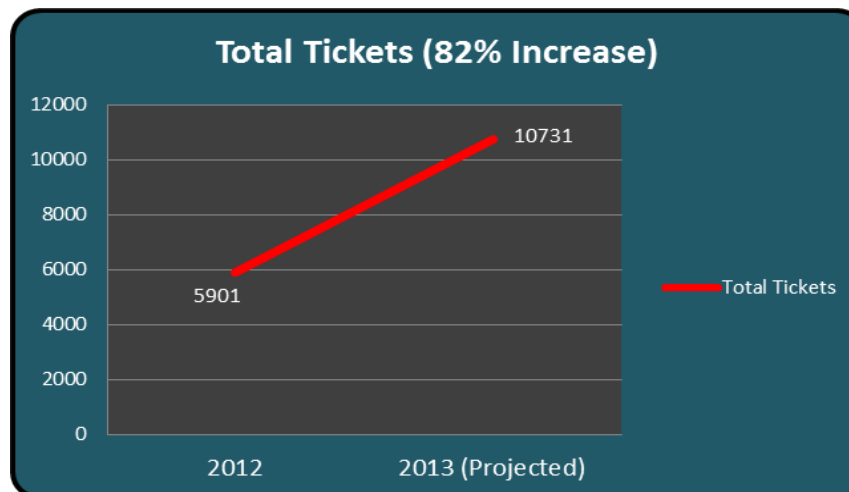


82% Ticket Increase (2012 vs. 2013)



Factors Driving Ticket Increase:

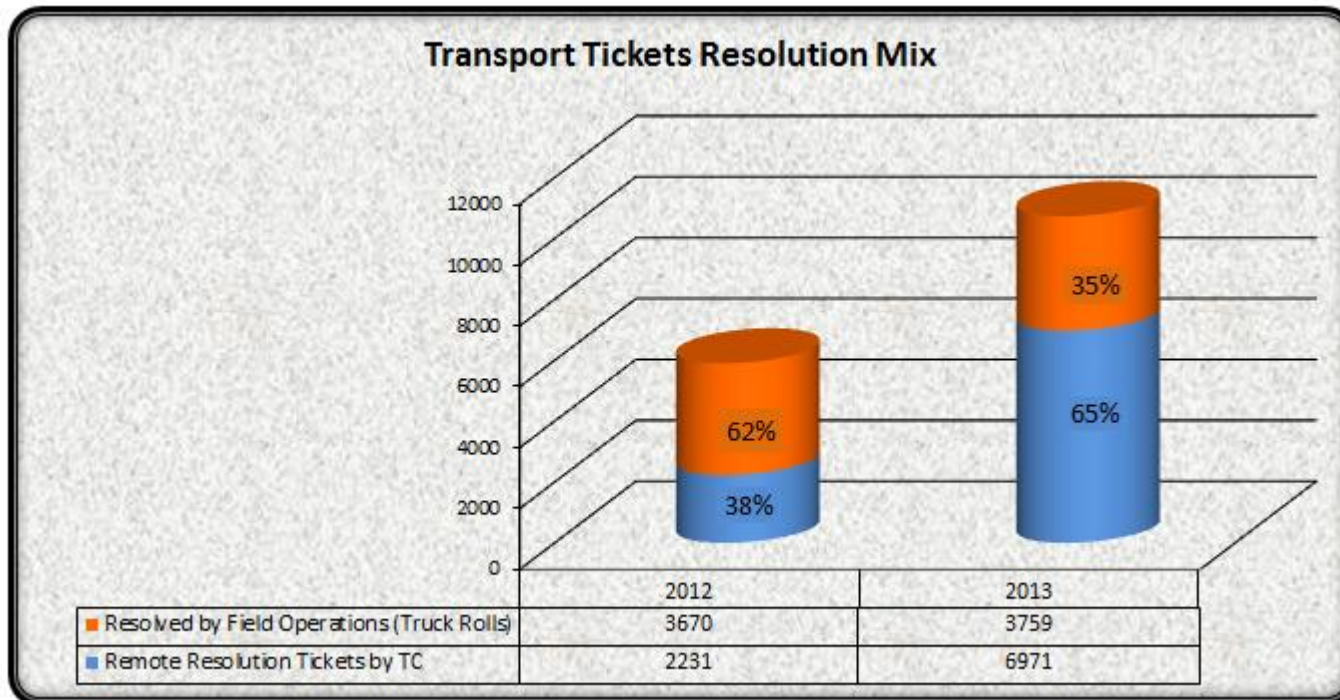
- Overall increase in network sites
 - 39 Take Out Points, 100 IGSDS, 160 Control Houses, added during the year, etc...
- Improvements in monitoring systems have facilitated real time awareness of network issues, resulting in more preventive maintenance tickets.



Analytics Has Enabled Remote Management of Smart Grid Devices



- TCC is currently resolving 65% of tickets remotely in 2013 vs. 38% in 2012
- Management tools have increased visibility to end points.

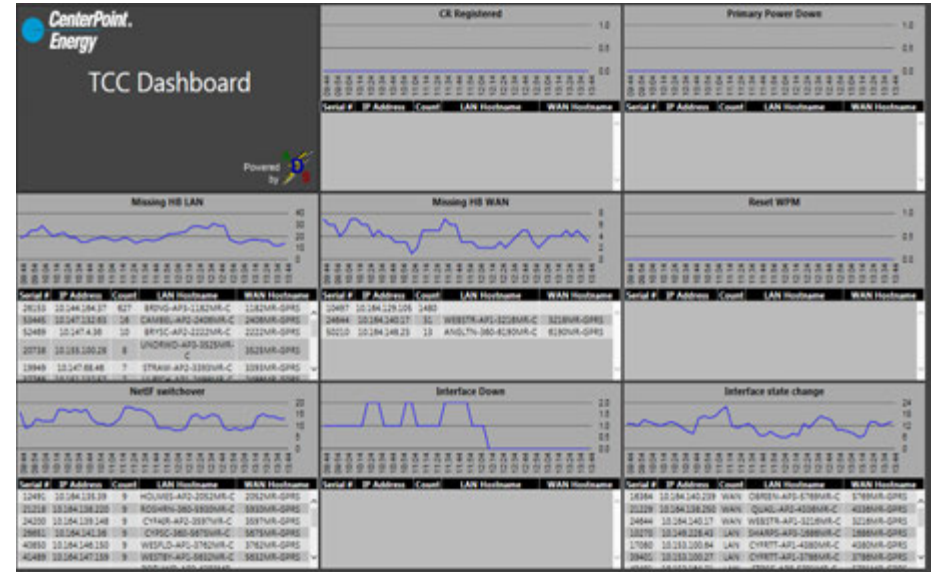


Analytics Improved Monitoring of Cell Relays



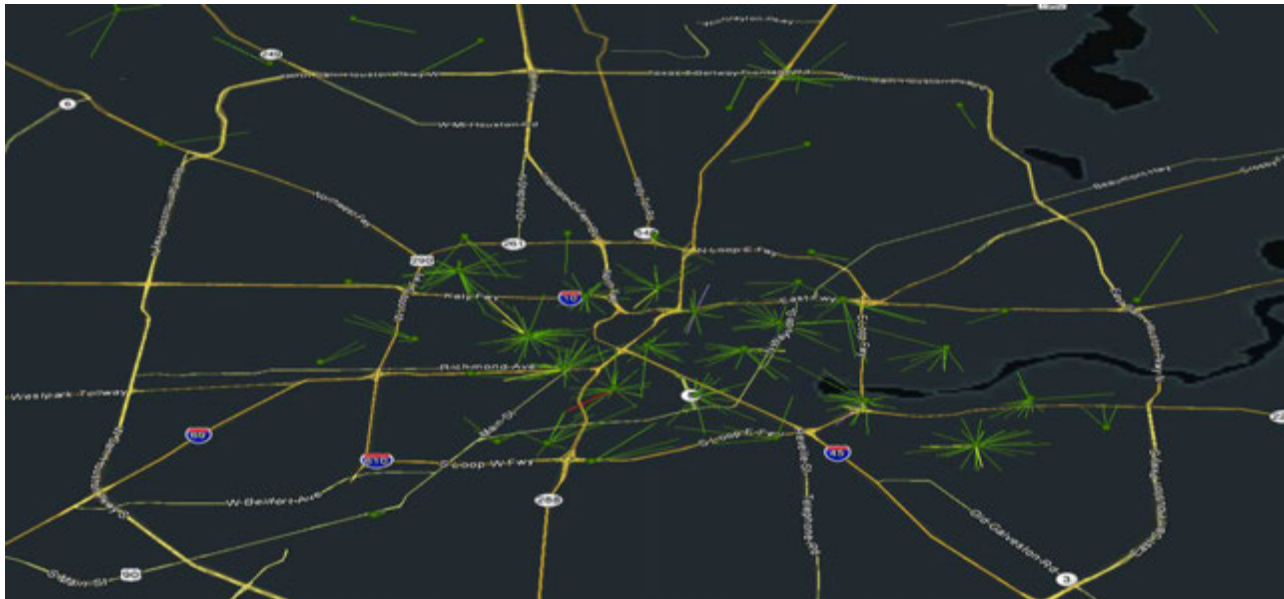
Telecom Control monitors the Cell Relays network to ensure high network availability on the primary and secondary communications network.

Telecom Control has been able to improve the cell relay network availability thanks to the development by the Analytics Team of tabular and geospatial displays that provide the TCC with real time status of cell relay communications. This has streamlined cell relay issue resolution by providing the TCC with “at a glance” display of possible cell relay issues.



Intelligent Grid Switching Devices (IGSDs)

- Advances in monitoring have helped TCC to accurately analyze the IGSD primary and secondary communication in an integrated display that has allowed it to properly handle issue resolutions.
- Through Analytics, communications were improved with departments that assist in expediting restorations. This in return improved IGSD communications availability. These accomplishments were achieved thanks to development of geospatial and tabular displays that have provided cross department visibility of the IGSD RTUs and the communications network.



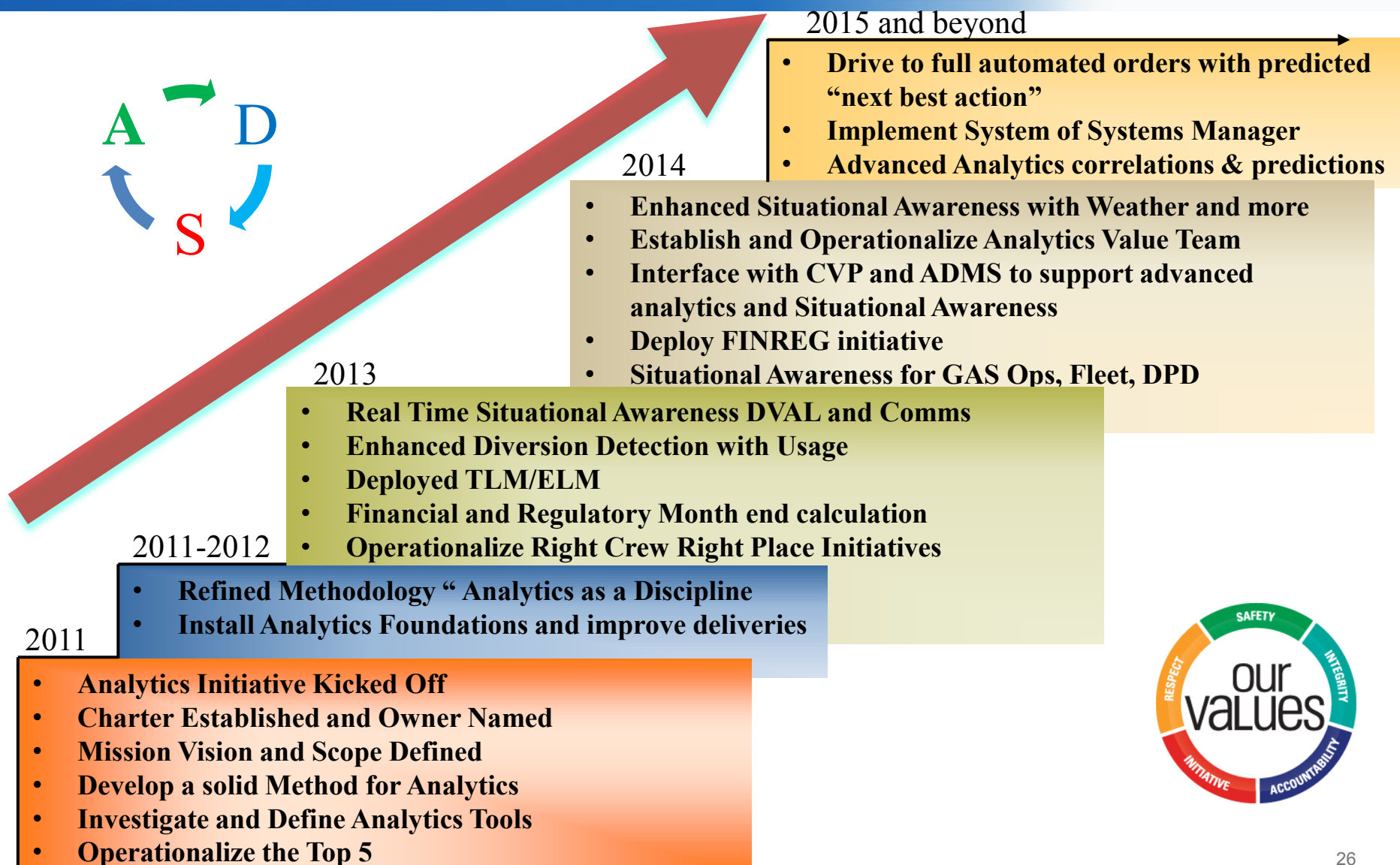
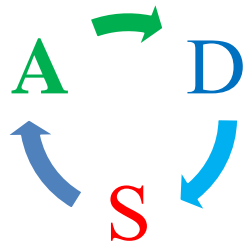
Through analytics, Telecom has been able to improved overall read rate availability for 2013 currently averaging **99.62%**. This represents a **.31%** increase from 2012 read availability and continues the trend of improving availability for the past 4 years.

Also in 2013 CNP reached and surpassed the lowest recorded Cell Relay “missed read rates “per-cycle with the lowest rate of **.14%**. These accomplishments were achieved thanks to the help of improved Dashboard displays that provide the TCC with near real-time view of Cell Relays status.



Where We are Going 2014 and Beyond

Refined Strategic Imperatives to align with new Vision



2011

- **Analytics Initiative Kicked Off**
- **Charter Established and Owner Named**
- **Mission Vision and Scope Defined**
- **Develop a solid Method for Analytics**
- **Investigate and Define Analytics Tools**
- **Operationalize the Top 5**

2011-2012

- **Refined Methodology “Analytics as a Discipline**
- **Install Analytics Foundations and improve deliveries**

2013

- **Real Time Situational Awareness DVAL and Comms**
- **Enhanced Diversion Detection with Usage**
- **Deployed TLM/ELM**
- **Financial and Regulatory Month end calculation**
- **Operationalize Right Crew Right Place Initiatives**

2014

- **Enhanced Situational Awareness with Weather and more**
- **Establish and Operationalize Analytics Value Team**
- **Interface with CVP and ADMS to support advanced analytics and Situational Awareness**
- **Deploy FINREG initiative**
- **Situational Awareness for GAS Ops, Fleet, DPD**

2015 and beyond

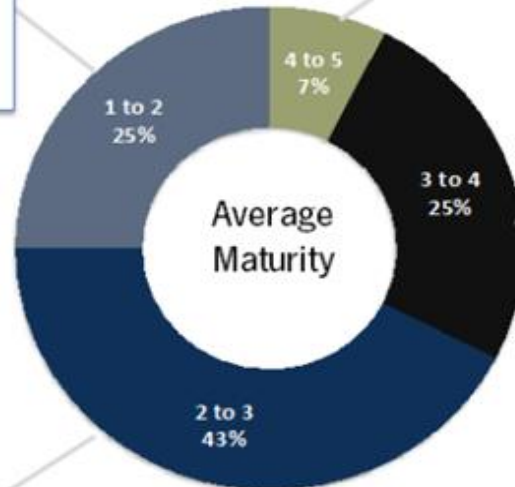
- **Drive to full automated orders with predicted “next best action”**
- **Implement System of Systems Manager**
- **Advanced Analytics correlations & predictions**



Greentech Media ranks CNP tops in Smart Grid maturity



Overall Maturity Ranking by Utility

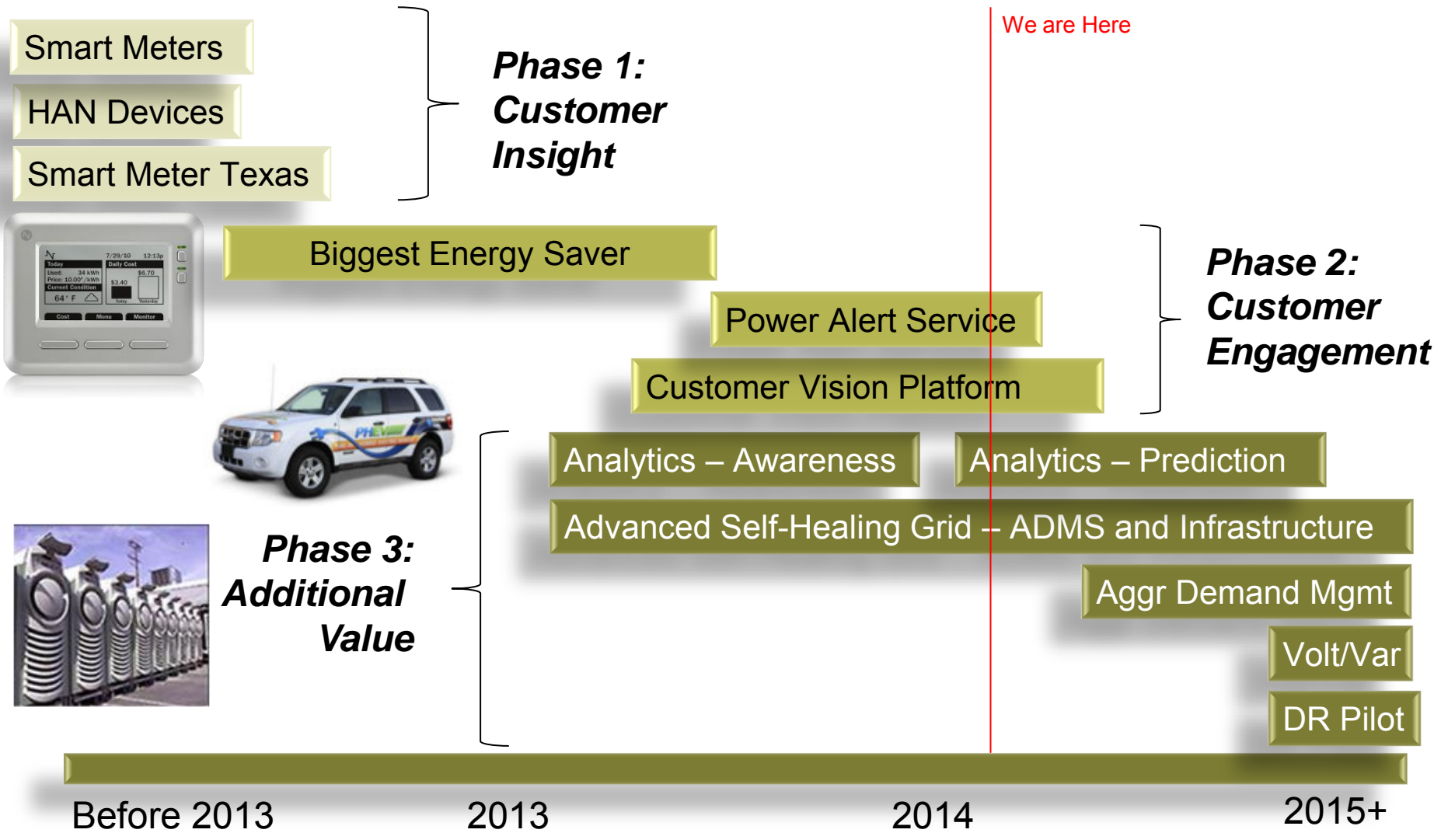


What the Analytics Teams do is take mountains of data and provide business value by extracting meaningful information and generating actionable tasks that:

- ✓ Improve the Safety of Operations and Support the Safety Culture
- ✓ Protect the Grid
- ✓ Improve Communications performance
- ✓ Reduce the back office cost of revenue collection with improved revenue estimations
- ✓ Meeting Regulatory reporting requirements more efficiently and effectively
- ✓ Protect the company and the Market from Diversion
- ✓ Improve the quality of field work by issuing orders for the maintenance of equipment instead of rolling after outages
- ✓ Developing e-Curtailment a way for CNP to provide Emergency Load Curtailment without having to turn off entire circuits, preserving street lights, traffic signals and the like
- ✓ and many others.

What's Next?

With the foundation in place, it's just the beginning



We could not deliver with out the assistance of our Vendors!



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Per the DOE Grant Agreement,:

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Houston Overview



Presented by
Patrick Jankowski, Vice President,
Research



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Connect with me: www.linkedin.com/in/pnjankowski

So where are you?



GREATER HOUSTON PARTNERSHIP

houston.org

Houston Area Profile



- **9 Counties**
- **125+ Cities and towns**
- **Most Populous**
 - **Harris County**
 - **City of Houston**



The Big Picture



Fifth Largest U.S. Metro Economy



2012 Gross Domestic Product

Rank	20 Most Populous Metros	\$ Billions
1	New York	1,358.4
2	Los Angeles	765.8
3	Chicago	571.0
4	Houston	449.4
5	Washington	448.7
6	Dallas-Ft Worth	420.3
7	Philadelphia	364.0
8	San Francisco	360.4
9	Boston	336.2
10	Atlanta	294.6

2012 Gross Domestic Product

Rank	20 Most Populous Metros	\$ Billions
11	Miami	274.1
12	Seattle	258.8
13	Minneapolis	220.2
14	Detroit	208.4
15	Phoenix	201.7
16	San Diego	177.4
17	St. Louis	136.7
18	Baltimore	157.3
19	Tampa	119.9
20	Riverside, CA	113.9

Source: U.S. Bureau of Economic Analysis

Second Fastest Growing Major Metro



Change in Real GDP '11 – '12

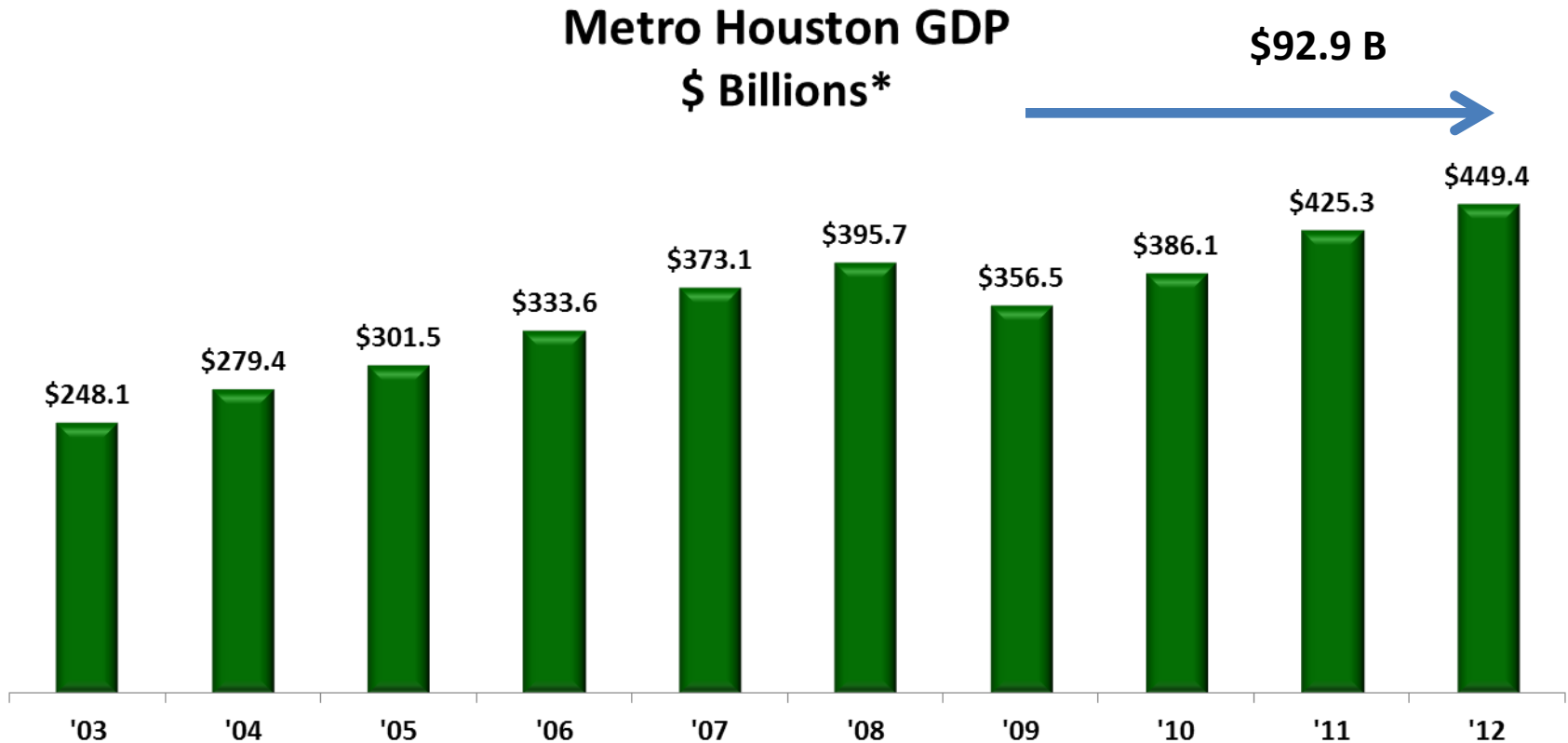
Rank	20 Most Populous Metros	%
1	San Francisco	7.4
2	Houston	5.3
3	Seattle	4.6
4	Dallas-Ft Worth	4.3
5	Minneapolis	3.9
6	Miami	3.5
7	Phoenix	3.2
8	Baltimore	3.2
9	Los Angeles	3.1
10	Tampa	3.1

Change in Real GDP '11 – '12

Rank	20 Most Populous Metros	%
11	Detroit	2.7
12	San Diego	2.7
13	Atlanta	2.6
14	Chicago	2.4
15	Boston	2.3
16	Riverside, CA	1.7
17	St. Louis	1.6
18	Philadelphia	1.5
19	New York	1.4
20	Washington	0.7

Source: U.S. Bureau of Economic Analysis

Houston has a long history of economic growth.



* Nominal Dollars

Source: U.S. Bureau of Economic Analysis

Population



Fifth Most Populous Metro

Most Populous U.S. Metro Areas - 2013

Rank	Metro Area	Population
1	New York	19,949,502
2	Los Angeles	13,131,431
3	Chicago	9,537,289
4	Dallas-Fort Worth	6,810,913
5	Houston	6,313,158
6	Philadelphia	6,034,678
7	Washington	5,949,859
8	Miami	5,828,191
9	Atlanta	5,522,942
10	Boston	4,684,299

Most Populous U.S. Metro Areas - 2013

Rank	Metro Area	Population
11	San Francisco	4,516,276
12	Phoenix	4,398,762
13	Riverside	4,380,878
14	Detroit	4,294,983
15	Seattle	3,610,105
16	Minneapolis	3,459,146
17	San Diego	3,211,252
18	Tampa	2,870,569
19	St. Louis	2,801,056
20	Baltimore	2,770,738

Source: U.S. Census Bureau

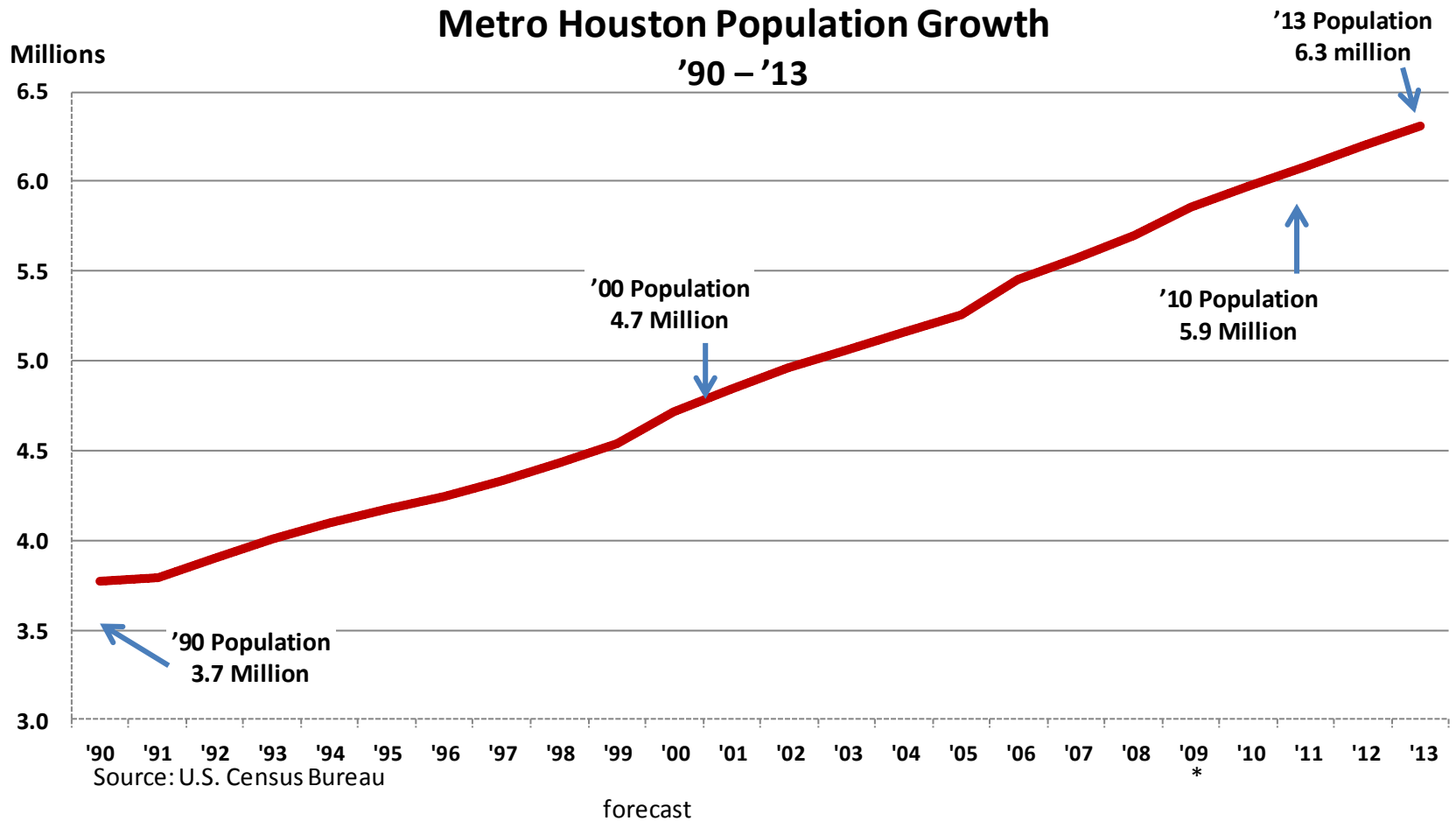
Fastest Growing Major Metro



Rank	Metro Areas	Change Since 7/1/12		Rank	Metro Areas	Change Since 7/1/12	
		#	%			#	%
1	Houston	137,692	2.2	11	Boston	42,204	0.9
2	Phoenix	71,130	1.6	12	Tampa	25,391	0.9
3	Seattle	57,514	1.6	13	Riverside	38,546	0.9
4	Dallas-Ft Worth	108,112	1.6	14	Los Angeles	94,386	0.7
5	Washington	87,265	1.5	15	Baltimore	16,816	0.6
6	San Francisco	62,117	1.4	16	New York	111,749	0.6
7	Atlanta	68,513	1.2	17	Philadelphia	15,145	0.3
8	Miami	64,909	1.1	18	Chicago	23,230	0.2
9	San Diego	35,114	1.1	19	St. Louis	4,550	0.2
10	Minneapolis	36,729	1.1	20	Detroit	2,151	0.1

Source: U.S. Census Bureau

Growth is the norm for Houston



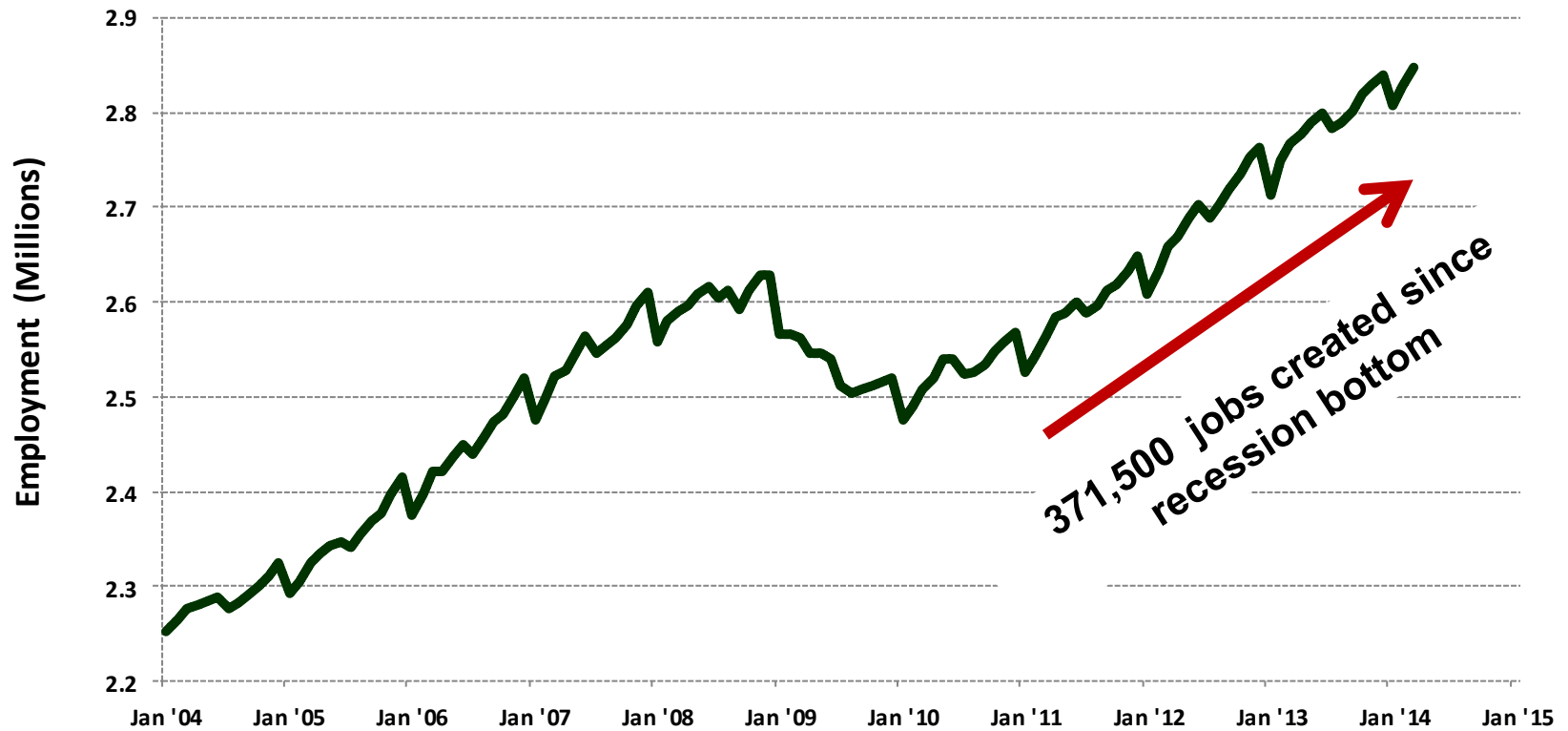
Employment Picture



Employment



Total Nonfarm Payroll, Houston Metro Area, '04 - '15



Source: Texas Workforce Commission

Houston vs. The Competition



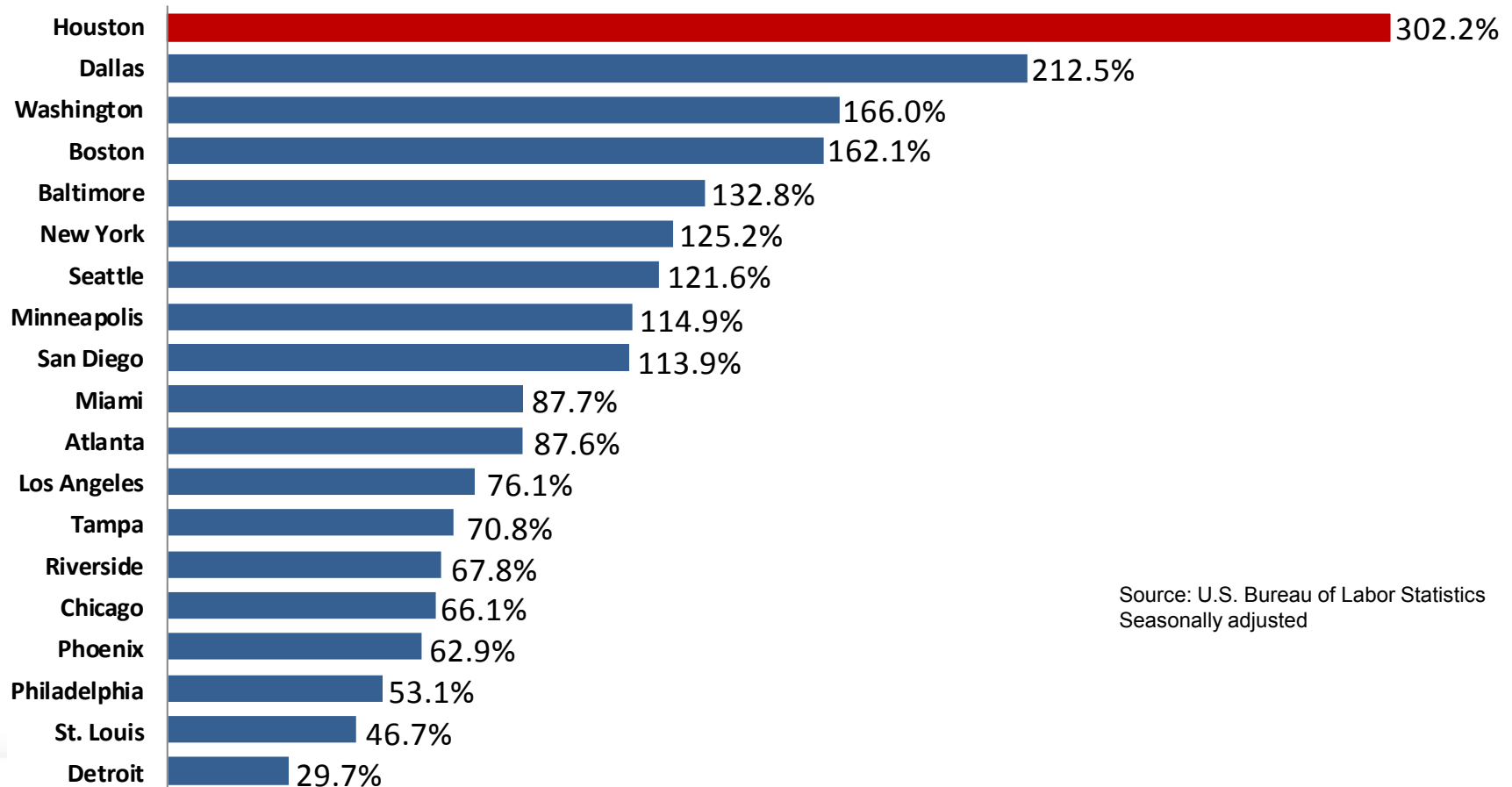
GREATER HOUSTON PARTNERSHIP

houston.org



Houston vs. the Top Metros

Percent of jobs recovered through February '14 Houston vs. Top 10 Metros

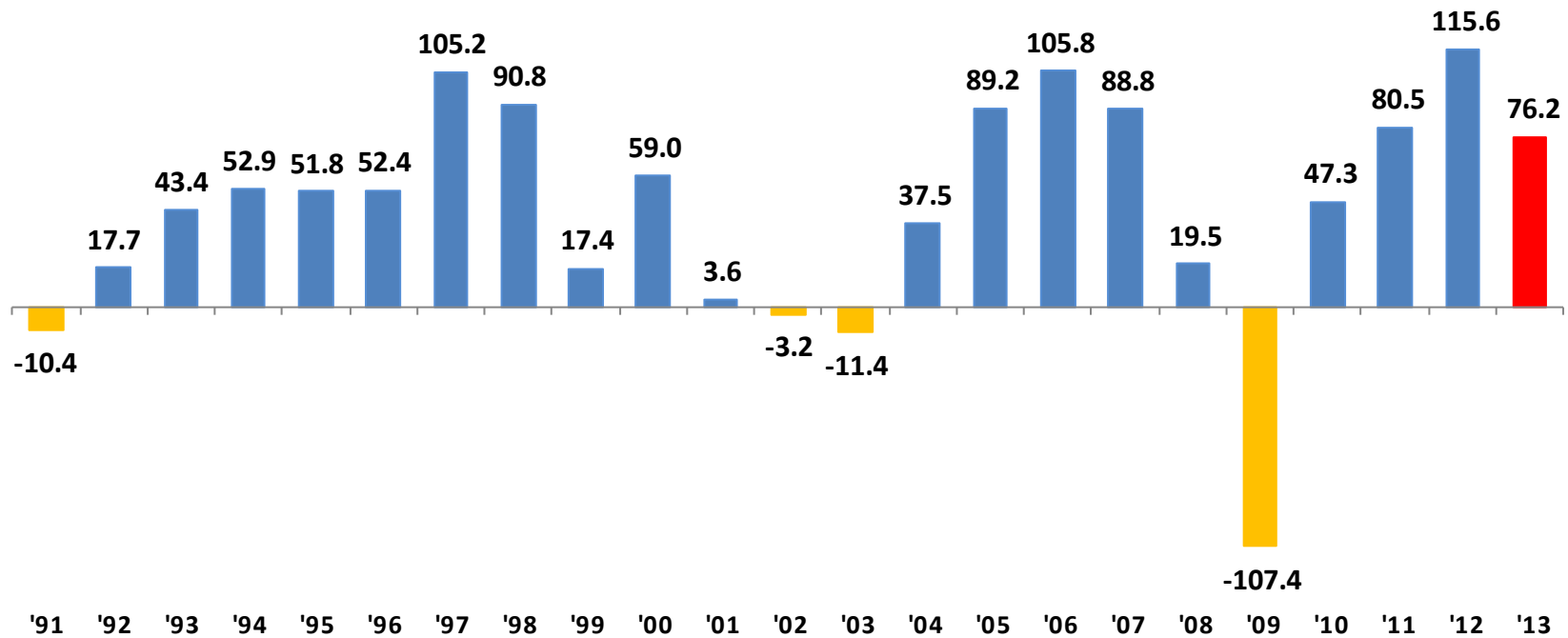


Source: U.S. Bureau of Labor Statistics
Seasonally adjusted

Annual job growth



Employment (000s)

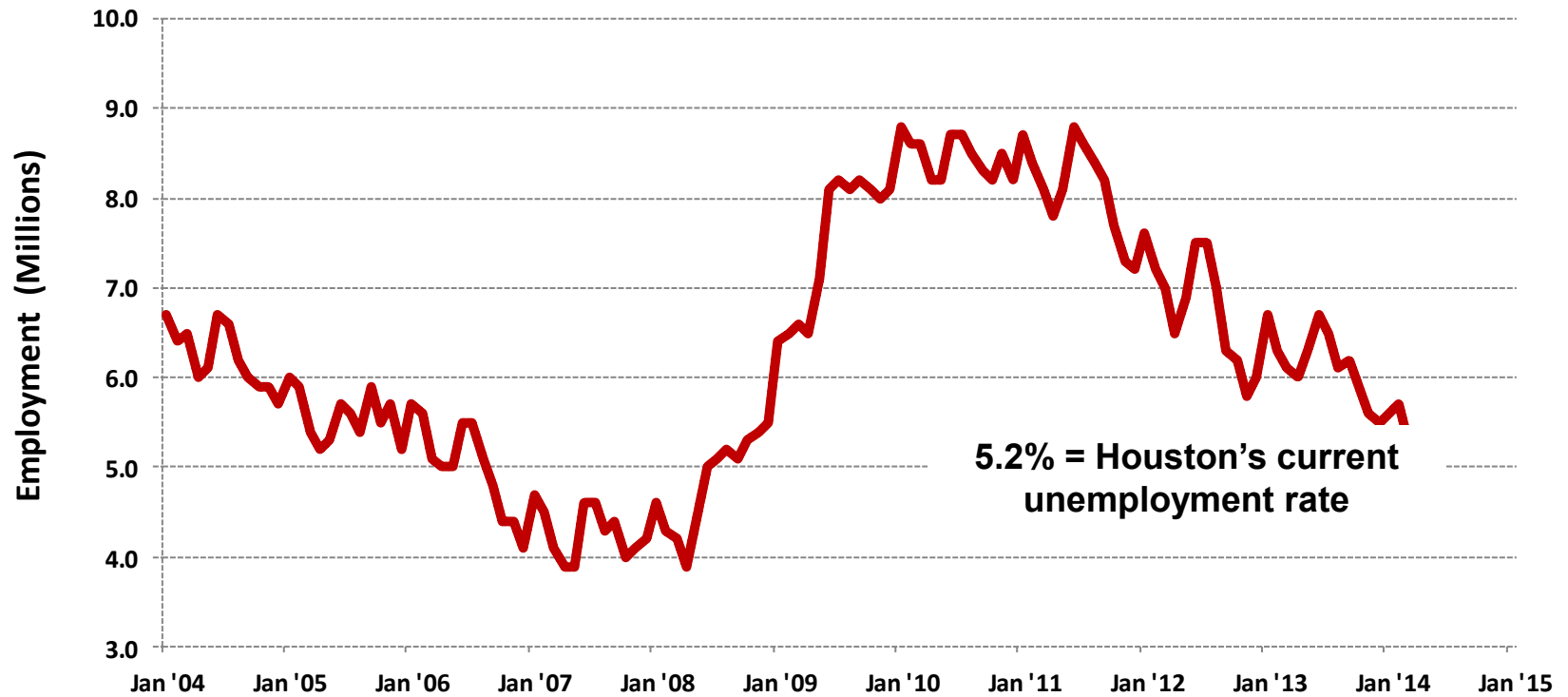


Source: U.S. Bureau of Labor Statistics

Unemployment



Unadjusted, Houston Metro Area, '04 - '15



Source: Texas Workforce Commission

What's driving Houston's growth



GREATER HOUSTON PARTNERSHIP

houston.org

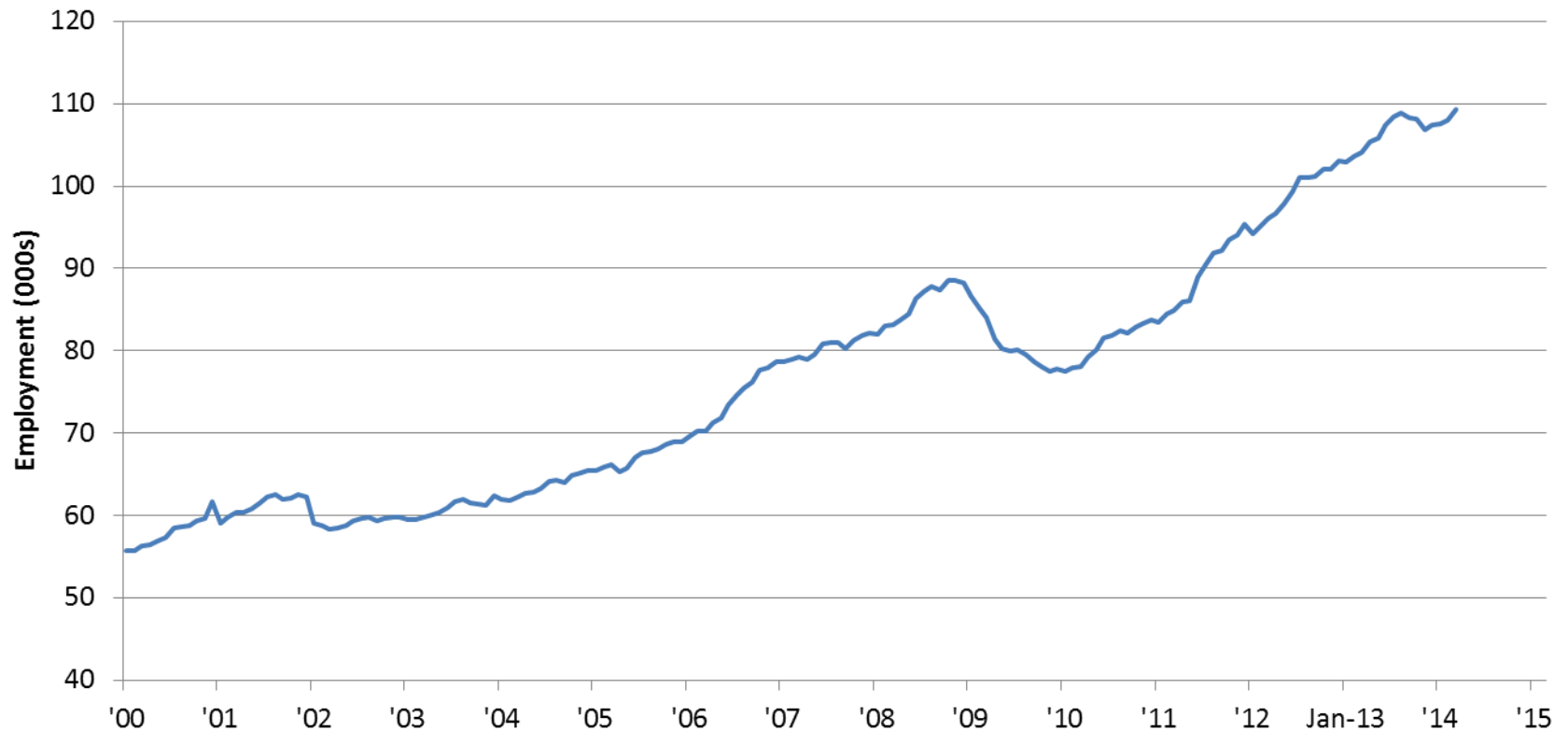
Energy



Energy Industry Jobs



Houston Metro Area



Source: Texas Workforce Commission

World Energy Headquarters

- 29.3% of U.S. jobs in oil and gas extraction
- 11.3% of U.S. jobs in oil field services
- 16.5% of U.S. jobs in O&G and construction machinery manufacturing



Energy Industry Innovation



Hydraulic Fracturing



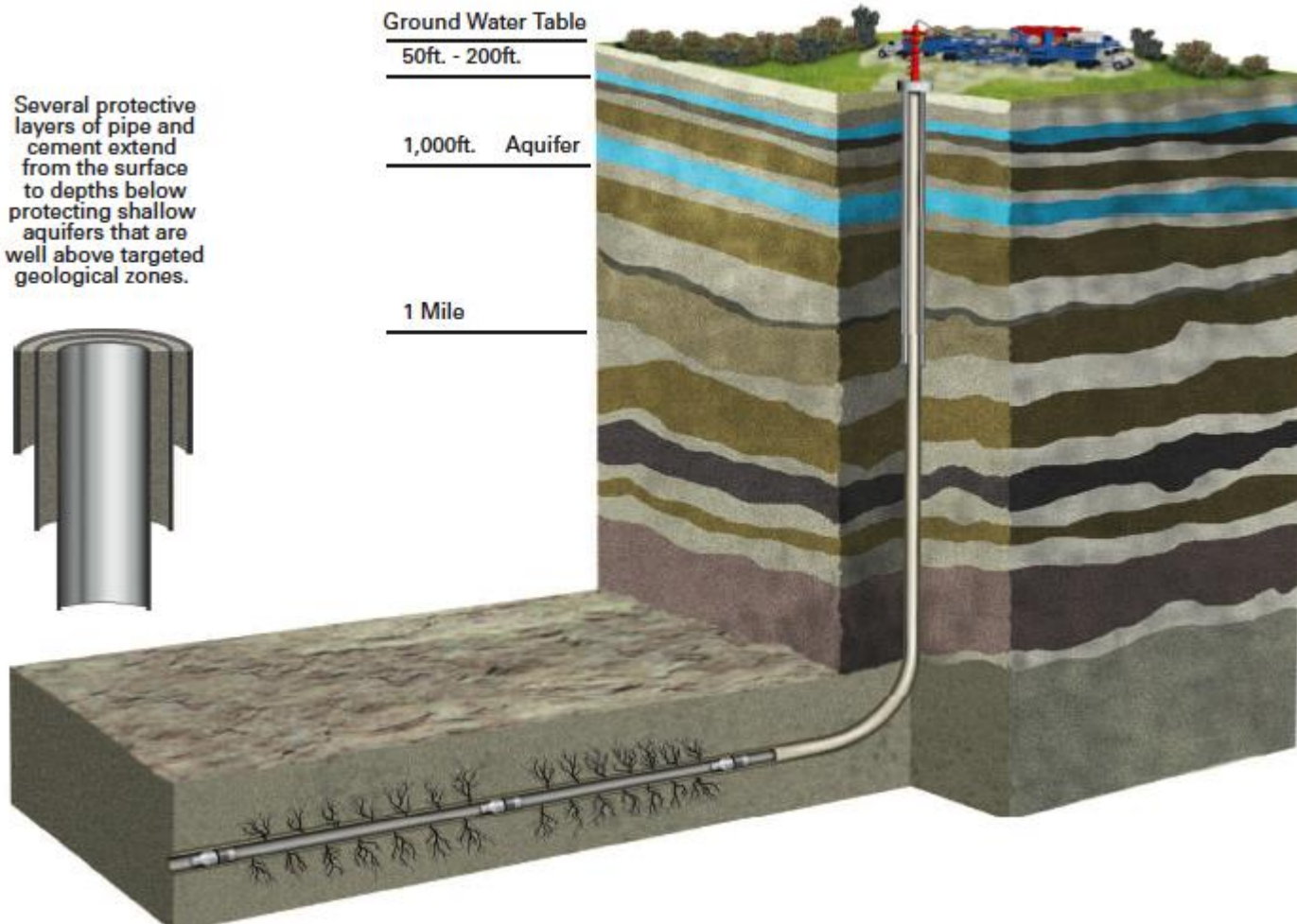
Several protective layers of pipe and cement extend from the surface to depths below protecting shallow aquifers that are well above targeted geological zones.



Ground Water Table
50ft. - 200ft.

1,000ft. Aquifer

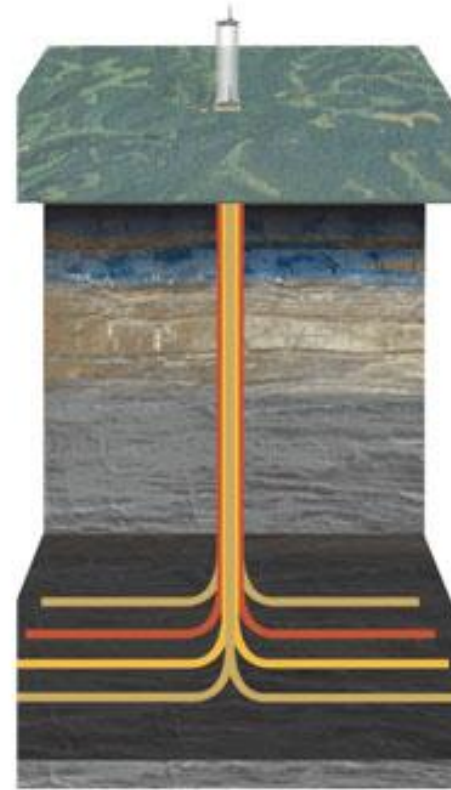
1 Mile



Pad drilling

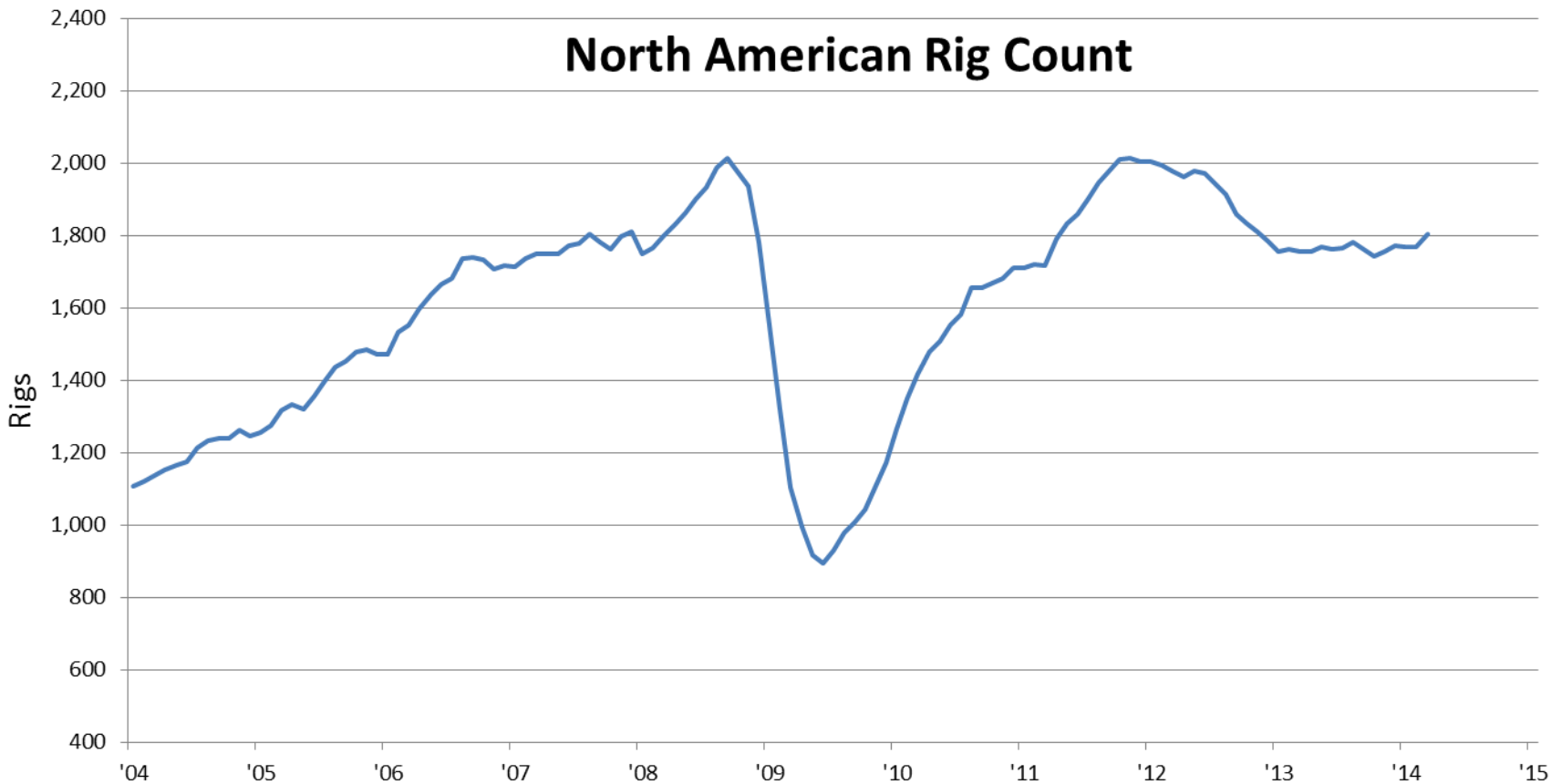


Traditional Vertical Well Spacing:
32 Separate Padsites Needed For 32 Wells.
(Method not used by Chesapeake)



Idealized Horizontal Well Spacing:
1 Padsite Yields Up To 32 Wells.
(Chesapeake method)

Exploration Activity

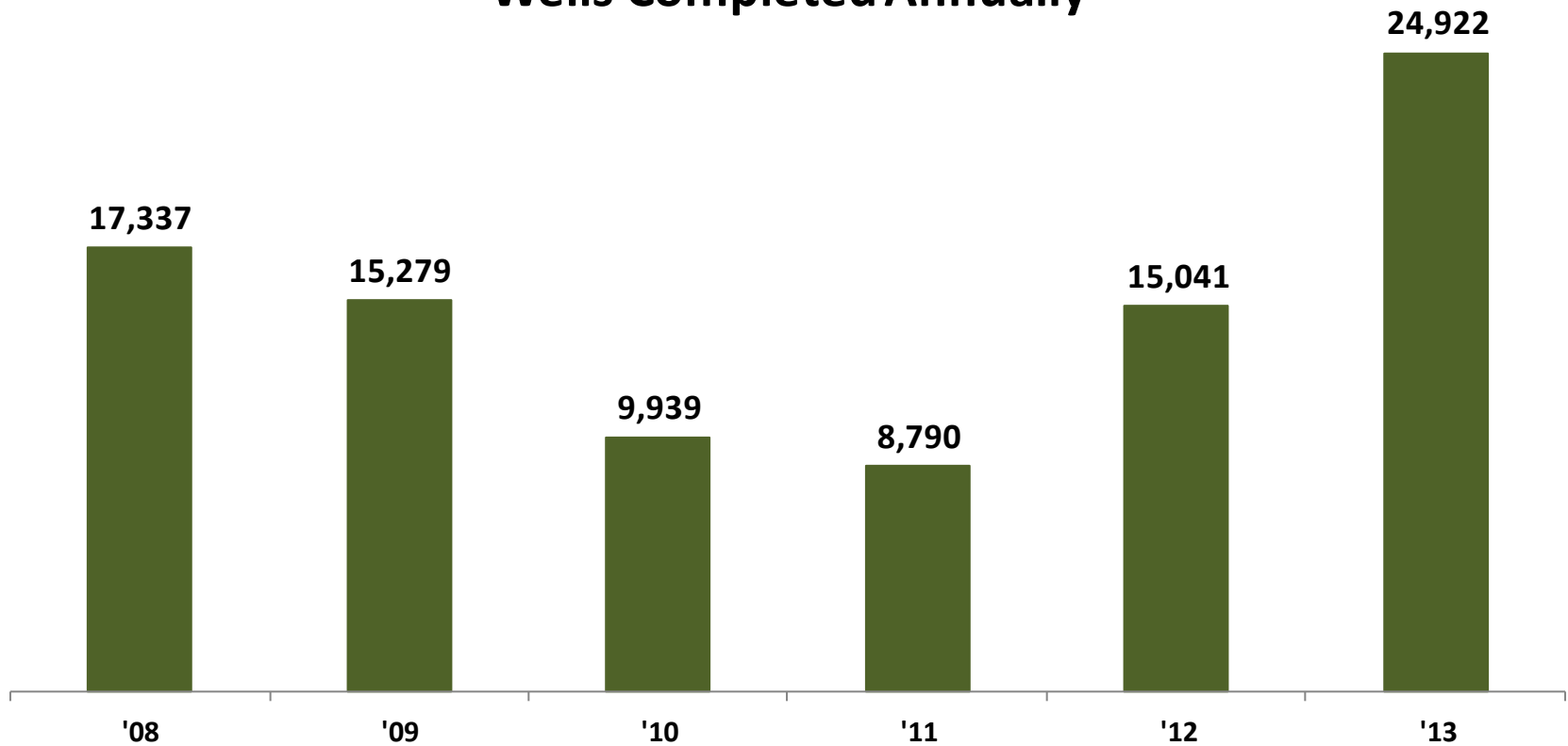


Source: Baker Hughes

State of Texas Drilling Activity



Wells Completed Annually

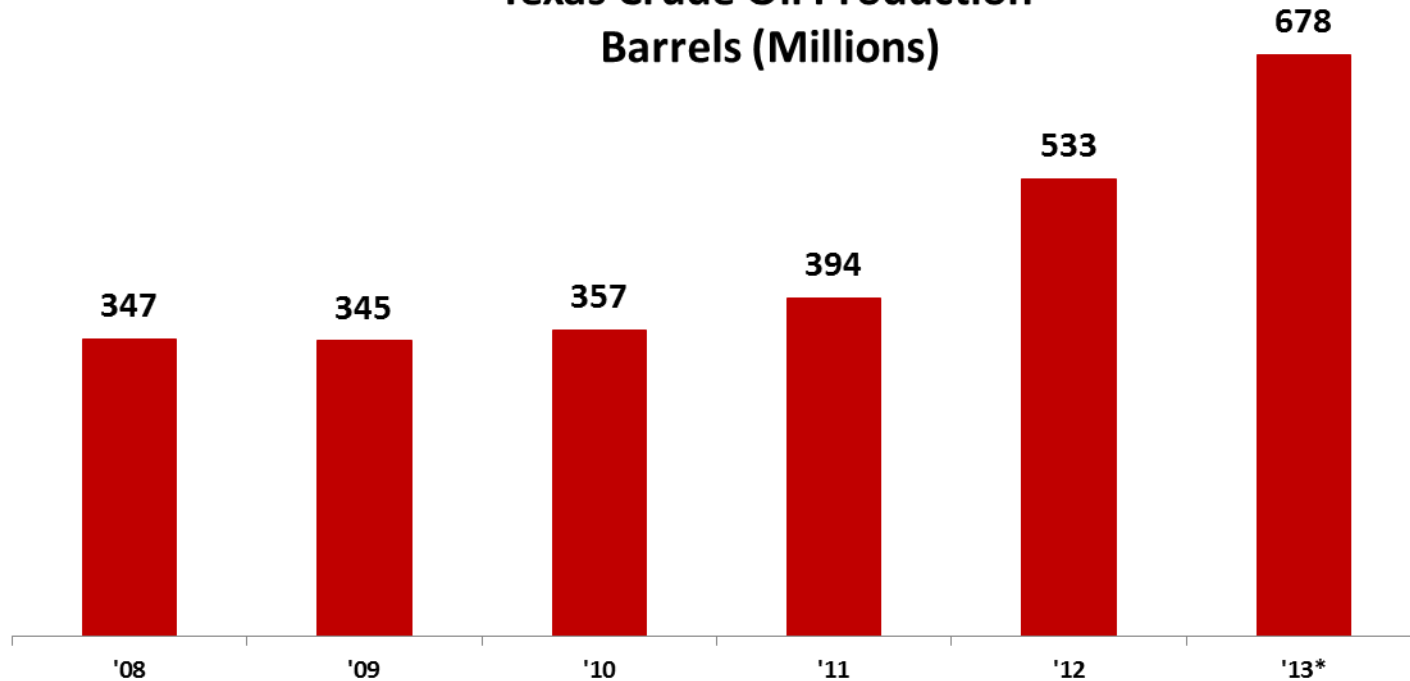


Source: Texas Railroad Commission

State of Texas Oil Production



Texas Crude Oil Production
Barrels (Millions)



Source: Texas Railroad Commission

* Projected

Energy entering a new phase

Increased domestic oil and gas production.

Cheap, abundant gas to spur manufacturing re-shoring.

\$40 billion in local chemical plant expansions underway.



Chemicals Invest \$40B in the USGC

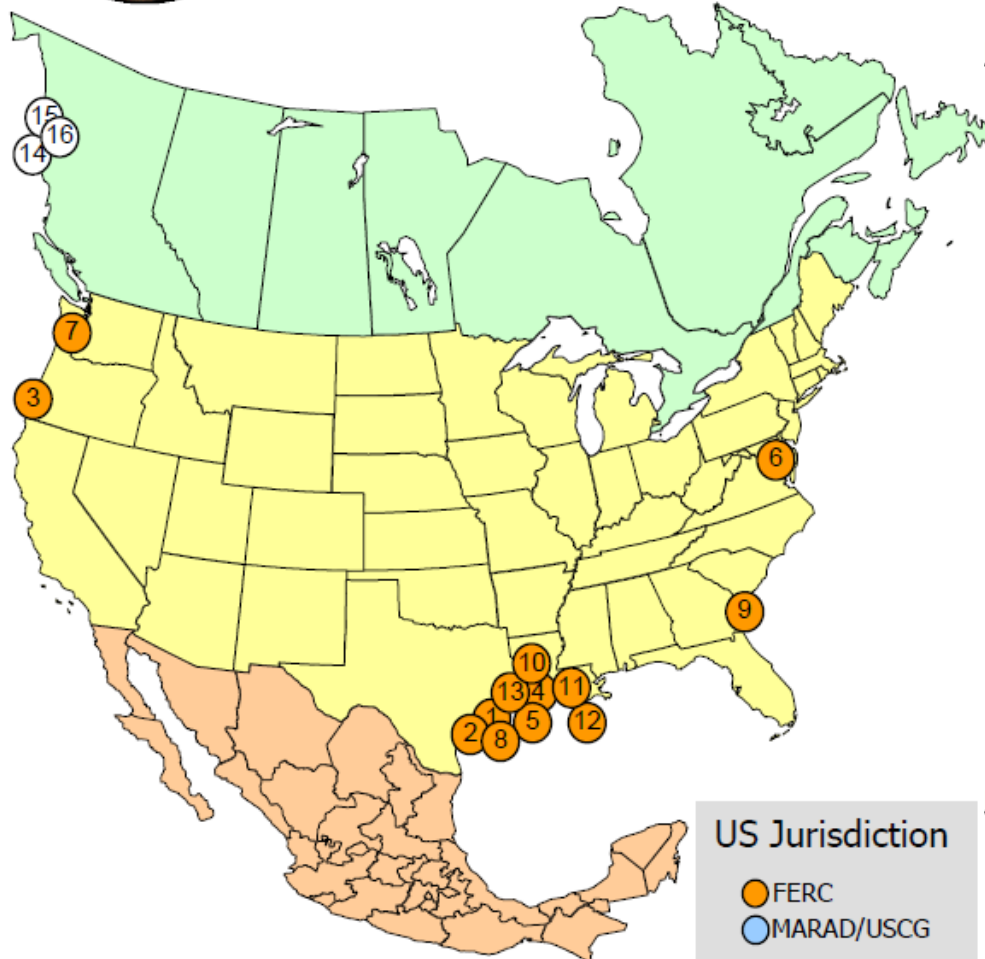
Dow, Exxon, ChevronPhillips, BASF/Total, Lyondell investing billions in the Houston area; \$30B from ethane-to-ethylene projects; derivative and propylene facilities bring the total to \$40B

Company	Facility	Timing	Added Ethylene (mmlbs/yr)	Est. Ethane Consumed (kbpd)	TPHe Cost (\$mm)
Potential Expansions					
WMB	Geismar (E/P) - New Furnace, Increased C2	Q4 2013	600	17,000	300
LYB	Midcon Plants (E/P) - Debottleneck, +C2	2013	100	3,000	50
DOW	Freeport 7 (E/P) - Debottlenecking, +C2	2013	250	7,000	125
WLK	Lake Charles 2 (E/P) - New Furnace, +C2	2014	250	7,000	125
WLK	Calvert City (Propane) - Conversion to C2	2014	630	16,000	315
LYB	La Porte (E/P) - New Furnace, Increased C2	2014	850	24,000	1,700
INEOS	Chocolate Bayou (Flexi) - New Furnace, +C2	2014	500	14,000	250
INEOS	Chocolate Bayou (Flexi) - Debottleneck, +C2	2014	100	3,000	52
DOW	Plaquemine (E/P) - Debottlenecking	2014	82	8,000	41
DOW	Plaquemine (E/P) - New Furnace	2014	400	11,000	200
BASF/TOT	Port Arthur (Heavy) - New Furnace, +C2	2014	420	12,000	210
BASF/TOT	Port Arthur (Heavy) - Debottleneck, +C2	2014	2,450	30,000	1,225
Fomosa	Pt. Comfort (Flexi) - New Ethane Train	2015	1,800	51,000	900
Other	Potential Unnamed Restart	2015	705	18,000	370
DOW	Freeport 8 (Flexi) - Debottlenecking	2016	299	28,000	149
DOW	Freeport 8 (Flexi) - New Furnace	2016	500	14,000	250
Total from Expansion Projects			9,935	263,000	6,263
Potential Newbuild Crackers					
XOM	Baytown, TX Cracker/Derivative Complex	2016	3,300	92,000	5,000
OXY/MexiChem	Ingleside, TX Cracker/PVC Complex	2016	1,200	34,000	1,300
CVX/COP	Newbuild TX Cracker and Derivative Complex	2017	3,300	92,000	5,000
DOW	Freeport, TX Cracker/Derivative Complex	2017	3,300	92,000	3,350
SASOL	Feasibility Study for Ethylene Complex by 6/13	2018	3,300	92,000	3,500
RDS	Marcellus, PA Cracker	2019	3,300	92,000	4,000
Total from Potential Newbuilds			17,700	494,000	22,150
Total Including Lower Likelihood Projects by 2020			27,635	757,000	28,413
As % of Current US			47.3%	72.1%	



North American LNG Export Terminals

Proposed



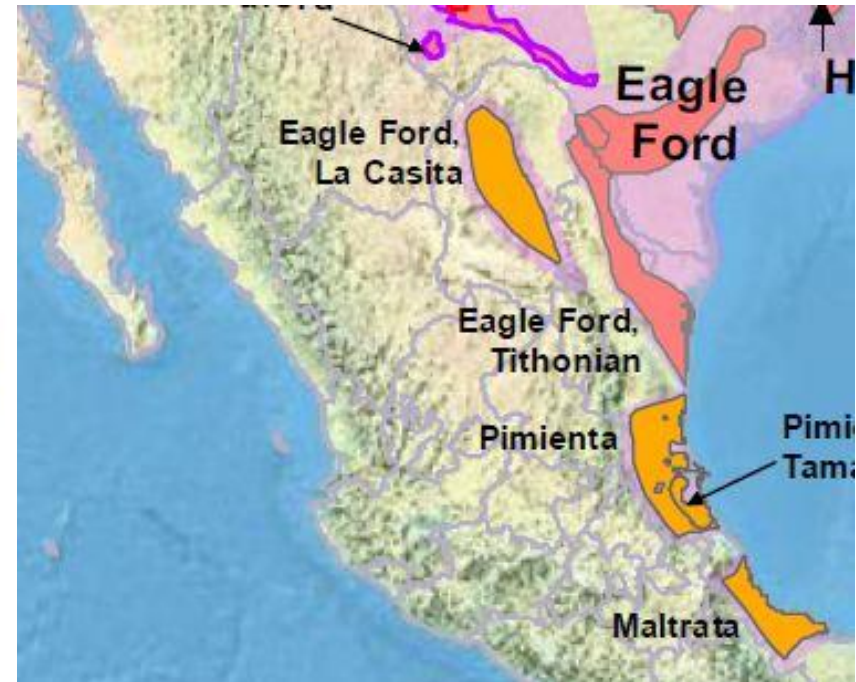
Export Terminal **PROPOSED TO FERC**

1. **Freeport, TX:** 1.8 Bcfd (Freeport LNG Dev/Freeport LNG Expansion/FLNG Liquefaction) (CP12-509)
2. **Corpus Christi, TX:** 2.1 Bcfd (Cheniere – Corpus Christi LNG) (CP12-507)
3. **Coos Bay, OR:** 0.9 Bcfd (Jordan Cove Energy Project) (CP13-483)
4. **Lake Charles, LA:** 2.2 Bcfd (Southern Union - Trunkline LNG) (CP14-120)
5. **Hackberry, LA:** 1.7 Bcfd (Sempra – Cameron LNG) (CP13-25)
6. **Cove Point, MD:** 0.82 Bcfd (Dominion – Cove Point LNG) (CP13-113)
7. **Astoria, OR:** 1.25 Bcfd (Oregon LNG) (CP09-6)
8. **Lavaca Bay, TX:** 1.38 Bcfd (Excelerate Liquefaction) (CP14-71 & 72)
9. **Elba Island, GA:** 0.35 Bcfd (Southern LNG Company) (CP14-103)
10. **Sabine Pass, LA:** 1.40 Bcfd (Sabine Pass Liquefaction) (CP13-552)
11. **Lake Charles, LA:** 1.07 Bcfd (Magnolia LNG) (PF13-9)
12. **Plaquemines Parish, LA:** 1.07 Bcfd (CE FLNG) (PF13-11)
13. **Sabine Pass, TX:** 2.1 Bcfd (ExxonMobil – Golden Pass) (PF13-14)

PROPOSED CANADIAN SITES IDENTIFIED BY PROJECT **SPONSORS**

14. **Kitimat, BC:** 1.28 Bcfd (Apache Canada Ltd.)
15. **Douglas Island, BC:** 0.23 Bcfd (BC LNG Export Cooperative)
16. **Kitimat, BC:** 3.23 Bcfd (LNG Canada)

Eagle Ford in Mexico



Houston Outlook



2014 Forecast for Houston



GHP's forecast for '14

- 69,800 new jobs, 2.5 percent annual rate
- Job creation in every major sector
- Growth above historic trend



HOUSTON-AREA EMPLOYMENT Based on Average Annual Job Creation

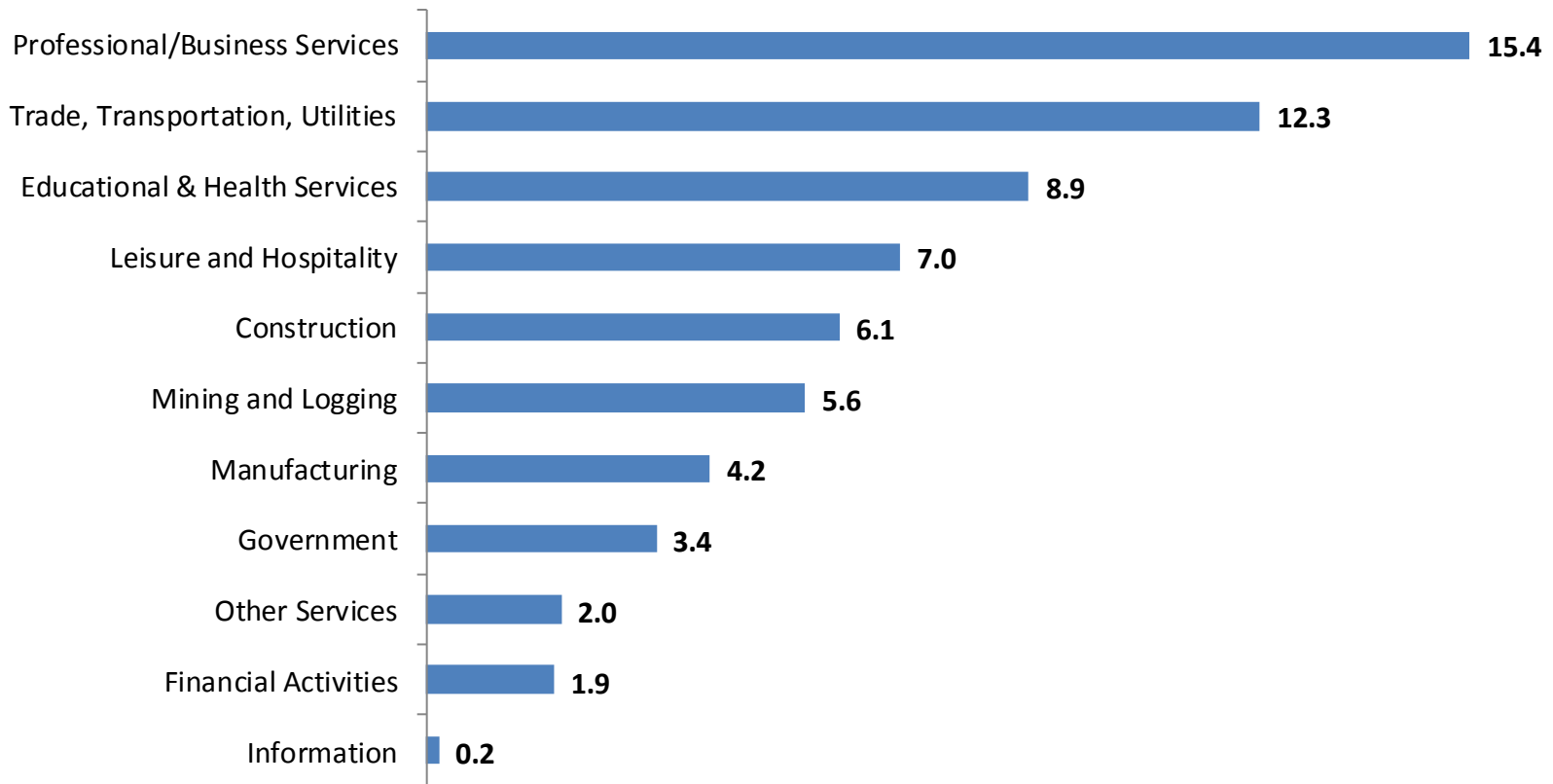
Period	Description	Jobs
Jan '91 - Dec '13	Simple Average	44,300
Jan '91 - Dec '13	Excludes Weak Years [#]	63,800

[#] Weak years defined as those in which less than 10,000 jobs were created

Source: Partnership calculations based on Bureau of Labor Statistics data

Jobs by Sector

Jobs Created, 000s



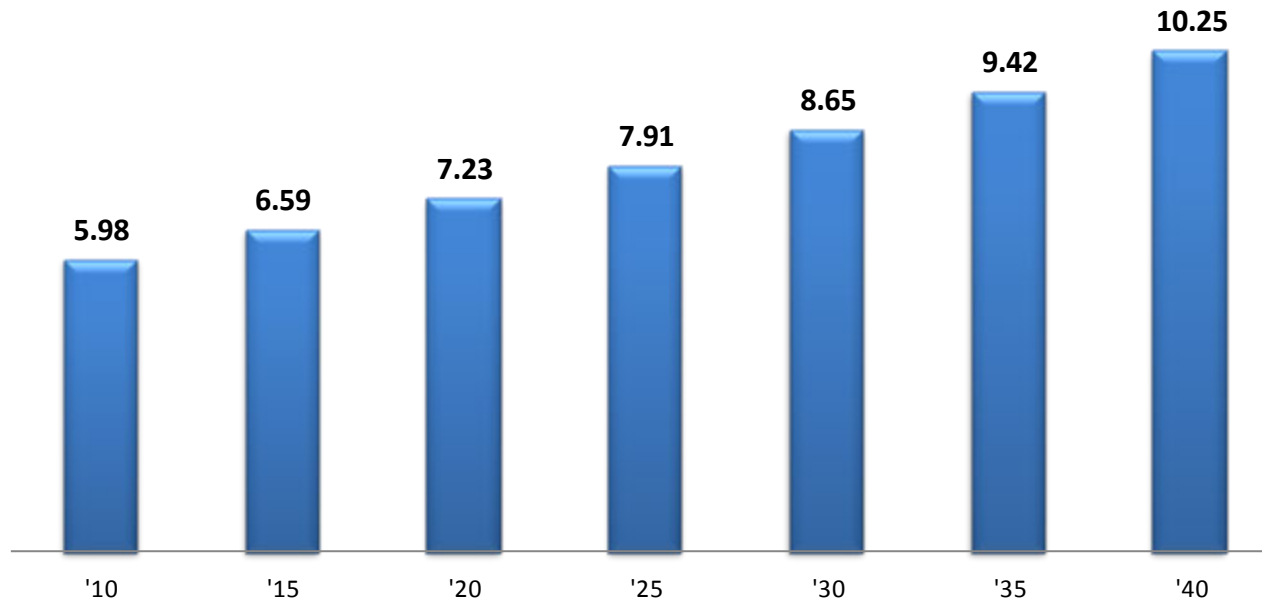
Long-Term Outlook



Population



**Houston-Sugar Land-Baytown MSA 2010-2040
(Millions)**

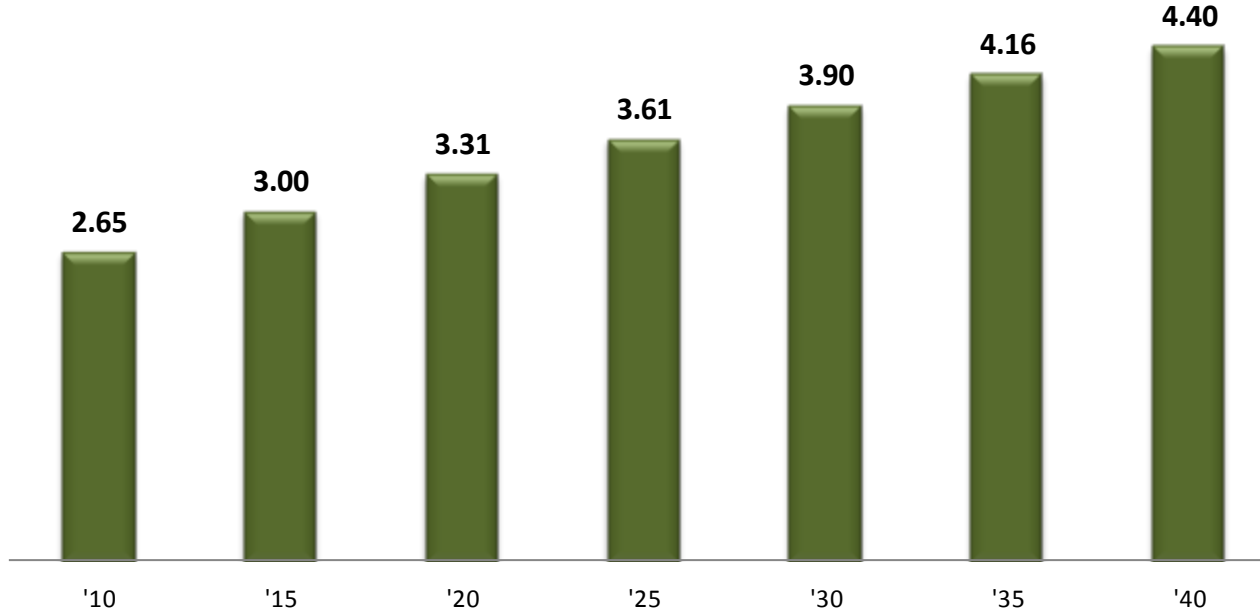


Source: The Perryman Group, Summer 2013

Employment

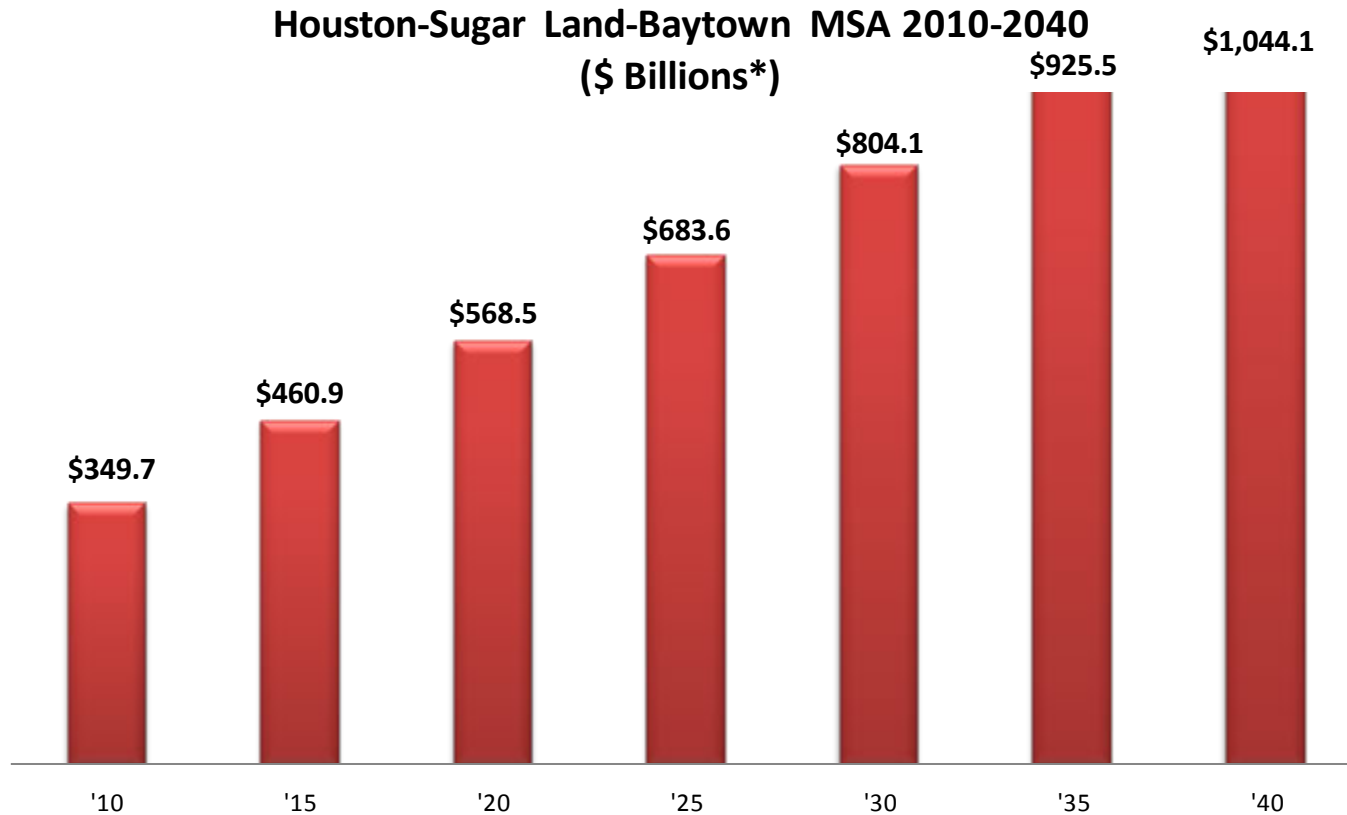


**Houston-Sugar Land-Baytown MSA 2010-2040
(Millions)**



Source: The Perryman Group, Summer 2013

Gross Regional Product



* '05 Constant Dollars Source: The Perryman Group, Summer 2013

Houston Overview



Presented by
Patrick Jankowski, Vice President,
Research

CenterPoint Energy Houston Electric

Competitive Retailer Workshop

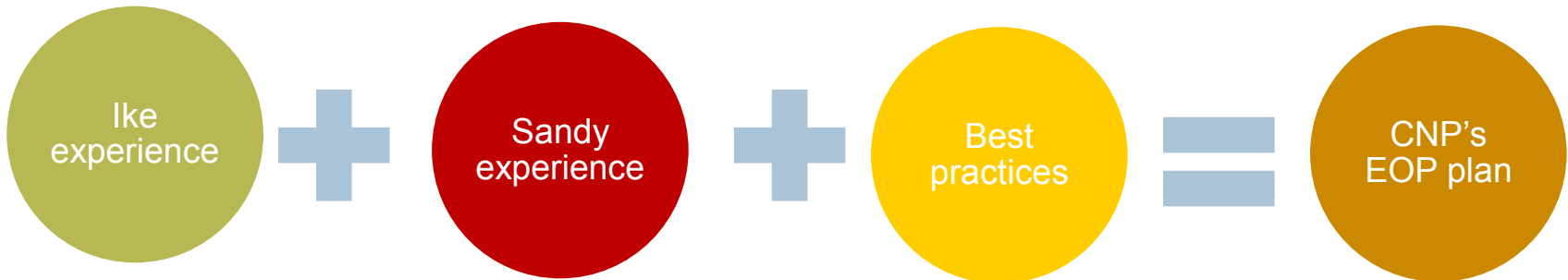
April 30, 2014

Post-Hurricane Social Media Communications

Steve Waters
CenterPoint Energy
Digital Communications Supervisor

April 30, 2014

CenterPoint Energy's emergency operations social media plan



Remember Hurricane Ike?



- 2.15 million meters lose power
- 12 CNP service centers
- 11 staging sites
- >11,000 mutual assistance crews
 - 35 states and Canada
- Replaced:
 - 6,400 wood distribution poles
 - 4,463 transformers

Hurricane Ike Communication Objectives

These objectives remain true for future major storms



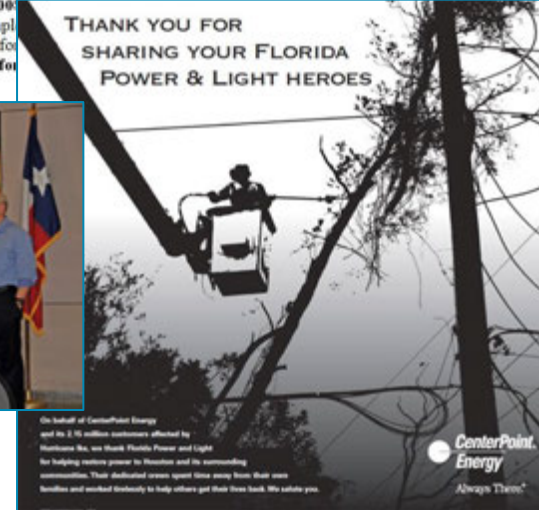
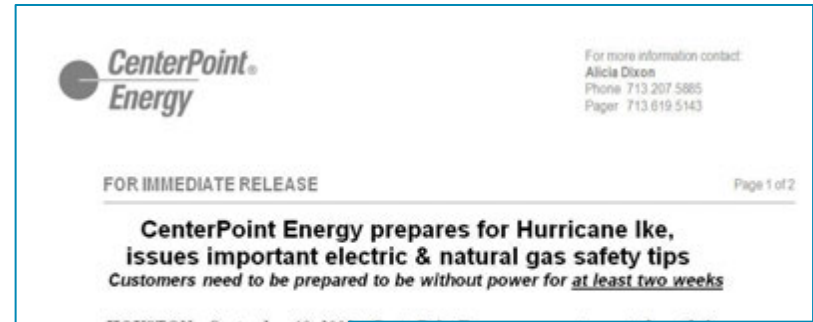
- Set and manage customer, government expectations regarding restoration time
- Promote customer/employee safety via electric and natural gas safety information
- Manage customer impact on operations, especially call center and field crews

Hurricane Ike Communication Tactics

*We will continue to use these tactics for future major storms:
Social media becomes one more element of integrated communication*



- Media relations and advertising
- Storm Center website
- Spanish web and media
- Email response and message board monitoring (rumor control)
- Government briefings
- Employee and mutual assistance crew communications



Lessons learned from Hurricane Ike

From “thank you” to “blank you”



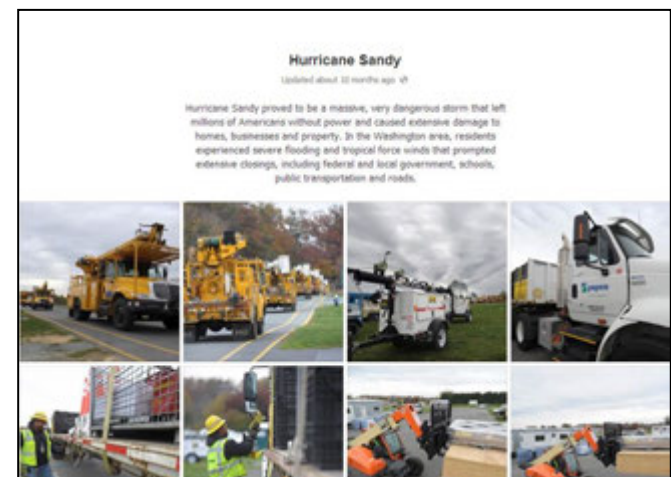
- Customer opinion became much more critical after 6-7 days / 50% restoration
 - Social media can provide more granular information as it becomes available
- Maps with estimated restoration efforts were a significant help
 - Social media can provide more granular information as it becomes available
- Email and phone call topics are repetitive; inefficient way to communicate
 - Social media can answer common questions via one-to-many vs. one-to-one email, phone call

Utility peers: best practices from Hurricane Sandy

BG&E, PSEG, Pepco, National Grid



- Be proactive: start messaging as soon as a forecast is clear
- Offer visual evidence of work through photos and video
- Use a story-telling approach, treat the story as a news story with the utility as a reporter
- Post frequently
- Engage influencers (media, public officials)
- Give credit to mutual assistance crews, makes the story viral across the country



Best practices – industry research


Chartwell, J.D. Power, EPRI



- Define a strategy and clear objectives, but be flexible
- Identify internal staffing and resource needs early
- Perform dry run of outage and emergency management incorporating social media
- Notify customers what to expect when a storm approaches & inform them how often they will be updated
- Have reliable information to communicate: make sure ERTs are accurate
- Twitter is best channel for outage communications
- Integrate with existing communication channels – keep information consistent
- Monitor public perceptions of outage restoration
- Proactively prepare for and address negative comments
- Give customers more granularity of information
- Empower employees as ambassadors with tools and common messaging
- Social media isn't replacing traditional media, but another avenue to engage consumers

CenterPoint Energy Social Media

Twitter @cnpalerts

CenterPoint Energy
Always There.*

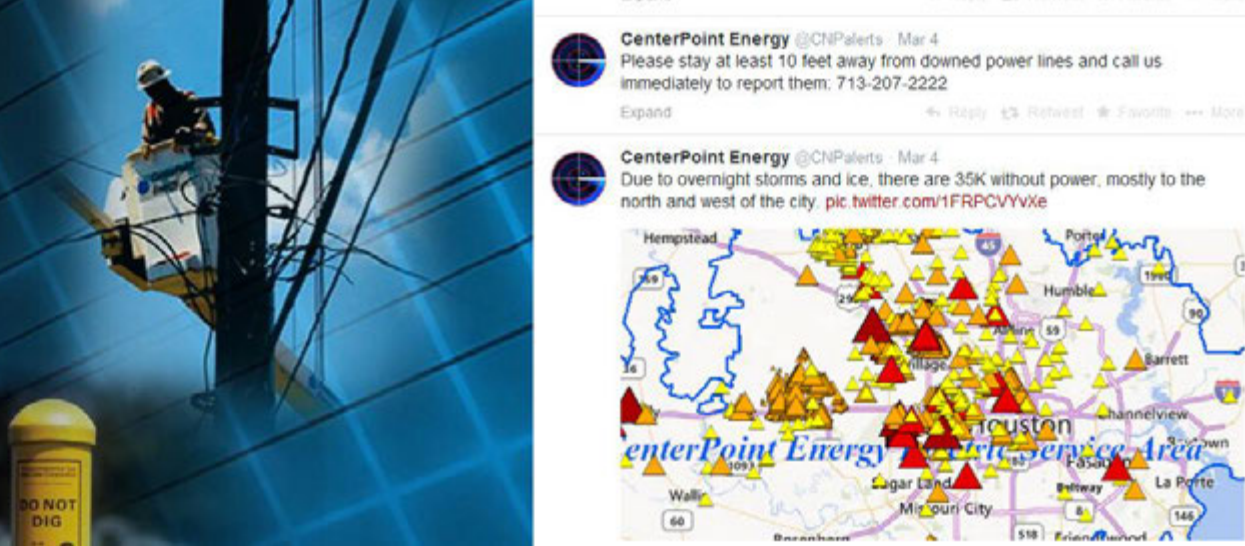
This account is for breaking news on service impacting events. This account is not monitored 24/7.

To report electric power outages or electric emergencies, please call 713-207-2222 or 800-332-7143.
CenterPointEnergy.com/OutageTracker

If you smell gas in your home
Step 1: LEAVE!
Do not use electric switches or (cell) phones, which could cause a spark.
Step 2: From a safe place, call 911 and our natural gas leak hotline: 888-876-5786, or Minneapolis 800-722-9326.
For customer service, visit CenterPointEnergy.com/selfservice.

Pipeline safety
Look for discolored vegetation, bubbling water, fog, mist, around yellow markers.
Listen for hissing or roaring sounds.
Smell petroleum odor like rotten eggs.

DO NOT DIG



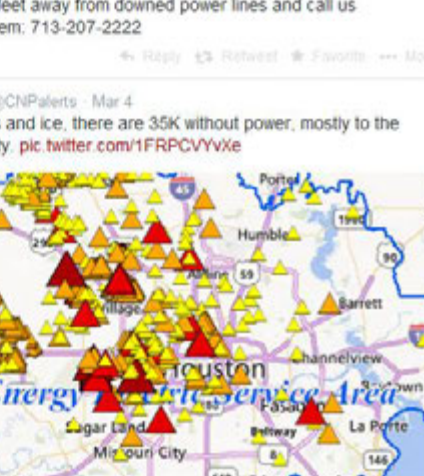
CenterPoint Energy
@CNPalerts

Follow us for breaking information on events impacting the delivery of electric or natural gas service to our customers. Also follow @energyinsights.
Houston, TX - centerpointenergy.com/newsroom

CenterPoint Energy @CNPalerts · Mar 4
You can view outages on our Outage Tracker here: bit.ly/QQWFuN (Flash required). Now down to 29K outages.
Expand

CenterPoint Energy @CNPalerts · Mar 4
Please stay at least 10 feet away from downed power lines and call us immediately to report them: 713-207-2222
Expand

CenterPoint Energy @CNPalerts · Mar 4
Due to overnight storms and ice, there are 35K without power, mostly to the north and west of the city. pic.twitter.com/1FRPCVYvXe



CenterPoint Energy Social Media

Facebook: @cnpalerts Twitter feed



The screenshot shows a Twitter feed for the account CenterPoint Energy (@cnpalerts). The header includes the Facebook logo, a search bar, and the account name "CenterPoint Energy" with a dropdown menu showing "CNP Alerts". The profile information for @cnpalerts is displayed, including a bio and a "Follow" button. The feed contains several tweets:

- CenterPoint Energy @CNPalerts** (Apr 14): "As always, call us at 713-207-2222 to report outages and downed power lines. #houwx #houston"
- CenterPoint Energy @CNPalerts** (Apr 14): "You can also look for the CenterPoint Energy outage app in your app store. #houwx"
- CenterPoint Energy @CNPalerts** (Apr 14): "With severe weather on tap for today, remember to check our Outage Tracker for outage info (Flash required): <http://t.co/G0QH5ISvwD> #houwx"
- John Dawson @JohnDawsonFox26** (Apr 14): RT by @CNPalerts. "Wet and windy today! Severe Thunderstorm Watch (yellow) until 5pm. Windy Advisory (brown) until 9pm. <http://t.co/wJ3Q...>"
- CenterPoint Energy @CNPalerts** (Apr 08): "@meauho It appears to be a cable line, not a power line."
- CenterPoint Energy @CNPalerts** (Apr 08): "@meauho Thank you for reporting. I forwarded to the service area manager, crews are inspecting."
- KPRC Local 2 Houston @KPRCLocal2** (Apr 08): RT by @CNPalerts. "Wind advisory has been issued by the National Weather Service for Southeast Texas until 7PM <http://t.co/GGc303qnTB> <http://t...>"

CenterPoint Energy Social Media

[YouTube.com/centerpointenergyvid](https://www.youtube.com/centerpointenergyvid)



How CenterPoint Energy restores power after a major storm

CNP's EOP social media plan

Leverage existing resources and the unique strengths of social media to provide available high-value information



Before a storm and beginning day 1 following a storm, CNP will

- Monitor social media
- Determine hash tags to maximize reach
- Add Twitter, Facebook, YouTube to CNP's traditional platforms to rebroadcast and amplify CNP outage, restoration, and safety messaging:

Existing general information and templates for system-wide specifics

- Process expectations - how we restore power; what and how often we will post
 - 24/7 initial operations; as event proceeds, follow public update schedule (est. 6 a.m. –11 p.m.)
 - Proactive posts every 15-30 minutes
- Electric and gas safety messaging – before, during and after storm
- Resources - supplies to have on hand, where to get help, videos (e.g. generator tips)
- System-wide outage counts
- System-wide ERTs by storm category
- Response to inquiries – system level, one-to-many responses
- Answers to questions from field and rumor control

CNP's EOP social media plan

Key takeaways from early damage assessment phase



- Initial damage assessment phase of recovery uses social media primarily as one-way megaphone
 - Reaches audience where they are with the tools they have in hand
 - Provides general information on safety and resources
 - Offers specific information about outage counts, default restoration estimates
 - Aligns with other communication channels
- Potential to reduce calls and e-mails through extended reach
 - Media, first response organizations, local officials, regulators, etc., use social media to communicate during events. About **150** @cnpalerts followers are in this category with more than **500,000** followers of their own. This number will grow substantially during a major event.



**Retweeted by KHOU
and Houston OEM,
reaching their
combined 41,000
followers.**

CNP's EOP social media plan

Handling the inevitable questions



We expect thousands of questions and comments

- We do not plan to respond to every question that is sent to us
- We will answer FAQs and respond to high-profile social media users with large numbers of followers or key community members
- This will help spread our messages widely without cluttering our feed
- Avoids diluting the broader messages we want to spread

Response criteria:

- Can we answer the question?
- Is there a broad audience for the answer?
- Does the question come from an influencer with many followers?

What's new: use of Crew Spokesperson Leads for neighborhood-level messages



- CSLs will coordinate development of neighborhood-level messaging and serve as field/communications liaison
- CSLs are already on the ground and knowledgeable about activities in their neighborhoods
- CSLs monitor/document trends/issues/customer questions as reported by crew spokespersons
- Participate in Service Area Director calls with Incident Command Center and emergency management personnel
- Complete daily Social Media Progress Report
- Share latest information with crew spokespersons and CNP social media team

CNP's EOP social media plan

Neighborhood information optimized following transition from damage assessment to localized restoration



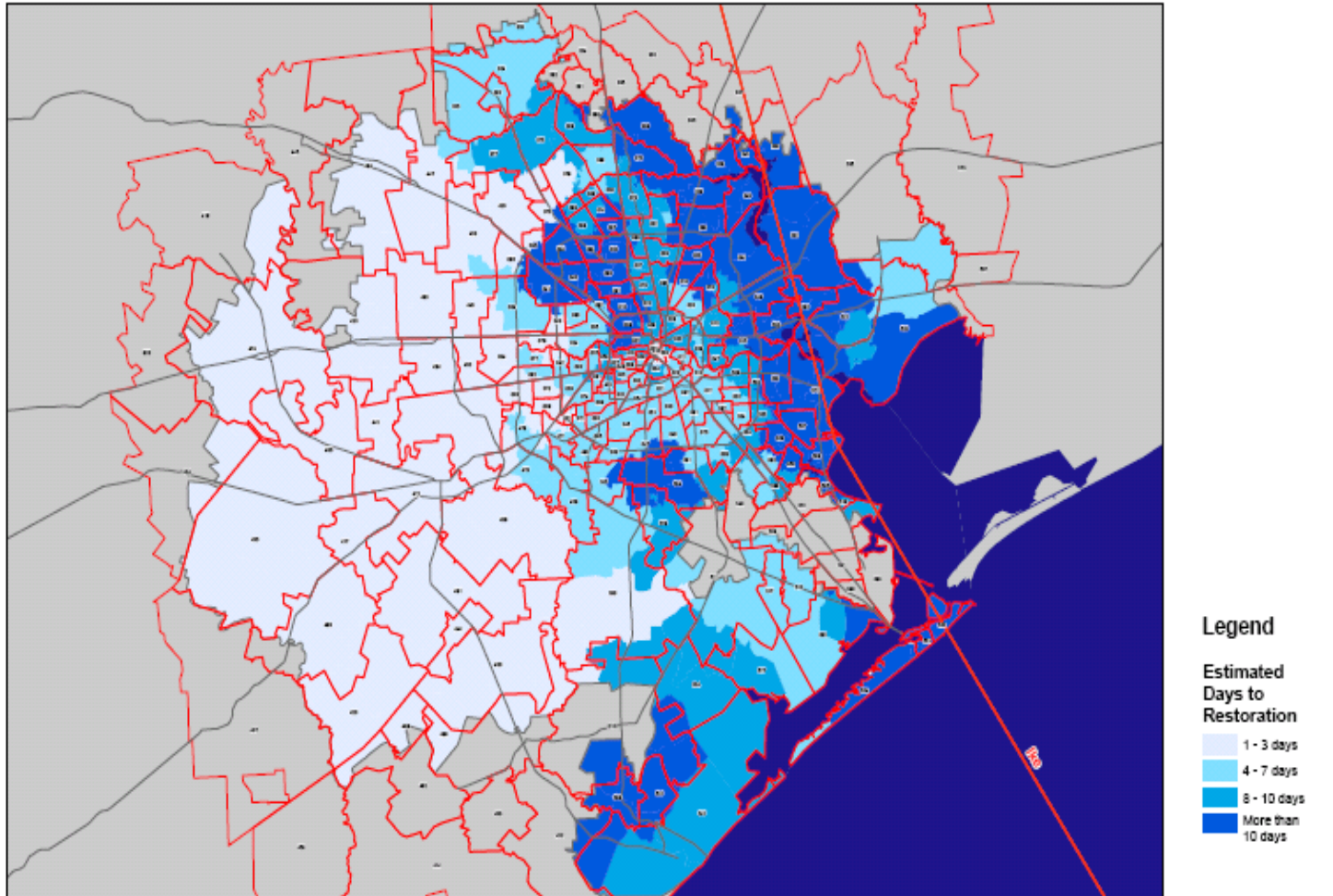
- Facebook tab and Twitter hash tag for each of 14 service centers
 - Maps/zip code charts to guide customers
 - Neighborhood information within each Service Center area provided by Crew Spokesperson Leads
 - Crews in area
 - Key facilities energized
 - Work locations
 - Circuit/Substation restoration progress and estimated time of completion
 - Hazardous conditions
 - Coincides with outage map estimates of restoration by circuit
 - Respond to customer, local official questions with information on their area
- Neighborhood-level data sources can provide more granular restoration information

CNP Outage Tracker - storm mode

ERTs by sub-areas of system with zip code overlay



Sample - Estimated Restoration Date Symbology - 4 classes

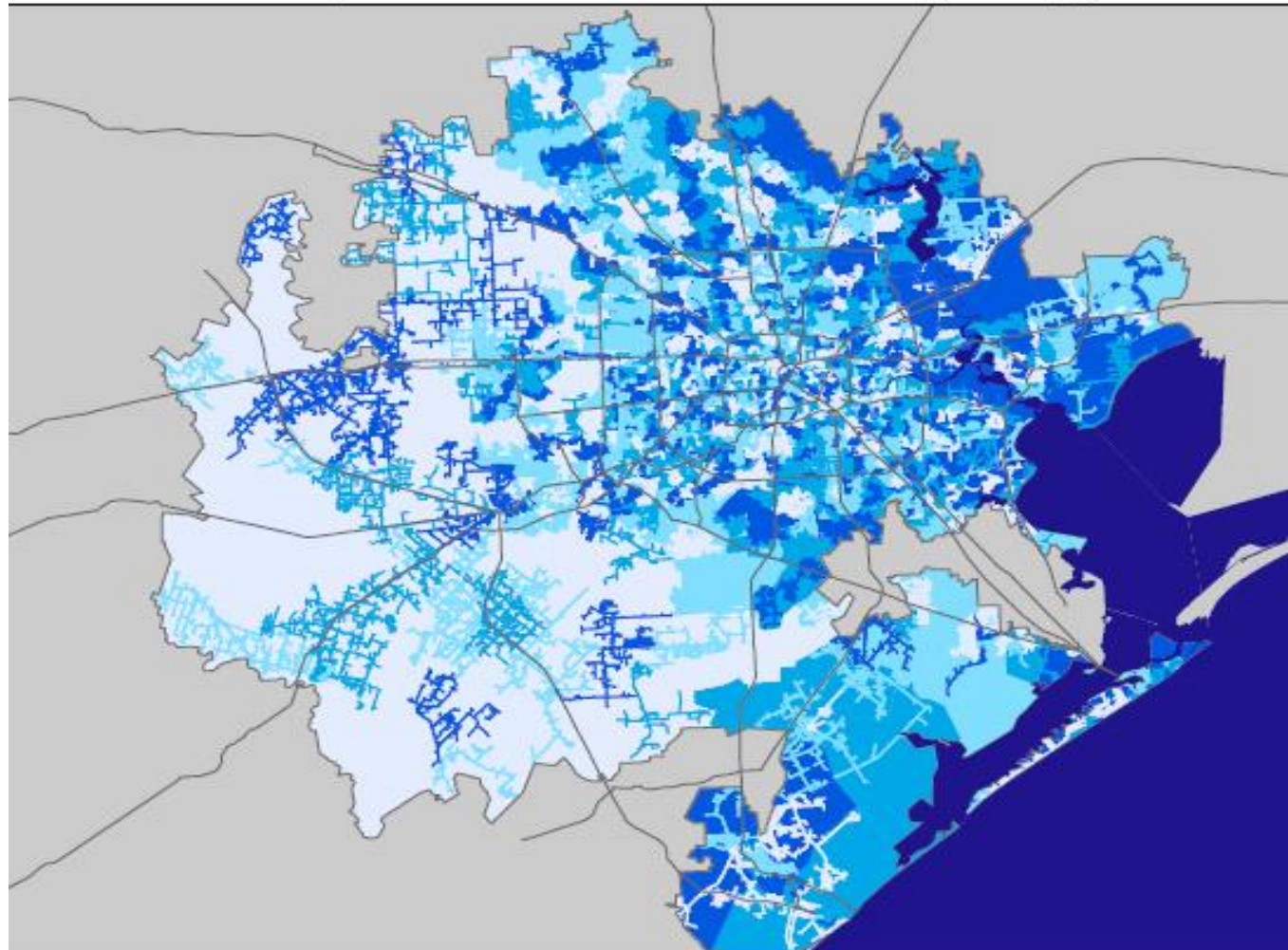


CNP Outage Tracker - storm mode

Estimated Restoration Dates by circuit



Sample - Estimated Restoration Date Symbology - 4 classes



CNP's EOP social media plan

Custom content that leverages the strengths of social media will be added to initial pre-written content on expectations, safety, resources



- CNP-produced news from content created for public officials, employees, mutual assistance crews
- Video coverage of news conferences (e.g. Transtar) messages from executives etc.
- Videos of crews in action – use of phone cameras adds element of credibility
- Photos of damage as sent by crew spokespeople
- Enhanced outage map with estimated restoration by circuit level
- Sub-system outage information/restoration estimates (in alignment with outage map)
- Information from crew spokesperson lead reports
- Response to inquiries: sub-area ERTs/refer to map, one-to-many responses
- Allows CNP to communicate our message directly to the public

CNP's EOP social media plan

Conclusion



- Experience from smaller storms has helped us prepare for an emergency
- We have studied best practices in large storms
- Messaging has already been created and used
- Channels are well-established and growing
- Neighborhood-level information addresses customer need

CenterPoint Energy Houston Electric

Competitive Retailer Workshop

April 30, 2014

CenterPoint Energy Efficiency Programs

Lesli Bothwell Cummings

April 30, 2014

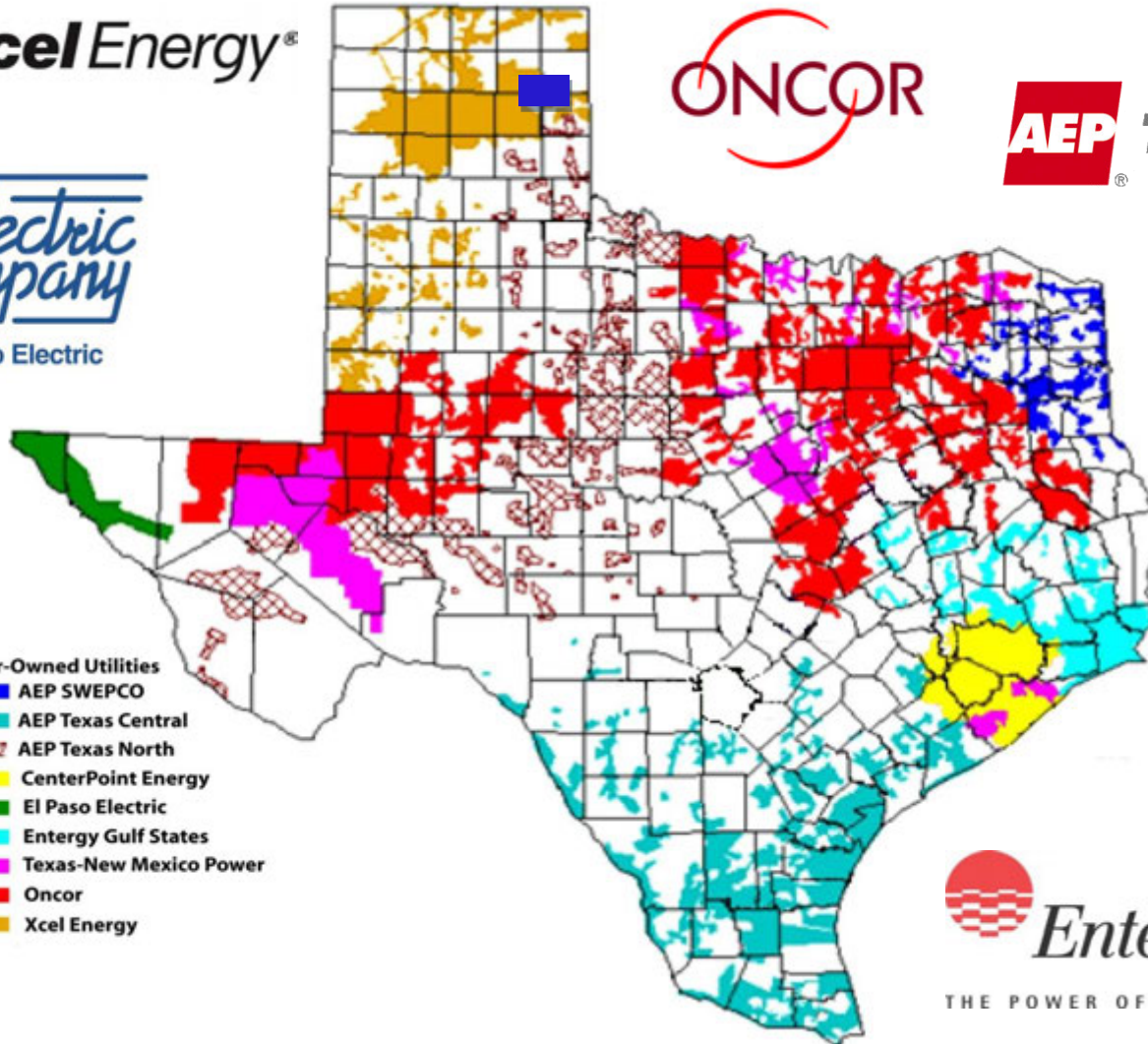
- Outline
 - I. Public Utility Commission (PUC) Requirements
 - II. Program Performance
 - III. CenterPoint's 2014 Energy Efficiency Plan
 - IV. EECRF
 - V. CenterPoint's Role in Energy Efficiency
 - VI. REP Program

Texas Energy Efficiency



Investor-Owned Utilities

- AEP SWPCO
- AEP Texas Central
- AEP Texas North
- CenterPoint Energy
- El Paso Electric
- Entergy Gulf States
- Texas-New Mexico Power
- Oncor
- Xcel Energy



Regulatory Requirement



- *Annual kW and kWh savings through EE programs,*
- *Summer Peak period June 1st – September 30th*

Senate Bill 7

• 2002 - 2007
• MW Goal @ 10%

House Bill 3693

• 2008
• MW Goal @ 15%

House Bill 3693

• 2009 - 2011
• MW Goal @ 20%

2010 Amended Rule

• 2012
• MW Goal @ 25%

2010 Amended Rule

• 2013
• MW Goal @ 30%

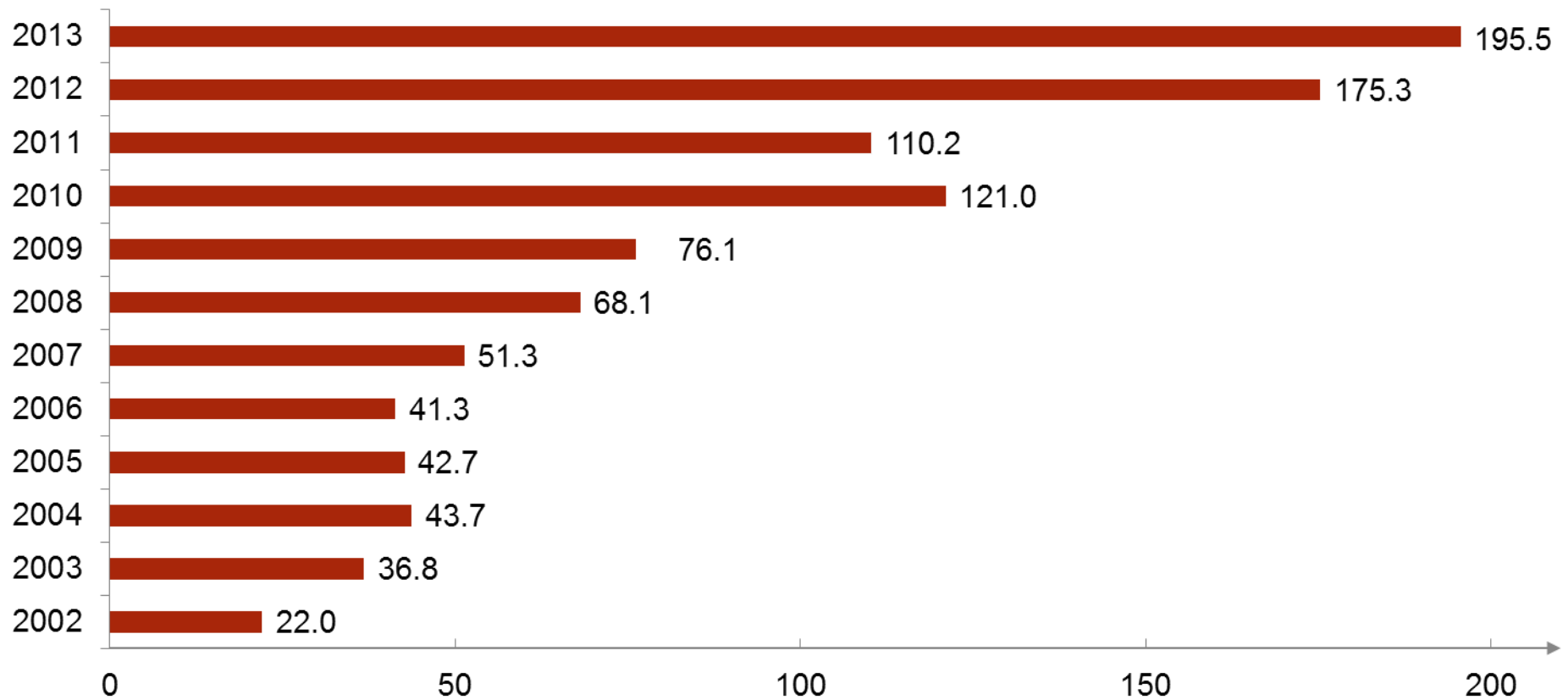
2012 Amended Rule

• 2014 & beyond
• MW Goal @ 0.4% of Peak

Program Performance



Historical Achievements



- 2014 Program Year
 - \$39,305,100
 - 57.60 MW Goal (0.4% of peak demand)
 - 148.79 MW Expected Demand Savings
 - 184,883.40 MWh Expected Energy Savings
 - 100 MW in Load Management
 - 16 programs in 3 different market segments
 - \$350,000 in Research and Developer



Energy Efficiency Impact



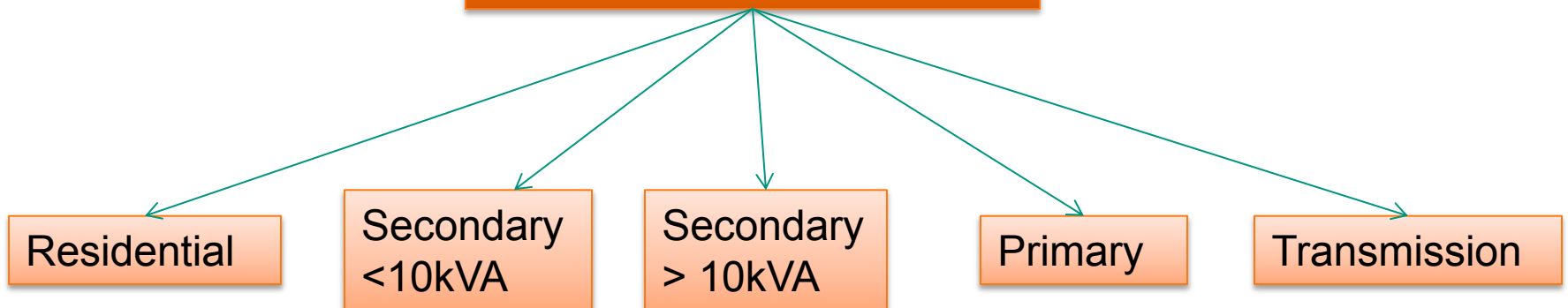
- **184,883,400 kWh in Energy Savings**
 - Greenhouse gas emissions from:
 - 23,299 passenger vehicles
 - 39,667 tons of waste
 - CO₂ emissions from:
 - 12,534,119 gallons of gasoline consumed
 - 10,098 homes' energy use for one year
 - 0.029 coal-fired power plants in one year
 - Carbon sequestered by 90,714 acres of forest



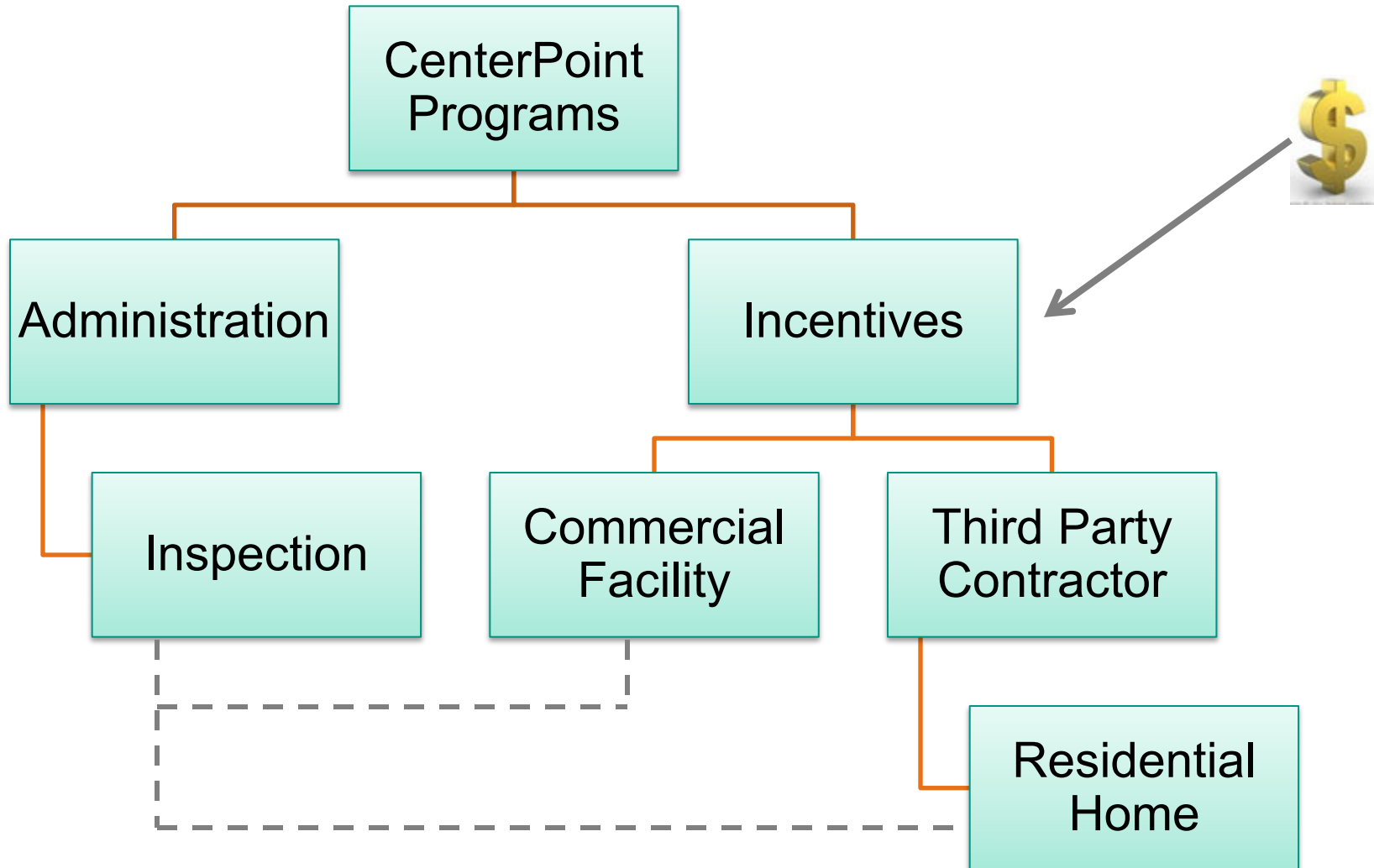
EECRF Collection



Expected Usage



CenterPoint Energy's Role



Types of Programs



Standard Offer

Market Transformation

6 Commercial Programs

9 Residential & HTR Programs

2 Educational Programs



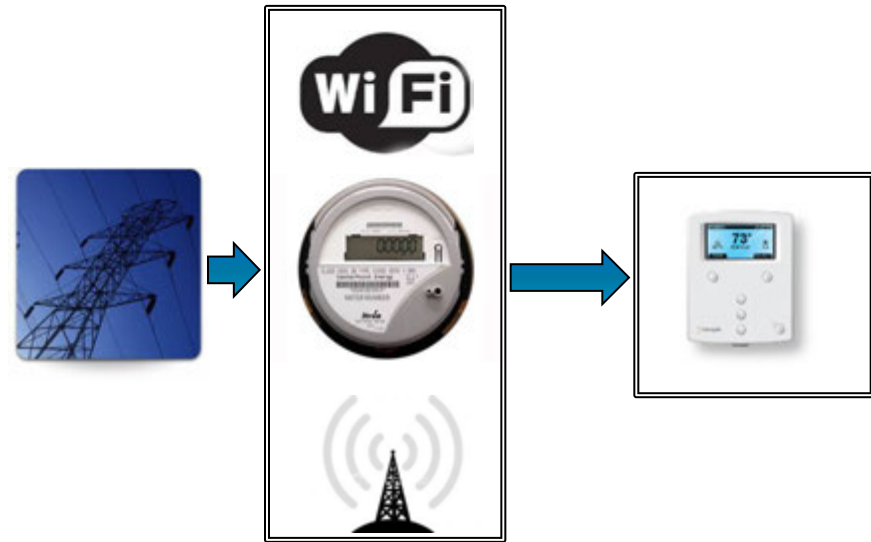
- A/C Tune up



2014 REP Program



- A/C Tune Up
- A/C Replacement
- Residential DR
- ...and more!



2014 REP Pilot Program



Budget = \$2,800,000



Program Information



- Web site: www.centerpointefficiency.com
- Contact: David Dzerski 713-207-3341