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

Lead the nation in delivering energy, service and value

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 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 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

<table>
<thead>
<tr>
<th>Values</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAFETY</td>
<td>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.</td>
</tr>
<tr>
<td>INTEGRITY</td>
<td>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.</td>
</tr>
<tr>
<td>ACCOUNTABILITY</td>
<td>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.</td>
</tr>
<tr>
<td>INITIATIVE</td>
<td>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.</td>
</tr>
<tr>
<td>RESPECT</td>
<td>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.</td>
</tr>
</tbody>
</table>
Safe Digging

- **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](https://twitter.com/energyinsights)
Electric Technology

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

04302014
Agenda

- 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

<table>
<thead>
<tr>
<th>2013</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st Quarter</td>
<td>1st Quarter</td>
</tr>
<tr>
<td>2nd Quarter</td>
<td>2nd Quarter</td>
</tr>
<tr>
<td>3rd Quarter</td>
<td>3rd Quarter</td>
</tr>
<tr>
<td>4th Quarter</td>
<td>4th Quarter</td>
</tr>
<tr>
<td>Third-Party Design AMIT / SMT DO</td>
<td>Security Validation</td>
</tr>
<tr>
<td>Third-Party Security Independent Review</td>
<td>Security Validation</td>
</tr>
<tr>
<td>Third-Party Customer Experience Review</td>
<td>Design Assessment</td>
</tr>
<tr>
<td>Additional Solution Requirements</td>
<td>SMT Customer Experience Changes</td>
</tr>
<tr>
<td>SMT Customer Experience Changes</td>
<td>Third-Party Technical Design &amp; Development</td>
</tr>
<tr>
<td>Third-Party Volunteer Testers Technical Integration Sessions and Testing</td>
<td>Third-Party Market Integration / Instruction Webinars</td>
</tr>
<tr>
<td>Third-Party Solution SIT and UAT Testing</td>
<td>Third-Party Implementation</td>
</tr>
</tbody>
</table>

Legend
- Completed
- In Process
- Future Task
Advanced Metering Working Group

- 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
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
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/](http://www.ercot.com/committees/board/tac/rms/amwg/).

- Meeting schedule is posted on the ERCOT Calendar at [http://www.ercot.com/](http://www.ercot.com/).
Energy Insight Center - Continued

- 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

- 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)
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”
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.™
“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?

Define

- Determine Level of Automation
- Start: Operational Need
- Determine Type of Analytics Required
- Business Process & Analytical Control Points
- Business Outcome Defined
- Phase One

Validate

- Confirm Business Outcome is met
- Start: Define Hypothesis
- Determine Data Set Required
- Determine Conditions, Criteria and Scenarios
- Phase Two

Deliver

- Learn, Improve & Optimize Analytics Process
- Start: Define Business Rules, Requirements & Technical Design
- Execute & Validate Analytics
- Phase Three
- Build, Test, Implement & Deploy Industrial Solution
- Define Controls & Error Management

Our Strategy: Operate, Serve, Grow
Progression of Analytics at CNP

Predictive Analytics

Situational Awareness

Reports
Initial Progress 2012

Value

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

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)

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)
• 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”)

• 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”)

• 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

Single Transformer Report with Actual & Predicted Load

Diversion (Theft) Detection

Possible Diversion:
- Move In
- Service Restored
  - But Lower usage
- Break in Service
Real-Time Situational Awareness

Grid Performance and Outage Management

SAIDI and SAIFI are calculated on 1 minute intervals.

PON / PRN Reporting. Crew coordination in response to outage cases.
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
Benefits Achieved

- **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
Primary communication: WiMAX tower based Access Points communicate with Cell Relays/ meter data collectors
Secondary Communications (Redundancy): Cell Relays and IG devices can fail over to secondary network in the event of loss of WiMAX connectivity or WiMAX maintenance.

Depending on location and criticality, IG device may have different secondary communication solution.

Meters form a mesh network and communicate with Cell Relays (collectors) at a designed ratio of approximately 400:1.
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.

![Graph showing transport tickets resolution mix between 2012 and 2013]
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.
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
- Drive to full automated orders with predicted “next best action”
- Implement System of Systems Manager
- Advanced Analytics correlations & predictions
- 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
- 2011-2012
- 2013
- 2014
Greentech Media ranks CNP tops in Smart Grid maturity

Overall Maturity Ranking by Utility

Average Maturity

1 to 2
25%

2 to 3
43%

3 to 4
25%

4 to 5
7%
Benefits of ADS

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

Phase 1: Customer Insight
- Analytics – Awareness
- Advanced Self-Healing Grid – ADMS and Infrastructure
- Aggr Demand Mgmt

Phase 2: Customer Engagement
- Power Alert Service
- Customer Vision Platform
- Analytics – Prediction
- Big Data
- Volt/Var
- DR Pilot

Phase 3: Additional Value
- Biggest Energy Saver
- Customer Vision Platform
- Power Alert Service
- Analytics – Prediction
- Aggr Demand Mgmt

Before 2013 | 2013 | 2014 | 2015+
---|---|---|---
Smart Meters
HAN Devices
Smart Meter Texas

We are Here
We could not deliver with out the assistance of our Vendors!
Per the DOE Grant Agreement,:
“If you publish or otherwise make publicly available the results of the work conducted under the award, an acknowledgment of Federal Support and a disclaimer must appear in the publication of any material, whether copyrighted or not, based on or developed under this project, as follows:”

Acknowledgment: “This material is based upon work supported by the Department of Energy under Award Number [DE-OE000210]”

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Houston Overview

Presented by
Patrick Jankowski, Vice President, Research

GREATER HOUSTON PARTNERSHIP
houston.org
Follow me on Twitter @pnjankowski

Read my blog: www.houston.org/economy/blog

Connect with me: www.linkedin.com/in/pnjankowski
So where are you?

You are HERE.
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**

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

<table>
<thead>
<tr>
<th>Rank</th>
<th>20 Most Populous Metros</th>
<th>$ Billions</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>Miami</td>
<td>274.1</td>
</tr>
<tr>
<td>12</td>
<td>Seattle</td>
<td>258.8</td>
</tr>
<tr>
<td>13</td>
<td>Minneapolis</td>
<td>220.2</td>
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<tr>
<td>14</td>
<td>Detroit</td>
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<tr>
<td>15</td>
<td>Phoenix</td>
<td>201.7</td>
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<tr>
<td>16</td>
<td>San Diego</td>
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<tr>
<td>17</td>
<td>St. Louis</td>
<td>136.7</td>
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<tr>
<td>18</td>
<td>Baltimore</td>
<td>157.3</td>
</tr>
<tr>
<td>19</td>
<td>Tampa</td>
<td>119.9</td>
</tr>
<tr>
<td>20</td>
<td>Riverside, CA</td>
<td>113.9</td>
</tr>
</tbody>
</table>

Source: U.S. Bureau of Economic Analysis
## Second Fastest Growing Major Metro

<table>
<thead>
<tr>
<th>Rank</th>
<th>20 Most Populous Metros</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>San Francisco</td>
<td>7.4</td>
</tr>
<tr>
<td>2</td>
<td><strong>Houston</strong></td>
<td><strong>5.3</strong></td>
</tr>
<tr>
<td>3</td>
<td>Seattle</td>
<td>4.6</td>
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<tr>
<td>4</td>
<td>Dallas-Ft Worth</td>
<td>4.3</td>
</tr>
<tr>
<td>5</td>
<td>Minneapolis</td>
<td>3.9</td>
</tr>
<tr>
<td>6</td>
<td>Miami</td>
<td>3.5</td>
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<tr>
<td>7</td>
<td>Phoenix</td>
<td>3.2</td>
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<tr>
<td>8</td>
<td>Baltimore</td>
<td>3.2</td>
</tr>
<tr>
<td>9</td>
<td>Los Angeles</td>
<td>3.1</td>
</tr>
<tr>
<td>10</td>
<td>Tampa</td>
<td>3.1</td>
</tr>
</tbody>
</table>

**Source:** U.S. Bureau of Economic Analysis
Houston has a long history of economic growth.

Metro Houston GDP
$ Billions*

<table>
<thead>
<tr>
<th>Year</th>
<th>GDP</th>
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<tbody>
<tr>
<td>'03</td>
<td>$248.1</td>
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<tr>
<td>'04</td>
<td>$279.4</td>
</tr>
<tr>
<td>'05</td>
<td>$301.5</td>
</tr>
<tr>
<td>'06</td>
<td>$333.6</td>
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<td>'07</td>
<td>$373.1</td>
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<td>'08</td>
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<td>'09</td>
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<tr>
<td>'10</td>
<td>$386.1</td>
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<tr>
<td>'11</td>
<td>$425.3</td>
</tr>
<tr>
<td>'12</td>
<td>$449.4</td>
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</tbody>
</table>

* Nominal Dollars
Source: U.S. Bureau of Economic Analysis
Population
# Fifth Most Populous Metro

## Most Populous U.S. Metro Areas - 2013

<table>
<thead>
<tr>
<th>Rank</th>
<th>Metro Area</th>
<th>Population</th>
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<tbody>
<tr>
<td>1</td>
<td>New York</td>
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<tr>
<td>2</td>
<td>Los Angeles</td>
<td>13,131,431</td>
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<td>Chicago</td>
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<td>4</td>
<td>Dallas-Fort Worth</td>
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<tr>
<td>5</td>
<td>Houston</td>
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<tr>
<td>6</td>
<td>Philadelphia</td>
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<tr>
<td>7</td>
<td>Washington</td>
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<tr>
<td>8</td>
<td>Miami</td>
<td>5,828,191</td>
</tr>
<tr>
<td>9</td>
<td>Atlanta</td>
<td>5,522,942</td>
</tr>
<tr>
<td>10</td>
<td>Boston</td>
<td>4,684,299</td>
</tr>
<tr>
<td>11</td>
<td>San Francisco</td>
<td>4,516,276</td>
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<tr>
<td>12</td>
<td>Phoenix</td>
<td>4,398,762</td>
</tr>
<tr>
<td>13</td>
<td>Riverside</td>
<td>4,380,878</td>
</tr>
<tr>
<td>14</td>
<td>Detroit</td>
<td>4,294,983</td>
</tr>
<tr>
<td>15</td>
<td>Seattle</td>
<td>3,610,105</td>
</tr>
<tr>
<td>16</td>
<td>Minneapolis</td>
<td>3,459,146</td>
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<tr>
<td>17</td>
<td>San Diego</td>
<td>3,211,252</td>
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<tr>
<td>18</td>
<td>Tampa</td>
<td>2,870,569</td>
</tr>
<tr>
<td>19</td>
<td>St. Louis</td>
<td>2,801,056</td>
</tr>
<tr>
<td>20</td>
<td>Baltimore</td>
<td>2,770,738</td>
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</table>

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

Source: U.S. Census Bureau
Growth is the norm for Houston

Metro Houston Population Growth

'90 Population
3.7 Million

'00 Population
4.7 Million

'10 Population
5.9 Million

'13 Population
6.3 million

Growth is the norm for Houston

forecast

Source: U.S. Census Bureau

GREATER HOUSTON PARTNERSHIP
houston.org
Employment

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

Source: Texas Workforce Commission

GREATER HOUSTON PARTNERSHIP
houston.org
Houston vs. the Top Metros

Percent of jobs recovered through February ’14

Houston vs. Top 10 Metros

- Houston: 302.2%
- Dallas: 212.5%
- Washington: 166.0%
- Boston: 162.1%
- Baltimore: 132.8%
- New York: 125.2%
- Seattle: 121.6%
- Minneapolis: 114.9%
- San Diego: 113.9%
- Miami: 87.7%
- Atlanta: 87.6%
- Los Angeles: 76.1%
- Tampa: 70.8%
- Riverside: 67.8%
- Chicago: 66.1%
- Phoenix: 62.9%
- Philadelphia: 53.1%
- St. Louis: 46.7%
- Detroit: 29.7%

Source: U.S. Bureau of Labor Statistics
Seasonally adjusted
Annual job growth

Source: U.S. Bureau of Labor Statistics
Unemployment

Unadjusted, Houston Metro Area, '04 - '15

Source: Texas Workforce Commission

5.2% = Houston’s current unemployment rate

Source: Texas Workforce Commission
What’s driving Houston’s growth
Energy Industry Jobs

Houston Metro Area

Employment (000s)

Source: Texas Workforce Commission

GREATER HOUSTON PARTNERSHIP
houston.org
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
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

GREATER HOUSTON PARTNERSHIP
houston.org
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)
State of Texas Drilling Activity

Wells CompletedAnnually

Source: Texas Railroad Commission

17,337
15,279
9,939
8,790
15,041
24,922

'08 '09 '10 '11 '12 '13

Source: Texas Railroad Commission
State of Texas Oil Production

Texas Crude Oil Production
Barrels ( Millions )

<table>
<thead>
<tr>
<th>Year</th>
<th>Production (Millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>'08</td>
<td>347</td>
</tr>
<tr>
<td>'09</td>
<td>345</td>
</tr>
<tr>
<td>'10</td>
<td>357</td>
</tr>
<tr>
<td>'11</td>
<td>394</td>
</tr>
<tr>
<td>'12</td>
<td>533</td>
</tr>
<tr>
<td>'13*</td>
<td>678</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Company</th>
<th>Facility</th>
<th>Timing</th>
<th>Added Ethylene (mmlbs/yr)</th>
<th>Est. Ethane Consumed (kbpd)</th>
<th>TPHe Cost ($mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>WMB</td>
<td>Geismar (E/P) - New Furnace, Increased C2</td>
<td>Q4 2013</td>
<td>600</td>
<td>17,000</td>
<td>300</td>
</tr>
<tr>
<td>LYB</td>
<td>Midcon Plants (E/P) - Debottleneck, +C2</td>
<td>2013</td>
<td>100</td>
<td>3,000</td>
<td>50</td>
</tr>
<tr>
<td>DOW</td>
<td>Freeport 7 (E/P) - Debottlenecking, +C2</td>
<td>2013</td>
<td>250</td>
<td>7,000</td>
<td>125</td>
</tr>
<tr>
<td>WLK</td>
<td>Lake Charles 2 (E/P) - New Furnace, +C2</td>
<td>2014</td>
<td>250</td>
<td>7,000</td>
<td>125</td>
</tr>
<tr>
<td>WLK</td>
<td>Calvert City (Propane) - Conversion to C2</td>
<td>2014</td>
<td>630</td>
<td>16,000</td>
<td>315</td>
</tr>
<tr>
<td>LYB</td>
<td>La Porte (E/P) - New Furnace, Increased C2</td>
<td>2014</td>
<td>850</td>
<td>24,000</td>
<td>1,700</td>
</tr>
<tr>
<td>INEOS</td>
<td>Chocolate Bayou (Flexi) - New Furnace, +C2</td>
<td>2014</td>
<td>500</td>
<td>14,000</td>
<td>250</td>
</tr>
<tr>
<td>INEOS</td>
<td>Chocolate Bayou (Flexi) - Debottleneck, +C2</td>
<td>2014</td>
<td>100</td>
<td>3,000</td>
<td>52</td>
</tr>
<tr>
<td>DOW</td>
<td>Plaquemine (E/P) - Debottlenecking</td>
<td>2014</td>
<td>82</td>
<td>8,000</td>
<td>41</td>
</tr>
<tr>
<td>DOW</td>
<td>Plaquemine (E/P) - New Furnace</td>
<td>2014</td>
<td>400</td>
<td>11,000</td>
<td>200</td>
</tr>
<tr>
<td>BASF/TOT</td>
<td>Port Arthur (Heavy) - New Furnace, +C2</td>
<td>2014</td>
<td>420</td>
<td>12,000</td>
<td>210</td>
</tr>
<tr>
<td>BASF/TOT</td>
<td>Port Arthur (Heavy) - Debottleneck, +C2</td>
<td>2014</td>
<td>2,450</td>
<td>30,000</td>
<td>1,225</td>
</tr>
<tr>
<td>Formosa</td>
<td>Pt. Comfort (Flexi) - New Ethane Train</td>
<td>2015</td>
<td>1,800</td>
<td>51,000</td>
<td>900</td>
</tr>
<tr>
<td>Other</td>
<td>Potential Unnamed Restart</td>
<td>2015</td>
<td>705</td>
<td>18,000</td>
<td>370</td>
</tr>
<tr>
<td>DOW</td>
<td>Freeport 8 (Flexi) - Debottlenecking</td>
<td>2016</td>
<td>299</td>
<td>28,000</td>
<td>149</td>
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<tr>
<td>DOW</td>
<td>Freeport 8 (Flexi) - New Furnace</td>
<td>2016</td>
<td>500</td>
<td>14,000</td>
<td>250</td>
</tr>
</tbody>
</table>

**Potential Newbuild Crackers**

<table>
<thead>
<tr>
<th>Company</th>
<th>Facility</th>
<th>Timing</th>
<th>Added Ethylene (mmlbs/yr)</th>
<th>Est. Ethane Consumed (kbpd)</th>
<th>TPHe Cost ($mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>XOM</td>
<td>Baytown, TX Cracker/Derivative Complex</td>
<td>2016</td>
<td>3,300</td>
<td>92,000</td>
<td>5,000</td>
</tr>
<tr>
<td>OXY/MexiChem</td>
<td>Ingleside, TX Cracker/PVC Complex</td>
<td>2016</td>
<td>1,200</td>
<td>34,000</td>
<td>1,300</td>
</tr>
<tr>
<td>CVX/COP</td>
<td>Newbuild TX Cracker and Derivative Complex</td>
<td>2017</td>
<td>3,300</td>
<td>92,000</td>
<td>5,000</td>
</tr>
<tr>
<td>DOW</td>
<td>Freeport, TX Cracker/Derivative Complex</td>
<td>2017</td>
<td>3,300</td>
<td>92,000</td>
<td>3,300</td>
</tr>
<tr>
<td>SASOL</td>
<td>Feasibility Study for Ethylene Complex by 6/13</td>
<td>2018</td>
<td>3,300</td>
<td>92,000</td>
<td>3,500</td>
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<tr>
<td>RDS</td>
<td>Marcellus, PA Cracker</td>
<td>2019</td>
<td>3,300</td>
<td>92,000</td>
<td>4,000</td>
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</table>

**Total from Potential Newbuilds**

<table>
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<tr>
<th>Added Ethylene (mmlbs/yr)</th>
<th>Est. Ethane Consumed (kbpd)</th>
<th>TPHe Cost ($mm)</th>
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</thead>
<tbody>
<tr>
<td>17,700</td>
<td>494,000</td>
<td>22,150</td>
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</tbody>
</table>

**Total Including Lower Likelihood Projects by 2020**

<table>
<thead>
<tr>
<th>Added Ethylene (mmlbs/yr)</th>
<th>Est. Ethane Consumed (kbpd)</th>
<th>TPHe Cost ($mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>27,635</td>
<td>787,000</td>
<td>28,413</td>
</tr>
</tbody>
</table>

**As % of Current US**

<table>
<thead>
<tr>
<th>Added Ethylene (mmlbs/yr)</th>
<th>Est. Ethane Consumed (kbpd)</th>
<th>TPHe Cost ($mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>47.3%</td>
<td>72.1%</td>
<td></td>
</tr>
</tbody>
</table>
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
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

<table>
<thead>
<tr>
<th>Period</th>
<th>Description</th>
<th>Jobs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan '91 - Dec '13</td>
<td>Simple Average</td>
<td>44,300</td>
</tr>
<tr>
<td>Jan '91 - Dec '13</td>
<td>Excludes Weak Years#</td>
<td>63,800</td>
</tr>
</tbody>
</table>

# 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

- Professional/Business Services: 15.4
- Trade, Transportation, Utilities: 12.3
- Educational & Health Services: 8.9
- Leisure and Hospitality: 7.0
- Construction: 6.1
- Mining and Logging: 5.6
- Manufacturing: 4.2
- Government: 3.4
- Other Services: 2.0
- Financial Activities: 1.9
- Information: 0.2
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

Houston-Sugar Land-Baytown MSA 2010-2040
($ Billions*)

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

GREATER HOUSTON PARTNERSHIP
houston.org
Houston Overview

Presented by
Patrick Jankowski, Vice President, Research
Post-Hurricane Social Media Communications

Steve Waters
CenterPoint Energy
Digital Communications Supervisor

April 30, 2014
CenterPoint Energy’s emergency operations social media plan

Ike experience + Sandy experience + Best practices = CNP’s EOP 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
• 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
Facebook: @cnpalerts Twitter feed

CenterPoint Energy @cnpalerts
Follow us for breaking information on events impacting the delivery of electric or natural gas service to our customers. Also follow @energymonitors. http://rt.co/lqY6vFns

CenterPoint Energy @cnpalerts
As always, call us at 713-207-2222 to report outages and downed power lines. #houwx #houston

CenterPoint Energy @cnpalerts
You can also look for the CenterPoint Energy outage app in your app store. #houwx

CenterPoint Energy @cnpalerts
With severe weather on tap for today, remember to check our Outage Tracker for outage info (Flash required). http://rt.co/GpQH5I5wD #houwx

John Dawson @JohnDawsonFox26 RT by @cnpalerts
RT @JohnDawsonFox26: Wet and windy today! Severe Thunderstorm Watch (yellow) until 5pm. Windy Advisory (brown) until 9pm. http://rt.co/WuJ3Q

CenterPoint Energy @cnpalerts
@meauno It appears to be a cable line, not a power line.

CenterPoint Energy @cnpalerts
@meauno Thank you for reporting. I forwarded to the service area manager, crews are inspecting.

KPRC Local 2 Houston @KPRCLocal2 RT by @cnpalerts
RT @KPRCLocal2: Wind advisory has been issued by the National Weather Service for Southeast Texas until 7PM http://rt.co/GGC393q1T8 http://rt...
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.
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
- 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

Legend
Estimated Days to Restoration
- 1 - 3 days
- 4 - 7 days
- 8 - 10 days
- More than 10 days
CNP Outage Tracker - storm mode
Estimated Restoration Dates by circuit
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
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 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
- Entergy Texas
- 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%
- 2009 - 2011
  - MW Goal @ 20%

House Bill 3693
- 2012
  - MW Goal @ 25%

2010 Amended Rule
- 2013
  - MW Goal @ 30%

2010 Amended Rule
- 2014 & beyond
  - MW Goal @ 0.4% of Peak

2012 Amended Rule
Program Performance

Historical Achievements

- 2013: 195.5
- 2012: 175.3
- 2011: 110.2
- 2010: 121.0
- 2009: 76.1
- 2008: 68.1
- 2007: 51.3
- 2006: 41.3
- 2005: 42.7
- 2004: 43.7
- 2003: 36.8
- 2002: 22.0
CenterPoint Energy Efficiency

- 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 Development
Energy Efficiency Impact

- 184,883,400 kWh in Energy Savings
  - Greenhouse gas emissions from:
    - 23,299 passenger vehicles
    - 39,667 tons of waste
  - CO\textsubscript{2} 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
CenterPoint Energy’s Role

CenterPoint Programs

Administration

Inspection

Incentives

Commercial Facility

Third Party Contractor

Residential Home
Types of Programs

- Standard Offer
  - 6 Commercial Programs
- Market Transformation
  - 9 Residential & HTR Programs
  - 2 Educational Programs
2013 REP Pilot Program

- 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 Dzierski 713-207-3341