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# Office Building Owners and Management Customer Symposium



April 3, 2017

# Mission



To foster enhanced communication and strengthen long-term relationships with high valued customers through a trusted energy partnership.

# Agenda



- 9:50 a.m.** Welcome and introduction: Gregory Knight, Senior Vice President and Chief Customer Officer, CenterPoint Energy
- 10:00 a.m.** Keynote address – Mark Janssen, Senior Property Manager, Hines Interests – Southwest Region
- 10:30 a.m.** Energy Efficiency Case Study: Jeff Stones, Facility Supervisor Central Zone, CenterPoint Energy
- 10:50 a.m.** CEO Update - Scott Prochazka, President and CEO, CenterPoint Energy
- 11:20 a.m.** Lunch and conversation
- 11:50 p.m.** Electric Reliability – Steve Greenley, Vice President, Distribution Power Delivery, CenterPoint Energy
- 12:10 p.m.** Natural Gas Reliability – Tal Centers, Vice President, Safety and Gas System Integrity, CenterPoint Energy
- 12:30 p.m.** Natural Gas Market Update – Joe Vortherms, Senior Vice President, Energy Services, CenterPoint Energy
- 12:50 p.m.** Question and answer panel – CenterPoint Energy executives
- 1:20 p.m.** Summary and closing remarks, Gregory Knight

# Material Presented on a Courtesy Basis



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Forward-looking statements in this presentation include statements about natural gas prices, natural gas storage inventories, and natural gas supply vis-à-vis demand, electric reliability, and natural gas reliability. We have based our forward-looking statements on our management's beliefs and assumptions based on information currently available to our management at the time the statements are made. We caution you that assumptions, beliefs, expectations, intentions, and projections about future events may and often do vary materially from actual results. Therefore, we cannot assure you that actual results will not differ materially from those expressed or implied by our forward-looking statements.

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# CenterPoint Energy Overview Video



# Keynote Address

Mark Janssen  
Senior Property Manager  
Hines Interests- Southwest Region



# Energy Efficiency Case Study

Jeff Stones

Facilities Supervisor Central Zone

CenterPoint Energy

# Central Zone Facilities



## CenterPoint Energy Tower

- 47 stories
- 3 below ground parking levels
- 1.2mm square feet



## Regency Parking Garage

- 14 stories above ground and 2 below ground
- 1.1 mm square feet
- 2,600 parking spaces



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# Choosing a Lighting Project



## Project Considerations

- High usage
- Hard to reach
- Improved safety

## Don't Choose an Installation Company, Choose a Lighting Partner

- Request references
- Ask for Standard Offer experience (guarantee savings)
- Test fixtures before retrofitting
- Can propose innovative solutions

# Financial Analysis



## Regency Parking Garage

Total Fixtures - 1484

Total Project Cost	\$291K
CNP Standard Offer Incentive	<u>(\$30K)</u>
Net Project Cost	\$261K

	Savings	Simple Payback
Electricity Savings	\$34 K/Year	7.7 years
Maintenance Savings	\$36 K/Year	
<b>Total Savings</b>	<b>\$70 K/Year</b>	<b>3.7 years</b>

# Regency Parking Garage



(150 Watts)



Before (117 Watts)



After (66 Watts)



# Questions





# CEO Update

Scott Prochazka  
President & CEO

# Topics



- Key influences on electric and natural gas utilities
- Our participation in and perspective on distributed energy resources
- Houston's population and employment forecast
- CenterPoint Energy's investments for growth, reliability, and safety
- Our value proposition

# Key Utility Influences



## Customer-driven



**Electric &  
Natural Gas Vehicles**



**Backup  
Generation**



**Distributed  
Generation**



**Power-Sensitive  
Equipment**

## Technology-driven



**Fuel Cells**



**Picarro Leak  
Detection**



**Microgrids**

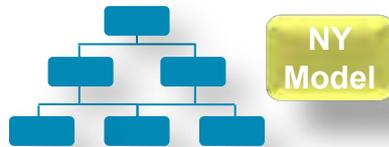


**Battery Storage**



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# Market Environments for Emerging Energy Technologies



## Central Planning

Regulators establish comprehensive regulatory framework and compact that defines utility roles, responsibilities, and financial incentives and penalties



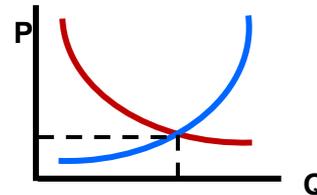
## Infrastructure Incentives

Programs and mechanisms to promote development of certain kinds of energy infrastructure are established



## Technology-Rich

Legal or regulatory requirements are established that put a "finger on the scale" for certain technologies



## Market-Based

Market and competitive forces are relied upon to allocate resources, select technologies, and compensate market participants



## Incentive Subsidies

Special tariff or other subsidies (including tax credits) are established to encourage certain types of resources or utility behaviors



Source: ScottMadden Energy Industry Update, Winter 2015

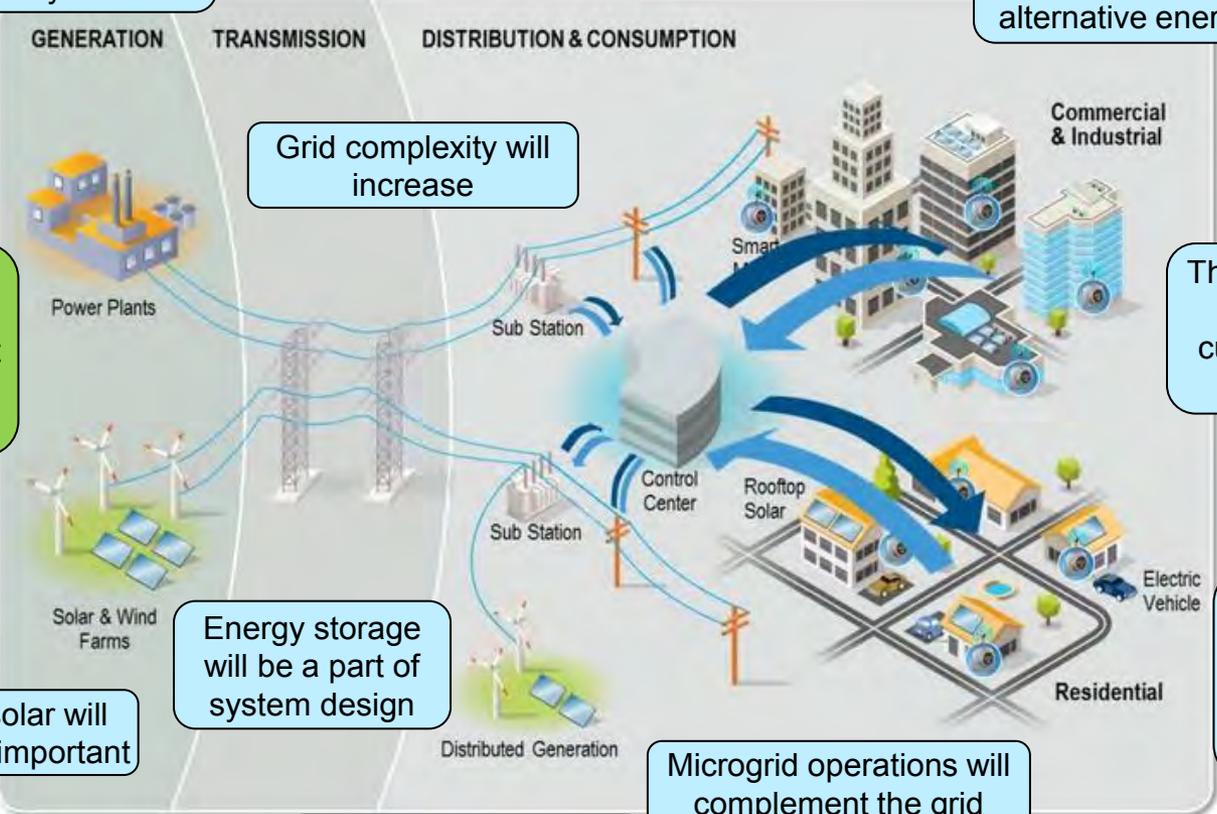
# Our beliefs about the electric utility of the future



Emerging technology market share will be significant by 2025

The grid will be the platform for the future electric system

Energy Efficiency is the most cost-effective alternative energy source



Grid complexity will increase

The electricity business model will include customized consumer services

Natural gas will continue to fuel the future – direct use and power generation

Some residential consumers will also become producers of energy; C&I markets for DER will have the greatest penetration in Texas

Utility scale solar will become more important

Energy storage will be a part of system design

Microgrid operations will complement the grid

The electric system will include central and distributed generation

Picture Source: Trilliant

Proprietary and Confidential



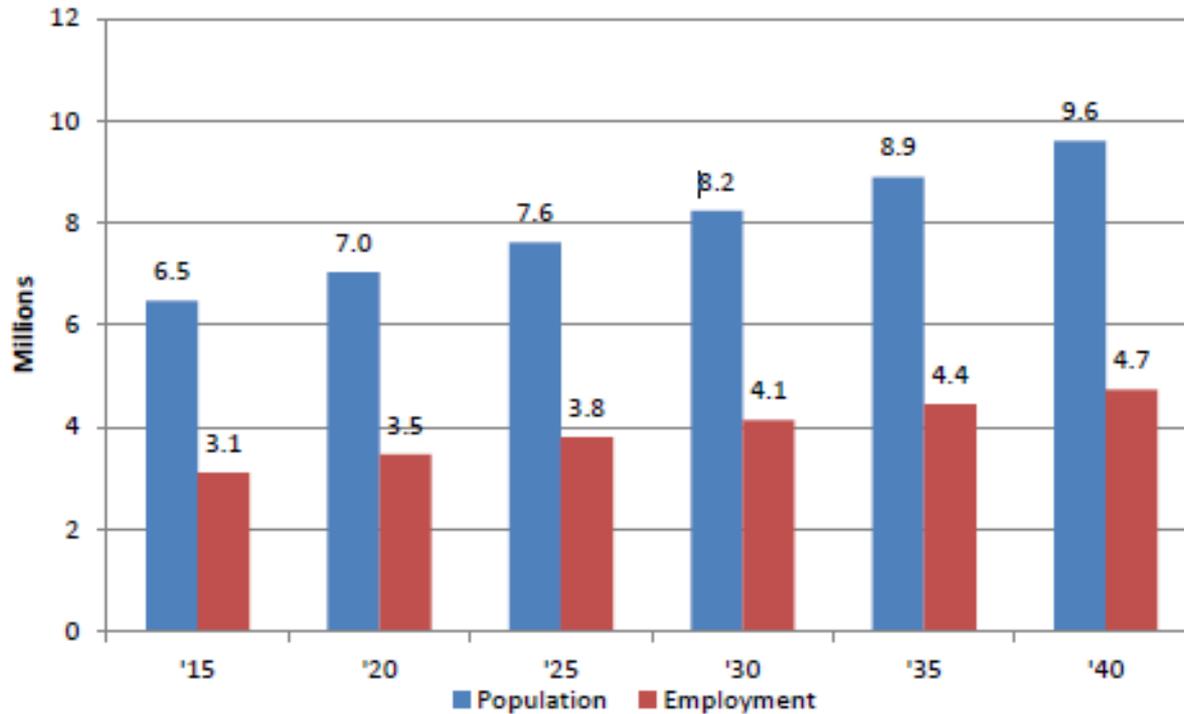
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# Population and employment forecast



The Perryman Group forecasts Houston's population and employment to grow faster than the state and the nation over the next 25 years.

**Population and Employment  
Houston-The Woodlands-Sugar Land MSA**



Source: The Perryman Group, Summer 2016



# CNP is Building the Grid of the Future



**Smart Meters**



**Intelligent Grid**



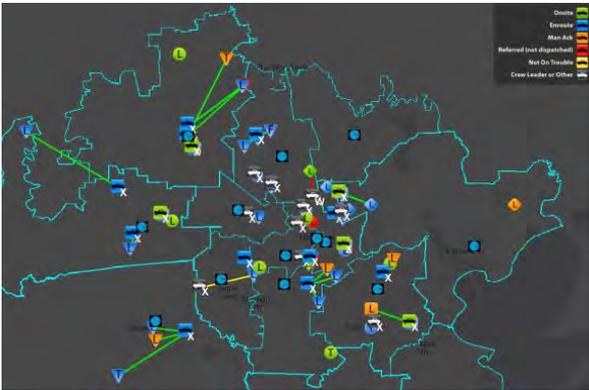
**Real-time usage data**



**Power Alert Service**



**Big Data Analytics**



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# CNP is Improving Customer Satisfaction While Reducing Carbon Emissions



Drive-by Advanced Meters



New, improved gas leak detection systems



Pipeline replacement programs



Predictive Analytics Engine



# Our value proposition

*Where we started – traditional utility model*



## **Yesterday**

- **Businesses**

- Transformation from integrated electric utility to wires and poles
- Competitive natural gas supply
- Regulated natural gas sales and delivery

- **Focus**

- Safe and reliable infrastructure
- Success measured by energy delivered; frequency and length of outages

- **Responsive customer engagement**

- Success measured by % of calls answered in x time
- Responsive to regulatory issues

- **Customer Expectations**

- Measured against a traditional utility experience
- Customer engagement predominately event-driven.



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# Our value proposition

*Where we are headed – drivers for evolution*



## Today

- **Deliver energy**
  - Electricity and natural gas delivery
  - Competitive natural gas supply
  - Continued focus on safety and reliability
- **Deliver service**
  - Customized products
  - Self-service capabilities
  - Proactive communications (PAS)
  - Enhanced energy management and reliability solutions
  - Competitive solutions/partnerships
- **Deliver value**
  - Engagement with customer is proactive, enterprise-wide and seamless
  - Focus on financial and operational improvements for customer
  - Allows customers to focus on core competencies/skills



# Thank You



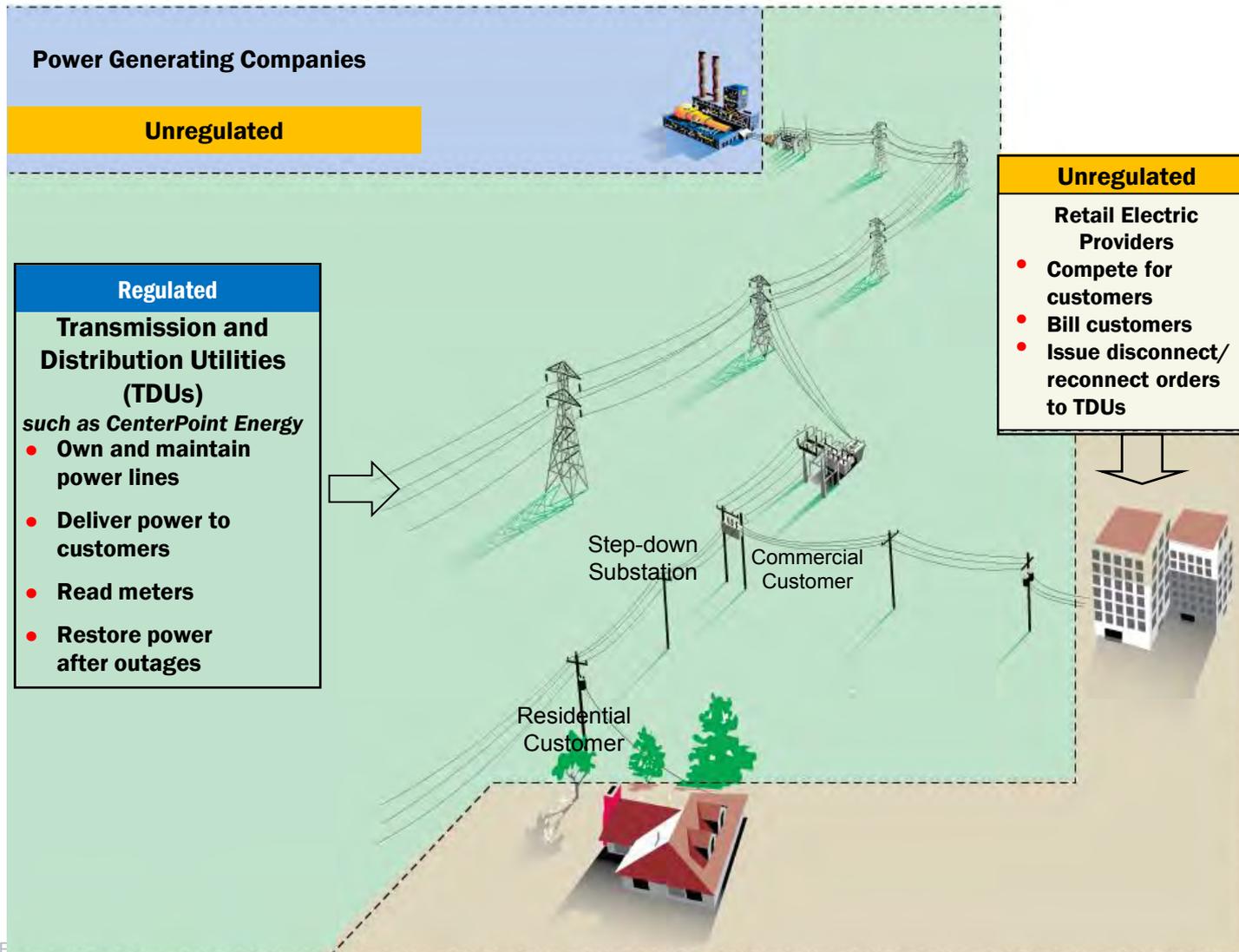
# **Electric System Reliability**

## **Customer service through reliability**

Steve Greenley

Vice President – Distribution Power Delivery

# The Texas Electric System

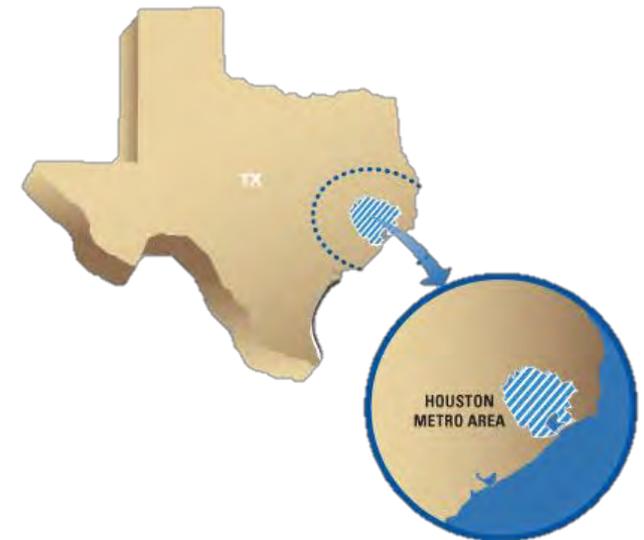


# Electric Transmission & Distribution



- Customers consist of about 64 retail electric providers that sell electricity to over 2.4 million metered customers in a 5,000 square-mile area that includes the vast majority of the Houston/Galveston metropolitan area
- Owns and maintains:
  - 52,639 miles of overhead and underground distribution lines
  - 3,718 miles of overhead and underground transmission lines
- Delivered 86.8 million megawatt-hours
- Experienced 2% customer growth, nearly 55,000 new meters
- Invested a record \$858 million in capital projects
- Expect to invest \$4.1 billion over next 5 years

## Electric Transmission and Distribution

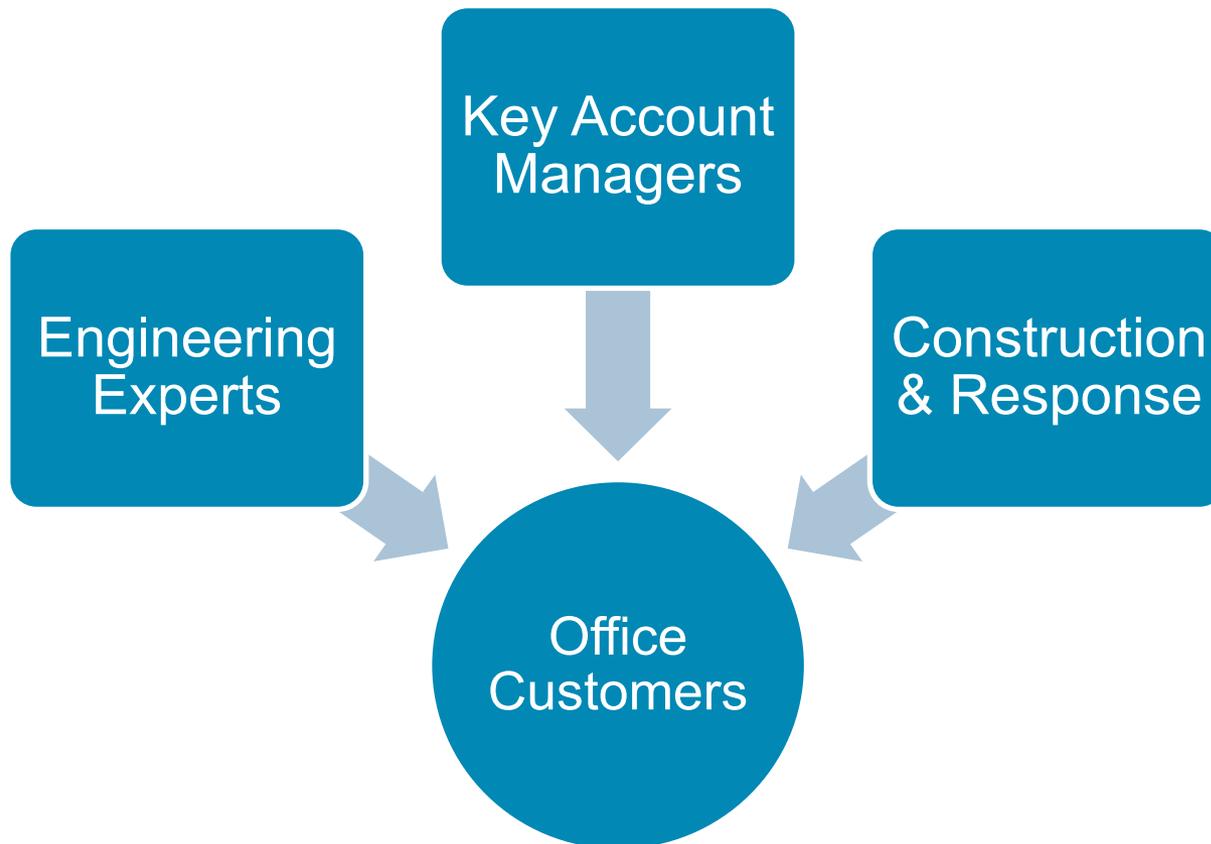


Source: Form 10-K

# Dedicated Team



All commercial office building customers are treated equally with specialized resources.



# We are modernizing and advancing the reliability of the grid



- Deploying intelligent grid with advanced management system
- Utilizing real-time situational awareness to restore services
- Crews are mobile managed and electronically dispatched
- Trees trimmed on proactive cycles
- Maintenance includes regular scheduled infra-red, wood pole replacements and inspection programs

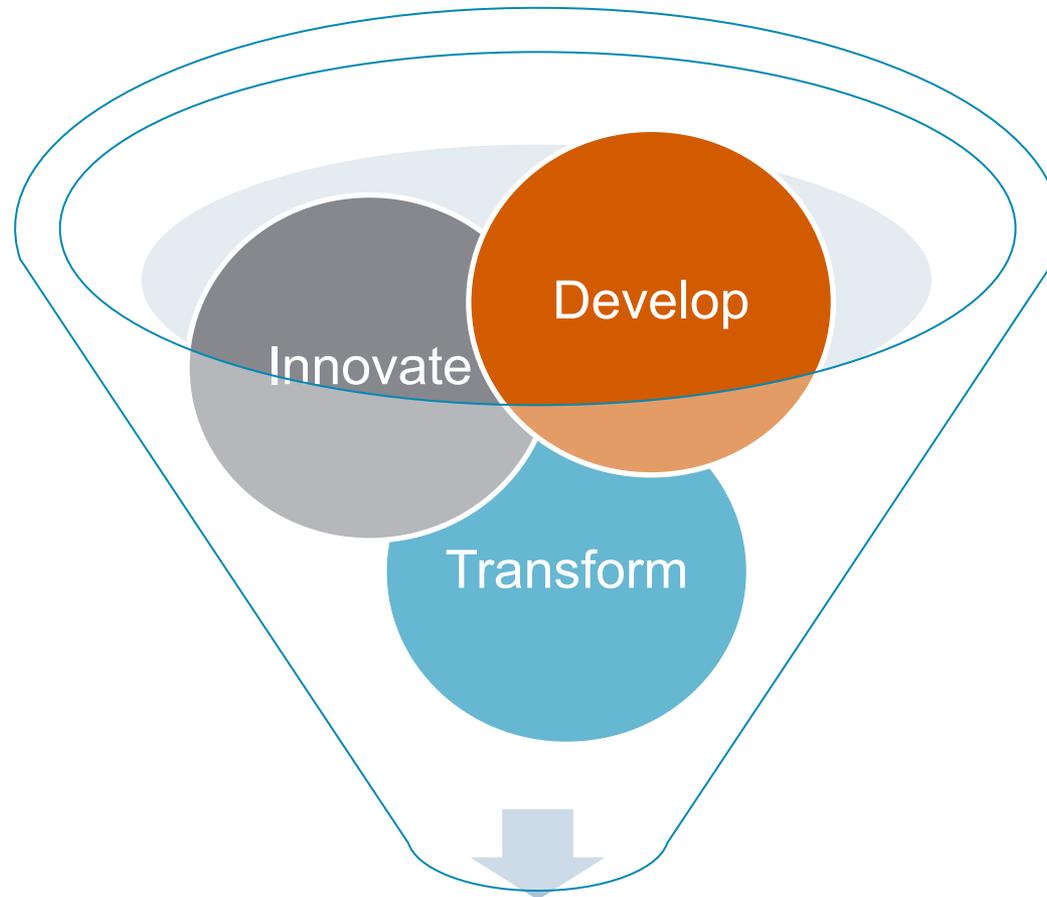


# Energy Efficiency Programs



- CenterPoint Energy provides various electric energy efficiency programs that help commercial office buildings conserve energy and reduce electricity costs.
- Available Programs:
  - Commercial Standard Offer
  - Commercial Load Management
  - Retro-Commissioning
  - REP Coolsaver A/C Tune-up.
- In 2016, these 4 programs incentivized office buildings over \$1M for documented energy savings of 8MW and 8,600 MWh.
- The 2017 programs are currently open for participation. Savings and incentives are predicted to remain consistent with the current trend.

# Let's do this together



## Reliability Solutions





# Thank You



# Natural Gas System Reliability

*Customer service through reliability*

Tal R. Centers, Jr. - PE  
VP Safety and Gas System Integrity

# Natural Gas Distribution

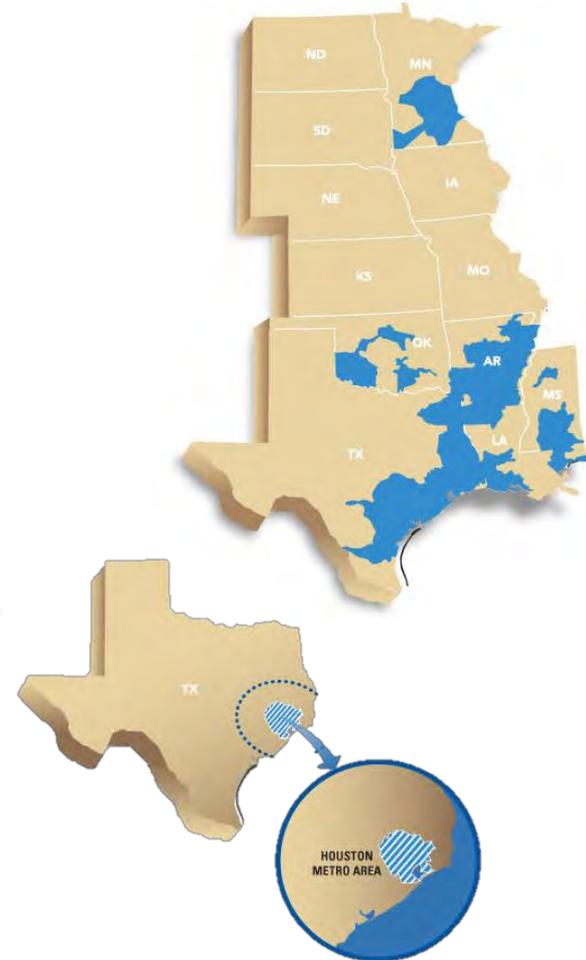


## Gas Operations

- Serves approximately 3.4 million customers in six states
- Owns and operates approx. 122,522 miles of main and service lines
- Growth of more than 35,000 customers in 2016
- Invested \$505.7 million of capital in natural gas infrastructure in 2016
- Capital spending will remain high as we modernize our infrastructure for safety and reliability

## Houston Metro Gas Operations

- Houston Market serves ~1.35 million customers
- Owns and operates over 39,433 miles of main and service lines
- Growth of nearly 2,600 commercial customers in 2016
  - 2,811 commercial & industrial
  - Invested \$119.78 million of capital investments in natural gas infrastructure in 2016

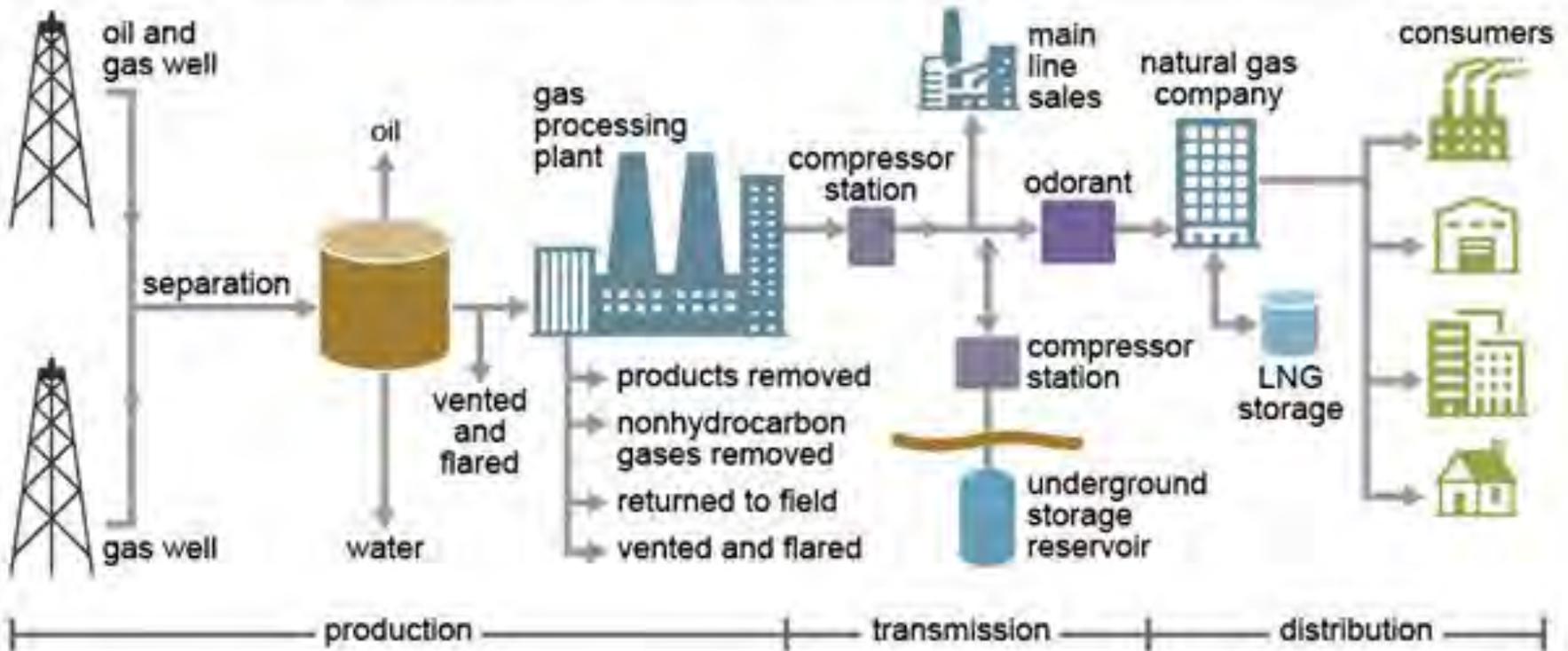


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# Natural Gas Wellhead to Burnertip



## Natural gas production and delivery



# System Reliability

*Our approach to meeting your reliability needs*



- **Safety** – gas is delivered safely and reliably
- **Customer Service** – customers are heard and best efforts are made to meet current and emerging needs
- **Service Delivery** – services are delivered when needed
- **Operational Efficiency** – services are delivered cost effectively

# System Reliability

*What is considered?*



- Gas Supply
- System Planning
- Asset Maintenance and Operations
- System Integrity & Risk Mitigation
- Customer needs (collaboration and feedback)

# System Reliability

## *Gas Supply*



CenterPoint Energy's goal is to provide a dependable gas supply under a variety of operating and market conditions. This is accomplished with relationships with most of the pipeline suppliers in the Houston Metro area.

- **Diversification** – Combination of gas supply contracts, storage and other instruments that yield a balance of reliability and reduce price volatility
- **Reliability** – Gas will be available when customers demand under a wide variety of operating and market conditions.
- **Gas Quality** – Gas meets specifications for end use
- **Reduced Price Volatility** – Mixture of supply at market price and storage withdrawal price stabilize the gas supply costs.
- **Reasonable Price** – The costs of supply will be reasonable based on market conditions.

# System Reliability

## *System Planning*



- Design for Safety and Reliability
  - Redundancy
  - Hardened system
  - Capacity for Peak Loads
  - Gas flow, pressure control, and odorization
- System reinforcement Modeling for Future Load and Volume Growth
- Integrated work force between Engineering, Marketing and Operations Departments

# System Reliability

## *Maintenance and Operations*



- Remote Pressure Monitoring and Control
- Line Locating – proactive monitoring of large construction areas and critical supplies
- Annual Inspections
  - Pressure control and delivery points
  - Control valves for emergency response
  - Above ground facility inspections
  - Cathodic Protection (corrosion mitigation)
- Digital Mapping System
- Operator Qualification monitoring for field personnel
- Supplier Relationships
  - Close coordination with suppliers for integrity shutdowns
  - Materials management and procurement (pipe, meters, fittings, etc...)
- Mobile Supply Alternatives
- Key Customer Meetings

# System Reliability

## *System Integrity & Risk Mitigation*



- System Rehabilitation and Modernization
  - Asset risk analysis and assessments
    - Transmission Integrity Management
    - Distribution Integrity Management
  - Corrosion Control
    - Below Ground Steel
    - Above ground atmospheric corrosion
  - Leak Survey Inspections
    - Performed at intervals between one and five years
- Public Safety Awareness
- Business Continuity
- Physical and Cyber Security

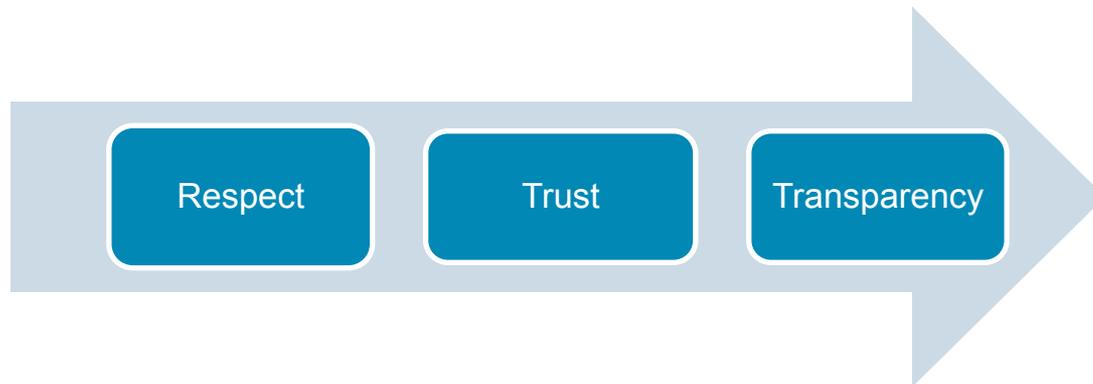
# Your Role

## *Early involvement and communication*



We must work collaboratively with our customers, to the greatest extent possible, to develop win-win solutions and align interests.

Communicate operational needs in a proactive manner to allow planning, permitting, and design





# Thank You



# Natural Gas Market Update

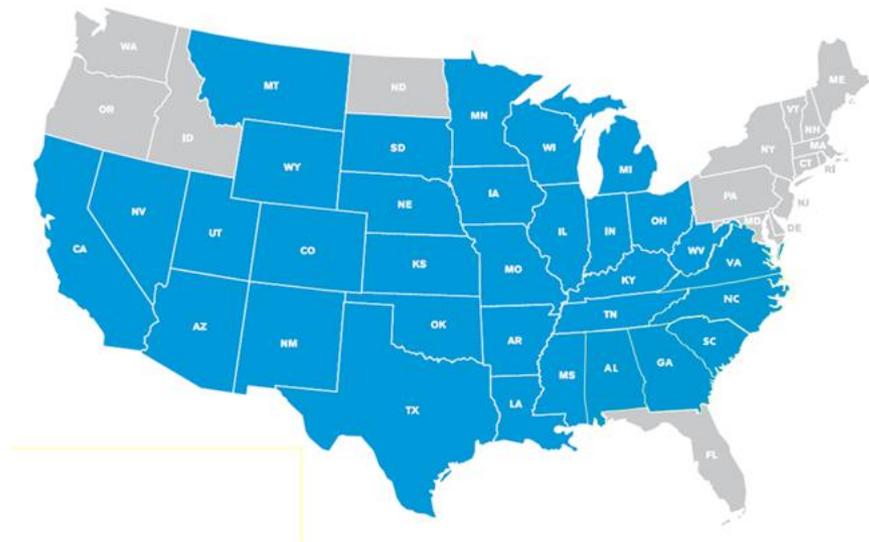
Joe Vortherms  
Sr. Vice President  
CenterPoint Energy Services

# CES is a competitive company operating in the deregulated energy market



- CenterPoint Energy Services provides customers with competitive gas supply with a **customer retention rate over 90 percent**.
- We work with a wide range of customers, from **utilities and power generators, manufacturers and retail** to small commercial and residential **Choice** programs.
- Our service offering extends **across 32 states** and serves customers **within about 100 unique utility territories**.

## CES Footprint



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# Natural Gas Supply



Because the energy needs of our customers vary based on industry segment, geographical region, applicable utility tariffs and market conditions, CES works directly with each customer to develop a customized natural gas procurement plan.

## Competitive Price Options

- **Variable Pricing**
  - Monthly market
  - Daily or monthly index
  - Index with a cap
- **Fixed Pricing**
  - Commodity
  - Basis
  - City Gate
  - Fixed price with downside participation
- **Structured Products**
  - Weather contingencies
  - Put/call options
  - Caps and collars

## Supply Services

- **Daily & monthly balancing services**
  - Load forecasting
  - Nominations
  - Swing
- **Asset management**
  - Storage management
  - Firm and interruptible transportation administration
  - Capacity release management
- **Agency services**

## Customer Segments Served

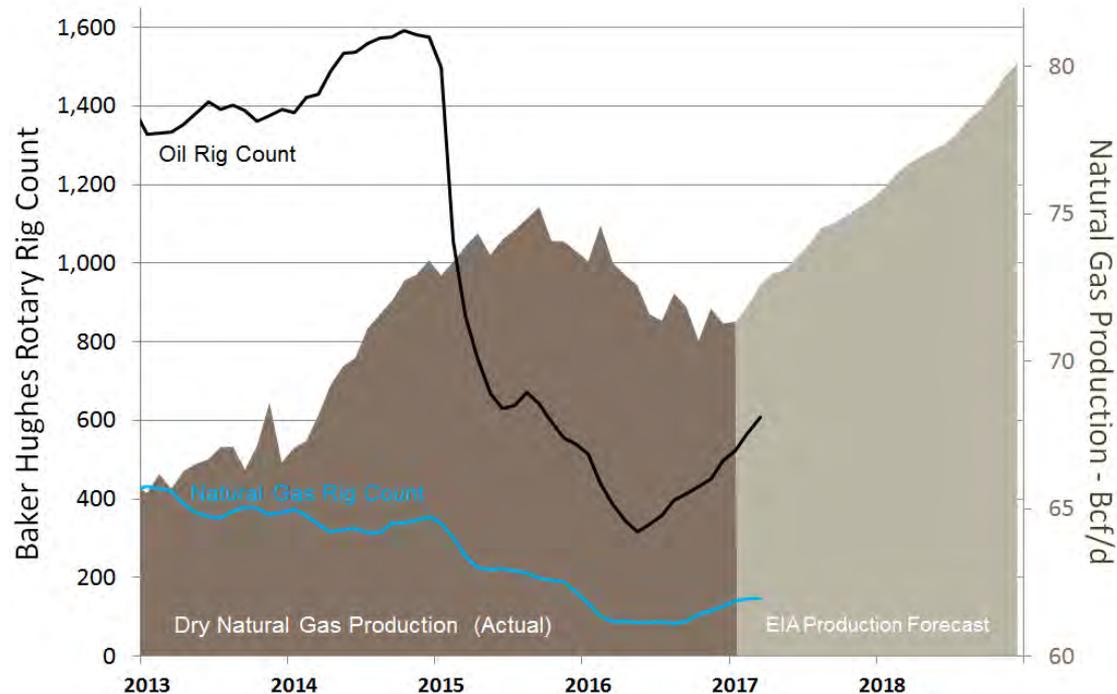
- Natural gas producers
- Bio-fuel/agricultural
- Health care
- Real estate
- Utilities
- Power generators
- Education/institutional
- Government/municipalities
- Co-op
- Manufacturing
- Retail
- Residential/Choice

# Drivers of Natural Gas Pricing



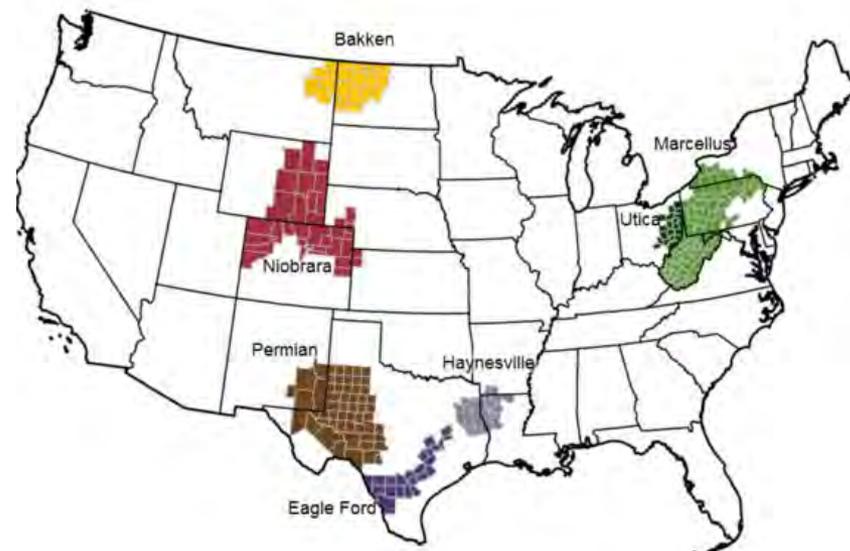
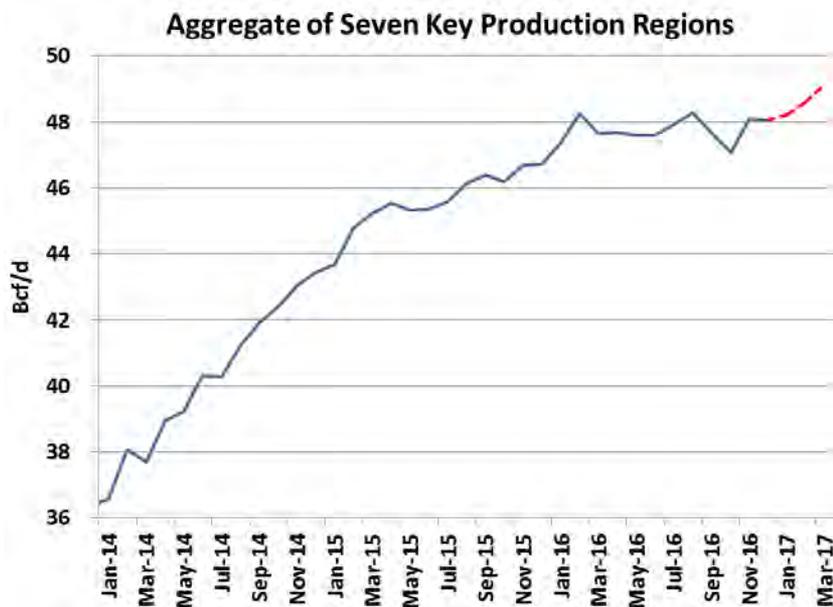
Natural Gas Price Component	Description	Drivers
 <p>Commodity</p>	<p>The physical supply of natural gas; the largest component of delivered supply.</p>	<ul style="list-style-type: none"> <li>• Supply &amp; demand</li> <li>• Economic activity</li> <li>• Market volatility</li> <li>• Weather</li> <li>• Geopolitical events</li> </ul>
 <p>Transportation</p>	<p>Interstate pipeline companies own, operate and maintain the pipelines that transport gas across state lines. This is the cost associated with moving gas from production fields to supply hubs to a utility distribution system.</p>	<ul style="list-style-type: none"> <li>• Geographic location</li> <li>• Pipeline tariffs</li> <li>• Available capacity</li> <li>• Federal Regulation</li> </ul>
 <p>Utility</p>	<p>Utilities own, operate and maintain the infrastructure that make up the utility distribution system. This is the cost associated with moving gas from the utility's supply purchase point to customer meter.</p>	<ul style="list-style-type: none"> <li>• Rate base</li> <li>• Utility rates</li> <li>• Rate class</li> <li>• Weather</li> <li>• Regulatory environment</li> </ul>
 <p>Marketer</p>	<p>Marketers arrange for the procurement of natural gas on behalf of customers, handle the transportation and storage of gas, and often assume financing and price risk.</p>	<ul style="list-style-type: none"> <li>• Trading activity</li> <li>• Billing systems</li> <li>• Credit</li> <li>• Transaction costs</li> <li>• Pipeline capacity</li> </ul>

# Production and Rig Counts



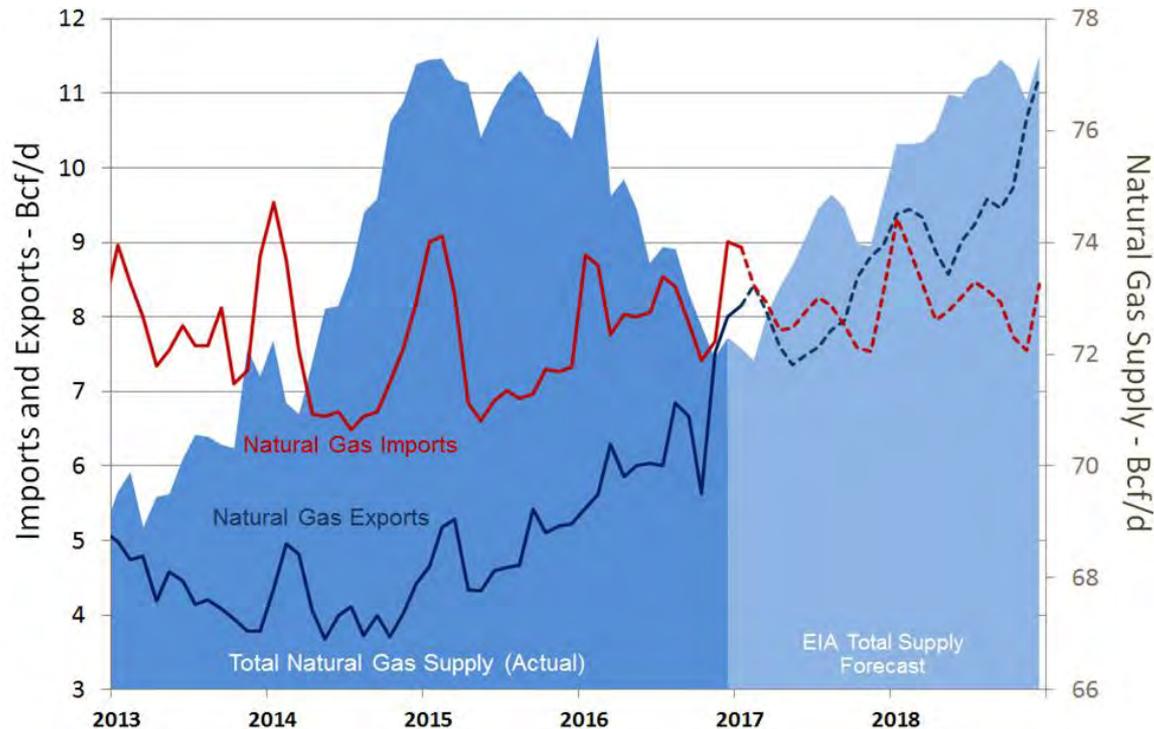
- Full year 2016 dry gas production was down 1.7 Bcf/d from 2015, but the EIA still projects growth to resume in 2017 taking production levels to new record highs by the end of Q4'17
- According to private data analytics companies, production levels continued to decline in January and after a slight rebound in February have fallen back to January lows at the beginning of March

# Major Production Regions



- Gas production growth from these seven key regions that make up roughly two-thirds of US dry gas production stalled in 2016, but is projected to begin recovering fueled by growth from the Marcellus and Permian regions
- Eagle Ford is worst performing production region having declined by nearly 1.5 Bcf/d (21%) in 2016

# Exports, Imports, and Total Supply

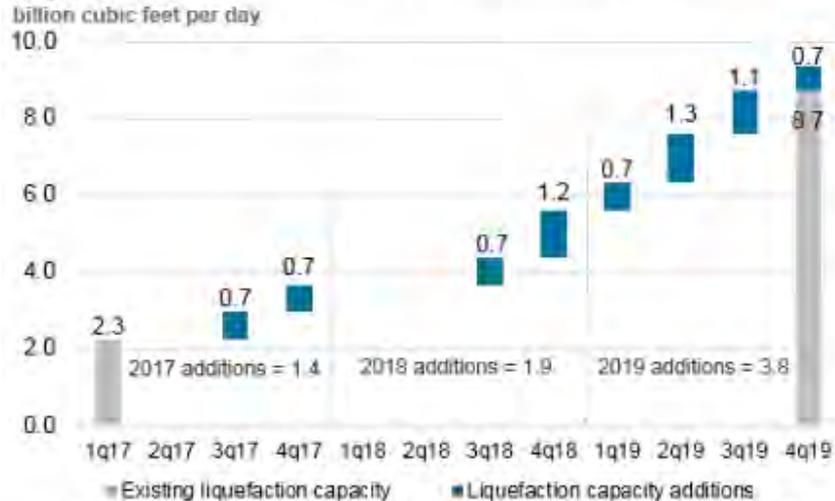


- While imports are expected to remain largely unchanged through the end of 2018, exports are expected to see significant growth driven by LNG exports and pipeline exports to Mexico – making the US a net exporter of natural gas by the summer of 2018
- The surge in exports is expected to hamper total supply and keep it from reaching new record highs in 2017 or 2018 despite the EIA's optimistic outlook on production

# U.S. LNG Export Update



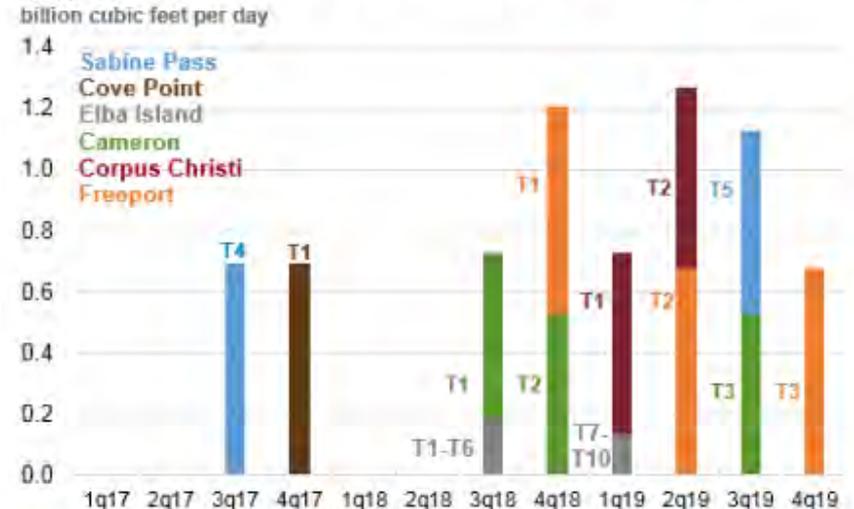
**U.S. projected liquefaction capacity additions by quarter, 2017-19**



Sources: U.S. Energy Information Administration based on FERC, IHS, and trade press.  
 Note: "Existing liquefaction capacity" includes Nabal LNG and Sabine Pass Trains 1-3.  
 "Liquefaction capacity additions" include liquefaction projects under construction with a nameplate capacity, not adjusted for ramp-up.



**U.S. liquefaction capacity additions by project and train, 2017-19**



Sources: U.S. Energy Information Administration based on FERC, IHS, and trade press.  
 Note: "Liquefaction capacity additions" include nameplate capacity of liquefaction projects under construction, not adjusted for ramp-up.

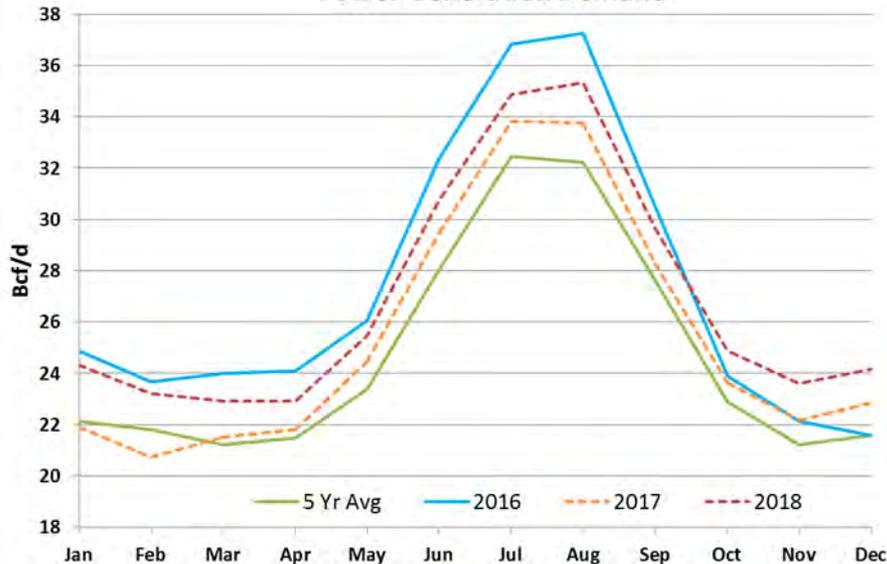


- Sabine Pass came online in early 2016 and demand is currently averaging near 2 Bcf/d while commissioning of its third train commences
- The EIA projects liquefaction capacity to reach 9.4 Bcf/d by the end of 2019

# Demand Forecast by Sector

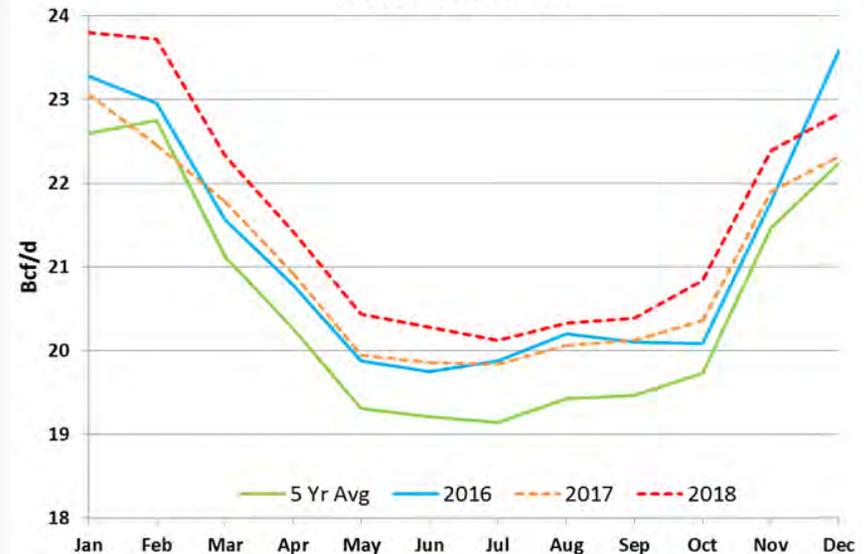


### Power Generation Demand



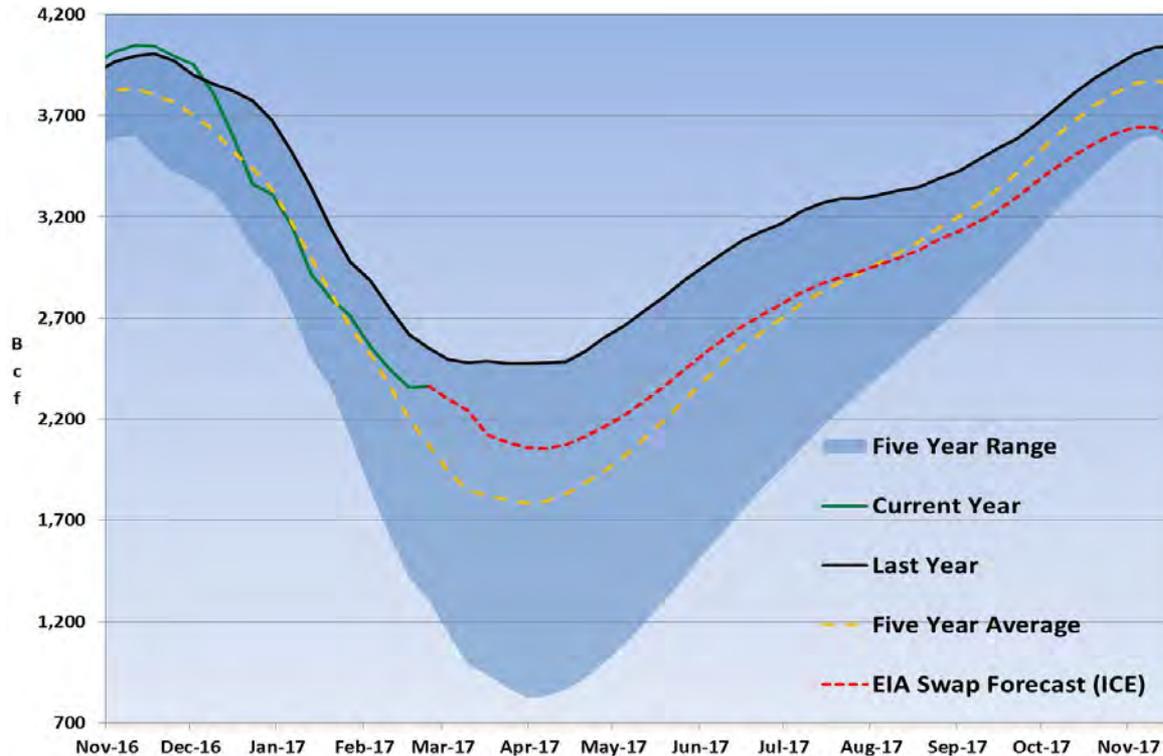
- 2016 demand set a new record of 27.27 Bcf/d, 0.80 Bcf/d (3.02%) higher yr/yr
- 2017 demand is expected to decline -1.91 Bcf/d (-7%) yr/yr to 25.36 Bcf/d - due to warm weather in Jan-Feb and higher gas prices
- Growth is expected to resume in 2018, jumping 1.48 Bcf/d to 26.84 Bcf/d

### Industrial Demand



- 2016 demand was 21.15 Bcf/d, 0.57 Bcf/d (2.77%) higher yr/yr
- 2017 demand is expected to decline by .10 Bcf/d (-0.5%) yr/yr – due to warm weather in Jan-Feb
- Industrial demand growth should resume in 2018 as a number of new fertilizer, methanol, and petrochemical projects come online

# Natural Gas Storage Levels



- After the 5<sup>th</sup> warmest January and the warmest February on record, storage levels moved back above the five year average level, and we even saw a weekly injection in February
- A return to more normal weather in March and a much tighter supply to demand balance this year has end-injection season forecasts coming in relatively low at 3.65 Tcf – flipping the current 300 Bcf surplus to the five year average to a 200 Bcf deficit

# NYMEX Pricing History



# Bull/Bear Market Summary



- Full year 2016 dry gas production was down 1.7 Bcf/d from 2015, but the EIA still projects growth to resume in 2017 taking production levels to new record highs by the end of Q4'17
- According to private data analytics companies, production levels continued to decline in January and after a slight rebound in February fell back to January lows in March
- These production forecasts still appear too optimistic, like they were in 2016, so look for them to gradually be lowered as we progress through the year

## Production



- A cold December sent total storage levels below last year and five year average levels in early January
- After the 5th warmest January and the warmest February on record, storage levels moved back above the five year average level, and we even saw a weekly injection in February
- A return to more normal weather in March and a much tighter supply to demand balance this year has end-injection season forecasts coming in relatively low at 3.65 Tcf – flipping the current 300 Bcf surplus to the five year average to a 200 Bcf deficit

## Storage



- While imports are expected to remain largely unchanged through the end of 2018, exports are expected to see significant growth driven by LNG exports and pipelines exports to Mexico, making the US a net exporter of natural gas later this summer
- Current liquefaction capacity is near 2.3 Bcf/d, but is expected to reach 9.4 Bcf/d by the end of 2019
- The surge in exports is expected to hamper total supply and keep it from reaching new record highs in 2017 or 2018 despite the EIA's optimistic outlook of production

## Imports/Exports



- This winter was on pace to be the warmest on record before the forecasts for the middle of March began trending much colder
- January ranked as the 5th warmest of record dating back to 1950 and February was the warmest on record by a sizable amount
- While the late cold may be too little too late to save this winter from being a top 2 or 3 warm winter, it has provided significant price support and given storage capacity holders and operators one last opportunity to get their gas out of the ground

## Weather



- Power demand should see a lift this spring from higher than normal nuclear outages, but will be somewhat offset by elevated hydro-generation in California due to the record snow and rainfall seen over the past six months
- Power demand is expected to fall in 2017 due to higher gas prices and a warm winter, but growth should resume in 2018
- Industrial demand growth should resume in 2018 as a number of new fertilizer, methanol, and petrochemical projects come online

## Demand



- The ISM reported the manufacturing sector grew for the sixth consecutive month in February, rising to 57.6%
- The BLS jobs report indicated 235,000 jobs were added in February, and the unemployment rate was little changed at 4.7% - the labor force participation rate has modestly improved to 63%
- The Federal Reserve raised its target for short term interest rates by 0.25% to a range of 0.75% to 1.00% in their March meeting; they are forecasting two more rate hikes in 2017 and remain constructive on the economy

## Economy



March NYMEX futures rolled off the board at \$2.627 after the warmest February on record followed up the fifth warmest January on record. The fact the prices didn't fall further and \$2.50 support held when tested was indicative of the otherwise tight natural gas market. With total supply down roughly 6 Bcf/d due to higher exports, lower imports and lower production, the weather neutral supply to demand balance is very constructive for natural gas prices. Without record warmth to begin the year prices would undoubtedly be much higher. As the weather begins to normalize in March and traders start looking towards the spring and summer with little to no sign of any apparent rebound in production there will likely be a renewed upward bias for prices. Look for price volatility around changes to the weather forecasts to dampen a bit as enter the shoulder season. The main risk to our bullish outlook is a rebound in natural gas production sooner than later, which given the trajectory of the rig count isn't out of the question.

## Summary



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# Thank You



# Closing Remarks

## Closing video



**Thank you for attending!**