

A high-action photograph of a surfer in silhouette riding a large, curling wave. The surfer is positioned in the upper right quadrant, leaning forward with arms outstretched. The wave's crest is breaking into a massive spray of white water that fills the upper half of the frame. The ocean surface is a deep blue with white foam from the wave. In the bottom left corner, the ECC logo is visible, consisting of the letters 'ECC' in a stylized, overlapping font, with a circular emblem containing a stylized 'E' and 'C' below it.

Riding the Wave

CAPITALIZING ON THE VELOCITY OF CHANGE

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Partnerships for success



Paul Hargreaves
Project Manager – Chevron



engineering and construction contracting association

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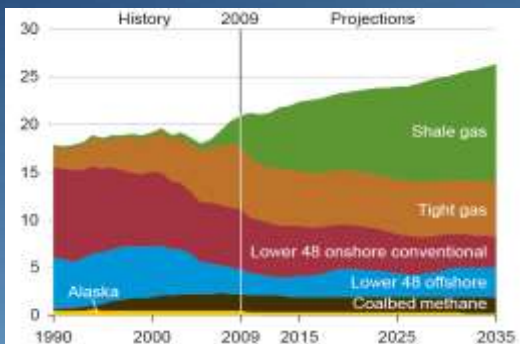
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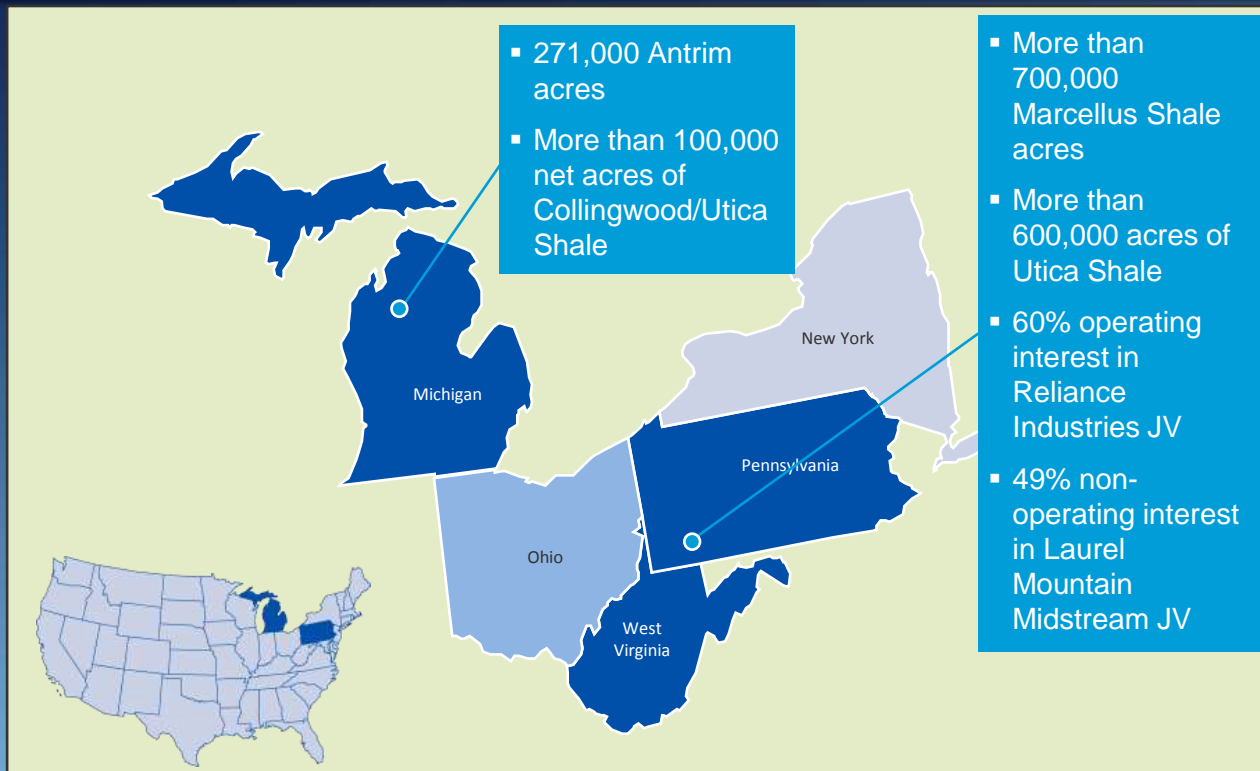
Marcellus Shale – A World Class Legacy Asset

Marcellus Shale:

489 Tcf recoverable reserves



Source: http://www.eia.gov/about/copyrights_reuse.cfm

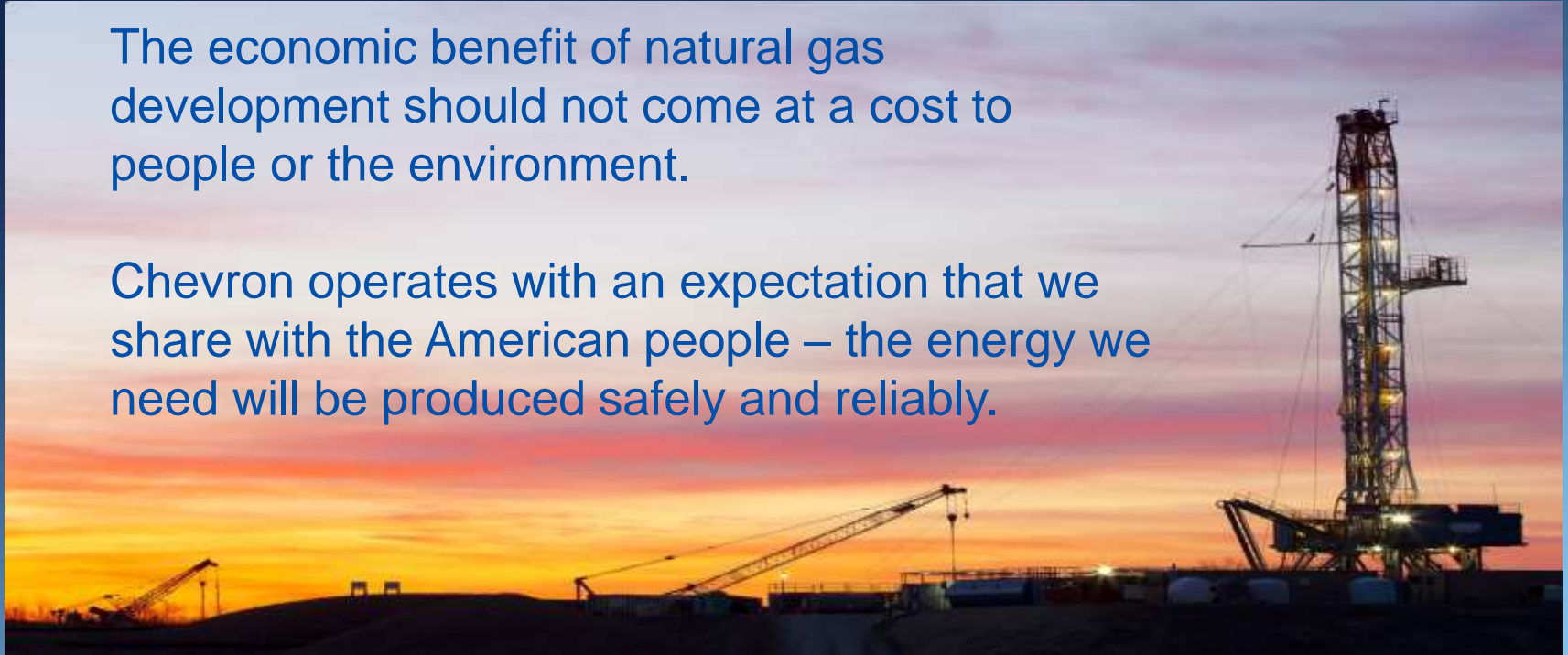




Shared Expectations

The economic benefit of natural gas development should not come at a cost to people or the environment.

Chevron operates with an expectation that we share with the American people – the energy we need will be produced safely and reliably.





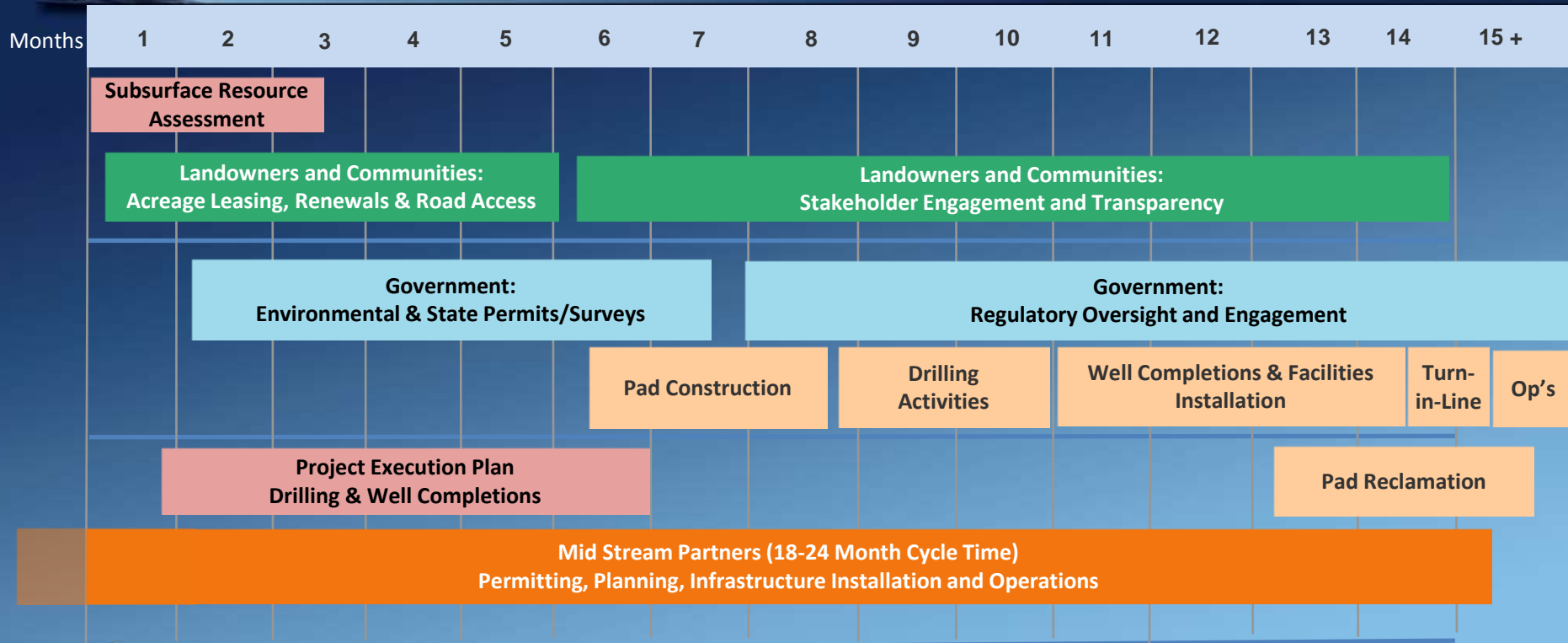
Strategic Partners

- Land owners & local communities
- Federal, state, and local agencies
- Service providers & contracting community
- Mid-Stream processing & infrastructure





Value Chain to Develop Natural Gas from Shale



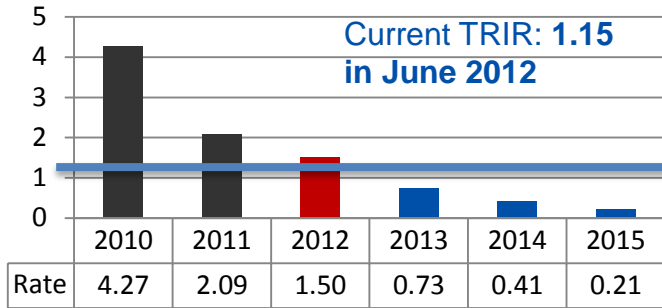
Target Typical Well Development Cycle Time



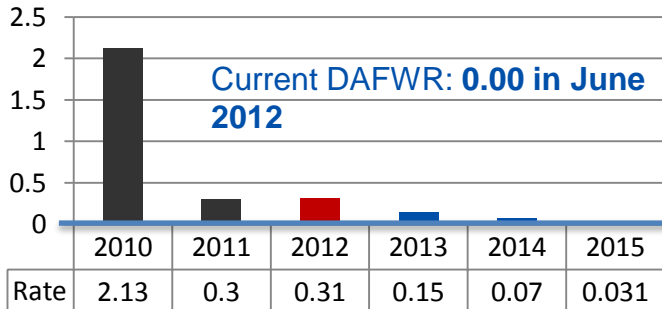


Safety Challenge in a mature environment

Total Recordable Incident Rate



Days Away From Work



Key Safety risks we face:

- Motor Vehicle Collisions
- Not following procedures
- Individual's not maintaining a "sense of vulnerability" and the risks in the environment around them.



Land Owners & Local Community

- **Communicate** effectively and often
- **Reduce** pad size
- **Minimize** water consumption and maximize water reuse
- **Improve** cycle time
- **Consolidate** truck journeys and efficiently manage logistics
- **Support** programs that benefit the region



~98%
well life:
minimal
footprint

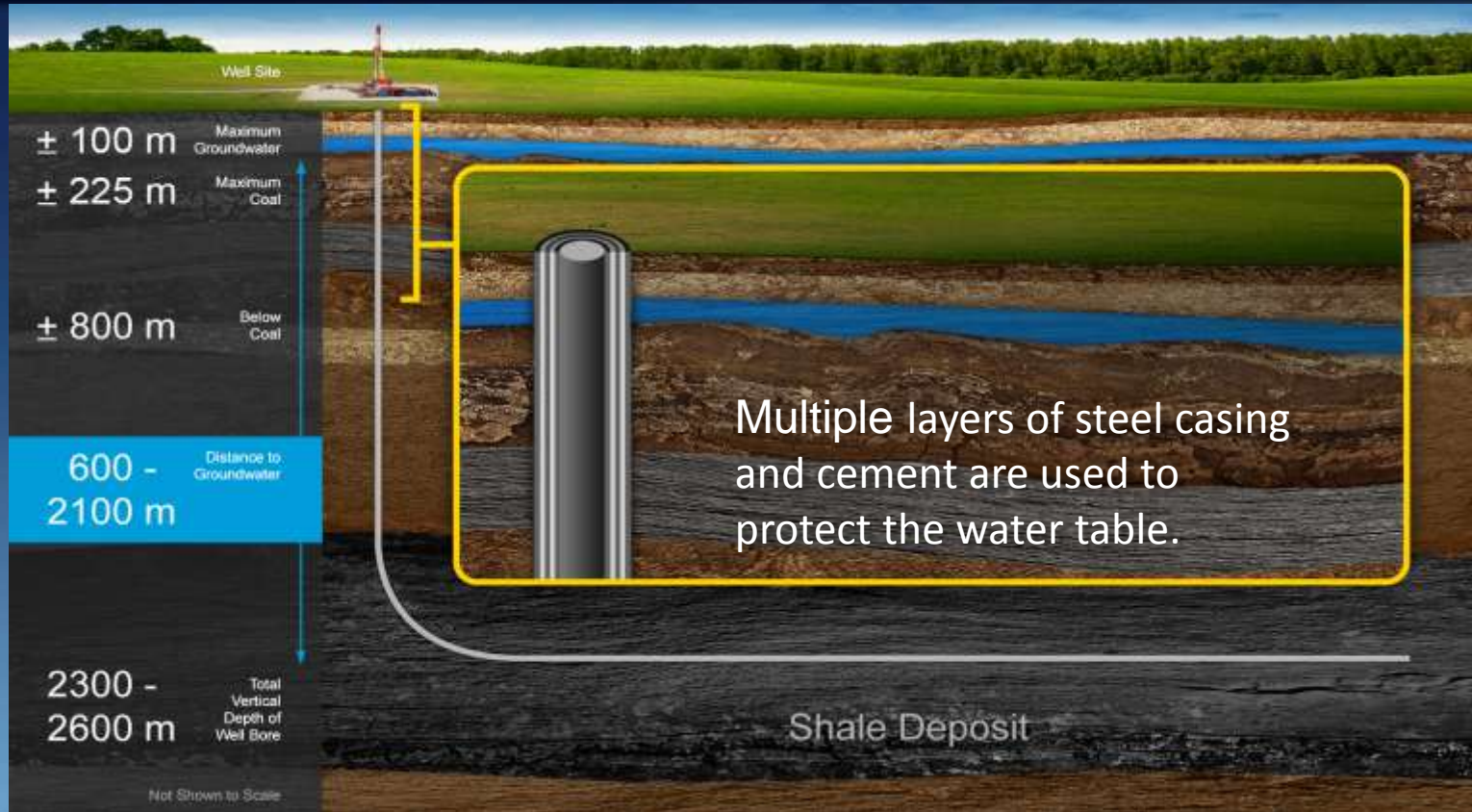


~2% well life:
development
activity





Protecting the Environment





Great Public Resource & Responsibility

According to Penn State University, in 2010 Marcellus shale development:

- Supported nearly **140,000 jobs**
- **Generated \$11.2 billion** in the regional equivalent of gross domestic product
- Added \$1.1 billion to **state and local tax revenues**

Chevron is committed to:

- **Responsible** development globally
- Keeping people **safe** and **protecting the environment**
- **Working closely** with local governments, respecting our neighbors and investing in the community

Partnering in a way that
makes you **welcome to operate**
today, and years from today



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- Paul Thoughts

- Challenges in building a factory focused development organization
 - Safer, predictably and cheaper.
- Safety in the old world
 - E.g. Spotter



A full-page background image of a surfer in silhouette riding a large, powerful wave. The surfer is positioned in the upper right quadrant, leaning forward with arms outstretched. The wave is breaking, creating a massive spray of white water. In the lower left, the tail of a surfboard is visible, featuring the ECC logo. The overall color palette is dominated by deep blues of the ocean and sky, and the bright white of the wave's crest.

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Managing a Boom and Maintaining Priorities



John D. Seldenrust

VP - Engineering & Construction

Chesapeake Midstream



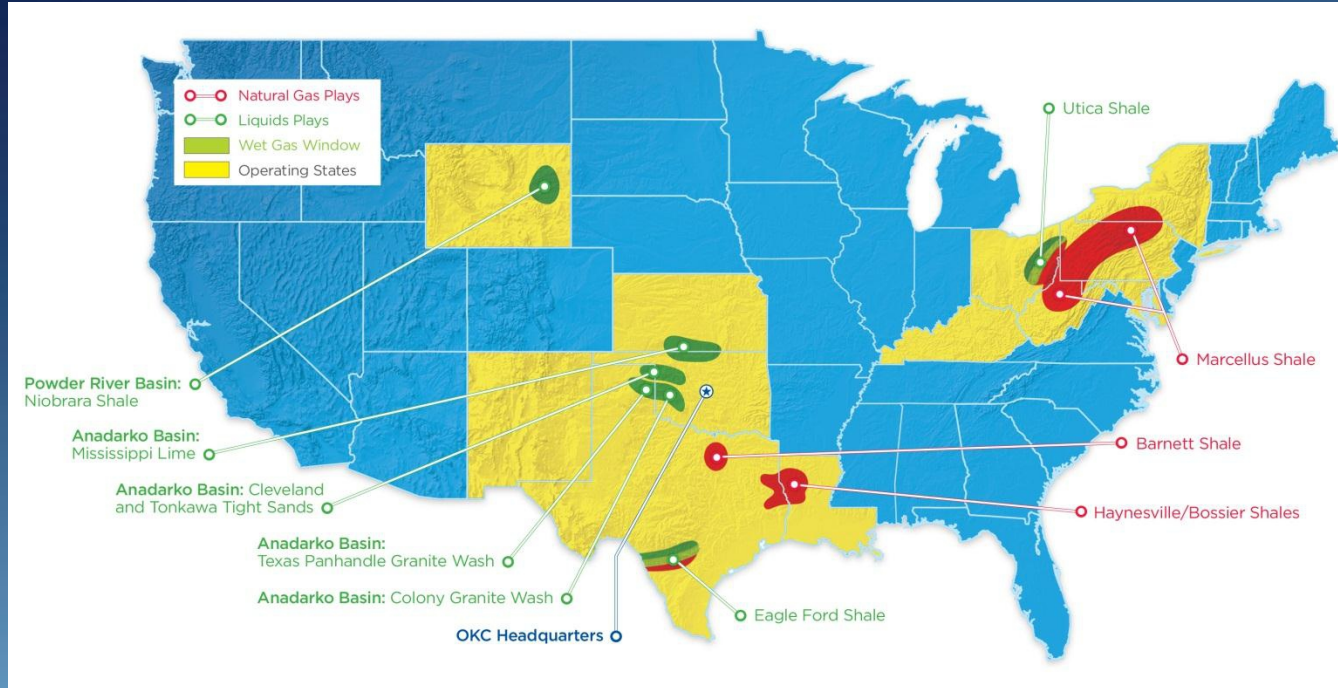
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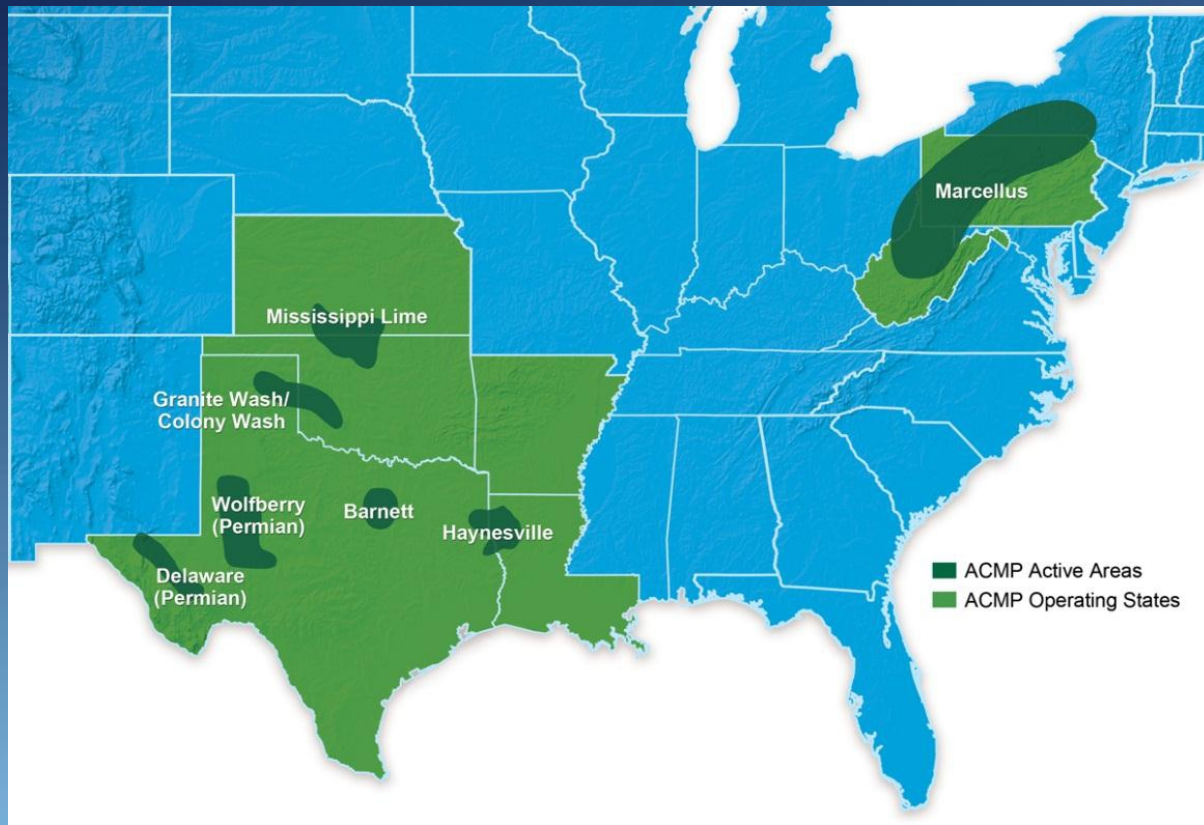
Chesapeake Energy Corporation





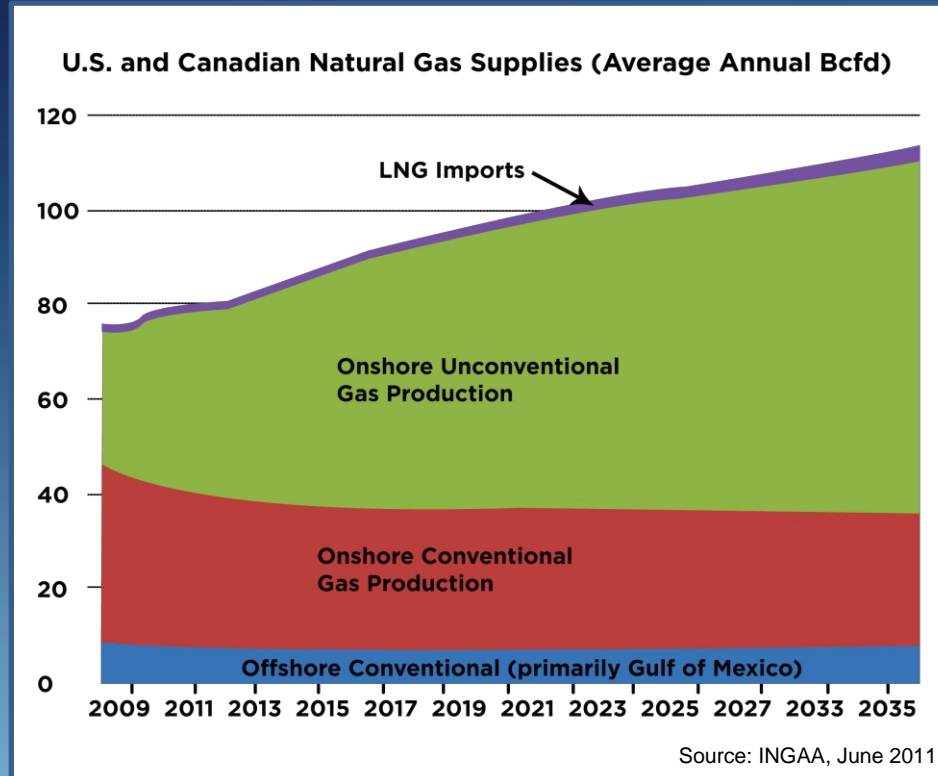
Access Midstream Partners

ACCESS
MIDSTREAM PARTNERS



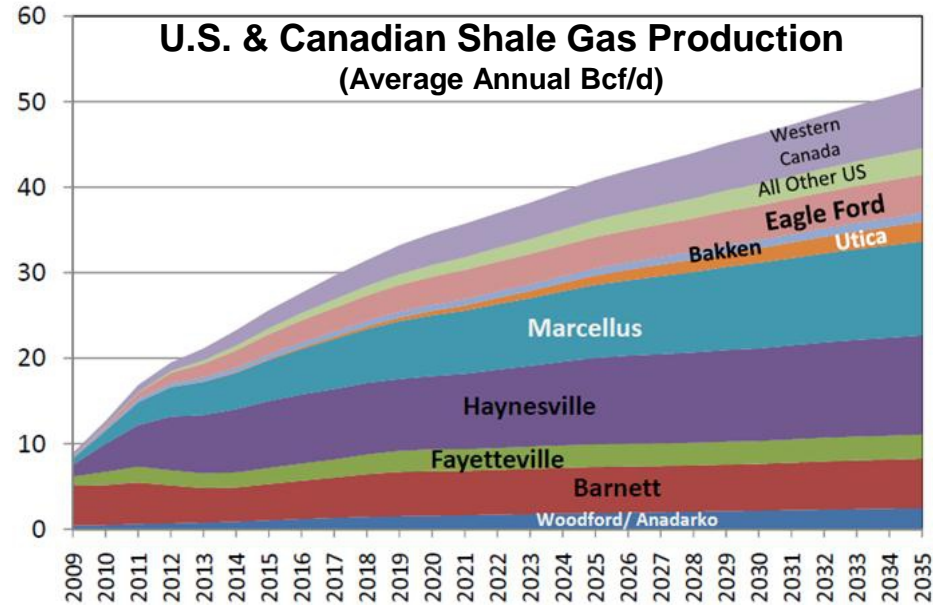


Unconventional Gas Production





Shale Gas Production on the Rise

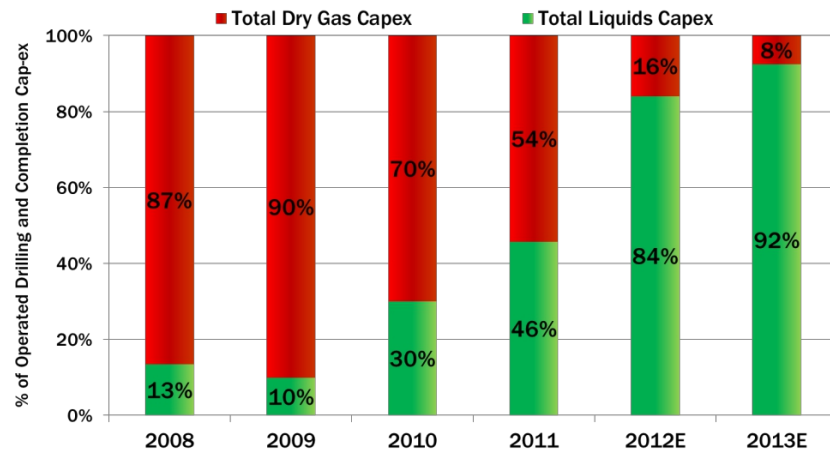
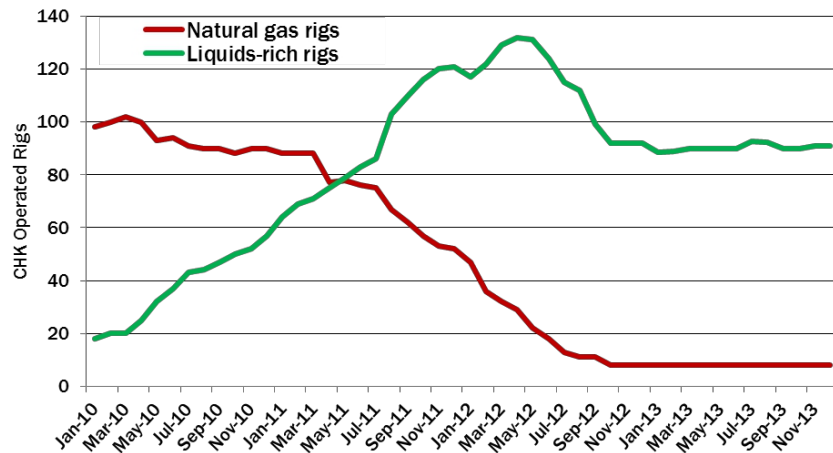


¹ Haynesville values shown here include production from other shales in the vicinity, e.g., the Bossier Shale.

Source: INGAA, June 2011



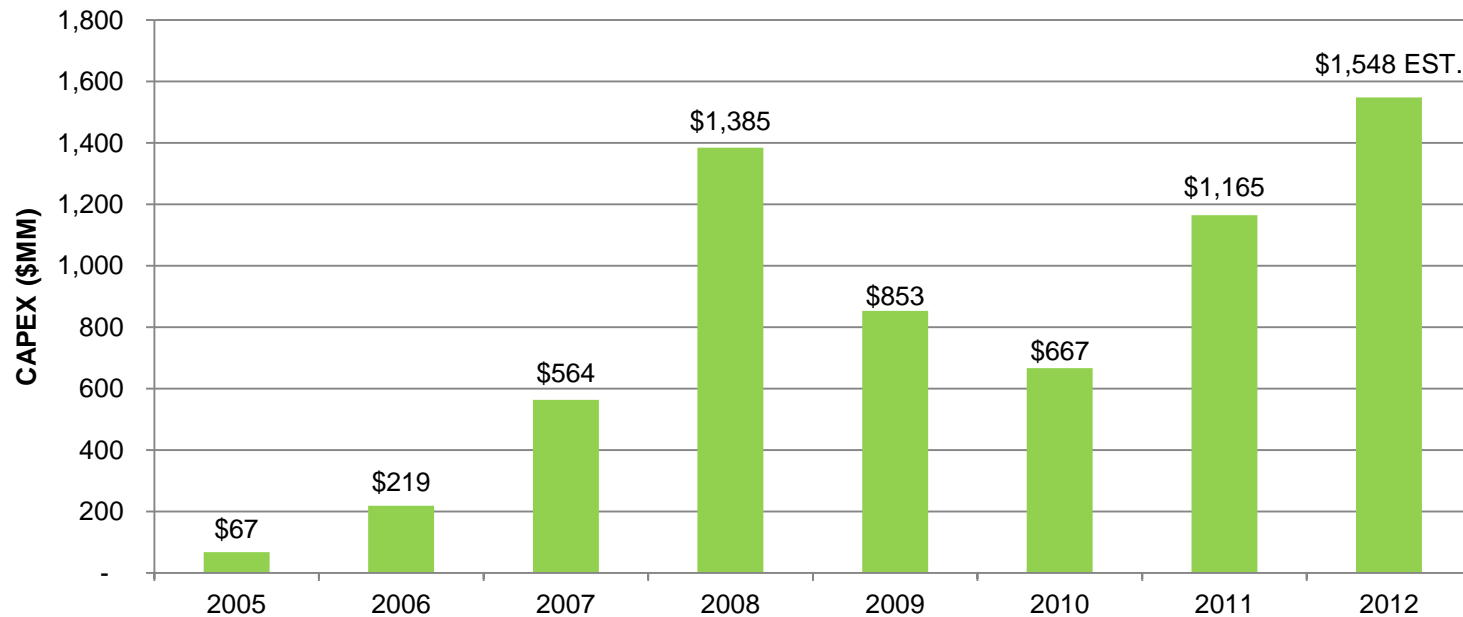
Chesapeake's Shift from Gas to Liquid-Rich Plays





Capital Spend

Midstream Capital Growth





Sample Pipeline Project

- Haynesville Shale:
Lateral 12 East Pipeline
 - 38,500 feet of 12" nominal, 0.375" wall, X52 steel
 - MAOP 1,440 psig; normally operates 1,150 psig
 - Designed for 200 MMscf/d natural gas with 6% CO₂ and 200 ppm H₂S
 - AFE approved September 2009, in service June 2010
 - Final cost: \$8.5MM

Arkansas



West Virginia





Sample Compression Facility Project

- Marcellus Shale – Pleasants Compression Facility, Northern West Virginia
 - 12 compressor units installed for a total of 16,560 hp
 - 3 glycol dehydration trains installed
 - Design suction pressure: 225 psig
 - Design discharge pressure: 1200 psig
 - Design capacity: 115 mmscfd
 - Final actual cost: \$22MM





Urban Compression Facility Design





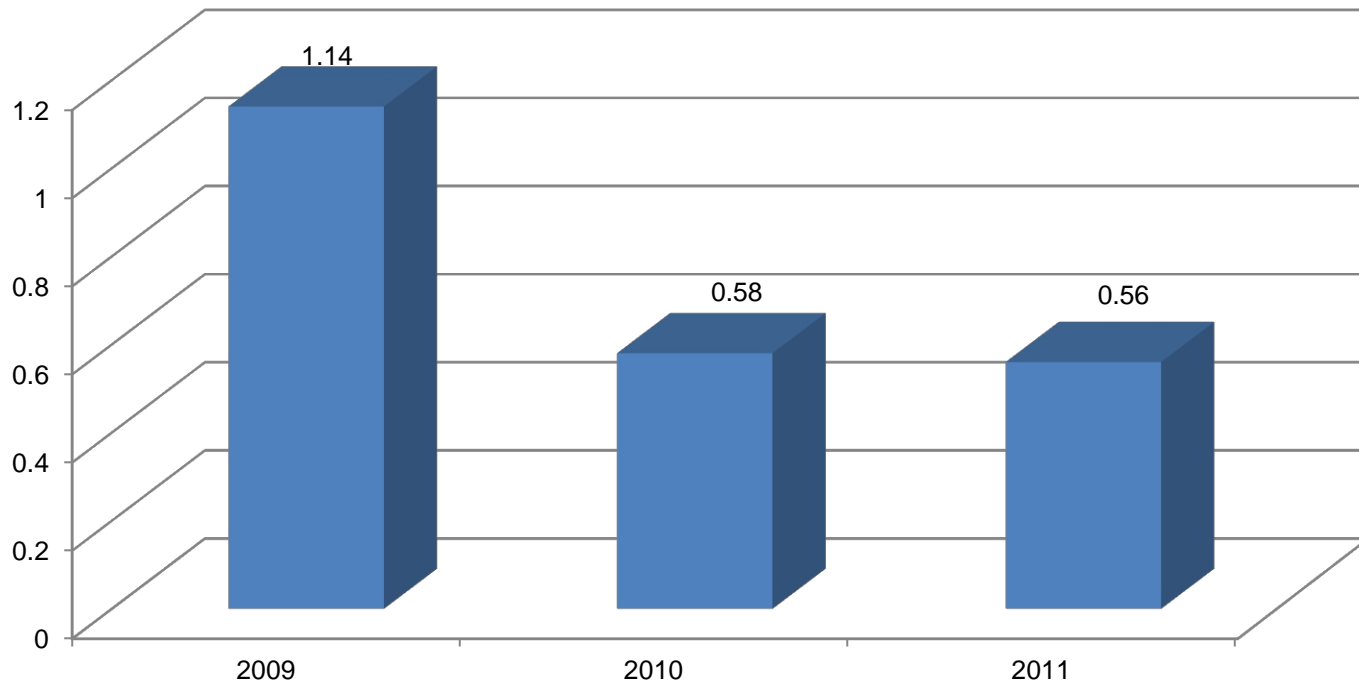
Critical Success Factors (and Challenges)

1. Making Safety Priority #1
2. Front-End Planning
3. Mobilizing a Competent Workforce
4. Creating a Positive Energy Work Environment
5. Mobilizing an Army of Service Providers
6. Creating Strategic Supplier Relationships
7. Creating Standard, Modularized Designs



Environmental, Health & Safety

CHK Midstream Annual Total Recordable Injury Rate (TRIR)





Modularized Designs





Modularized Designs





What We've Learned

1. Things can change quickly
2. Don't believe everything you hear
3. Work hard to manage capital exposure
4. Devote people resources to strategic (i.e. longer-term) priorities
5. Don't underestimate the resources or timeline needed for permitting
6. Don't live in the past; learn from mistakes and move forward



More Lessons Learned

7. You can't succeed without the right people and the right culture
8. In a growth environment, think about your future in a BIG way
9. The best results come from a win-win environment
10. Mother Nature is usually not cooperative, but you just press ahead
11. Never forget that we work in a public environment

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