

Analysis of the Impact of U.S. LNG Exports on U.S. Consumers



**USEA Briefing on Capitol Hill
June 25, 2012**

Study analyzed key questions and concerns

Based on the assumptions and data included in the Deloitte MarketPoint model:

- What would be the impact of 6 Bcfd of LNG exports on U.S. natural gas prices?
- Are the assumed LNG export volumes sufficient to erode competitiveness of U.S. industries and raise security issues?

Key findings

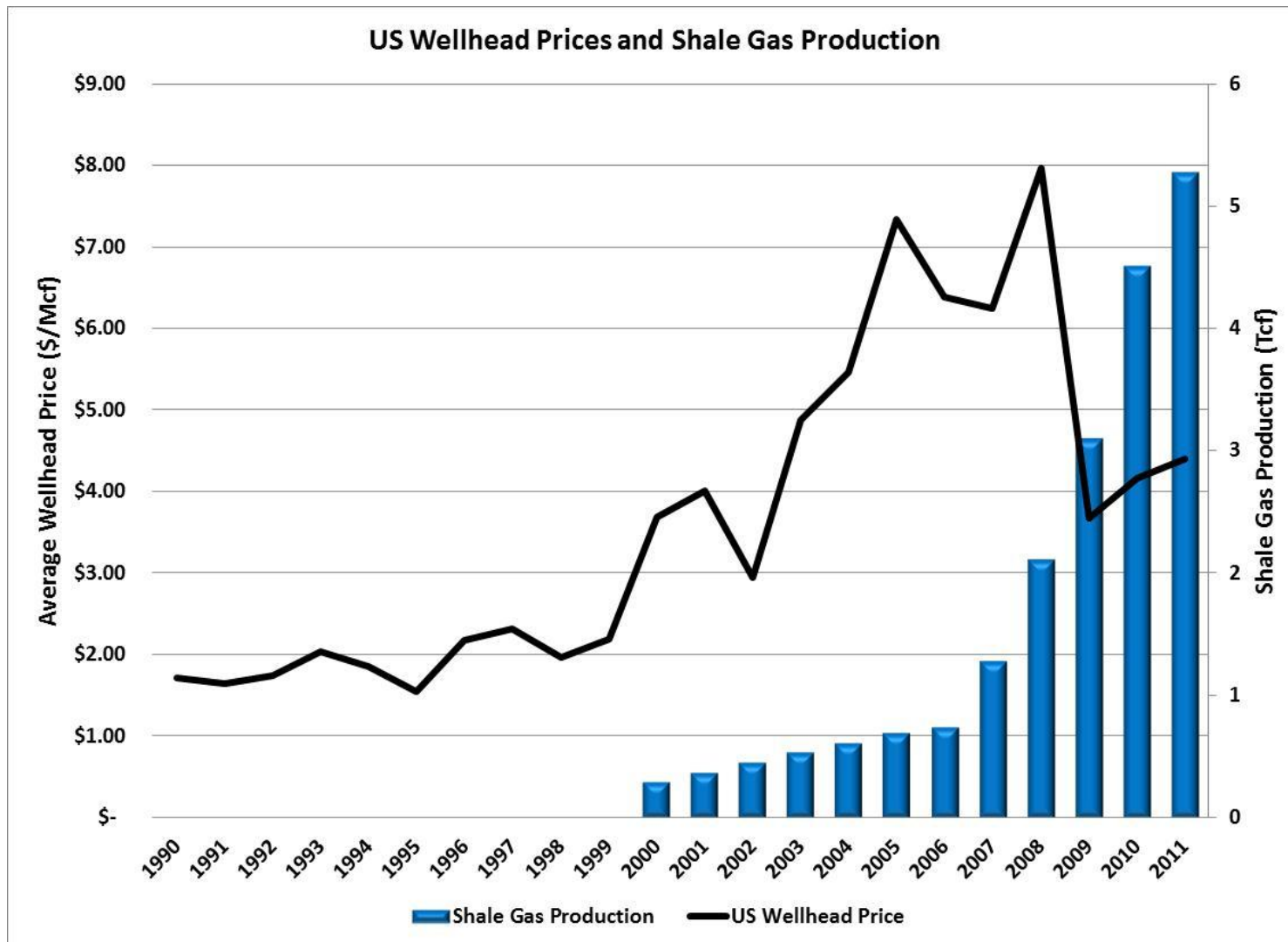
- Price impact is projected to be modest and dissipate with distance from the Gulf.
 - Average impact at US prices is about \$0.12/MMBtu
 - Average impact at Henry Hub is about \$0.22/MMBtu
 - Average impact is less than \$0.10/MMBtu in distant market areas such as Midwest and Mid-Atlantic regions
- Large domestic resource base and highly interconnected North American energy market helps mitigate the price impact.
 - The shape of the supply curve, rather than the absolute price, and supply dynamics determine the price impact of LNG exports.
- Economic stimulation due to exports is substantial
- Objections raised by opponents are largely inconsistent with findings.

What triggered the “Shale Gas Revolution”?



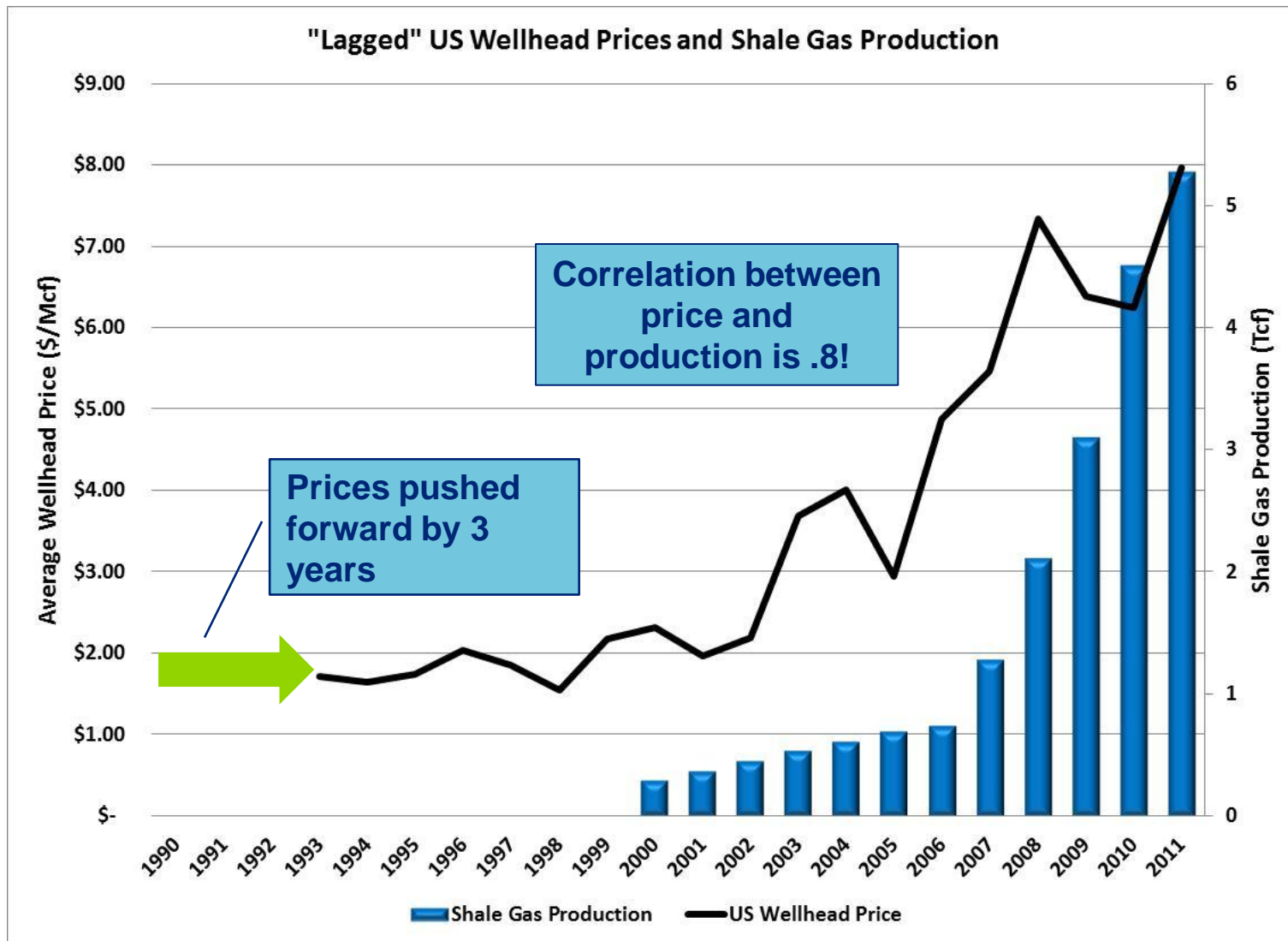
Source: Energy Information Administration based on data from various published studies
Updated: May 9, 2011

Historical wellhead prices and shale gas production



Source: U.S. Energy Information Administration (October 28, 2011).

Shale gas production compared to “lagged” price

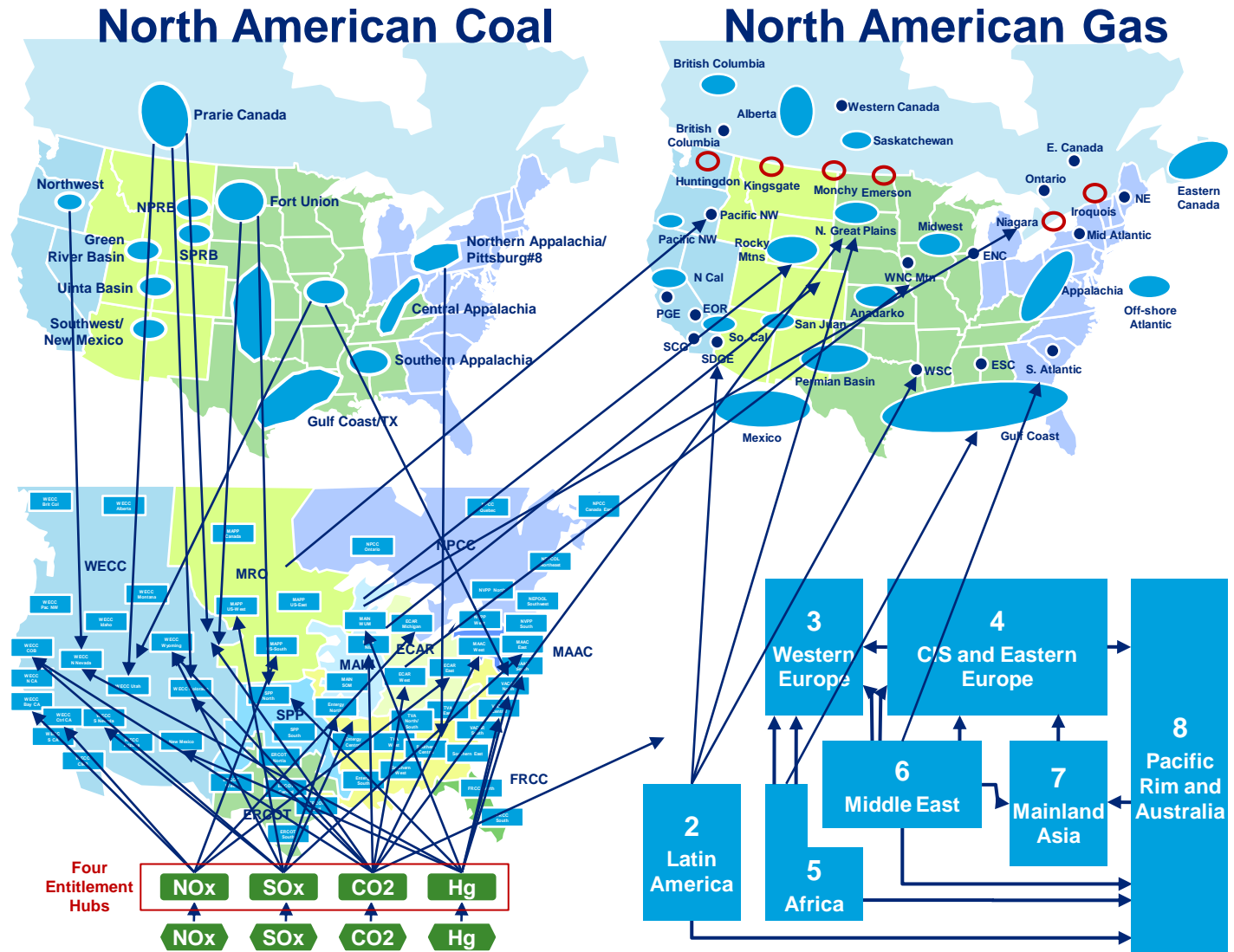


Source: U.S. Energy Information Administration (October 28, 2011).

Key lesson: North American natural gas market is highly dynamic

- Producers and consumers respond to price signals and anticipated market events to mitigate their price impacts.
- Strong market feedback.
 - What is the best cure for high prices?
 - What is the best cure for low prices?
- How might the market react to LNG exports?
 - Producers (supply elasticity)
 - Consumers (demand elasticity)

Integrated models for power, world gas, coal and emissions

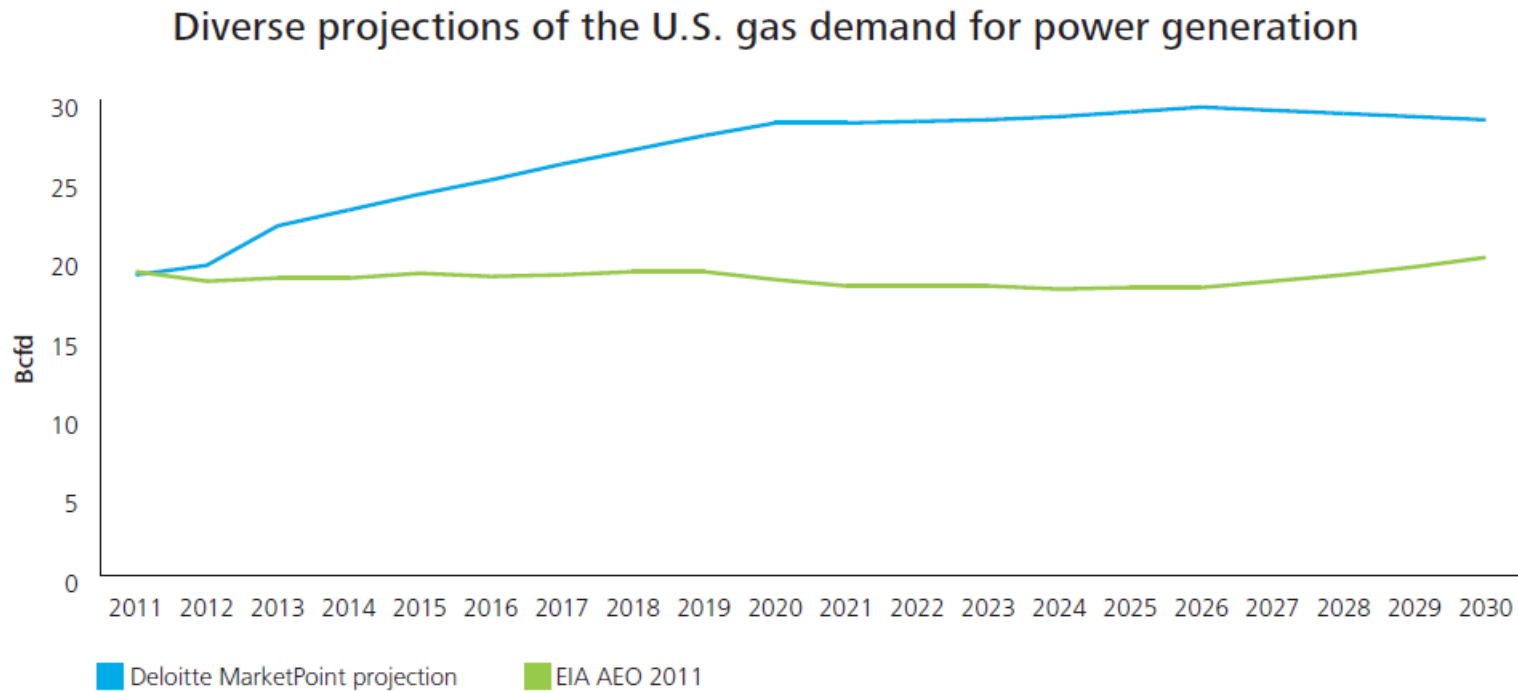


North American Electricity & Emissions

World Gas Model

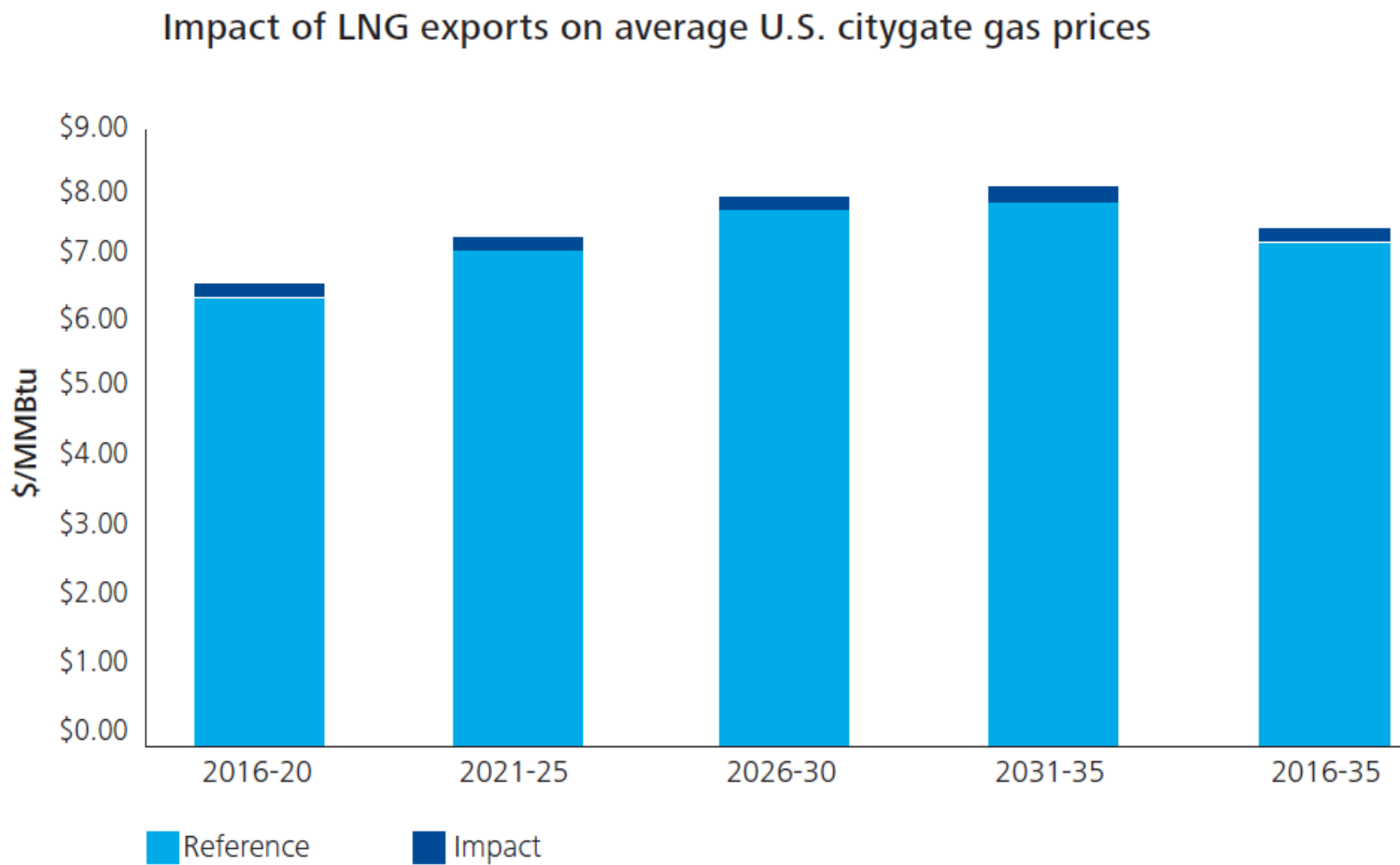
Reference case includes high gas demand growth

It represents a rather conservative case in terms of assessing the impact of exports



Source: Deloitte MarketPoint; Energy Information Administration

Projected price impact of LNG exports (Real 2011 \$)

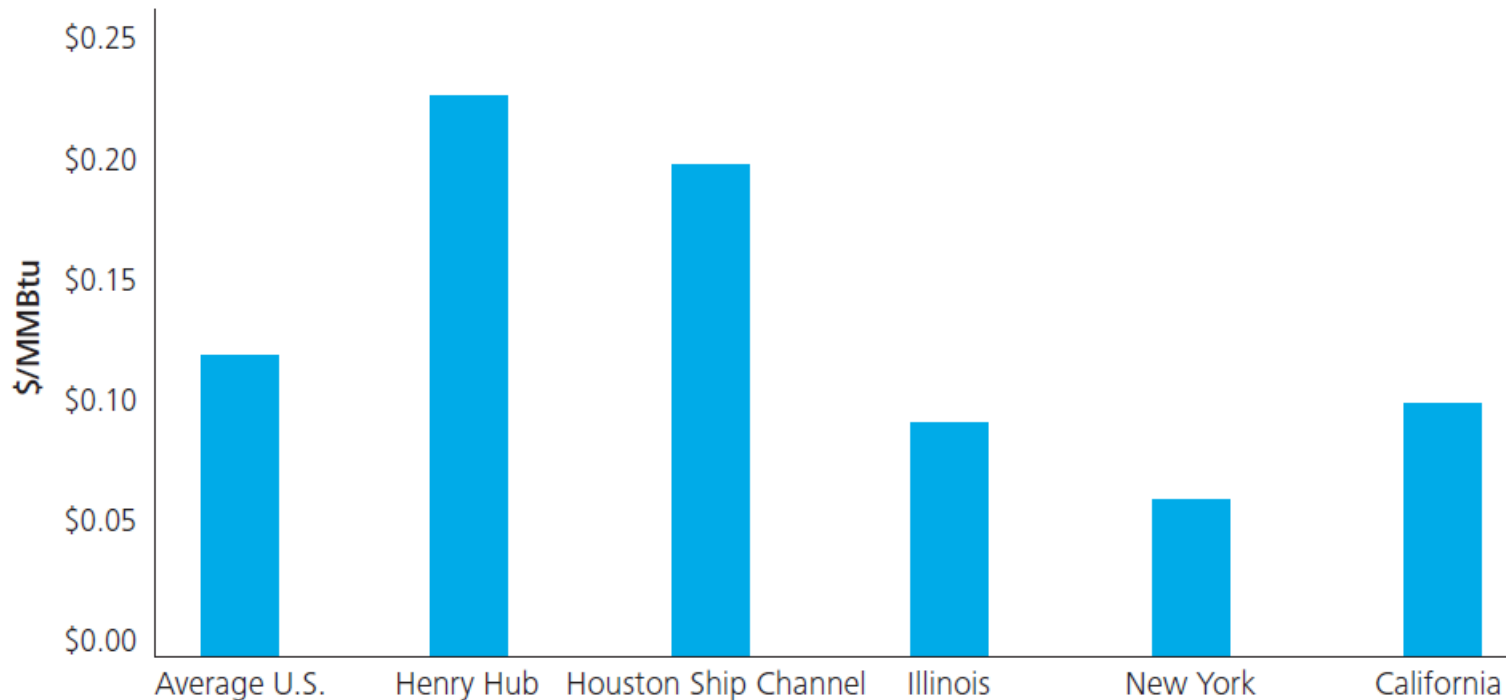


Source: Deloitte MarketPoint LLC

Projected impact is highly locational

Focus on Henry Hub or Gulf supply prices will greatly overstate the impact

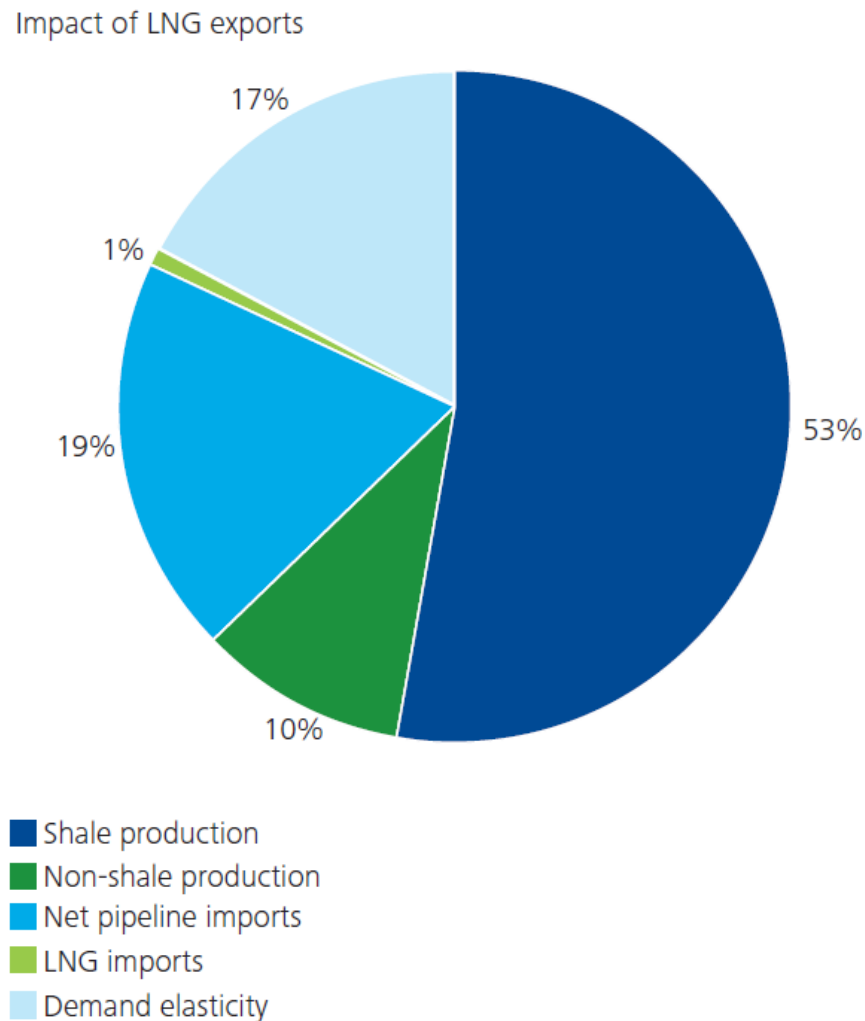
Price impact varies by location (average 2016-35)



Source: Deloitte MarketPoint LLC

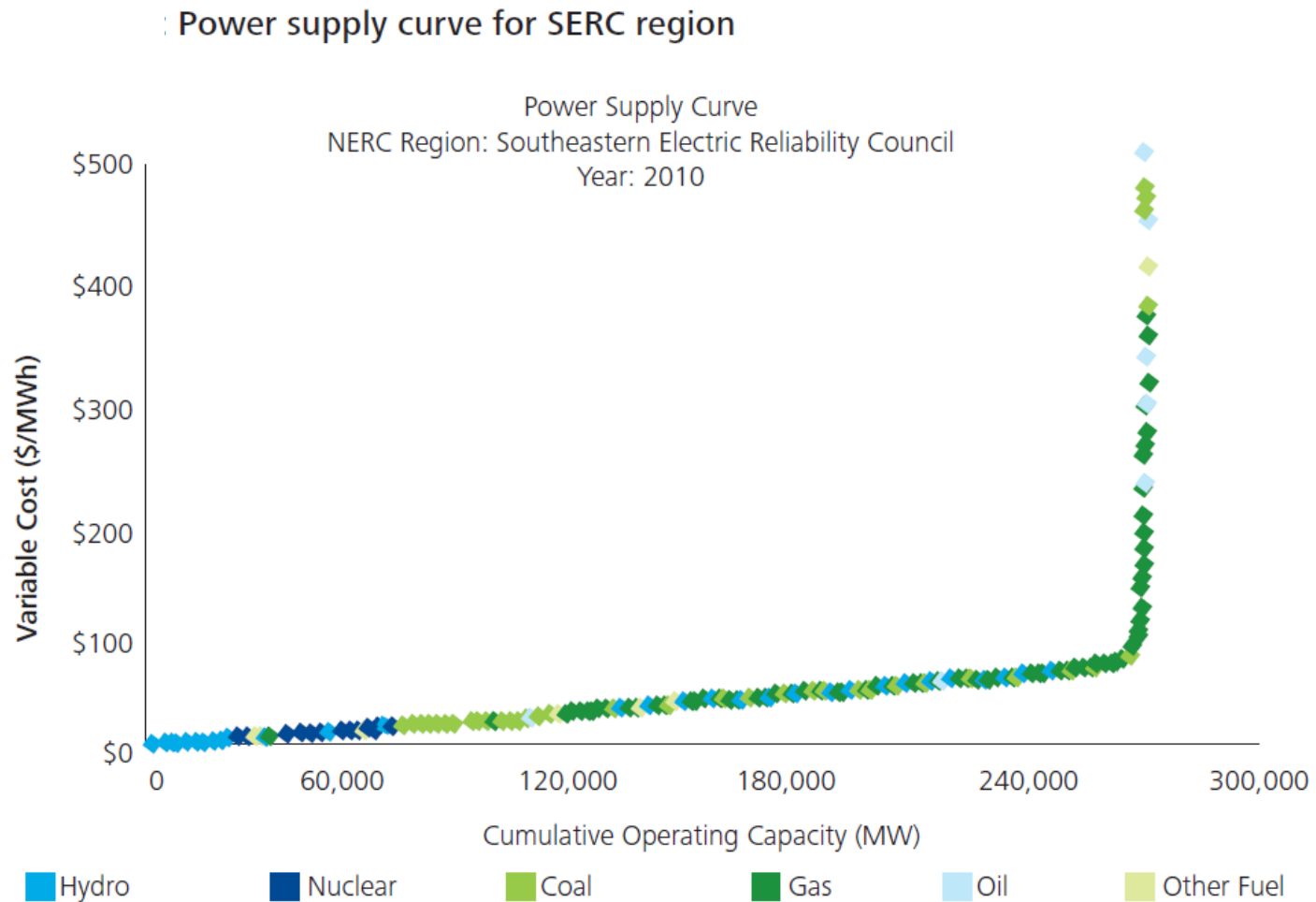
Market dynamics and interconnectivity work to mitigate price impact

Projected sources of incremental volume

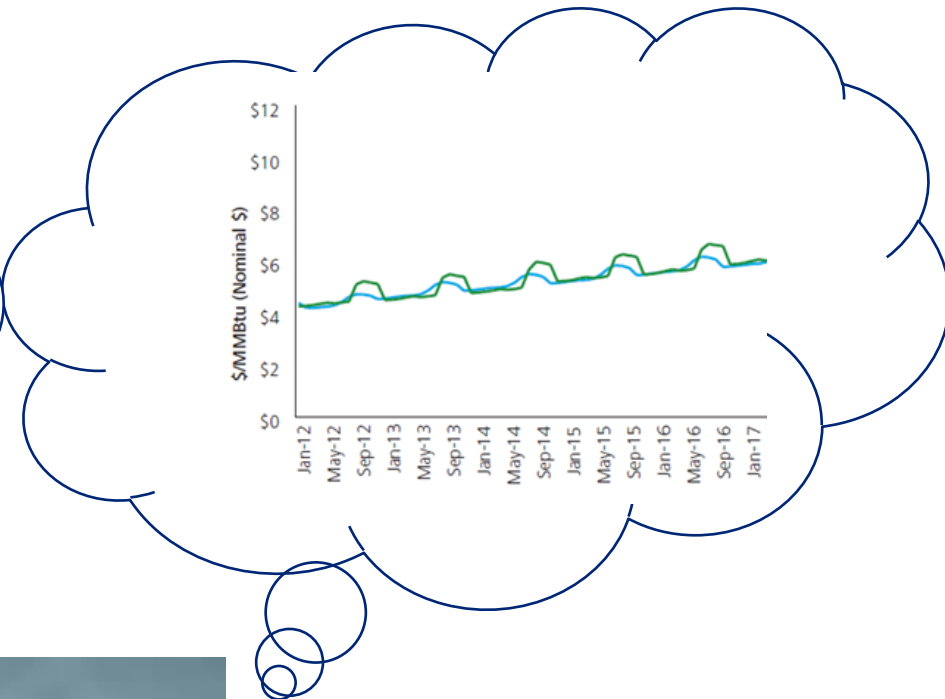
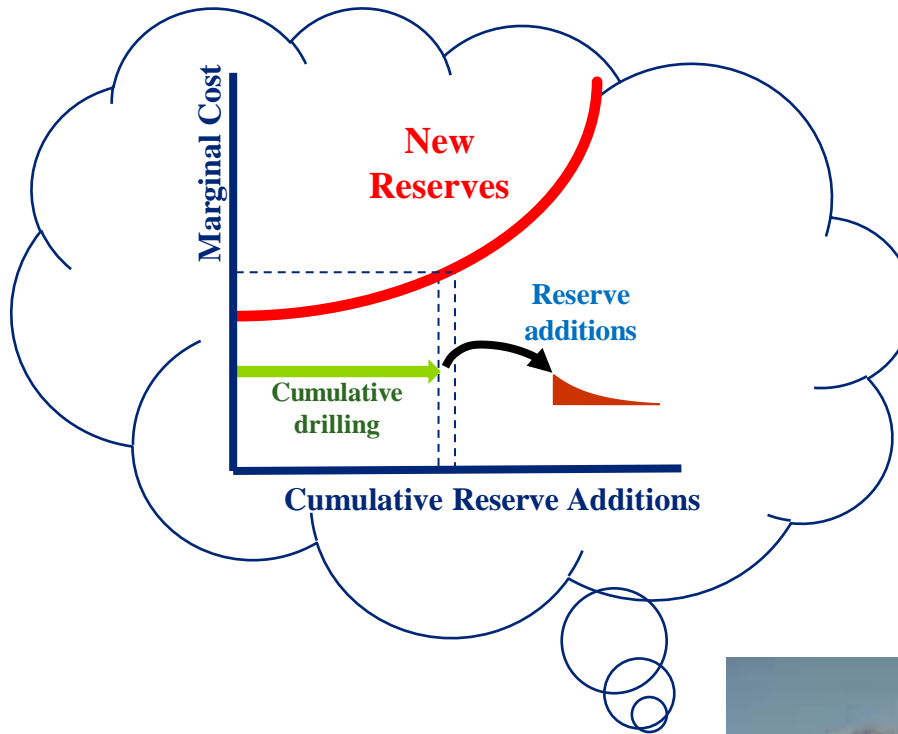


Source: Deloitte MarketPoint LLC

Just as in gas, the supply curve determines the electricity price impact

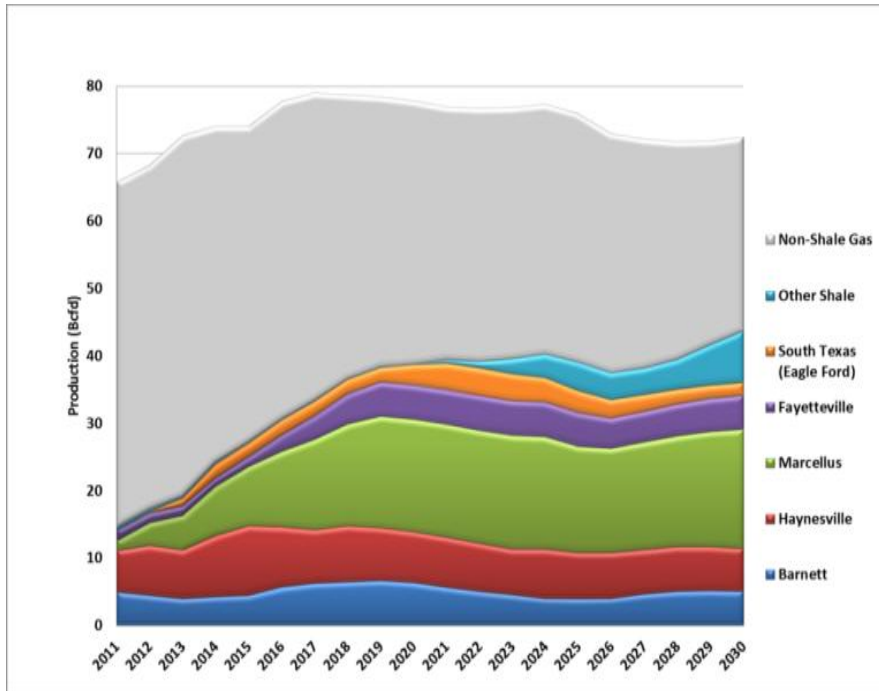


Fundamental model of producer decisions

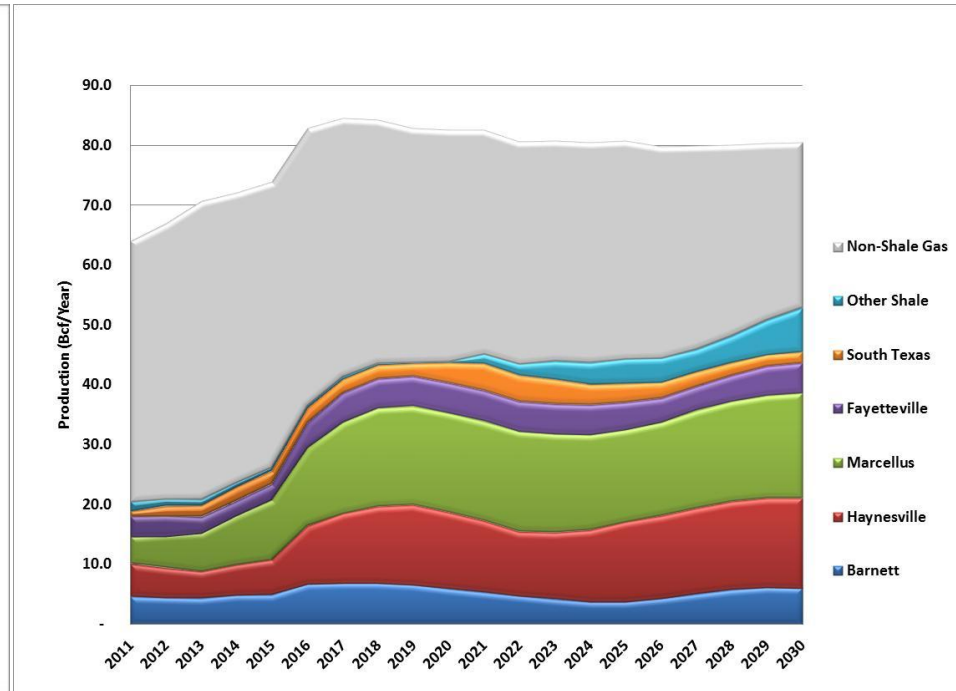


Projected continued rapid growth in shale gas production

U.S. Production (Reference Case)



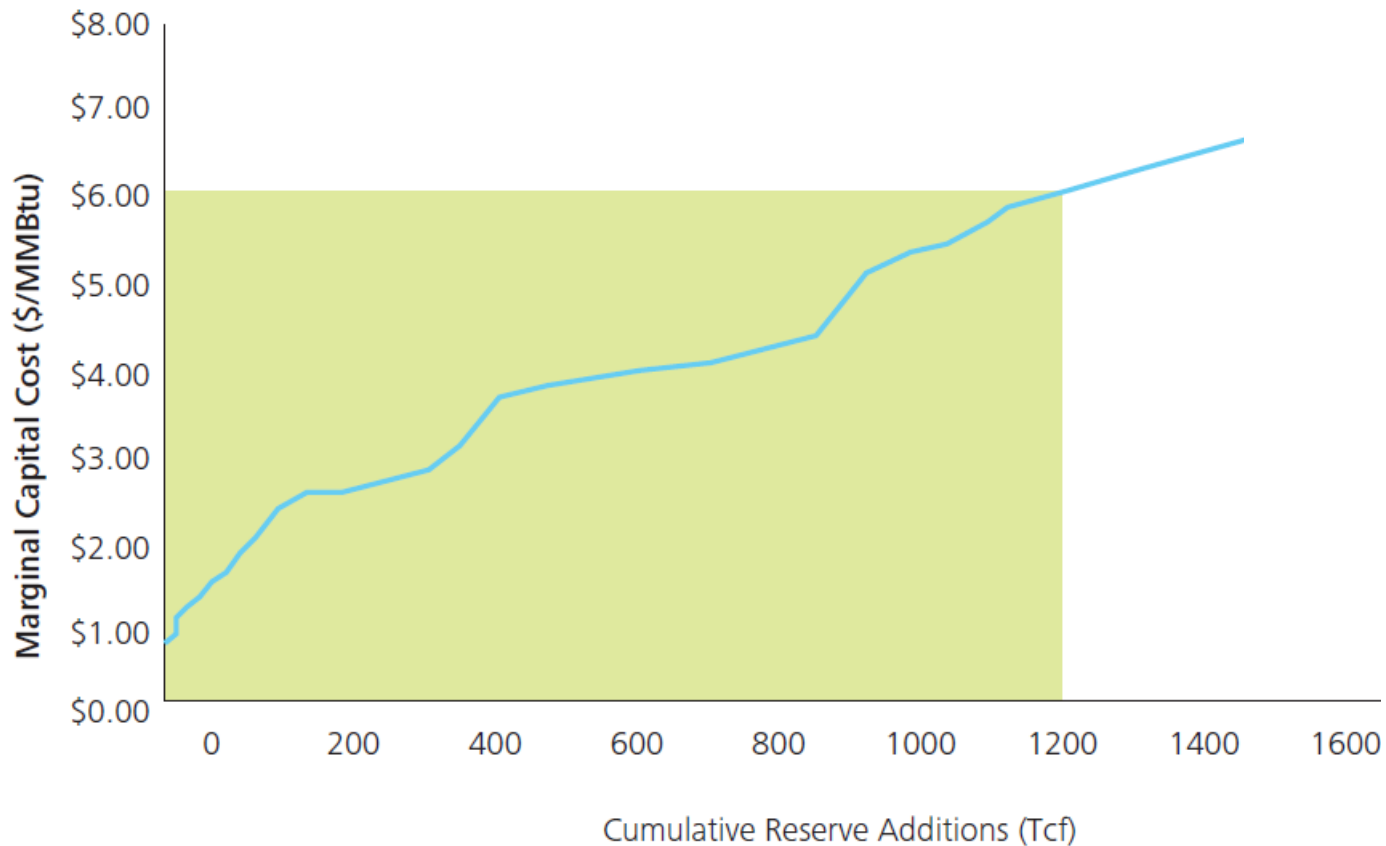
U.S. Production (LNG Export Case)



Source: Deloitte MarketPoint LLC

Aggregate U.S. gas supply curve

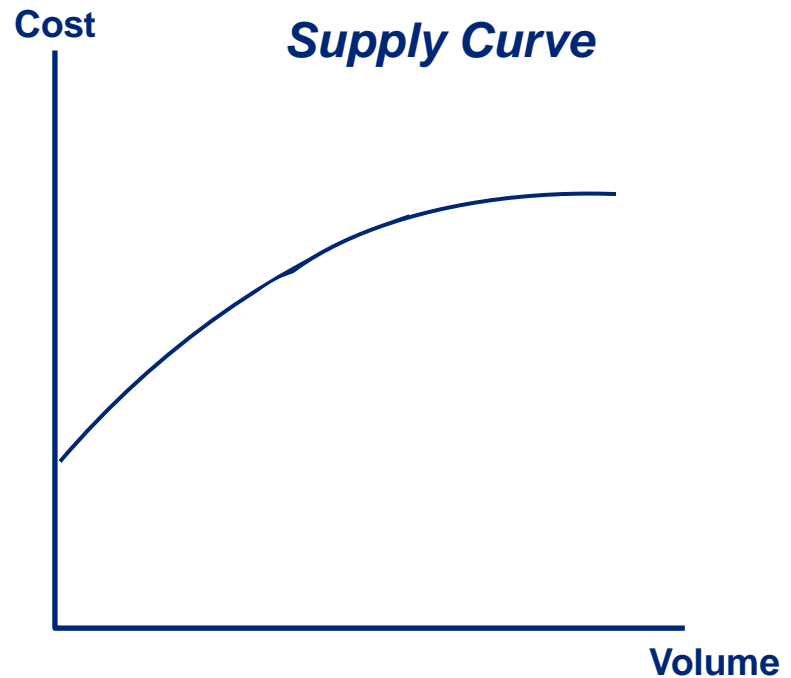
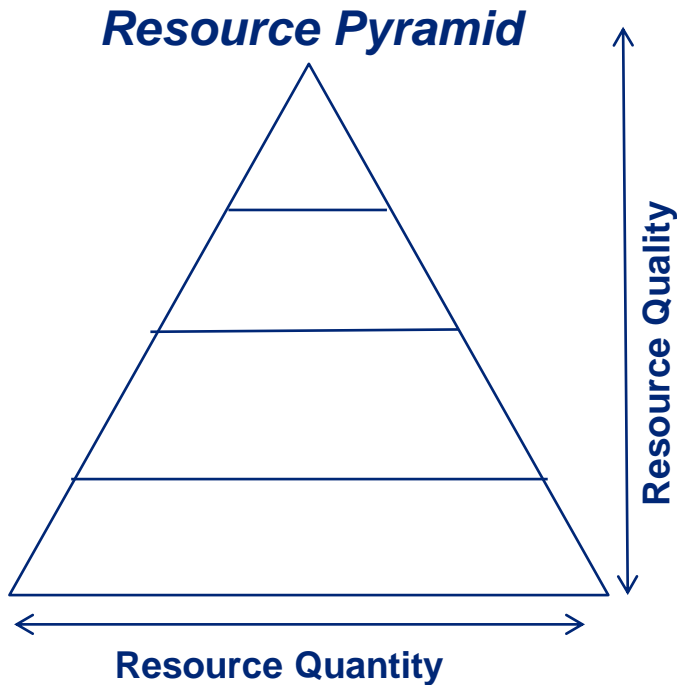
Aggregate U.S. natural gas supply curve



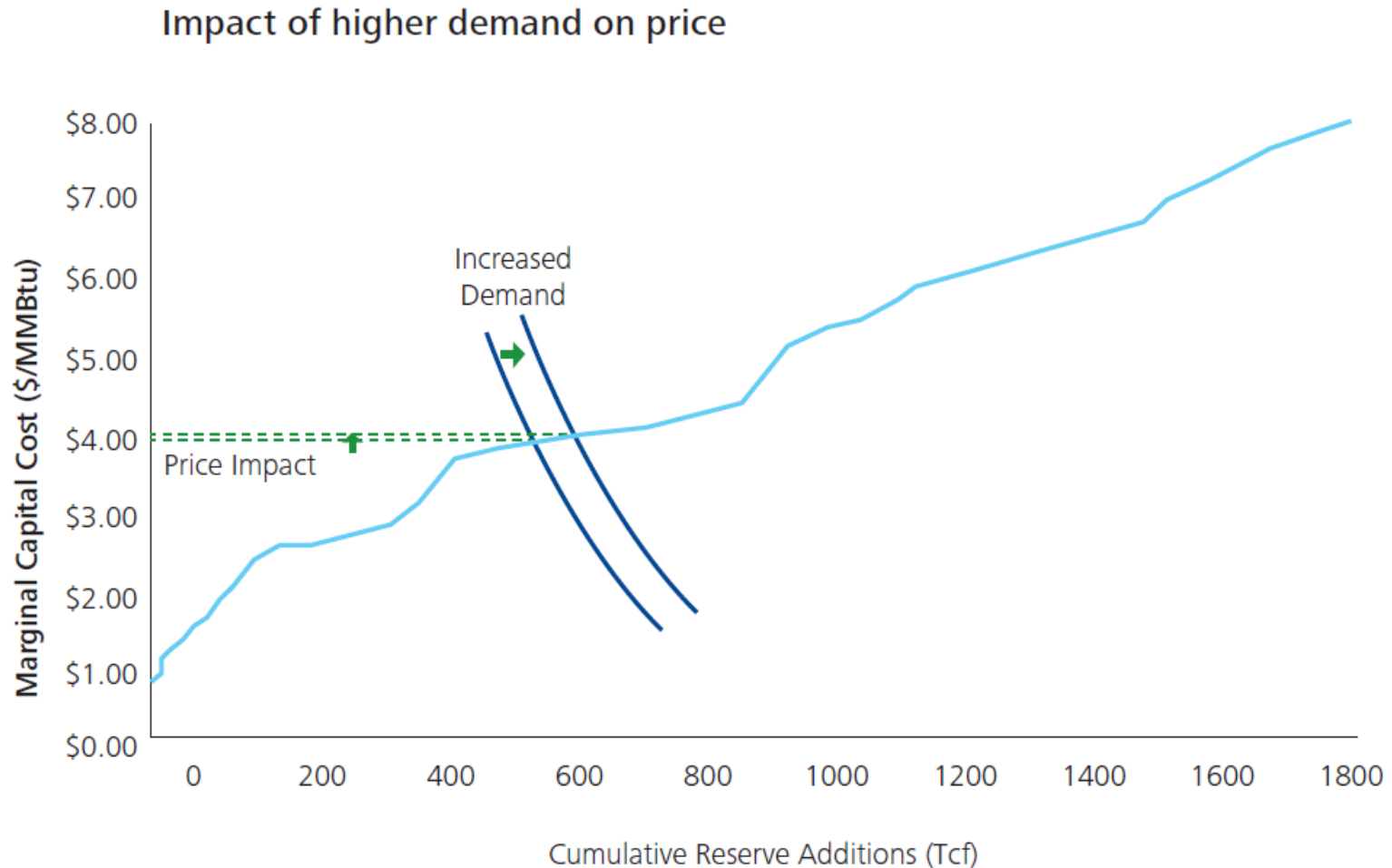
Source: Deloitte MarketPoint

Do we really know how the supply curve looks?

Resource pyramid implies a flat supply curve at higher costs

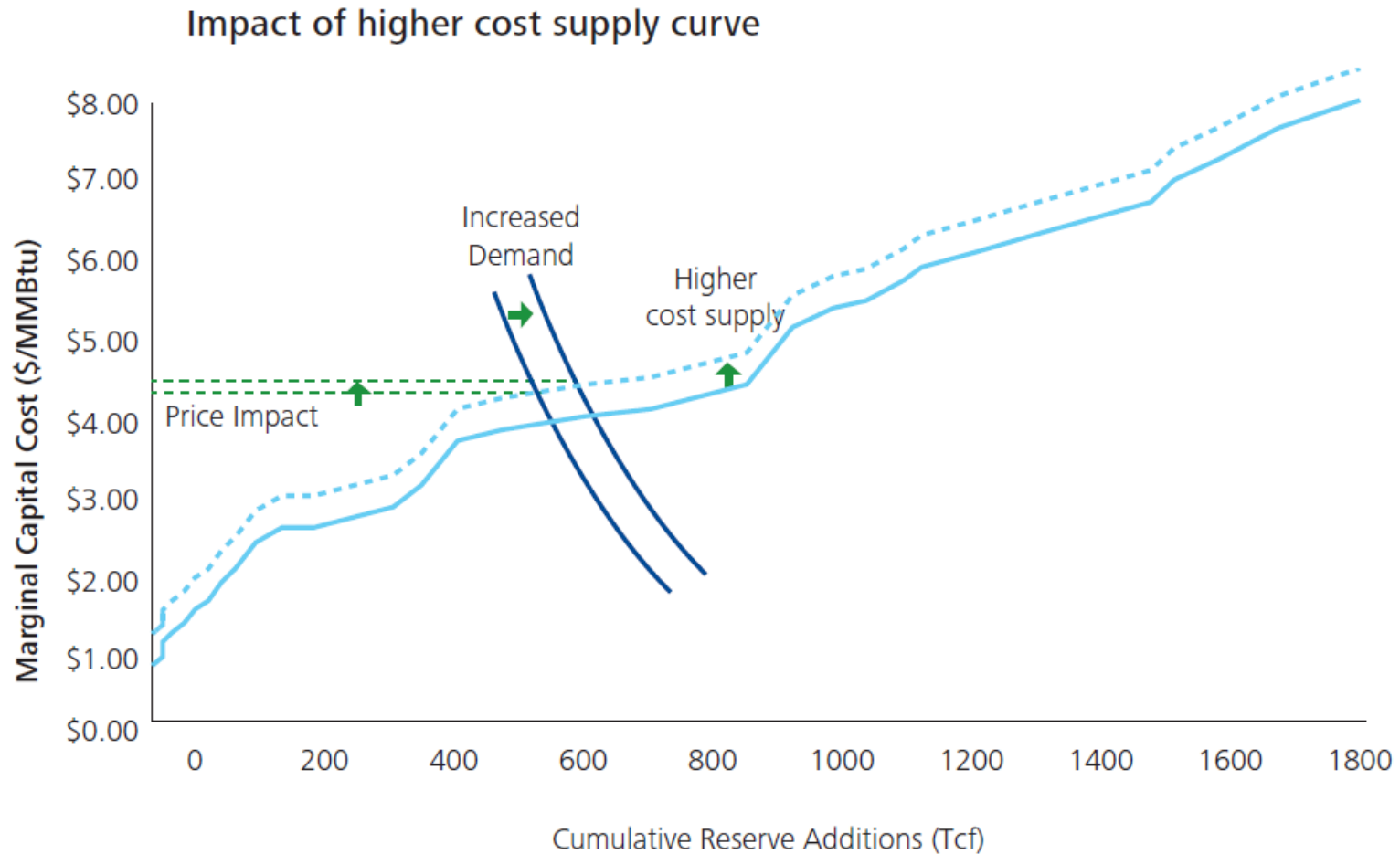


Potential impact of demand change depends on the shape of the supply curve



Source: Deloitte MarketPoint LLC

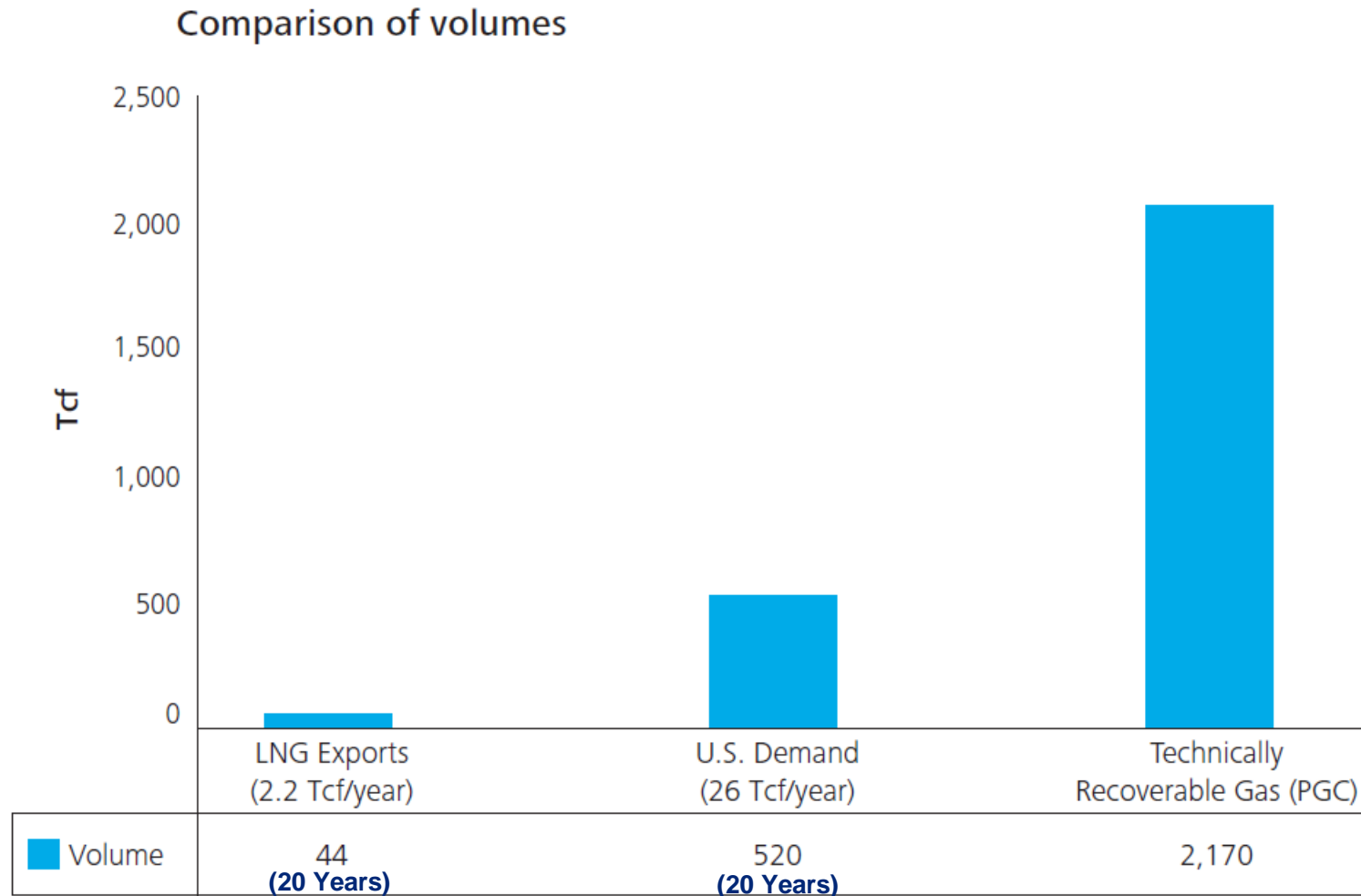
Less optimistic supply assumptions will not necessarily change the impact



Source: Deloitte MarketPoint LLC

The volume of exports are small relative to total supply

Exports are unlikely to have a energy security impact



Source: Deloitte MarketPoint; Potential Gas Committee

Issues raised by LNG export opponents

- Supply sufficiency
 - Supply is inadequate for both domestic consumption and exports
- Price impact
 - Exports will raise prices and harm competitiveness of US industries
 - Connection with foreign markets will raise price volatility in the US
- Security implications
 - Domestic production of natural gas should be used domestically to offset dependence on foreign supplies

Key question: Will U.S. supply be able to keep up with demand including exports?

- If no, the price will likely increase sharply until supply catches up with demand.
 - Price volatility might also rise due to temporal tightness of supply-demand balance.
- If yes, price impact likely will be minimal.
 - Price impact will be determined largely by the change in production cost of marginal field, which should be minimal given a flat supply curve.
 - Recent history demonstrates how dynamic the market is.





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