

Introduction to Natural Gas

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Where is it produced? Just conventional

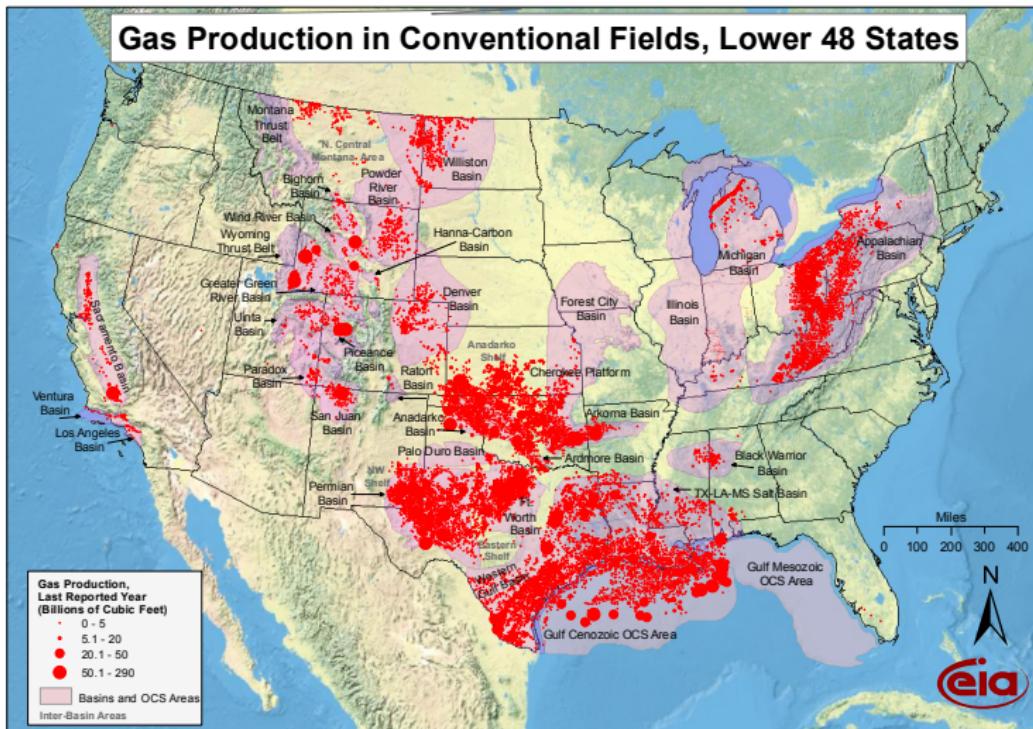


Figure 1:

More in the shale areas.

Shale plays in the Lower 48 states

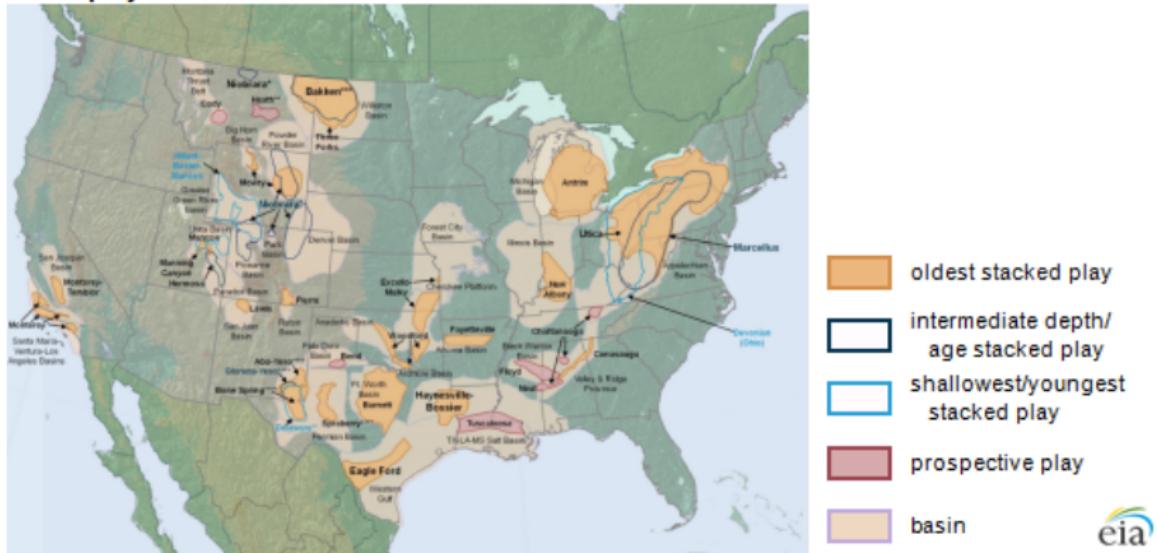


Figure 2:

Fracking Well. Will see with oil well with associated gas



Figure 3:

How do you move it within the US? Pipelines (Interstate only).

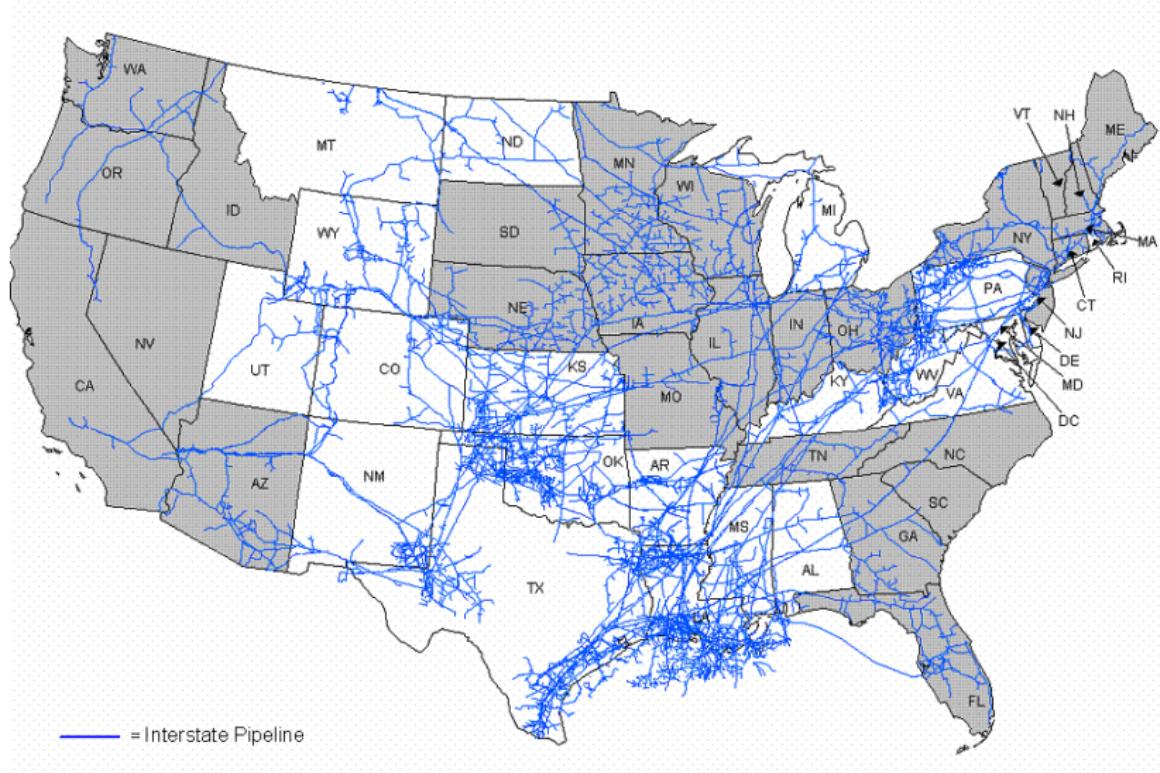


Figure 4:

What about those pipelines?

- ▶ There are more intrastate pipelines than shown, plenty in TX and CA but also other states
- ▶ Read more here
https://www.eia.gov/pub/oil_gas/natural_gas/analysis_publications/ngpipeline/transcorr.html
 - ▶ Picture pipes ranging from a foot to three+ feet for trunk lines.
 - ▶ Compressor stations every 50-100 miles, ~1,500 total
 - ▶ 200 psi to 1,500 depending
- ▶ They are privately owned https://www.eia.gov/pub/oil_gas/natural_gas/analysis_publications/ngpipeline/MajorInterstatesTable.html
 - ▶ Open access, posted prices, is a thing.
 - ▶ For intrastate, existing state PUC regulate
 - ▶ For interstate, FERC regulates (You can find current Tariffs at <http://etariff.ferc.gov/TariffList.aspx>)

Compressors



Figure 5:

Compressor Station



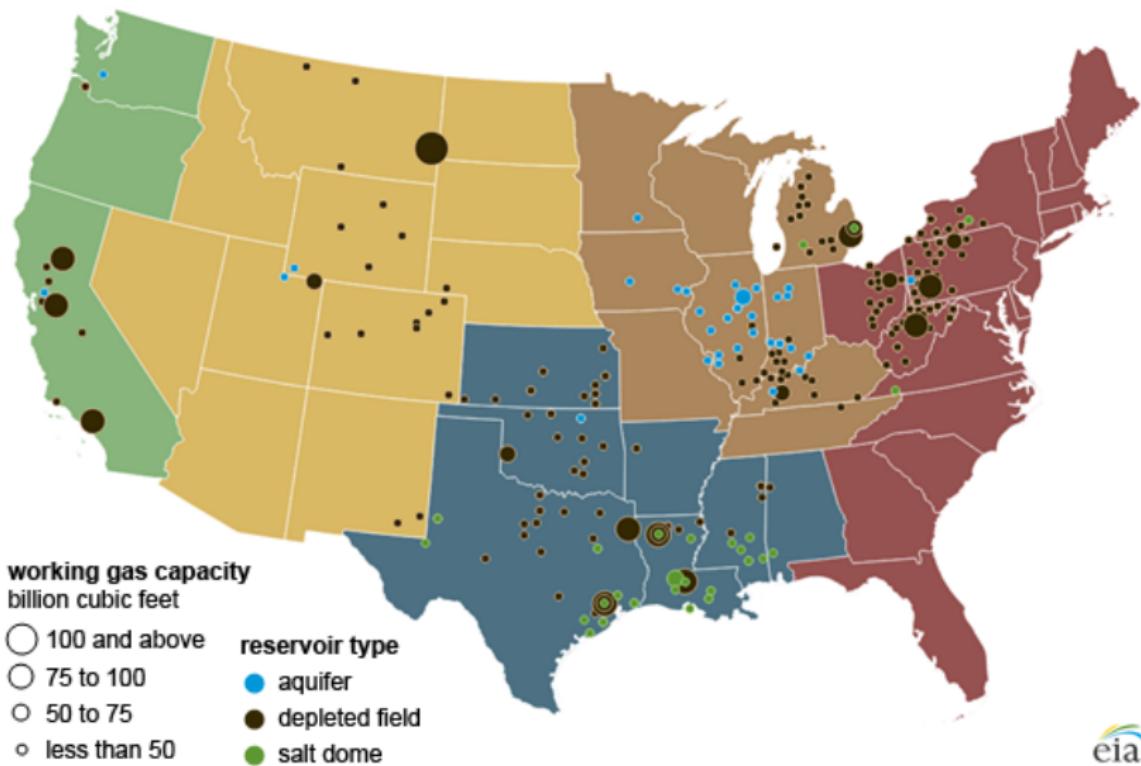
Compressor Station Complex

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Figure 6:

Storage is important

U.S. underground natural gas storage facilities by type (July 2015)



Most Storage is just old gas wells

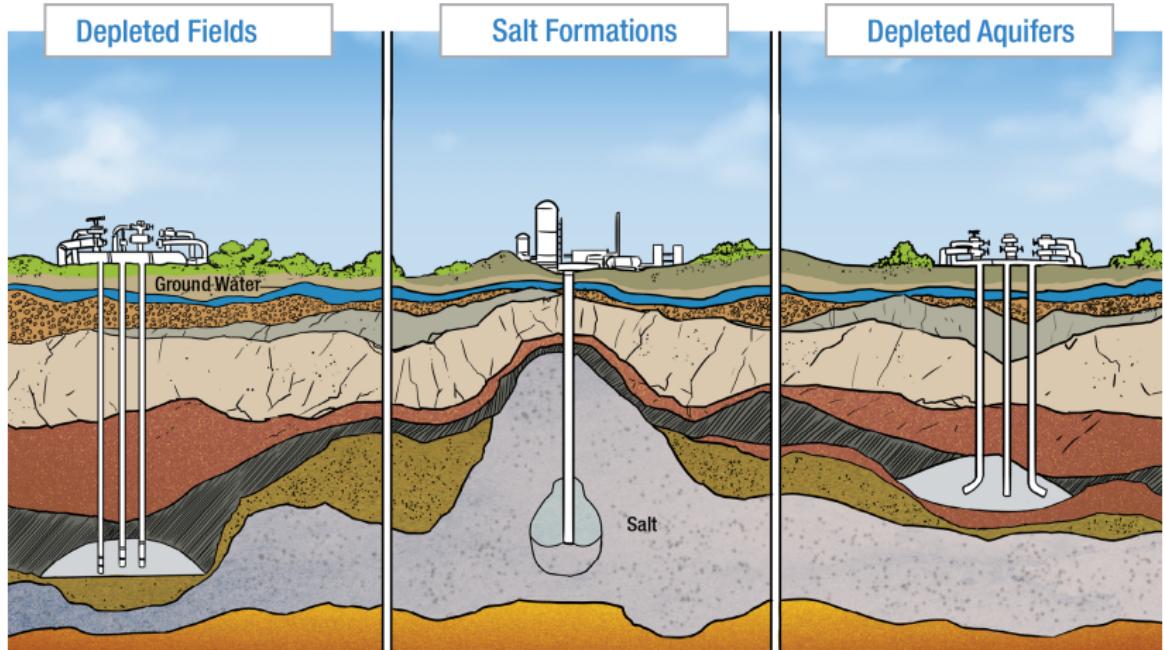


Figure 8:

Hubs, where transactions are made

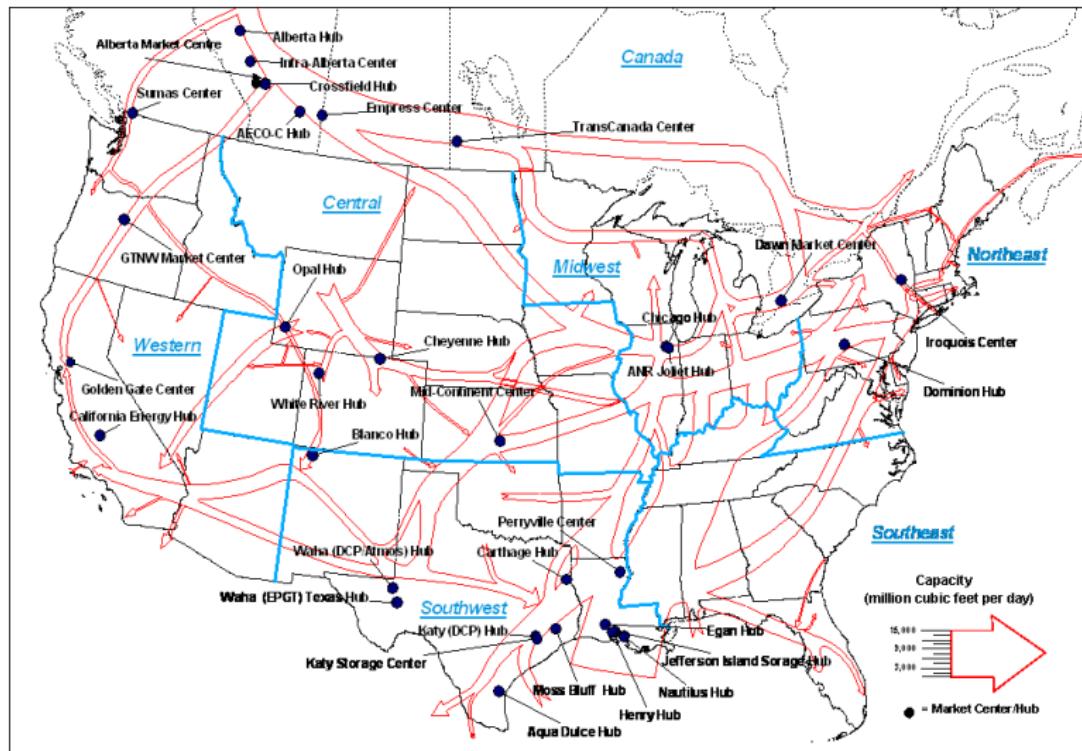


Figure 9:

Part of Henry Hub LA



Figure 10:

Getting to Prices

- ▶ You will see wellhead prices, but
- ▶ Most references prices are at the hubs.
 - ▶ Henry Hub in LA is the most common reference hub for prices
 - ▶ There are fairly firm relationships between other hubs and HH except when there is congestion.
 - ▶ Changes in the usual difference are usually called basis blowout. Term is not specific to energy.

Question 1

Question 2

Question 3

Question 4

Question 5

Questions for Groups