

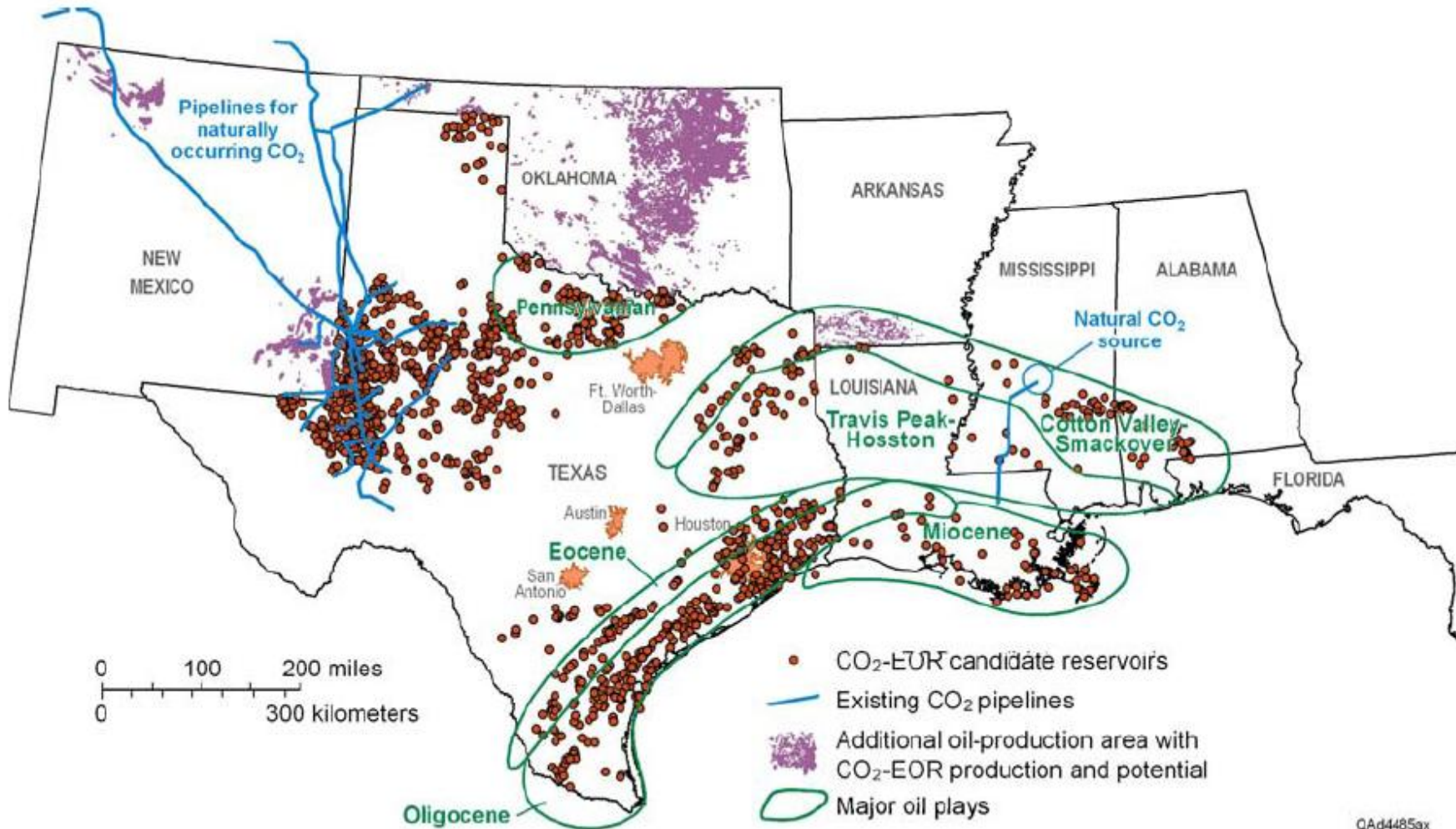


# The Future of Onshore Oil & Gas Production

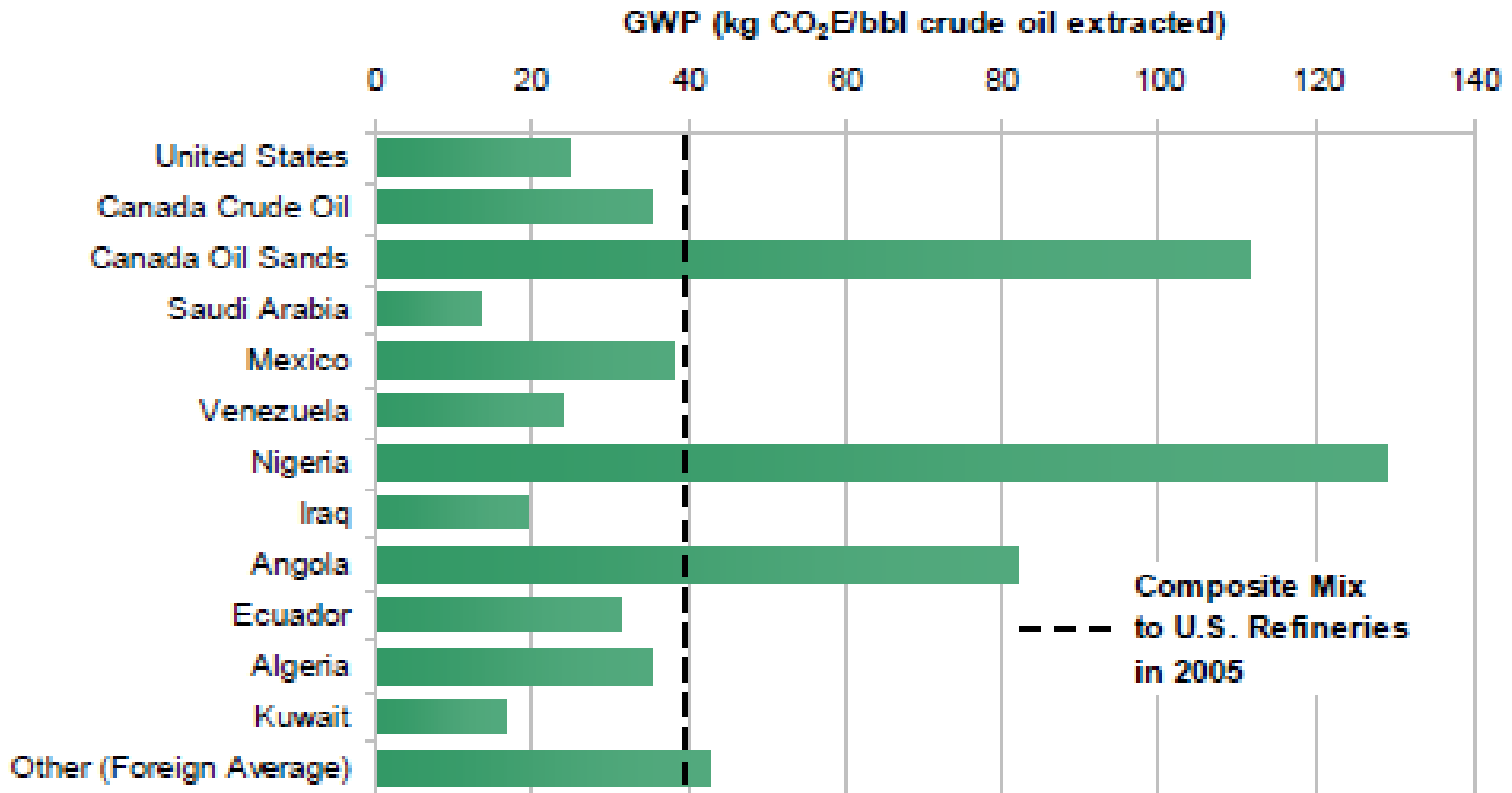


John Steelman  
April 2011

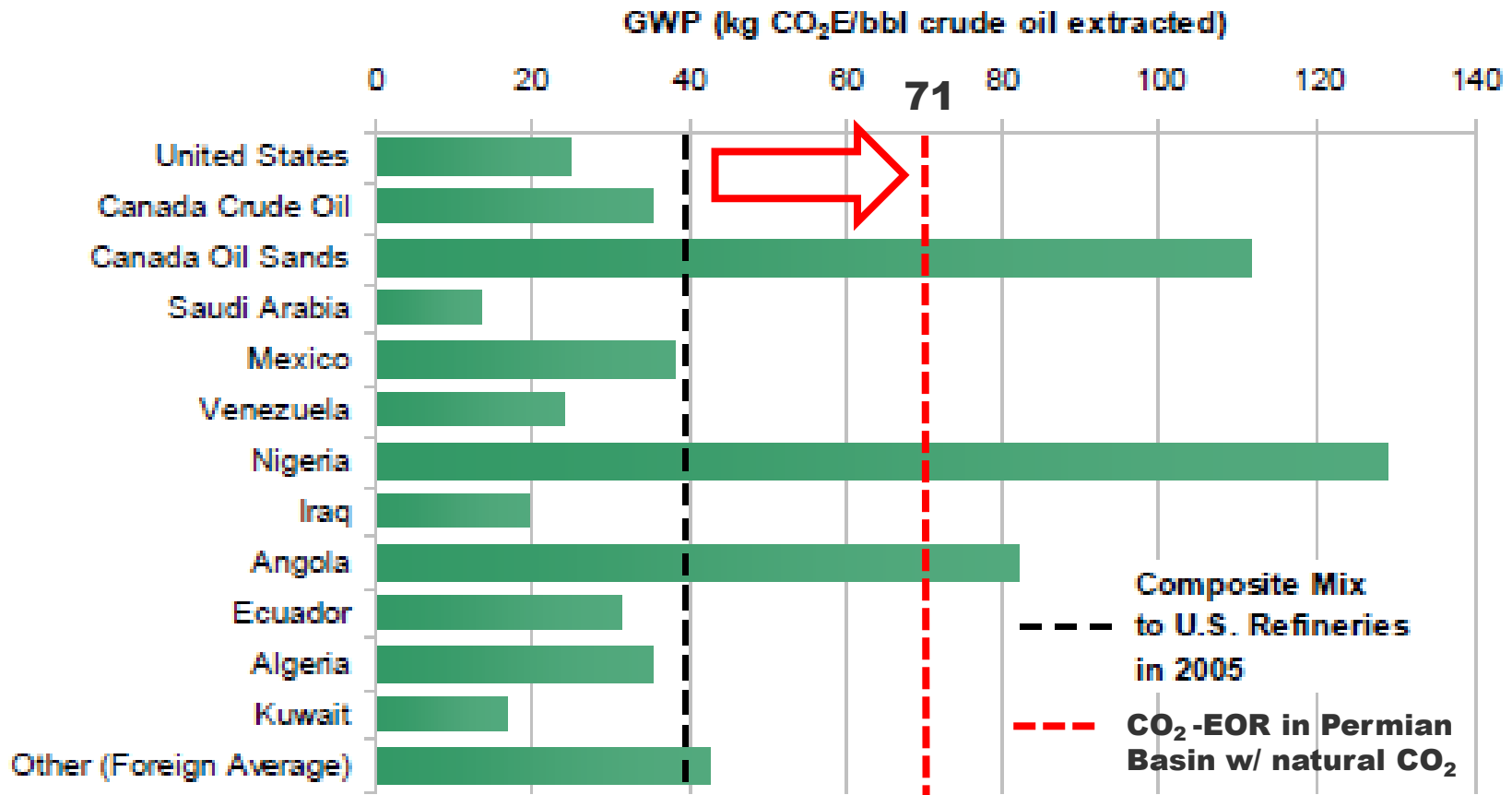
# Largest New Source: Existing Oil Fields



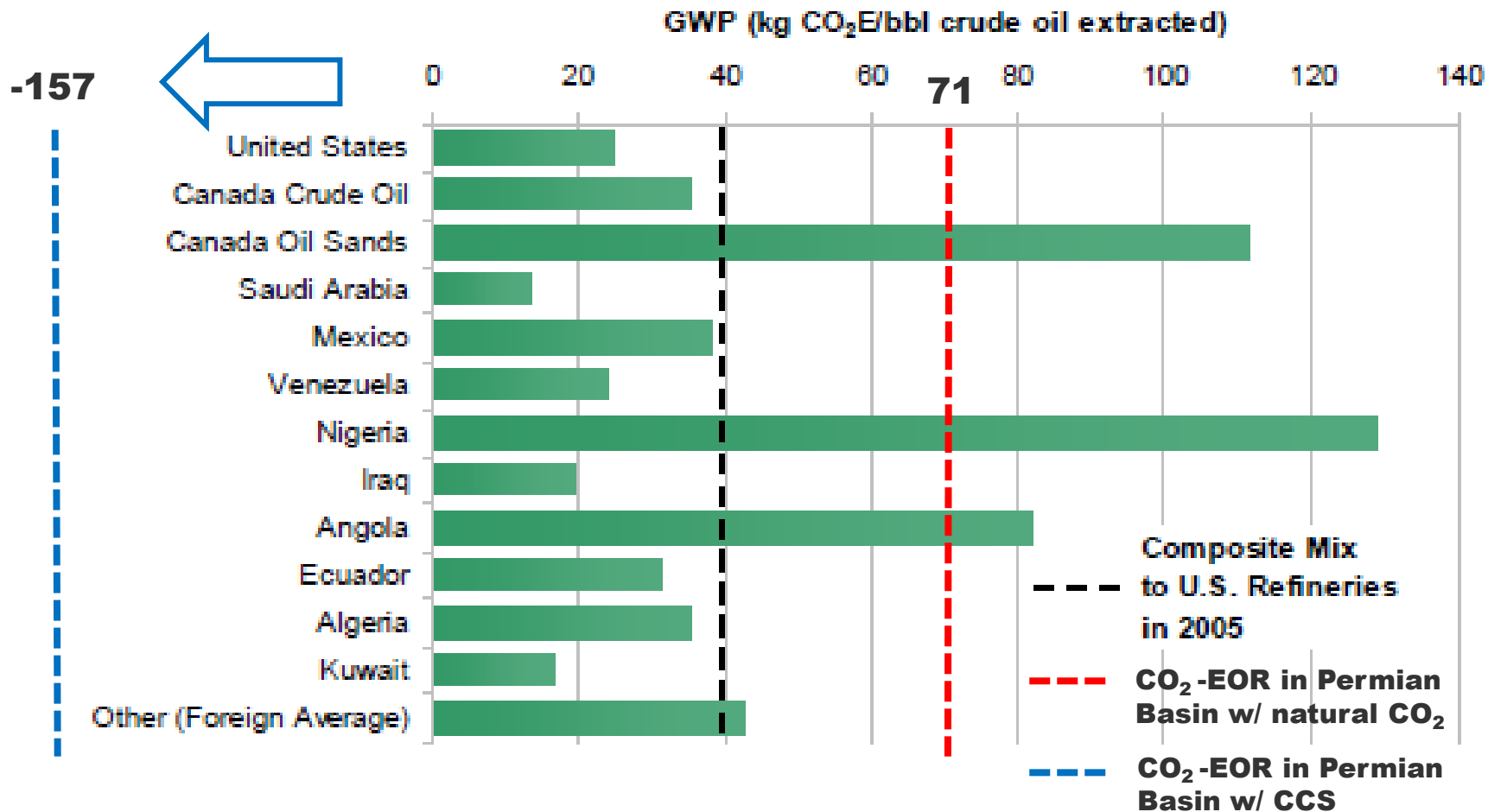
# How we produce oil matters



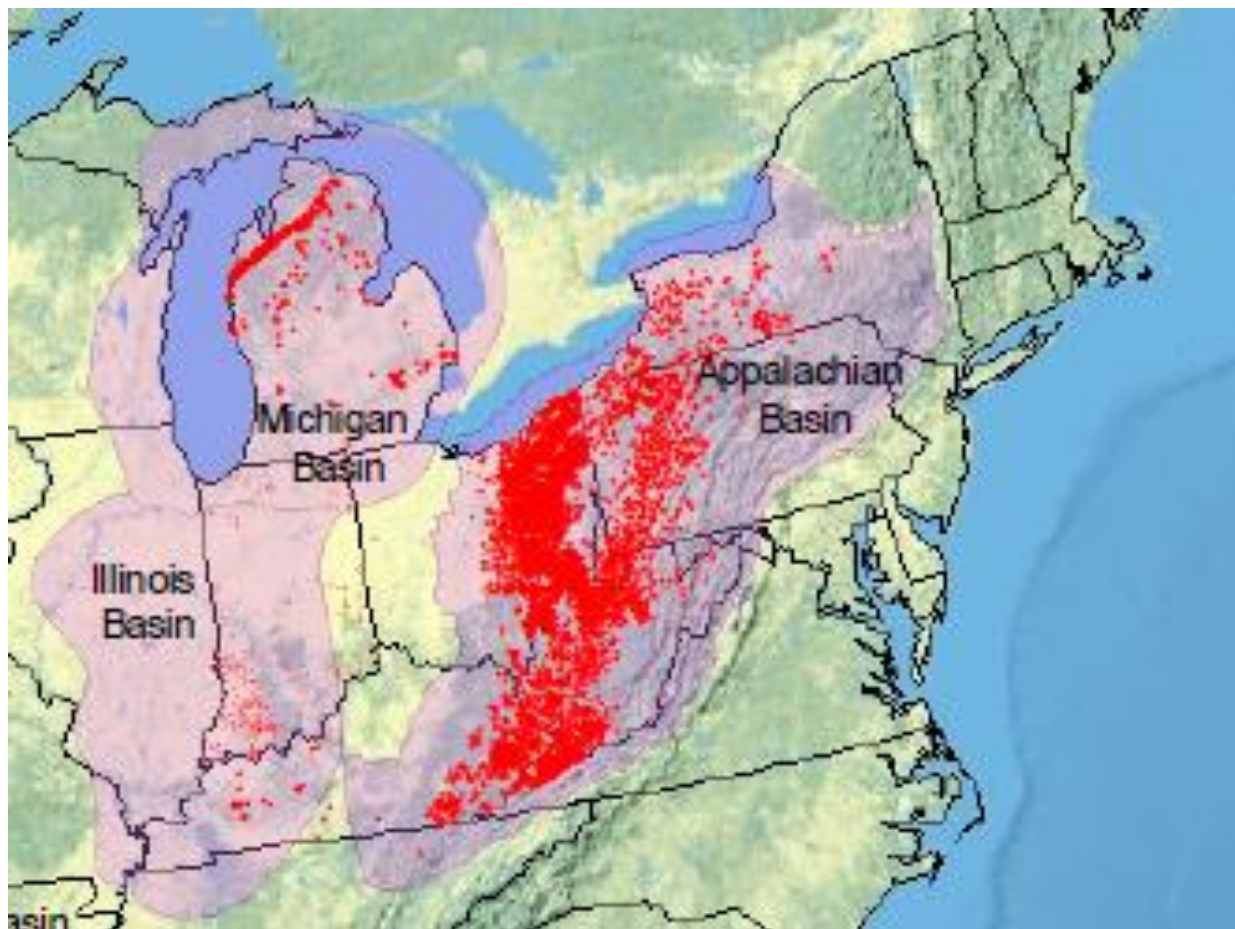
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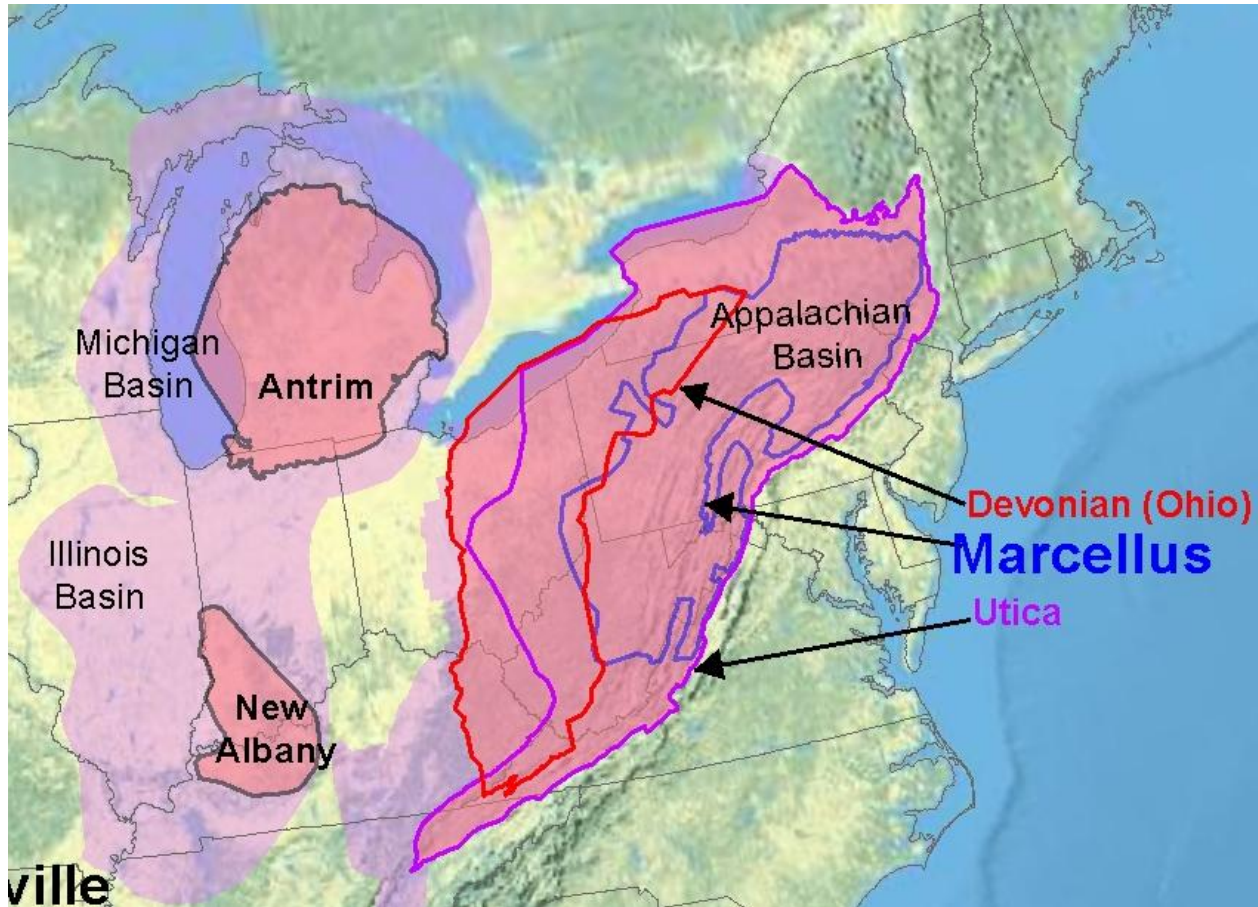
# How we produce oil matters



# Where we produce gas matters



# Where we produce gas matters



# How we produce natural gas matters



**Table 1: Comparison of Emissions Factors from Four Updated Emissions Sources**

Emissions Source Name	EPA/GRI Emissions Factor	Revised Emissions Factor	Units
1) Well venting for liquids unloading	1.02	11	CH <sub>4</sub> – metric tons/year-well
2) Gas well venting during completions			
<i>Conventional well completions</i>	0.02	0.71	CH <sub>4</sub> – metric tons/year-completion
<i>Unconventional well completions</i>	0.02	177	CH <sub>4</sub> – metric tons/year-completion
3) Gas well venting during well workovers			
<i>Conventional well workovers</i>	0.05	0.05	CH <sub>4</sub> – metric tons/year-workover
<i>Unconventional well workovers</i>	0.05	177	CH <sub>4</sub> – metric tons/year-workover
4) Centrifugal compressor wet seal degassing venting	0	233	CH <sub>4</sub> – metric tons/year-compressor

1. Conversion factor: 0.01926 metric tons = 1 Mcf



# How we produce natural gas matters



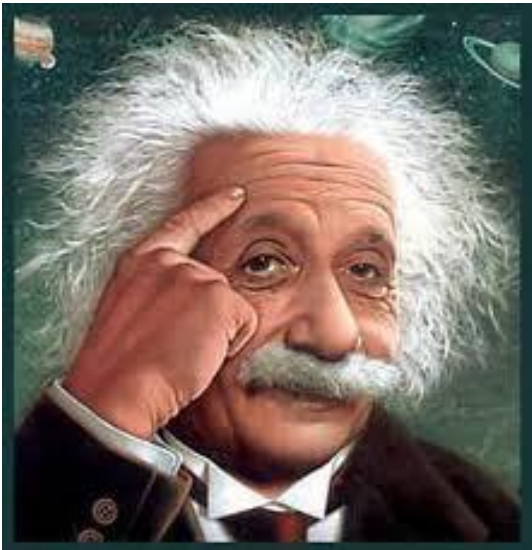
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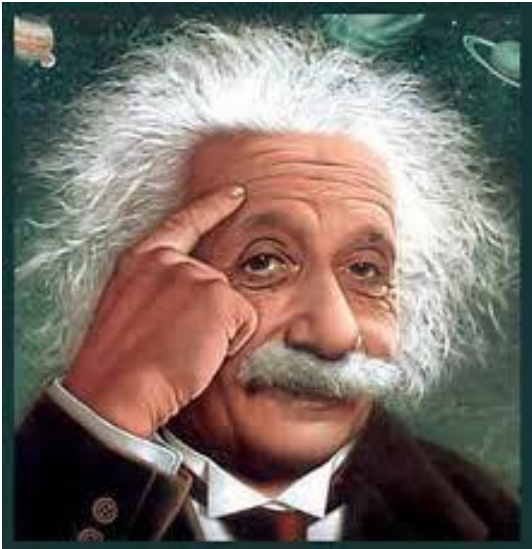
**261 million tons = 30-80 coal plants!**

# The Future of Oil and Gas?



*OR*

# The Future of Oil and Gas?



*OR*

