

A Few Remarks on LNG Exports

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Topics to be covered

- Status of DOE approvals
- Economic impact of LNG exports studies
- Impact of low oil prices on LNG exports

DOE Approvals to Non-FTA Countries

Current as of Dec 18, 2014

- 37 applications received (38 bcfd of capacity)
- 5 applications with final approval (7.7 bcfd of capacity)
- First application on Sept of 2010

ICF Study: LNG exports result in employment and GDP gains at modest increase in prices

Impact (2016-2035 Averages)*	LNG Export Case (Change from Zero Exports Case)		
	ICF Base Case (up to ~4 Bcfd)	Middle Exports Case (up to ~8 Bcfd)	High Exports Case (up to ~16 Bcfd)
Employment Change (No.)	73,100-145,100	112,800-230,200	220,100-452,300
GDP Change (2010\$ Billion)	\$15.6-\$22.8	\$25.4-\$37.2	\$50.3-\$73.6
Henry Hub Price (2010\$/MMBtu)	\$5.03	\$5.30	\$5.73
Henry Hub Price Change (2010\$/MMBtu)	\$0.32	\$0.59	\$1.02

Source: ICF estimates. Note:

* Includes direct, indirect, and induced impacts

Note: GDP gains include economic impacts associated with additional hydrocarbon liquids production (produced along with natural gas) and additional petrochemical production attributed to increasing NGL volumes

ICF conclusions are overwhelmingly supported by other independent research

Study	LNG Export Volume (Year)	Domestic Natural Gas Price Projection
EIA 2012 (DOE/FE)	12 bcf/d (2025-2035)	\$6.88 (2025-2035 average) (\$2009/Mcf) (wellhead)
NERA 2012 (DOE/FE)	12 bcf/d (2030)	\$6.82 (2030) (\$2010/Mcf) (wellhead)
NERA 2014 (Cheniere)	14.4 bcf/d (2028)	\$5.13 (2028) (\$2012/Mcf) (wellhead)
EIA 2014 (DOE/FE)	20 bcf/d (2026-2040)	\$6.90 (2026-40 average)(\$2012/Mcf)(L-48 price)

- **NERA 2014:** *“A comparison of NERA results between the current study and the DOE/FE study indicates greater LNG export potential at lower prices than previously estimated.”*
- **EIA 2014:** *“Added U.S.LNG exports result in higher levels of economic output, as measured by real gross domestic product (GDP). Increased energy production spurs investment, which more than offsets the adverse impact of somewhat higher energy prices when the export scenarios are applied.”*

Impact of Low Oil Price on LNG exports

- LNG prices in most LNG consuming countries in Asia and Europe are linked to oil prices.
- Buyers with existing oil linked contracts will pay lower prices.
- Under construction or planned liquefaction trains may be delayed or terminated.
- U.S. export projects are less effected because LNG pricing is based on Henry Hub prices. However to the extent that low oil prices lower the price of competitive LNG supplies, the U.S. ability to compete in world markets will be eroded.

Concluding Remarks

- The domestic resource base for natural gas is sufficiently robust to support both a domestic and an export market for natural gas.
- As NERA explained, “The market for LNG exports is self-limiting, in that little or no natural gas will be exported if the price of natural gas in the U.S. increase much above current expectations.”