



Status Report and Preliminary Results : The Economic Impacts of U.S. LNG Exports

Presented to:
The American Petroleum Institute

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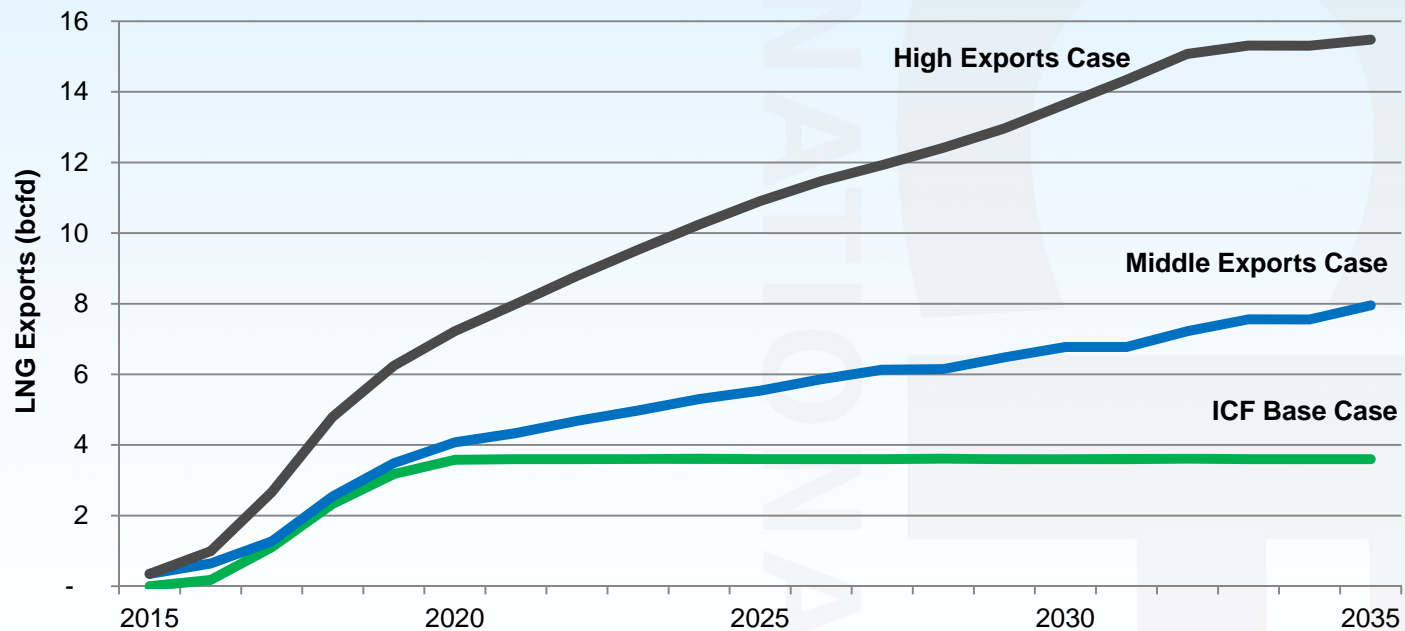
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The study is estimating the total economic impacts of three LNG export scenarios relative to a zero LNG export baseline.

Total LNG Exports – Three Cases

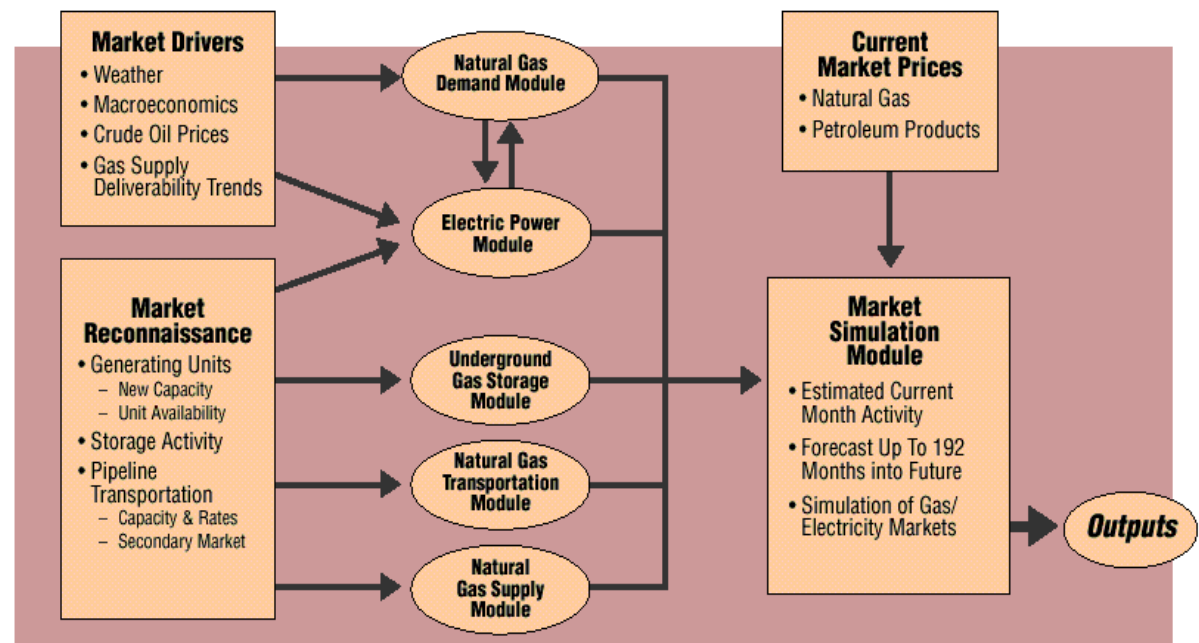


Two-step methodology:

- Gas Market Model: Determines natural gas and liquids supply and pricing for each LNG export case

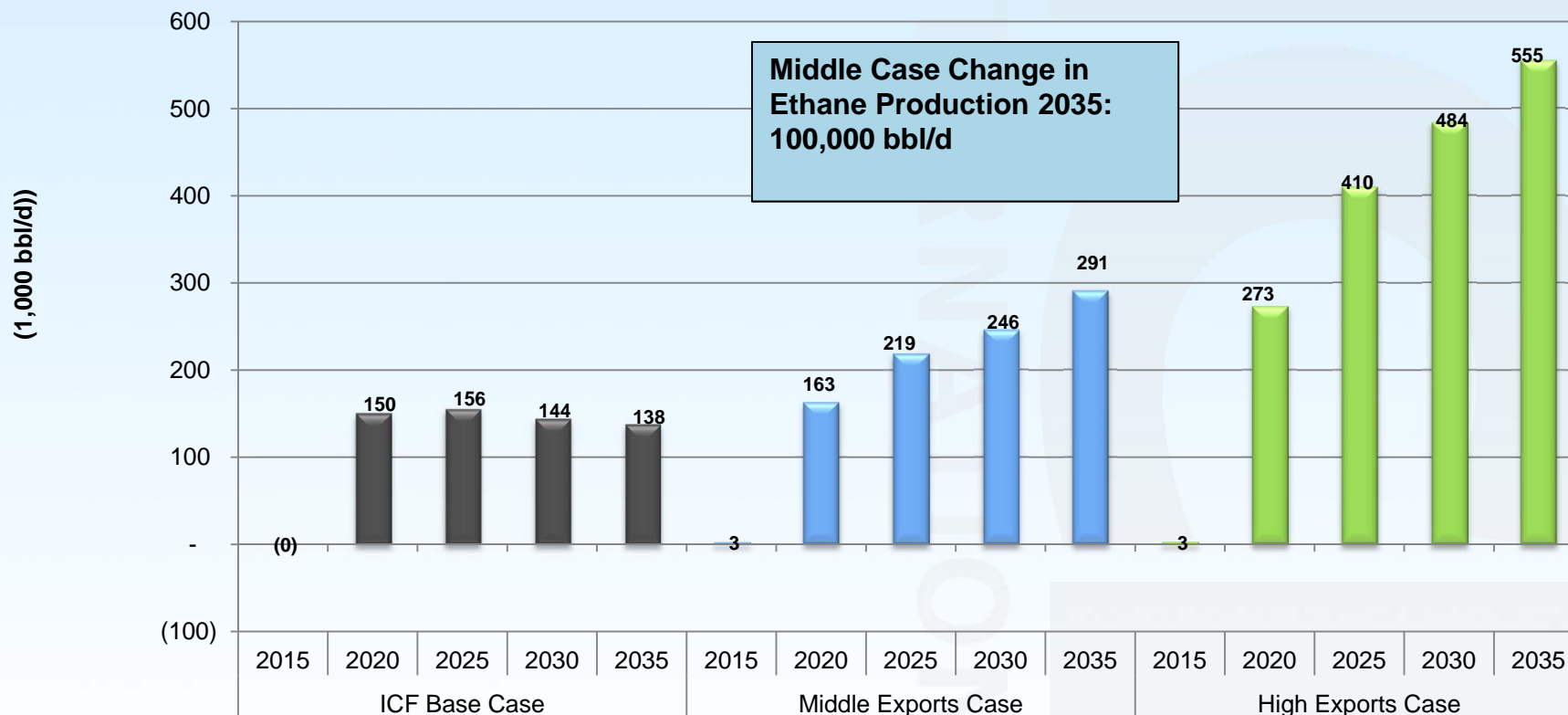
GMM Structure

- Input-Output Model: Determines economic impacts associated with the change in natural gas and liquids supply and pricing for each case



Incremental Gas Production Will Increase US Liquids Production, Providing Added Olefin Feedstocks

Natural Gas Liquids Volume Changes

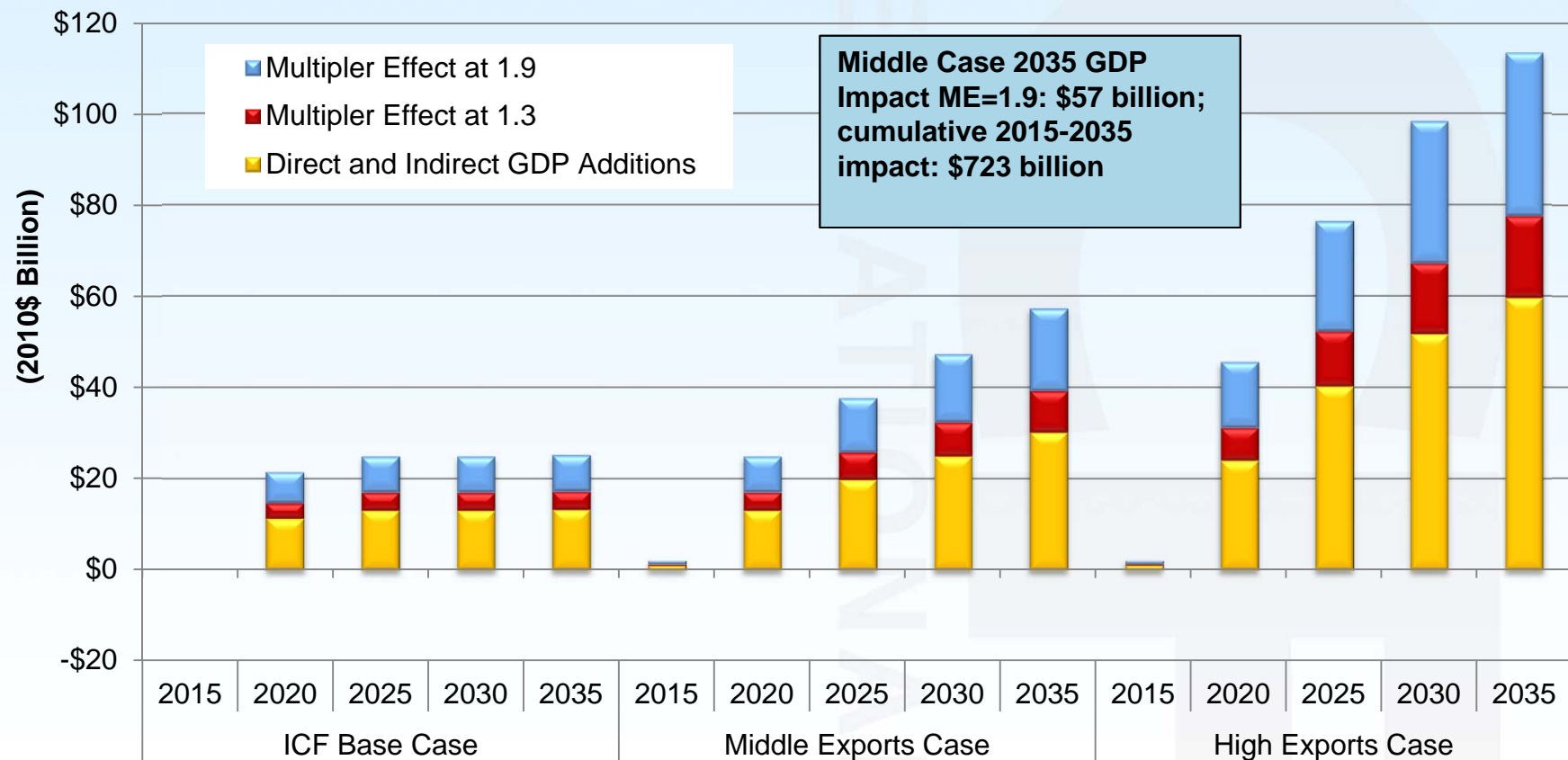


Liquids include: Condensate/crude oil, ethane (100% of production assumed to go into ethylene production), propane (25% of production assumed to go into propylene production), butane, pentanes+

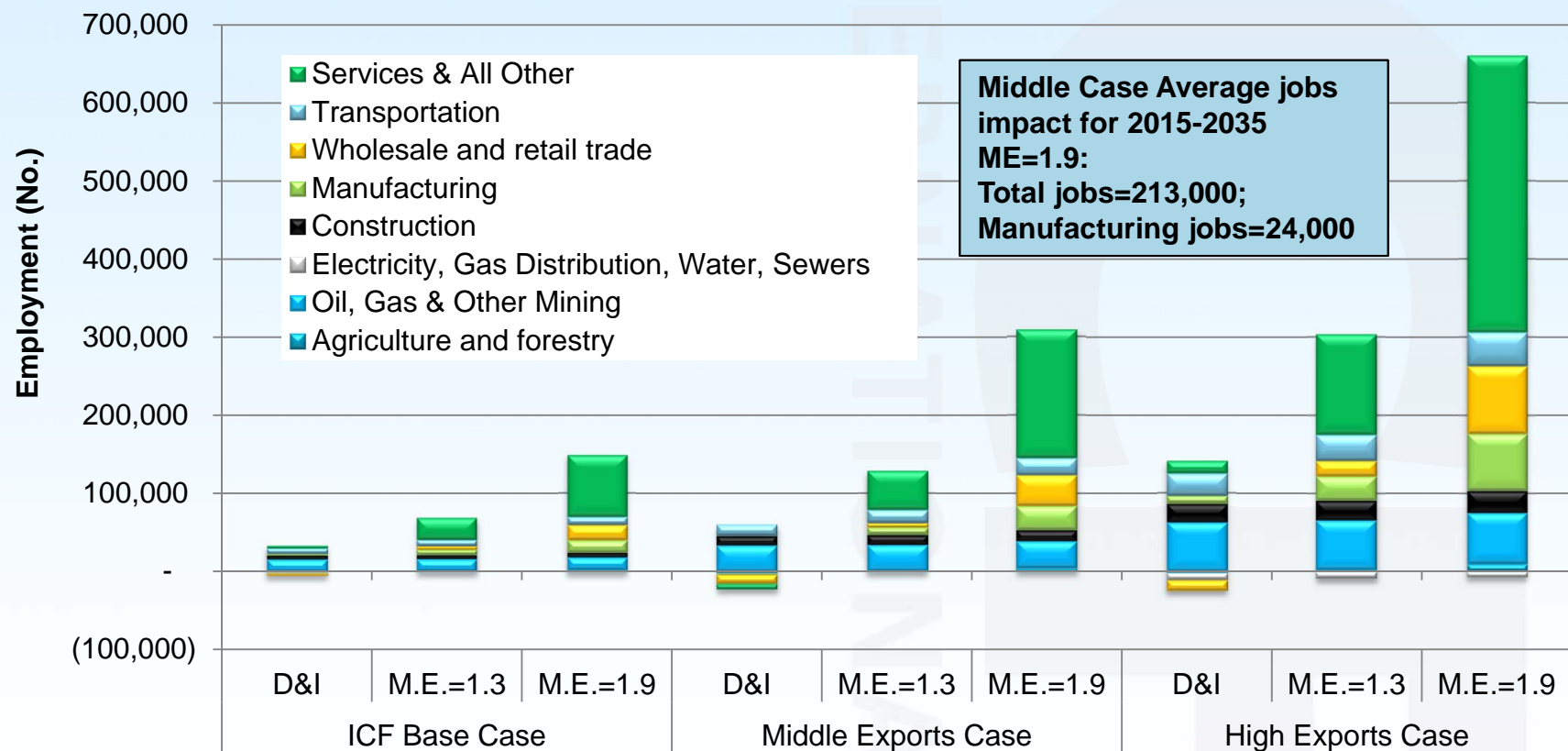


Overall GDP Impact of LNG Exports is Very Positive

Change in Total Economic Impacts



Changes in Direct, Indirect and Induced Employment by Sector (2035)

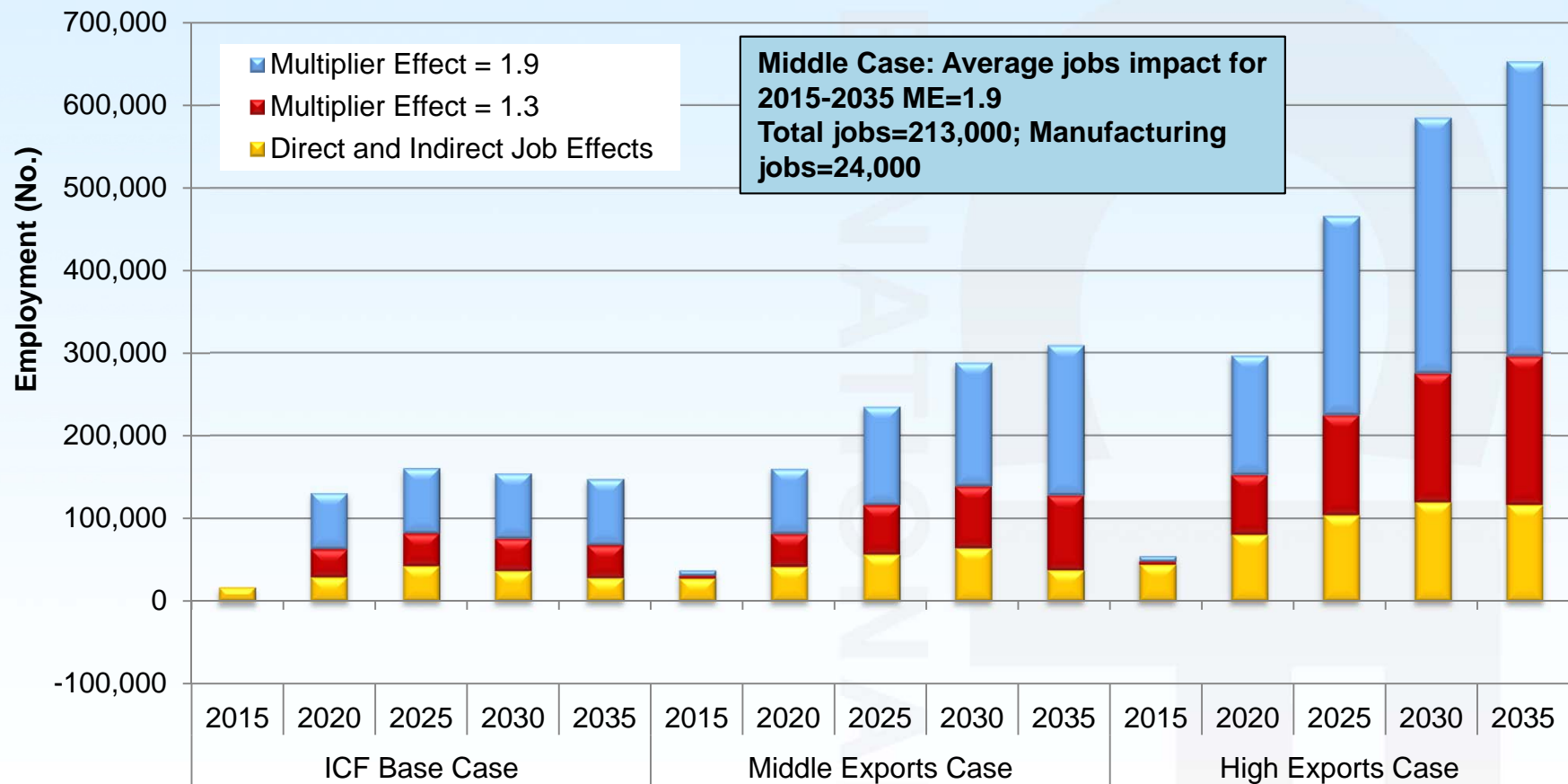


Note: D&I signifies Direct and Indirect



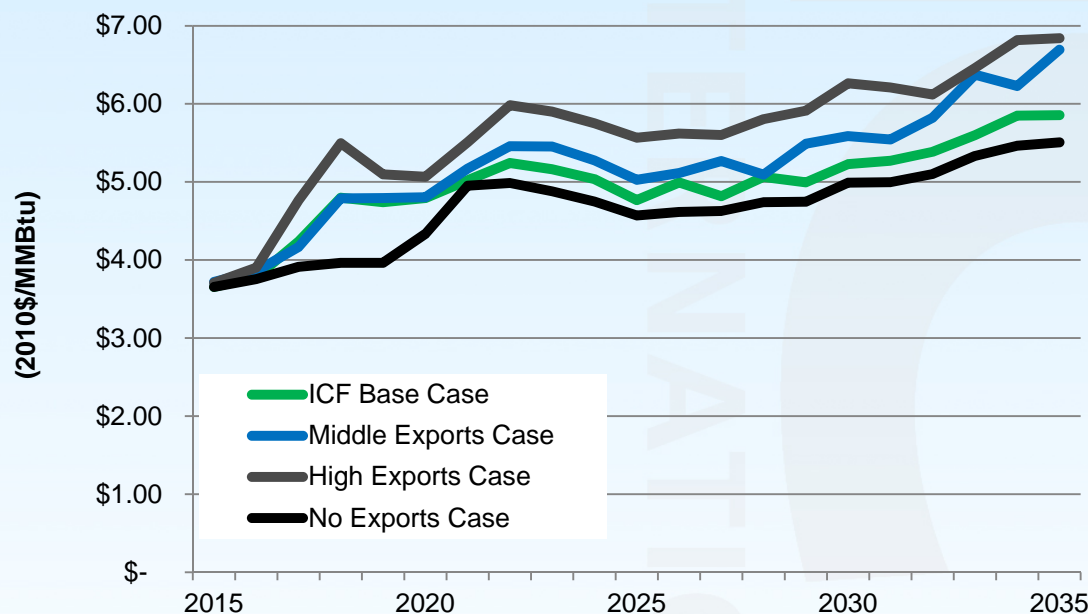
Total Employment Increases by 150,000 to 650,000 (with full multiplier effect)

Total Changes in Employment Impacts



Price Impacts: ICF Analysis

Henry Hub Prices (2010\$/MMBtu)



Average Price Changes relative to Zero Export Case	ICF Base Case	Middle Exports Case	High Exports Case
Natural Gas Price at Henry Hub (\$2010's per MMBtu)	\$ 0.31	\$ 0.57	\$ 0.98
Average Price Delta weighted average by consumption	\$ 0.26	\$ 0.48	\$ 0.86



- Volume Impacts: Dry gas production increases between 3.1-12.3 Bcfd for LNG export cases, resulting in between 138,000-555,000 barrels/day in additional liquids production.
- Economic Impacts: LNG exports result in direct and indirect annual GDP additions of \$20b-\$60b in 2035.
- Employment Impacts: By 2035, LNG exports result in between 28,000-116,000 direct and indirect annual job additions, as well as up to 120,000-540,000 in annual induced employment. Direct and indirect employment gains are concentrated in the oil and gas, construction, and manufacturing sectors, while induced employment is concentrated in services (i.e., consumer spending-oriented) sectors.
- Price Impacts: LNG exports result in Henry Hub natural gas price increases of \$0.35/MMBtu in the ICF Base Case to over \$1.30/MMBtu in the High Exports Case in 2035. Consumer price increases are lower.

