Macroeconomic Impacts of LNG Exports from the United States

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Executive Summary

New technologies have transformed the U.S. from an importer of natural gas to a potential exporter. The commercialization of new exploration and production (E&P) technologies (hydraulic fracturing "fracking", horizontal drilling, and 3D seismic) have created the opportunity to economically develop natural gas from shale formations on a very large scale. This new source of domestically produced natural gas has resulted in more abundant supplies and lower natural gas prices than were thought possible ten years ago when it was anticipated that the U.S. would need to import liquefied natural gas (LNG) to meet demand. Instead the U.S. is now in a position to export LNG and compete in the global LNG market.

The paper analyzes the impact of LNG exports on the U.S. economy to determine whether there is an optimum level at which maximum benefits are achieved. This study updates NERA's previous study for the U.S. Department of Energy, Office of Fossil Energy (DOE/FE) that was released in December 2012. Consistent with the previous study, we analyze 63 scenarios to analyze the potential levels of U.S. LNG exports. Those scenarios incorporate three different

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assumptions about U.S. natural gas supply, three different assumption about international supply/demand, and seven different assumptions about the future capacity and rate of growth of U.S. LNG exports. In the current study, we also provide a complete analysis of scenarios in which no limitations are put on the level of U.S. LNG exports and LNG exports exceed the 12 billion cubic feet per day (Bcf/d) maximum export capacity specified in the DOE/FE study. Using an integrated modeling system that combines NERA's Global Natural Gas Model, which represents the world natural gas market and NERA's top-down macroeconomic model of the U.S. economy, the study arrives at the following key conclusions:

1. Macroeconomic impacts are positive in all scenarios, and the higher the level of exports, the greater the benefits. Unlimited exports provide the greatest benefits.

2. While LNG exports create higher income in the United States, they shift the composition of income so that labor income grows more slowly and capital and resource income grow more rapidly.

3. Even with unlimited exports, U.S. natural gas prices did not rise to oil parity or to levels observed in LNG importing regions, so that gas-intensive U.S. industries maintain large cost advantages over rivals in those regions.

4. Other exporters also have abundant low-cost natural gas supplies that can be developed, so that higher prices for natural gas in the U.S. choke off demand and limit exports

5. In all cases, the chemicals subsectors that use natural gas for energy and feedstock continue to see very slightly slower but still robust growth.

6. Based on the expected growth of investment related to LNG exports, full employment could be restored as much as one month earlier than without LNG export expansion.