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## **Comments on Draft of Macroeconomic Outcomes of Market Determined Levels of U.S. LNG Exports**

We hereby submit the following comments on the draft report on LNG exports. The draft report relies on several assumptions that are fundamentally flawed and biased toward inflated projections of international demand for gas. As a result, the report's findings exaggerate both the likelihood of elevated levels of U.S. LNG exports and, consequently, the projected macroeconomic benefits from LNG exports.

Among the more troubling approaches employed in the draft report to support expansion of LNG export capacity are:

- A lack of due consideration of shifts in state anti-fossil fuel energy policies, as have transpired in place like New York and Maryland, that will impact US supplies.
- A failure to properly evaluate and consider renewed state and non-state efforts in the US to more rapidly build out renewable energy systems and increase energy efficiency.
- An unsupported reliance on projected diminishing Rest of World gas supplies.
- A failure to properly factor into the economic equation the considerable economic costs of continuing climate change impacts, including storm damage, loss of essential resources, mass migration and increased social and military conflicts.
- A failure to account for the negative impacts of the increase in gas production and related infrastructure, including pipelines, storage hubs and LNG terminals.
- A dismissal of growing international efforts to address climate change that will impact global demand for gas.
- A failure to acknowledge the ongoing and rapidly accelerating transition to renewable energy and storage that threatens the market for gas irrespective of climate change policy progress.

The rest of our comments address these last two in detail.

The study has two stated purposes: “to evaluate:

- (a) the likelihood of various scenarios of U.S. LNG exports to 2040, and
- (b) the potential macroeconomic effects of LNG exports at those levels.”

The evaluation of both parameters hinges on projections of gas demand that ignore the effect of technology disruption and that essentially assume catastrophic levels of climate change. There is no analysis of real-world trends in renewable energy and flexible generation technologies (i.e., storage) that increasingly compete with gas for market share globally. The authors also assume international action to tackle climate change will fail, an assumption that appears to be based on their own subjective judgement.

### **Dismissing International Action to Tackle Climate Change using Subjective Statements**

Based on the assumption that, “we do not expect that future progress (in international climate negotiations) will be very much greater than in the past”<sup>1</sup>, the authors attribute only a 5% probability to a scenario in which international demand for gas is reduced due to policies to address climate change. The authors provide no scientific reasoning for attributing a 5% probability to international gas demand levels that align with the International Energy Agency’s (IEA) 450ppm Scenario.<sup>2</sup> This is an entirely subjective and cynical statement that does not constitute a methodology for assessing the likelihood of international climate change policy affecting the long-term demand for gas outside of the United States.

The study should be adjusted to give much greater emphasis to low demand scenarios that align with the Paris Climate Agreement. In 2015, international climate negotiations led to the signing of the Paris Agreement, which is now ratified signed by more than 170 nations. The United States is the only country in the world to back away from the agreement and in doing so has only solidified the commitment of many of the world’s largest economies.

A methodologically sound approach would be to project the level of U.S. LNG exports that align with global success in meeting the Paris goals. This would require a reduction in global gas demand by mid-century, indicating a very different trajectory to any of those described by the study.<sup>3</sup> Otherwise, the study is predicated on failure to prevent catastrophic climate impacts, essentially planning for a massive loss of human life and economic resources.

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<sup>1</sup> Page 42

<sup>2</sup> It should be noted that the 450 Scenario is a weak climate scenario that only allows a 50% chance of staying within the 2-degree goal and relies on unrealistic levels of carbon capture and storage and other negative emissions technologies that are yet to be developed. As such, climate action will need to be stronger than the scenario describes.

<sup>3</sup> See Oil Change International, “Burning the Gas “Bridge Fuel” Myth. November 2017. <http://priceofoil.org/content/uploads/2017/11/gas-briefing-nov-2017-v5.pdf> Based a median of IPCC scenarios for the power sector, global power sector emissions must be drastically decreased by 2040.

### **Failing to Recognize Real-World Trends in Energy Sources that Compete with Gas**

Even if minimal progress in international climate policy making was a robust assumption, the study fails to assess the real-world trends occurring with renewable energy and the threat they pose to gas demand. The study does not attempt to either account for substantial progress in renewable energy installations and cost reductions made in recent years or assess projections of substantial progress to come.

Recent analysis from Bloomberg New Energy Finance, the New Energy Outlook 2018, projects a very different picture of future energy demand than that assumed in the study, and is based on current policies, the current project pipeline, and projections of price declines and technology learning curves of technologies that compete with gas for market share.<sup>4</sup> While the NEO 2018 was published after the draft study was published, previous editions and multiple other sources of information were available but do not appear to have been consulted. Key findings of the NEO 2018 include:

- By 2050, renewable energy will make up over two-thirds of global power generation, while fossil fuels will have declined to 29% from 63% today.
- New-build utility-scale solar and wind is cheaper to build and operate today in China, India, the U.S. and many other countries than new-build gas or coal plants.
- Within the coming decade, new-build utility-scale solar and wind will be cheaper to build and operate than existing coal and gas plants in those same countries. This means that many gas plants built over the next few years will likely be challenged by the economics of wind and solar before the end of their first decade of operation, throwing into question whether they should be built at all.
- Large Combined Cycle Gas Turbine (CCGT) plants will rarely run at the high utilization rates for which they are designed as they will be increasingly challenged by low-cost renewable energy and flexible generation technology, including battery storage. This leads to the future of gas being more about “value over volume,” meaning that gas plants will profit from being able to supply power during periods of high electricity demand and prices rather than from delivering a high volume of power.

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<sup>4</sup> <https://about.bnef.com/new-energy-outlook/#toc-download> and <https://www.csis.org/events/bnefs-new-energy-outlook-2018>

Recent academic study has also found that there is substantial risk to the economies of the United States and other fossil fuel exporting nations from continued investment in fossil fuel infrastructure. A study published in *Nature Climate Change*, found that between one and four trillion dollars in fossil fuel assets globally are at risk from *“an already ongoing technological trajectory, irrespective of whether or not new climate policies are adopted; the loss would be amplified if new climate policies to reach the 2°C target of the Paris Agreement are adopted”*.<sup>5</sup>

The above findings point to substantial constraints on growth in the demand for gas stemming from real-world economic analysis rather than subjective opinions about the potential of international climate negotiations. It should be noted that the projections in the NEO 2018 are not based on expectations of more stringent climate policy but on existing policies and market trends. According to the authors, the projections are based on a “least-cost optimization exercise.”

For the study to attribute a mere 5% probability to a low international gas demand scenario based on the authors’ opinions of climate negotiations is a clear methodological flaw that must be addressed. There would appear to be more basis for placing a higher probability for low demand than high demand.

The study should use as its central scenario a projection of international gas demand that aligns with international climate goals. Scenarios should also be worked up using BNEF data or similar analysis of real-world progress in renewable energy that reflects the challenge to increasing LNG exports posed by the technological disruption taking place today in global energy markets.

Without these adjustments, the study exaggerates the potential for U.S. LNG exports and the macroeconomic benefits accruing from the activity. It also fails to discuss the risks of overbuilding LNG export infrastructure in a volatile global market.

Sincerely,

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<sup>5</sup> Mercure et al. ‘Macroeconomic impact of stranded fossil fuel assets’ *Nature Climate Change*, Vol. 8, July 2018. 588-593. <https://doi.org/10.1038/s41558-018-0182-1>

## **CONCERNED ORGANIZATIONS**

### **USA**

Food & Water Watch, Washington  
Oil Change International, Washington  
350.org, Washington  
Center for Biological Diversity, Washington  
Center for International Environmental Law – U.S., Washington  
Friends of the Earth – U.S., Washington  
Guila Muir and Associates, Washington  
Franciscan Action Network, Washington  
Bisbee & Cochise County Community Rights, Arizona  
Xun Biosphere Project, California  
Clark Strategic Partners, California  
AK Productions, Santa Cruz, California  
350 Connecticut  
Guilford Peace Alliance, Connecticut  
New Haven Leon SCP, Connecticut  
Eastern CT Green Action, Connecticut  
Earth Ethics, Inc., Florida  
Howard County Climate Action, Maryland  
Pipe Line Awareness Network for the Northeast, Massachusetts  
Alliance to Protect Our People & the Places We Live, North Carolina  
Beyond Extreme Energy, New Jersey  
Compressor Free Franklin, New York  
North Country Veterans for Peace, New York  
Safe Energy Rights Group, Inc., New York  
West 80s Neighborhood Association, New York  
Sustainable McDonough New York  
Concerned Residents of Oxford, New York  
FreshWater Accountability Project Ohio  
Geauga Illuminating Company, Ohio  
Athens County Fracking Action Network, Ohio  
Oregon Physicians for Social Responsibility  
350 Eugene, Oregon  
Western Environmental Law Center, Oregon  
Oregon Wild  
Jordan Cove Resistance Douglas County, Oregon  
University of Oregon Climate Justice League  
Pipeline Awareness Southern Oregon

Climate Action Coalition, Oregon  
Beyond Toxics, Oregon  
Rogue Climate, Oregon  
Berks Gas Truth, Pennsylvania  
Breathe Easy Susquehanna County, Pennsylvania  
Frack Free Living, Tennessee  
Ohio Valley Environmental Coalition, West Virginia

### **Canada**

New Brunswick Anti-Shale Gas Alliance

### **Europe**

Food & Water Europe  
Foundation for Environment and Agriculture, Bulgaria  
Collectif Causse Méjean – Gaz de Schiste NON!, France  
Energy Watch Group, Germany  
Berliner Wassertisch, Germany  
Fís Nua, Ireland  
Not Here, Not Anywhere, Ireland  
Fundacja Strefa Zieleni / Green Zone Foundation, Poland  
Ecologistas en Acción, Spain  
Amigos de la Tierra España, Spain  
Plataforma Ciudadana Zaragoza sin Fractura, Spain  
Asociación de Cultura Popular Alborada, Spain  
Plataforma Unitaria contra la Autopista Eléctrica, Spain  
EQUON Aragón, Spain  
Medact, United Kingdom  
Fracking Free Ryedale, United Kingdom  
Harrogate Friends of the Earth, United Kingdom  
Frack Free Dudleston, United Kingdom  
Bassetlaw Against Fracking, United Kingdom  
Frack Free Totnes, United Kingdom  
A Child of the Jago, United Kingdom  
Studioarts, United Kingdom

### **Australia**

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