

Subcommittee on Environment and Climate Change
Hearing on
“Building a 100 Percent Clean Economy: Pathways to Net Zero Industrial Emissions”
September 18, 2019

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The Honorable Paul Tonko (D-NY)

1. What regulatory or technical barriers currently exist that limit utilization of proven industrial efficiency measures, such as deployment of CHP systems and adoption of ISO 50001, or other energy management systems?

RESPONSE:

The industrial sector has, over the past 40 years, improved its energy efficiency by close to 40 percent—about one percent per year.¹ EIA projects this rate of improvement to continue in the industrial sector through 2050.² However, as you recognize, there is considerably more opportunity available with the right policies.

I recently talked with a member company (pulp and paper manufacturer) about its recent decision to install a new CHP unit rather than efficiency upgrades to an aging stationary gas engine. A CHP unit would be the most energy efficient solution; upgrades would improve the plant’s efficiency but less so than replacement. The company’s decision involved several factors. Cost was one factor, but reliability, operating risks, environmental permitting, the future of the facility and the cost of related inputs were factors as well. The single biggest risk is stranded investment; if conditions change, the company cannot get its true payback. For this company, the project was not feasible unless it provided a five-year payback or less; other projects have been required to have a three-year payback. Ultimately, the policy device that allowed the company to move forward with the CHP unit was the tax reform legislation from 2017—specifically the company’s ability to utilize full and complete expensing. This tax change reduced the payback for the CHP unit from seven to five years and allowed the company to move forward.

2. What incentives would you recommend to encourage greater utilization of proven industrial efficiency measures, such as deployment of CHP systems and adoption of ISO

¹ “Halfway There: Energy Efficiency Can Cut Energy Use and Greenhouse Gas Emissions in Half by 2050,” Steven Nadel and Lowell Ungar, American Council for an Energy-Efficient Economy, at 14 (September 2019). Available at <https://aceee.org/research-report/u1907>.

² *Id.*

50001, or other energy management systems?

RESPONSE:

As illustrated by the paper company example above, a range of barriers exist that could prevent deployment and utilization of proven industrial efficiency measures, and there will not likely be one single solution that solves the problem. We encourage the committee to focus on the following measures, among other things:

- Increase and preserve federal government investment in early-stage energy efficiency research and develop and deploy standards and technologies, including supporting programs like the Advanced Research Projects Agency—Energy (ARPA-E). Public-private partnerships where DOE plays a convener role, such as Better Buildings, Better Plants, are also valuable.
- Scale up the successful Industrial Assessment Center program at DOE, a tool that allows small and medium-sized manufacturers to obtain energy efficiency assessments. There is significant opportunity to increase the number of centers in operation nationwide.
- Direct DOE to provide financial and technical support to encourage building efficiency retrofits. Moreover, any retrofit programs or incentives should be available for all to participate and not exclusive to specific organizations.
- Enact legislation that increases adoption of Smart Manufacturing techniques.
- Enact legislation and encourage regulatory measures to improve New Source Review (NSR) permitting and actively seek improvements in permitting times for energy efficient upgrades.
- Capital investment is key to economic growth, job creation and competitiveness. An effective way to spur investment in innovative technologies is to ensure that our tax code maintains a robust capital cost recovery system, provides strong incentives for research and development and does not increase the cost of financing new equipment purchases.

The Honorable John Shimkus (R-IL)

1. Raising energy and production costs in energy intensive or trade exposed industries can be harmful for communities in terms of lost jobs and economic output, especially if the developing world is unable to make the same changes to their energy and manufacturing systems.
 - a. What are the risks of leakage of U.S. industrial jobs to other nations if cost of energy or processing is increased compared to international competitors?

RESPONSE:

There is a real risk of leakage of U.S. industrial jobs, and GHG emissions, to other nations if increased energy or processing costs make manufacturers less competitive. The more energy or process-intense a sector becomes, the higher the risk that increased costs will contribute to leakage.

This is specifically why the NAM recommends a strong, equitable international agreement as the foundation of the U.S. policy response to climate change. Many U.S. industries are already significantly less carbon-intense than their international competitors; an effective international agreement would ensure that all manufacturers would be subject to the same expectations.

- b. What are the impacts on technical skills, supply chains, R&D and innovative capacity in U.S. manufacturing and industries exposed to relatively high energy or production costs?

RESPONSE:

Generally speaking, all of the areas listed can be negatively impacted by policies or externalities that make manufacturers less competitive, such as high energy production costs.

- c. What policy options have been proposed to prevent leakage, to what extent have they been examined for impacts on specific industries, and to what extent will this require international cooperation? Please elaborate.

RESPONSE:

The most effective tool to prevent carbon leakage is an international agreement that places the same emissions expectations on manufacturers across all countries. That is the preference of the NAM.

In the absence of such an agreement, advocates generally point to a border adjustment as a possible tool to prevent leakage. Think tanks and economic researchers such as Brookings, Resources for the Future and the National Bureau of Economic Research have examined the impacts of a border adjustment. The NAM has not done any independent research on this issue. We would recommend further study of the topic by this Committee.

The American Clean Energy and Security Act of 2009, more commonly known as the Waxman-Markey bill, addressed leakage through the issuance of free

emissions allowances to energy-intensive trade-exposed sectors. While the overall economic impact of that bill was measured by NAM at the time to be negative, our modeling did show that the free credits given to EITE sectors would have eased their respective cost burdens. At the time there was also significant unresolved debate over the WTO legality of the bill's structure.

2. What work has been published to your knowledge of the economic costs, the impacts on prices and supply, or employment impacts from reducing emissions in the industrial sectors? What work has been done to evaluate the legal, economic, and socio-economic impacts of deep decarbonization of the industrial sector?

RESPONSE:

There have been many studies done, including several by the NAM, over the years that examine the impact of specific emissions reduction policies on industrial competitiveness. Some have examined proposed legislation and others have examined the effect of proposed or final regulations. There have also been studies, including by the NAM, of the cumulative impact of regulations on the industrial sector. These examine the confluence of policies and the effect they are having on particular industries.

To my knowledge, there are few studies available that examine the legal, economic and socio-economic impacts of deep decarbonization of the industrial sector. I recommend the Committee further examine this highly important issue.

- a. Would you please list pertinent studies?

RESPONSE:

(Please note that, notwithstanding the NAM-branded studies, listing below does not imply endorsement.)

Effects of emission reduction policies on industrial competitiveness

- “The Cost of Federal Regulation to the U.S. Economy, Manufacturing and Small Business,” W. Mark Crain and Nicole Crain (2015), available at <https://www.nam.org/wp-content/uploads/2019/05/Federal-Regulation-Full-Study.pdf>.
- “Potential Impacts of a Stricter Ozone Standard,” NERA Economic Consulting (2014), available at <https://www.nam.org/potential-economic-impacts-of-a-stricter-ozone-standard/>.
- “Economic Implications of Recent and Anticipated EPA Regulations Affecting the Electricity Sector,” NERA Economic Consulting, available at <https://www.nera.com/publications/archive/2012/economic-implications-of-recent-and-anticipated-epa-regulations-.html>.

Impacts of deep decarbonization

- “Decarbonizing Heavy Industry: The Low-Carbon Transition of Canada’s Emission-Intensive and Trade-Exposed Industries,” Report of the Canadian Standing Senate Committee on Energy, the Environment and Natural Resources, *available at* https://sencanada.ca/content/sen/committee/421/ENEV/reports/2018-03-23_EITE_FINAL_WEB_e.pdf.
 - “Industry Matters: Smarter Energy Use is Key for U.S. Competitiveness, Jobs and Climate Efforts,” by Jason Walsh, Ryan Fitzpatrick, and Mykael Goodsell-SooTho, *available at* <https://www.thirdway.org/report/industry-matters-smarter-energy-use-is-key-for-us-competitiveness-jobs-and-climate-effort>.
 - “Infrastructure Lost: Why America Cannot Afford to “Keep it in the Ground,” U.S. Chamber of Commerce, *available at* <https://www.globalenergyinstitute.org/infrastructure-lost-why-america-cannot-afford-keep-it-ground>.
3. According to a recent report by the Energy Futures Initiative, many “subnational decarbonization strategy and road-map reports contain insufficient detail for establishing effective and efficient implementation policies and programs.”
- a. What should be done to develop a more in depth understanding of the cost and economic impacts of state and regional (subnational) decarbonization policies, particularly in the industrial sector?

RESPONSE:

We encourage further research in this area. Manufacturers face a patchwork of federal, state and local laws and regulations to address climate change—policies such as California’s Global Warming Solutions Act, the Regional Greenhouse Gas Initiative (RGGI) in the Northeastern United States, Oregon’s Clean Fuels Program, the EPA’s power plant GHG standards, joint EPA/NHTSA/California automobile regulations and the Climate Mayors pledge by individual cities to meet the U.S. GHG reduction targets from the Paris Climate Agreement. There are also a host of related laws and actions that further complicate the climate policy landscape. For instance, 29 states plus the District of Columbia have a renewable electricity standard. 15 states plus the District of Columbia have energy efficient appliance standards that differ from federal guidelines. Activists have waged a variety of successful campaigns to shut down fossil-fired power plants and stop new pipelines and transmission lines. Climate litigation has increased in

recent years, with states, cities and private citizens suing the government, manufacturers and even each other to force federal action, apportion blame and secure damages.

To my knowledge there has been very little examination of the costs or impacts of these and related policies on manufacturing. Understanding their true costs would be helpful as Congress discusses a federal legislative framework to address climate.

4. Last year Republicans developed legislation to reform the Clean Air Act's new source review program, which would have enabled industrial facilities to upgrade with efficiency and pollution control equipment, without costly new regulations.
 - a. What would be the impact if we enacted a law like this for increasing cleaner, more efficient operations?

RESPONSE:

NSR can be an impediment to the installation of more efficient technologies that would ultimately combat climate change. An inability to define what is "routine maintenance" has resulted in NSR Notices of Violation being issued for environmentally beneficial projects like economizer replacement, steam turbine upgrades, feed water heater replacements, and similar activities. In comments to the EPA's draft Clean Power Plan, the Utility Air Regulatory Group (UARG) cited *more than 400 instances* in which a regulated entity took on a project to improve the energy efficiency of a power generation unit, only to be targeted by the EPA or citizen suits alleging that it had violated NSR.³

The NAM has testified in support of legislation before this Committee that would provide flexibility in the definition of "modification" so that these heat rate improvements and efficiency upgrades will not be deterred by the threat of NSR. It would eliminate the situation where a piece of modern control technology triggers NSR because it generates collateral emissions of another pollutant (e.g., technologies that reduce NOx but increase CO). Most importantly, it could unlock a massive market for the installation of efficient technologies that would drive manufacturers' already-impressive emissions reductions down even farther.

The Honorable Markwayne Mullin (R-OK)

1. Can you speak to the benefits our fracking revolution has had on the availability for the feedstock for the chemicals, plastic and other industrial products and activity in the

³ Comments of the Utility Air Regulatory Group on Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units, Docket ID EPA-HQ-OAR-2013-0602-22768, Attachment A (Dec. 1, 2014).

United States?

RESPONSE:

The NAM released a study⁴ in 2016 that concluded that the shale gas revolution contributed \$190 billion to real gross domestic product (GDP), 1.4 million additional jobs and \$156 billion to real disposable income. Three years earlier, we supported a study that forecasted the full impact of the unconventional oil and gas revolution,⁵ which made the following findings:

- The entire unconventional oil and gas value chain and energy-related chemicals will contribute \$284 billion in value-added contributions to GDP in 2012, a figure that will increase to nearly \$533 billion annually in 2025.
 - Between 2012 and 2025, IHS projects a cumulative investment of nearly \$346 billion across the midstream and downstream energy and energy-related chemicals value chains. Close to \$216 billion of this will come in the midstream and downstream segments of the unconventional value chain, including 47,000 miles of new or modified pipeline infrastructure.
 - More than \$31 billion in new capital investments will drive the addition of more than 16 million tons of chemical capacity by 2016. Cumulative investment will grow to more than \$129 billion to support nearly 89 million tons of capacity by 2025.
 - Energy-related chemicals (currently supporting more than 53,000 jobs) will support a growing number of jobs in the long term. By the end of the decade, energy-related chemicals will support more than 277,000 jobs—a fivefold increase—and rise to nearly 319,000 by 2025.
- a. Given the important role of natural gas in industrial processes, does it make any sense to hear Members of Congress calling to keep it in the ground?

RESPONSE:

Manufacturers do not support efforts to limit or ban specific sources of energy or energy technologies. We support an “all of the above” energy strategy.

⁴ “The Economic Benefits of Natural Gas Pipeline Development on the Manufacturing Sector,” IHS Economics (May 2016), available at https://www.nam.org/wp-content/uploads/2019/05/NAM_NG_Report_042816.pdf.

⁵ “America’s New Energy Future: The Unconventional Oil and Gas Revolution and the Economy—Volume 3: A Manufacturing Renaissance,” IHS Markit (September 2013), available at <https://news.ihsmarkit.com/press-release/economics/us-unconventional-oil-and-gas-revolution-increase-disposable-income-more-270>.