



Testimony

Submitted on behalf of the
Pennsylvania Chamber of Business and Industry

**Informational Hearing on the Regional Greenhouse Gas Initiative Allowance
Prices**

Before the:
Senate Environmental Resources and Energy Committee
Senate Community, Economic and Recreational Committee

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Harrisburg, PA
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Chairmen Yaw and Yudichak, Minority Chairs Comitta and Cappelletti, and honorable members of the Senate Committees on Environmental Resources and Energy and Community, Economic & Recreational Development,

Thank you for the opportunity to present on behalf of the Pennsylvania Chamber of Business and Industry (PA Chamber) regarding Pennsylvania's proposed participation in the Regional Greenhouse Gas Initiative (RGGI) and recent developments in the run-up in allowance prices of this cap-and-trade program.

My name is Kevin Sunday, Director of Government Affairs for the Pennsylvania Chamber of Business and Industry, the largest, broad-based business advocacy organization in the Commonwealth. The nearly 10,000 members of the PA Chamber represent all industrial and commercial categories and sizes; all of them rely on not just a reliable, affordable supply of energy, but a rational, predictable and well-functioning regulatory environment in which to operate.

My testimony this morning will encompass a brief overview of the PA Chamber's positions on energy and environmental policy broadly and RGGI specifically, followed by a discussion of our understanding of the dynamics – including the impact of pipeline constraints and significant trading activity on the part of non-regulated entities – that are placing significant upward pressure on RGGI compliance costs and what those costs mean for Pennsylvania consumers and its energy industry. This testimony then places these cost increases in the context of the on-going international energy and commodity crisis that was brewing due to supply chain disruptions and the pandemic and was then sparked by Russia's invasion of Ukraine. Finally, we recommend next steps with respect to energy and tax policy.

Pennsylvania Chamber of Business and Industry Statement of Policy on Environmental and Environmental Regulation

For the past several decades, the PA Chamber has been actively involved in issues relating to stewardship of Pennsylvania's environmental resources and development of its energy assets, bringing the perspective of the regulated community to the development and refinement of the state environmental regulations and the implementation of various federal requirements.

As a statement of policy, the PA Chamber believes that environmental stewardship and economic growth are mutually-compatible objectives, and that environmental and natural resources laws and regulatory programs should be framed and implemented to concurrently meet these twin objectives. We seek environmental laws, regulations and policies that:

- (1) are based on sound science and a careful assessment of environmental objectives, risks, alternatives, costs, and economic and other impacts;
- (2) set environmental protection goals, while allowing and encouraging flexibility and creativity in their achievement;
- (3) allow market-based approaches to seek attainment of environmental goals in the most cost-effective manner;
- (4) measure success based on environmental health and quality metrics rather than fines and penalties;
- and
- (5) do not impose costs which are unjustified compared to actual benefits achieved;

With regard to greenhouse gas emissions, we support efforts in Pennsylvania which balance societal environmental, energy, and economic objectives, fit rationally within any national or international strategy which may take shape, and capitalize on the availability of Pennsylvania's diverse natural resources to facilitate economic development in the Commonwealth.

We recognize that a changing climate will present significant challenges to Pennsylvania and the United States, and that anthropogenic activities are a contributing factor. Addressing this challenge will necessarily involve the

private sector to develop innovative solutions, practices and technologies; however, we must be judicious in proceeding in a manner that continues to leverage Pennsylvania's historic strengths as an energy producer and a leader in manufacturing, allowing businesses and consumers the choice to develop and utilize the energy solution that works best for them, while still pursuing the desired environmental result. We are hard pressed to identify a single member of ours who is not developing or executing a sustainability strategy in consultation with their investors, workforce, management and vendors. Importantly, the success of these strategies will require effective policy that allows flexibility and choice for the private sector, as each company will have unique operational characteristics.

When it comes to environmental policy, markets are, broadly speaking, more effective than command-and-control approaches to regulation. However, for these market approaches to work, the policy must be applied to all competitive actors within that market and policy must also work to exclude rent-seeking middlemen who drive up the cost of compliance for financial gain. DEP has recognized this may be the case in other environmental credit markets and have directly prohibited or limited such actors from participating in markets. Unfortunately, as this testimony will note, there are dynamics at play in the current RGGI design that are producing compliance costs that are beyond equitable.

RGGI Allowance Prices Have Roughly Doubled in One Year, Due to Higher than Expected Oil and Coal Use and Significant Trading Activity by Non-Compliance Entities

The Regional Greenhouse Gas Initiative holds quarterly auctions whereby a given amount of allowances, in keeping with the total budgeted cap on emissions for the entire program, are released at auction. Importantly, these allowances, which are awarded to the highest bidder, can be bid on both by compliance entities (that is, facilities with RGGI compliance obligations) and third parties. This is a departure from other DEP program areas in air quality, such as DEP's Chapter 127 regulations governing Emission Reduction Credits.¹ Facilities with compliance obligations for federally regulated pollutants, such as NO_x and particulate matter, can generate ERCs by over-controlling emissions below the limits established in their permits or through the closure of a facility. Facilities which need to operate at an output that exceeds permitted levels can maintain compliance by purchasing these credits from facilities in their region and retiring them against their compliance obligations – notably, at a greater than 1:1 ratio in most cases, ensuring there is a net improvement in air quality. Importantly, DEP's regulations expressly prohibit the trading of these credits by third parties, except in limited cases where DEP may, on a case-by-case basis, approve a transfer to a third party, such as in the case of a bankruptcy or facility closure. It is our understanding these requirements were instituted to limit undue influence by third parties that would have the effect of artificially increasing compliance costs on industry by acquiring (and holding for the duration) these credits.

This is not the case in the RGGI marketplace. Third parties are welcome to participate in the auctions. Over the past several years, non-compliance entities (that is, investors, funds and institutions who do not have direct compliance obligations under RGGI) have been the winning bidder of between 30 and nearly 70% of each quarter's allowances, depending on the auction. In addition, there has been a significant increase in futures market activity. In these trades, a market maker and another entity, perhaps one with compliance obligations, agrees in advance to a contract securing delivery of RGGI allowances at a future auction at a fixed price. According to the weekly reports from the federal Commodities Trading and Futures Commission, financial

¹ See 25 PA Code, Chapter 127, Section 127.206(n): "ERCs transferred from one facility to another may not be transferred to a third party, unless the transfer of the ERCs is processed by the Department through the ERC registry system."

institutions held 10.2 million long positions in RGGI allowances², up more than 40-fold from the 250,000 long positions held by the same actors in 2020.

At the same time, RGGI’s model rule requires that individual facilities have on hand at the end of each year only 50% of allowances for that year’s emissions, with regulated facilities required to “true up” at the end of a three-year period. In other words, the model rule creates upward pressure on allowance prices on two fronts: it encourages regulated facilities to be net short allowances in the short term, while also encouraging third parties to bid up credit prices knowing there is a demand for allowances to meet both futures contract delivery obligations and RGGI compliance obligations. Exchange traded funds and mutual funds with ESG profiles, as well as 501(c)3 organizations, have acquired and held RGGI allowance by the millions, further pushing prices upwards. In the case of the funds, the desired outcome is financial gain; in the case of some of the non-profit organizations, the desired outcome is forced reduction of greenhouse gas emissions by buying and holding the allowances, and these organizations fundraise such outcomes as a means for individuals or organizations to offset their emissions. But both outcomes – leveraging the RGGI market construct for financial gain or using it as a means to offset emissions from non-power plants – are beyond the goals of RGGI as it was originally constituted.

At the same time, despite significant cost declines in renewables over the past decade, a significant amount of coal, gas and fuel oil are fueling power generators in PJM and ISO-NE (the regional grid for New England). This past winter, gas, coal and nuclear have in roughly equal proportion provided more than 90% of power in the 13-state PJM grid. In contrast, owing to the obstruction of pipeline infrastructure to deliver gas to New England, grid operates in New England turned to fuel oil on many days in January and February. This fuel provided nearly 25% of electricity for New England on these days, with greenhouse gas emissions spiking heavily – up 44% year-over-year across New England’s grid, according to the grid operator.³ But these recent events do not by themselves explain the recent and significant upward costs of RGGI allowances, which have been increasing significantly in cost prior to this past winter.

These forces have pushed up the cost of a RGGI allowance to \$13.50 per ton in the most recent auction which closed March 9, up from \$7.60 a year ago and \$5.65 two years prior. At a time when stock market indices are in a sell-off, at or beyond a 10% correction, RGGI allowance prices are at record highs (and so are the tickers for the ETFs buying, holding and trading carbon allowances).

Auction #	Date of Auction	clearing price (\$/t)
55	March 2022	\$13.50
54	December 2021	\$13.00
53	September 2021	\$9.30
52	June 2021	\$7.97
51	March 2021	\$7.60
50	December 2020	\$7.41
49	September 2020	\$6.82
48	June 2020	\$5.75
47	March 2020	\$5.65

² Disaggregated Commitments of Traders – All Future Combined Positions. CFTC, for March 8, 2022 and for February 4, 2020. https://www.cftc.gov/dea/futures/other_sf.htm

³ New England carbon emissions spike as power plants turn to dirtier fuel. Reuters, Feb. 11, 2022. <https://www.reuters.com/world/us/new-england-carbon-emissions-spike-power-plants-turn-dirtier-fuel-2022-02-11/#:~:text=Fuel%20oil%20typically%20accounts%20for,by%20ISO%2DNE%20emission%20analysts>.

46	December 2019	\$5.61
45	September 2019	\$5.20
44	June 2019	\$5.62
43	March 2019	\$5.27

RGGI was designed with the ability for the market operators to release additional allowances into auctions if the allowance price exceeds certain ceilings, known as Cost Containment Reserve. RGGI's designers understood they needed a failsafe in the event costs exceeded what the participating states believed to be acceptable. Current futures market prices for allowances at upcoming auctions are close to or in some cases beyond the CCR triggers, due to these cost pressures from outside investors.

The significant run-up in allowance prices owing to the ability of third parties to bid and hold allowances is a failure of policy design. RGGI and its participating states are currently in a review process for their model rule, which informs how RGGI will operate. We urge this administration and RGGI states participating in the review process to close off the ability of third parties to participate in these auctions. Until such a change occurs, the recent events in the dramatic increase in RGGI allowance prices further underscore why participating in RGGI is not in the interest of Pennsylvania.

Current RGGI Allowance Prices Are Significantly Above and Beyond Projected Costs in DEP's Rulemaking

The state's Regulatory Review Act obligates state agencies proposing regulations to define costs and benefits of a rulemaking. As part of its proposed CO2 budget trading program, DEP contracted with ICF to produce a series of economic modeling results. These results include a forecast that RGGI allowances prices would decline in the short term to \$3.22 this year and fall further to \$2.27 in 2030.⁴ As noted, the most recent RGGI auction closed at \$13.50 and these prices are expected to be sustained, with RGGI futures currently trading at \$14.25 for the final auction of 2022. In short, DEP's modeling was off by a factor of roughly four.

We also note that the modeling assumed Virginia's participation in RGGI. Governor Glenn Youngkin has announced he will take steps to remove his state, also a major energy-producing state, from participating in RGGI by either getting legislation passed or developing a separate in-state option to satisfy existing legislative requirements. In either event, the significant disconnect between forecasted RGGI prices in PA DEP's modeling and actual allowance costs, paired with Virginia's likely ending its participation and persistently high energy costs for businesses and consumers at a time of widespread inflation, should be cause to press pause on proceeding with RGGI at this point.

Pennsylvania's Highly Efficient Power Generation Sectors Has Successfully Reduced Emissions and Increased Output in a Highly Competitive Market

Using the previously discussed forecasted RGGI prices overlaid against the same modeling assumptions of annual emissions subject to RGGI compliance obligations, the Governor's Executive Budget as proposed for fiscal year 2022-23 estimates the state will receive roughly \$400 million in RGGI proceeds. However, as noted, the modeling was in incorrect about the price of a RGGI allowance by a factor of four. But it would be a mistake to simply presume this means the state would then expect a \$1.6 billion annual windfall.

Such upwardly persistent allowance prices may change the order of dispatch across PJM by bringing even more generation from non-RGGI states, in what is termed leakage (or the production of electricity from facilities in

⁴ See "Emissions" tab in 2021 Modeling: Updated Reference Case Results.
<https://www.dep.pa.gov/Citizens/climate/Pages/RGGI.aspx>

PJM not subject to RGGI). The exact amount that this will occur can be debated, but it will nonetheless reasonably be expected to be greater than the amount DEP’s modeling forecasted – which, it must bear repeating, expected that roughly 86% of the greenhouse gas emission reductions achieved in Pennsylvania would be shifted to bordering states like OH and WV who have more coal-heavy fleets.

As the Independent Fiscal Office noted in a March 14 research brief and as show in the excerpted table below, Pennsylvania’s power generation sector is, measured on emitted CO2 per unit of electricity, cleaner than RGGI states like Maryland and Massachusetts and much less emissions intensive than Ohio (whose power sector is 64% more emissions intensive than PA’s) and West Virginia (which is 161% higher).⁵

Table 3 - Electricity Generation Carbon Dioxide Emissions

State	Generation		Emissions		Emissions per Unit	
	2007	2021	2007	2021	2007	2021
New York	145.9	125.2	53.7	28.7	0.37	0.23
New Jersey	62.7	61.4	20.8	14.5	0.33	0.24
Connecticut	33.2	44.1	10.5	10.6	0.32	0.24
Virginia	78.4	94.3	47.2	27.3	0.60	0.29
North Carolina	130.1	131.3	79.4	40.5	0.61	0.31
Pennsylvania	226.1	241.6	129.3	81.0	0.57	0.34
Maryland	50.2	39.7	31.5	15.2	0.63	0.38
Massachusetts	47.1	19.4	25.8	8.4	0.55	0.43
Ohio	155.2	123.3	132.0	68.7	0.85	0.56
West Virginia	93.9	65.6	87.3	58.4	0.93	0.89

Note: Generation in million megawatt hours. Emissions in million metric tons.
 Source: U.S. Energy Information Administration. 2021 Emissions are estimated by the IFO based on 2021 generation and 2020 emissions per unit.

Pennsylvania, as previously noted, is the nation’s #1 exporter of electricity by volume and by proportion. According to the most recent data available, Pennsylvania sent 78 million megawatt hours to neighboring states in 2020⁶ – roughly one-third of total generated power, from a very efficient fleet of electric generation units. Notably, this volume of exports was a significant increase over the previous five-year average of 58 million megawatt hours of exported power per year (an increase of 35%), and that increase happened, quite remarkably, with a profound decline in emissions intensity of the units (a decrease of 40%). In other words, given the interstate nature of our grid, it is improper to score environmental progress simply on the basis of whether Pennsylvania’s emissions increase or decrease year-over-year. Not only should we take a long-term view (again noting that Pennsylvania reduced its energy-related CO2 emissions since 2005 more than any other state but Ohio), we should take a regional and in fact national view of emission trends. When we do, we see that while it may be the case that in 2021 greenhouse gas emissions from Pennsylvania increased year-over-year between 2021 and 2020, emissions *nationwide* in the power generation sector are significantly below 2005 levels – nearly 18%,

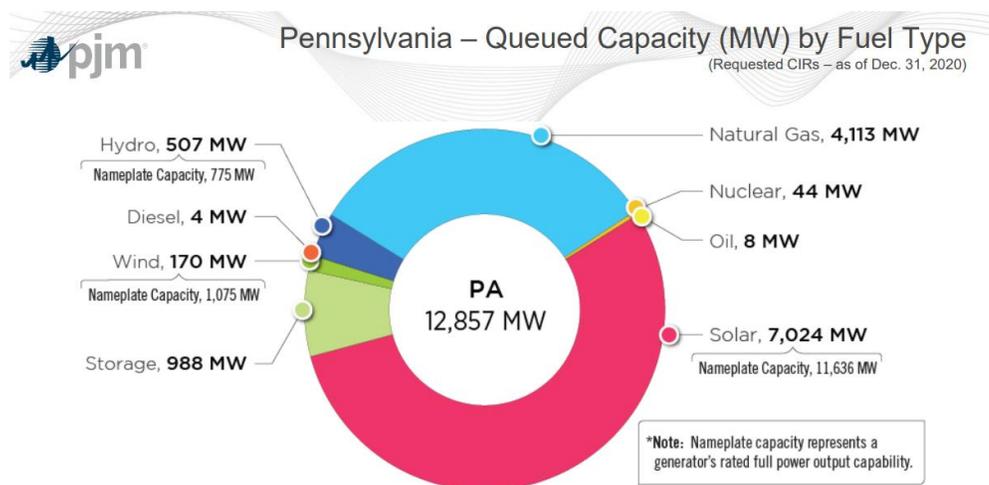
⁵ Electricity Update for March 2022. Independent Fiscal Office, March 2022.

http://www.ifo.state.pa.us/download.cfm?file=Resources/Documents/Electricity_Update_March_2022.pdf

⁶ Pennsylvania sent more electricity to neighboring states than any other state in 2020. US Energy Information Administration, Feb. 7, 2022.

[https://www.eia.gov/todayinenergy/detail.php?id=51179#:~:text=Nearly%2078%20million%20megawatthours%20\(MWh,to%20our%20State%20Electricity%20Profiles.](https://www.eia.gov/todayinenergy/detail.php?id=51179#:~:text=Nearly%2078%20million%20megawatthours%20(MWh,to%20our%20State%20Electricity%20Profiles.)

according to a preliminary analysis by the Rhodium Group.⁷ Given that Pennsylvania’s power generation sector is, as the above chart demonstrates, highly efficient from an emissions standpoint, it is a victory for our state’s economy and for environmental progress more broadly for our plants to increase generation for in-state use and for export, particularly to states with higher emissions intensities. We expect Pennsylvania’s leadership role on power production to remain quite durable, with continued improvements in emissions intensity occurring, as investors deploy capital into new gas, solar and storage projects.⁸



PJM’s energy markets are extremely competitive at the present time. It is no secret that several states in PJM have sought to subsidize or contract with specific types of generation to secure outcomes not achieved by the markets. Pennsylvania’s embrace has, as we have discussed before with this committee, greatly benefitted consumers, by saving them billions of dollars in utility bills over the past two and a half decades under restructured markets, and more broadly by encouraging billions of dollars of capital to be invested in energy production and associated infrastructure.

Properly functioning markets will continue to benefit Pennsylvania, provide policy ensures their integrity. With respect to greenhouse gas emissions, a trading program can be more efficient than other approaches, but all competitors within a given market must have the same rules, and rent-seeking middlemen must not have access. Neither is the case at present with RGGI, and the result will be some combination of higher costs for consumers and diminished economic activity within the state. The exact amount of that combination of the two can be debated.

But leakage is a known issue. To reiterate: a functioning market requires all relevant actors to play by the same rules. This is in part why, in early 2020, PJM, through its Carbon Pricing Task Force, modeled the impact of Pennsylvania and Virginia joining RGGI, and what the subsequent implications are on emissions, leakage and electricity prices. Importantly, and contrary to DEP’s modeling, PJM modeled RGGI prices not what they thought the allowance prices would be, but at the floor and ceiling of RGGI’s two allowance adjustment mechanism.⁹

⁷ Preliminary US Greenhouse Gas Emissions Estimates for 2021. The Rhodium Group, Jan. 10, 2022.

<https://rhg.com/research/preliminary-us-emissions-2021/>

⁸ One caveat: the durability of this leadership depends in large part on the degree to which FERC allows PJM’s markets to function in an efficient construct, without state subsidies unduly disordering the order of dispatched power.

⁹ Expanded Results of PJM Study of Carbon Pricing & Potential Leakage Mitigation Mechanisms, Feb. 25, 2020.

<https://www.pjm.com/-/media/committees-groups/task-forces/cpstf/2020/20200225/20200225-item-03-pjm-study-results-additional-scenarios.ashx>

The modeling results at the high end, which ended up being close to where RGGI prices currently are, are particularly instructive. As one might expect, with no action to adjust prices between RGGI and non-RGGI zones within PJM, a significant amount of generation moves to non-RGGI states, with coal being the largest source of additional electricity production in the non-RGGI states. Most of the air and greenhouse gas reductions that occur in RGGI states are offset by increase in air emissions in these upwind states – which will continue to have an air quality impact in Pennsylvania. The high-carbon price scenario conducted by PJM also forecasted a roughly 20% increase, from \$30.44/MWh to \$35.57 in 2023, in Locational Marginal Prices for RGGI states in PJM.¹⁰ These cost increases are not seen at a similar magnitude in non-RGGI PJM states.

Recent Economic Events and Current Dysfunctions Provide Cause to Press Pause on RGGI and Pivot to a Determined Pursuit of Pro-Growth Policy

Russia's horrific invasion into Ukraine has sparked a global run-up in commodity prices, exacerbating supply chain stressors that were already in place as a result of the pandemic and associated mitigation measures. Much attention has been drawn on to what extent the United States and Europe have been reliant on imports of Russian oil and gas. It is important to separate out these two commodities and geographies. The United States has indeed increased its reliance on Russian oil in recent years, owing in part to pipeline constraints and cancellation of new infrastructure such as Keystone XL that would have delivered oil from Canada. In January, U.S. imports of Russian oil doubled from 2018 levels, nearly eclipsing Canada as being the United States' largest source of imported oil. With respect to natural gas, pipeline constraints to deliver Marcellus shale produced gas has, as previously discussed, resulted in a tanker of Russian LNG being delivered to Boston in 2018. As a share of imports, Russia constitutes roughly 8% by volume of US oil imports and at present nearly no natural gas.

Such is not the case in Europe, where, despite having significant fields of oil and gas of their own to develop, these countries have limited or in some cases ceased production due to climate policy. Instead European countries have ramped up reliance on imports of Russia oil and gas. In 2021, the EU imported roughly 45% of its gas and 25% of its oil from Russia. As the EU takes steps to end this reliance, it is vital that the United States have the regulatory environment and infrastructure in place to increase production and transportation to deliver natural gas to Europe in order for the continent to offset Russian energy.

As we have noted in a recent op-ed, substituting American oil and gas for Russian energy would be a net-win for the environment. “Shutting down Russian imports in exchange for North American energy wouldn't just hurt Russia; it would be a net win for the environment. Russian energy production is notoriously lax on environmental standards, with Biden's Energy Secretary Jennifer Granholm going so far to say their production is ‘the dirtiest on earth,’ with fugitive emission rates orders of magnitude above U.S. standards. Despite this, Russia has been granted permission under the Paris climate accords to *increase* its greenhouse gas emissions by a whopping 34% by the end of the decade. In contrast, America and Canada have among the most stringent production standards globally — not to mention that the United States has led the developed world in reducing greenhouse gas emissions over the past two decades.”¹¹

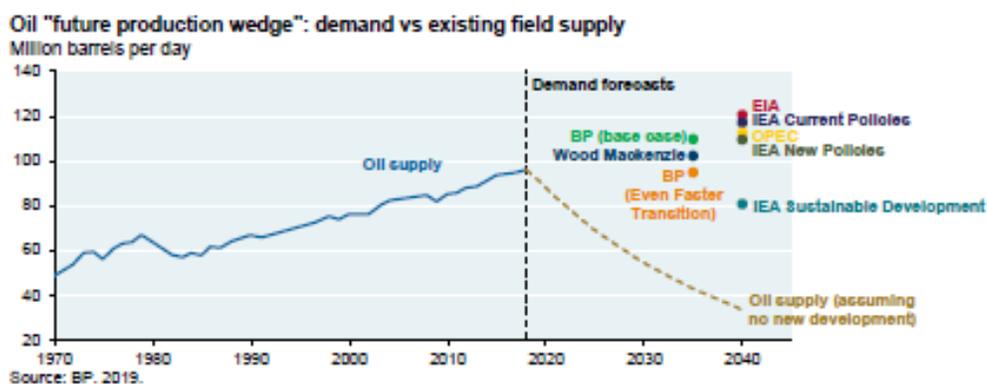
It also bears mentioning that fossil fuels are vital and necessary inputs for fertilizer production. Supply constraints arising during and after the pandemic resulted in a tripling in fertilizer prices year-over-year in 2021, and these costs have continued to increase. These fertilizer prices will inflict financial pain on farms and on

¹⁰ LMP represents the real time cost of generating and delivering electricity within PJM.

¹¹ Gene Barr: It's time US energy policy stops empowering Russia. Pittsburgh Tribune-Review, Feb. 25, 2022. <https://triblive.com/opinion/gene-barr-its-time-us-energy-policy-stops-empowering-russia/>

families this year and likely for the next several.¹² Increased supply from North American oil and gas fields can also help tamp down input costs for fertilizer.

We must further note that even prior to Russia's invasion, which cast a spotlight on the Western world's funding of Putin's regime through oil and gas imports, investment into oil and gas infrastructure was lagging even the volumes necessary under the most strict emissions control scenarios. As the below chart from energy economist Vaclav Smil and analysts at JP Morgan demonstrates, given current production curves,¹³ due in part to regulatory pressures the world is not on track to meet demand even in scenarios where countries are even more ambitious than they are now about reducing oil and gas use.



The discussion over oil and gas use is important, but it must also be noted that Russia is also a major producer of vital metals and critical minerals such as tin, nickel, aluminum, palladium, platinum, iron ore, steel and titanium. These materials are used in producing materials for the automotive and industrial sectors, including for electric vehicles and lithium batteries. Just as the world was underinvested in oil and gas prior to Russia's invasion, this crisis has worsened existing supply constraints and inflationary pressures. Global demand for high-grade nickel, used in EV batteries, was, by one analysis, projected to exceed supply by 2024¹⁴ – and that analysis was conducted prior to Russia, the world's third largest producer of nickel, being sanctioned out of international markets. The resulting price shocks for nickel – a 500% increase in just one week - have sparked massive supply issues and will add significantly to the cost of electric vehicles.

It must also be noted that China holds significant positions in mining and refining capacity of other key minerals, including 80% of solar cell manufacturing, 35% of nickel processing, 39% of copper processing, 70% of lithium and cobalt processing and 90% of rare earths. Like other commodities, the price of polysilicon, a key raw material used in the manufacture of solar panels, has also increased post-pandemic, in part owing to the United States banning the importation of solar panel materials manufactured in regions of China where forced labor has been used to produce the materials. By extension, absent a renewed focus on responsible sourcing of critical minerals, including expanding domestic production and refining capacity, calls to replace fossil fuels with alternative energy sources will simply lead us into further dependence on aggressive, expansionist regimes.

Further, while it remains the case that prices are high for RGGI allowances and physical energy and materials commodities, these markets exist in two wholly separate environments. High commodity prices for oil signals a

¹² Managing increasing crop input prices. Penn State Extension, November 2021. <https://extension.psu.edu/managing-increasing-crop-input-prices>

¹³ 2021 Annual Energy Paper. JP Morgan Asset and Wealth Management, May 2021. <https://am.jpmorgan.com/content/dam/jpm-am-aem/global/en/insights/eye-on-the-market/future-shock-amv.pdf>

¹⁴ Nickel demand to outstrip supply by 2024. Rystad Energy, Oct. 11, 2021. <https://www.rystadenergy.com/newsevents/news/press-releases/nickel-demand-to-outstrip-supply-by-2024-causing-headaches-for-ev-manufacturers/>

need for more production, which has certainly been the case – WTI and Brent crude prices, which spiked above \$130 barrel at the outset of the Ukraine invasion have fallen nearly 30% off their highs in early March to below \$100 per barrel at the time of writing, in part in response to pledges from producers to increase supply. The same dynamic will play itself out in the long-term as additional mining reserves of other materials are developed – with the United States having some level of support for those resources, provided the regulatory and tax policy accommodates that production. But the same cannot be said in the context of RGGI, which is a bounded market made up wholly by administrative construct. The allowances are limited, and as noted, the market rules afford third parties to bid up prices in an unjust manner.

At the outset of Governor Wolf's announcement that, despite previous campaign pledges he would not do so, he was directing DEP to develop a rulemaking to join RGGI, the PA Chamber outlined areas of concern we hoped to see address in the rulemaking, including transparency with respect to costs and protection of the state's industrial base and leadership role as the biggest energy exporter of any state. We also recommended the final rulemaking include an offramp that gives this or future administrations a reasonable offramp in the event that federal policy, RGGI auction results, international market forces or some other combination of events renders RGGI redundant or too costly to serve Pennsylvania's interests. Such an offramp was not included in the final rule, and, as we have outlined in testimony before IRRC and other forums, including this one today, we do not believe our concerns were appropriately addressed.

Given the significant run-up in RGGI allowance prices beyond what DEP forecast in its modeling, we believe it would be prudent for this administration to not publish the final rule (and for the legislature to continue to take steps as afforded under the Regulatory Review Act to disapprove it) and instead pursue the following:

- 1) DEP should conduct another round of modeling based on persistently high RGGI allowance prices through the rest of the decade;
- 2) Pennsylvania should condition any further consideration on participating in RGGI on the model rule being revised to exclude, with case-by-case exemptions, third-parties without compliance obligations from acquiring and holding allowances, just as DEP does in its ERC programs; and
- 3) Pennsylvania should condition any further consideration on participating in RGGI on either all PJM states participating in RGGI or agreeing to an effective leakage control mechanism

Beyond these steps, Pennsylvania must take this opportunity to reassert itself as an energy leader. As we have noted previously in testimony to this committee, embracing competitive markets has yielded tremendous benefits for consumers and the environment, and we have helped keep energy and electricity prices for this nation among the lowest in the developed world while making historic progress on emissions. Preserving energy choice, supporting market policy that allows price signals to encourage building new generation and transmission, and focusing on economic and reliable dispatch of power will not impede progress on sustainability – it will encourage it.

As the table to the right shows, taking an economy-wide view of emissions reveals a perhaps surprising fact – Pennsylvania has reduced its emissions more than all RGGI states combined since the program’s inception. On a proportional basis, Pennsylvania reduced emissions 10% more on an absolute basis and 2.5 times more on a proportional basis than RGGI states over those ten years. This data is pulled from the most recent information from the US Energy Information Administration.¹⁵

This is also a moment to truly embrace all-of-the-above energy policy, leveraged by pro-growth tax and regulatory policy. Rather than policymakers attempting to carve up which energy choices should be available to consumers or subsidizing demand while constricting supply which will result in continued higher costs on our economy, we instead urge the enactment of tax and regulatory policy that encourages new and expanded investment in this state – whether that might be the installation of solar panels on abandoned mine lands, construction of high-efficiency combined heat and power systems at hospitals and universities, siting hyperscale data centers near baseload power installations, building resiliency projects, or facilitating new investment into combined cycle gas plants. Pennsylvania has world-class natural resources, as well as globally recognized skilled trades, engineering and management talent supported by our institutions of higher education and trade schools, that can continue leading the way in advancing innovation in oil, gas, coal, nuclear, wind, solar, and emerging technologies like hydrogen fuel cell, battery storage, and carbon capture technologies.

State	Energy-related CO2 emissions, 2009	Energy-related CO2 emissions, 2018	Absolute Change (mmt)	Percent Change
Connecticut	36.1	37.5	1.4	3.82%
Delaware	12.1	13.3	1.2	9.92%
Maine	18.5	14.7	-3.8	-20.34%
Maryland	71.7	61.5	-10.2	-14.25%
Massachusetts	70.6	64.4	-6.3	-8.88%
New Hampshire	17.2	14.2	-2.9	-17.13%
New Jersey	110.1	105.1	-5.0	-4.55%
New York	172.8	175.4	2.6	1.48%
Rhode Island	11.3	11.1	-0.2	-1.90%
Vermont	6.2	5.8	-0.4	-5.89%
Virginia	106.2	107.4	1.2	1.17%
All RGGI States	632.7	610.3	-22.4	-4%
Pennsylvania	244.8	219.8	-24.9	-10.19%

It remains the case that Pennsylvania’s ability to deliver in support of these advances will in large part hinge on to what extent FERC permits new infrastructure and supports market policy at PJM, as well as the decisions of other key federal agencies like EPA and the Corps on permitting infrastructure and the willingness of Congress to reform energy, trade and transportation policy in a more coherent manner. But just as the bipartisan infrastructure legislation passed by Congress recognized the federal permitting regime needed an overhaul in order to accommodate delivery of new projects, so should the Pennsylvania legislature, in a similar bipartisan manner and in conjunction with assertive support for effective market-based policy, reform this state’s approach to permitting so as to empower a more dynamic, innovative and sustainable energy future.

Thank you for the opportunity to appear before you this afternoon, and I am happy to answer any questions you may have.

¹⁵ See Energy-related carbon dioxide emissions by year, adjusted. US Energy Information Administration, March 2, 2021. <https://www.eia.gov/environment/emissions/state/>
 “Total state CO2 emissions include CO2 emissions from direct fuel use across all sectors, including residential, commercial, industrial, and transportation, as well as primary fuels consumed for electricity generation.”