



Attachment 1

Testimony of Anthony R. Holtzman, Esq.

Good afternoon, Chairman Metcalfe, Chairman Vitali, and the other members of the House Environmental Resources and Energy Committee. My name is Anthony Holtzman. I am pleased to join you today to discuss certain constitutional and statutory issues that pertain to the Regional Greenhouse Gas Initiative, or “RGGI.” In particular, I’m going to explain why, in my estimation, Pennsylvania’s constitutional and statutory law does not provide the Executive Department with the authority to join or implement RGGI. At the outset, I want to be clear that I am not representing or being paid by any client today. Nor am I appearing on behalf of my law firm. The opinions that I will express today are my own, but formed based on many years of experience with state and federal constitutional and environmental law issues.

The Pennsylvania Constitution does not provide the Executive Department with the authority to join RGGI.

In order to formally join RGGI, the Commonwealth would need to execute the RGGI Memorandum of Understanding, or “MOU,” which operates like an agreement between the signatory states.

Article IV of the Pennsylvania Constitution, which establishes the powers of the Executive Department, does not contain any provision that supplies the Governor or any other official or entity with the authority to sign onto an interstate compact or agreement, like RGGI.

And, while Article I, Section 27 of the Pennsylvania Constitution imposes duties on the Commonwealth to “conserve and maintain” Pennsylvania’s “public natural resources,” it does not operate to expand the powers of the Governor or the executive branch agencies that operate under his purview. The Commonwealth Court, in fact, has expressly acknowledged this point.¹

Because the Pennsylvania Constitution does not provide the Governor or any other Executive Department official or entity with the power to enter into interstate compacts or agreements, the General Assembly alone possesses that power.

The General Assembly, in this regard, has plenary power and therefore, unless the Constitution says otherwise, it has authority over and may enact legislation regarding any subject. As our Supreme Court has explained, “the General Assembly has jurisdiction of all subjects on which its legislation is not prohibited[.]”²

Our Supreme Court, in fact, has recognized that the Constitution vests the General Assembly with the compacting power and that, if a statute delegates that power to an executive branch actor, the delegation must “evinced[] the *Legislature’s* ‘basic policy choice’ to participate in [the] interstate agreements” in question.³

The result is that, in order for the Executive Department to sign onto the RGGI MOU, it must be statutorily authorized to do so.

¹ See *Funk v. Wolf*, 144 A.3d 228, 249 (Pa. Cmwlth. 2016), *aff’d* 158 A.3d 642 (Pa. 2017)

² *Kotch v. Middle Coal Field Poor Dist.*, 197 A. 334, 338 (Pa. 1938)

³ *Whitlatch v. PennDOT*, 715 A.2d 387, 389 (Pa. 1998) (emphasis added)

There is no Pennsylvania statute that provides the Executive Department with the authority to sign onto RGGI.

The two potentially applicable statutes are the Air Pollution Control Act, or “APCA,” and the Uniform Interstate Air Pollution Agreements Act, or “UIAPAA.”

Section 4(24) of APCA provides that the Pennsylvania Department of Environmental Protection may “formulate” interstate air pollution control agreements “for the submission thereof to the General Assembly.”⁴ By the plain terms of this provision, the Department may *formulate* interstate air pollution agreements, but may not actually *execute* them. Instead, it must submit them to the General Assembly for consideration.

Section 3 of the UIAPAA authorizes the Department to enter into multi-state “administrative agreements” that provide for “cooperation” and “coordination” of non-binding efforts to control cross-border air pollution.⁵ These “administrative agreements” may provide for, among other matters, the “coordinated administration” of the states’ respective air pollution control programs, “[c]onsultation concerning technical” issues, and the “development of recommendations” concerning air quality standards.⁶

The RGGI MOU is *not* an “administrative agreement” of the type that UIAPAA contemplates. Under the RGGI MOU, each signatory state makes a *binding* commitment to propose and implement a regional carbon dioxide budget trading program, which is predicated on the state’s *mandatory participation* in regional, revenue-raising allowance auctions.⁷ This arrangement stands in stark contrast to the paradigmatic UIAPAA “administrative agreement” that, for example, allows for the sharing of ambient air monitoring data or the convening of periodic technical conferences among agency staff members.

The Executive Department lacks the authority to implement RGGI.

Even if the Executive Branch had the authority to sign onto the MOU, it does not have the authority to adopt regulations to implement RGGI.

Our Supreme Court has long held that, under the Pennsylvania Constitution, the power to impose a tax is vested solely in the General Assembly.⁸ Under prevailing Pennsylvania case law, something qualifies as a “tax” if it is a “revenue-producing measure.”⁹ Regulatory “fees,” by contrast, are merely “intended to cover the cost of administering a regulatory scheme.”¹⁰ And therefore, as Pennsylvania’s courts have explained, whether an income-producing mechanism

⁴ 35 P.S. § 4004(24)

⁵ 35 P.S. § 4103

⁶ 35 P.S. § 4103(b)

⁷ RGGI MOU §§ 1, 2.A

⁸ See, e.g., *Mastrangelo v. Buckley*, 250 A.2d 447, 452 (Pa. 1969)

⁹ *City of Philadelphia v. Southeastern Pennsylvania Transportation Authority*, 303 A.2d 247, 251 (Pa. Cmwlth. 1973)

¹⁰ *Rizzo v. City of Philadelphia.*, 668 A.2d 236, 237-38 (Pa. Cmwlth. 1995)

imposes a “tax” or a “fee” turns on the volume of income that the mechanism generates and the proportion of the income that goes to cover the program’s administrative costs.¹¹

Under this standard, RGGI’s quarterly auction mechanism – which is the heart of the program – would qualify as a “tax,” not a “fee,” because the proceeds of the auctions are grossly disproportionate to the costs of administering the program. Through 2017, in fact, the RGGI signatory states had directed less than 6% of the proceeds toward the program’s administration.¹² RGGI’s auction mechanism is designed to raise substantial sums of revenue – in fact, it has raised more than \$3 billion to date – and the signatory states have used the vast majority of this revenue to either support policy initiatives (such as energy efficiency and renewable energy initiatives) or bolster state coffers through transfers to general funds.¹³ The auction program therefore imposes a tax that only the General Assembly can impose.

This conclusion, by the way, is consistent with the Environmental Quality Board’s limited authority under APCA to establish emission fees. Under Section 6.3 of APCA, the EQB may *only* establish “fees sufficient to cover the indirect and direct costs of administering” APCA and the Clean Air Act.¹⁴ The EQB therefore may not adopt regulations that would require regulated entities to pay emission “fees” (by purchasing emission allowances) that would generate revenues that were far in excess of the “indirect and direct costs of administering” APCA and the Clean Air Act. And yet the EQB would need to take *precisely* that approach in order to implement RGGI.

Even apart from RGGI’s tax implications, moreover, no Pennsylvania executive agency has the statutory authority to adopt regulations to implement RGGI. APCA is the only potential source of that authority – and it does not authorize the adoption of regulations to implement RGGI.

To this end, as our Supreme Court has explained, it is a “well settled principle that the power and authority to be exercised by administrative agencies must be conferred by the legislature.”¹⁵ As our Supreme Court has also explained, when it comes to a legislative delegation of rulemaking power, the delegation “must be clear and unmistakable as a doubtful power does not exist.”¹⁶

Under these principles, regardless of whether APCA authorizes the regulation of carbon dioxide emissions generally, and it is my opinion that it does not, the statute does not authorize the adoption of regulations to implement RGGI. While APCA gives the Department the authority to impose various requirements regarding air emissions – including recordkeeping, reporting, monitoring, and sampling requirements¹⁷ – and gives the EQB the authority to issue certain categories of regulations regarding air emissions,¹⁸ the statute is devoid of any clear authorization for any agency to issue regulations that adopt the detailed “cap-and-trade” system, including the carbon dioxide allowances regime, that lies at the heart of RGGI. The result is that, if a

¹¹ See, e.g., *Greenacres Apts., Inc. v. Bristol Tp.*, 482 A.2d 1356, 1359 (Pa. Cmwlth. 1984)

¹² See RGGI, Inc., *The Investment of RGGI Proceeds in 2017*, at 12, Chart 4 (Oct. 2019), available at https://www.rggi.org/sites/default/files/Uploads/Proceeds/RGGI_Proceeds_Report_2017.pdf.

¹³ *Id.*

¹⁴ 35 P.S. § 4006.3(a)

¹⁵ *Dep’t of Env’tl. Res. v. Butler Cnty. Mushroom Farm*, 454 A.2d 1, 4 (Pa. 1982)

¹⁶ *Eagle Env’tl. II, L.P. v. PaDEP*, 884 A.2d 867, 878 (Pa. 2005) (internal quotations omitted)

¹⁷ See 35 P.S. § 4004(4), (5), & (6)

¹⁸ See generally 35 P.S. § 4005

Pennsylvania agency were to issue regulations of that type, the regulations would be *ultra vires* and void.

Section 5(a)(1) of APCA provides that the EQB may adopt regulations that, among other things, “establish maximum allowable emission rates of air contaminants” and “prohibit or regulate any process or source or class of processes or sources[.]”¹⁹ Although, with enough effort, it may be possible to read these phrases so broadly that they would allow for regulations that implement the RGGI program, courts are not supposed to take that approach. Again, the applicable rule of statutory interpretation is that, in every case, a delegation of rulemaking power “must be clear and unmistakable as a doubtful power does not exist.”

Separately, there is a reasonable argument that APCA does not even authorize the regulation of carbon emissions generally. Ambient carbon dioxide, in this regard, arguably does not constitute “air pollution” within the meaning of the statute because, unlike other conventional pollutants (for example, lead, mercury, particulates, nitrogen oxides, and sulfur oxides), the inhalation of carbon dioxide or direct exposure to it at typical atmospheric concentrations is not “inimical to the public health, safety or welfare” or “injurious to human, plant or animal life or to property” and does not “unreasonably interfere[] with the comfortable enjoyment of life or property.”²⁰ By its plain wording, in other words, and unlike states like New York that expressly authorize the regulation of “carbon dioxide” – and without further requirements at the federal level – APCA indicates that it does not allow for the regulation of substances whose sole environmental consequence is that they contribute to global climate change.

Finally, even if the presence of carbon dioxide in the atmosphere constitutes “air pollution,” an attempt by the EQB to employ RGGI’s carbon trading program to regulate emissions of that gas would not meaningfully “prevent[], control, reduc[e], and abate[]” climate change, as required for the agency to adopt regulations under APCA.²¹ On a percentage basis, the contribution by Pennsylvania’s fossil-fuel-fired power plants to total worldwide greenhouse gas emissions is miniscule.²² As a result, even if the implementation of RGGI were to result in the complete elimination of carbon emissions from all regulated power plants in Pennsylvania (which it is not designed to do), it would not materially impact the concentration of ambient carbon dioxide in the outdoor atmosphere. And this reality does not even account for the likelihood that Pennsylvania’s participation in RGGI would result in at least some greenhouse gas emissions “leakage,” as power

¹⁹ 35 P.S. § 4005(a)(1)

²⁰ 35 P.S. § 4003 (defining “air pollution”)

²¹ See 35 P.S. § 4005(a)(1) (EQB may “[a]dopt rules and regulations, for the prevention, control, reduction and abatement” of air pollution)

²² According to Pennsylvania’s most recent Climate Action Plan, sources in the Commonwealth collectively emitted approximately 287 million metric tons of greenhouse gases (CO₂ equivalent) in 2015, and the “energy production” sector (which includes all electricity generation, coal mining, and natural gas and oil production) accounted for approximately 32% of those emissions, or approximately 92 million metric tons. PaDEP, *Pennsylvania Climate Action Plan 2018*, at 16, 32-33 (April 29, 2019). In comparison, the Intergovernmental Panel on Climate Change (“IPCC”) has recently estimated worldwide greenhouse gas emissions at approximately 49.5 billion metric tons (as of 2010). IPCC, *Climate Change 2014: Mitigation of Climate Change, Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*, at 113 (2014). Using these figures, Pennsylvania’s energy production sector’s annual contribution to total worldwide greenhouse gas emissions is approximately 0.19%. Taken by themselves, the power plants that would be subject to the RGGI requirements contribute an even smaller percentage.

plants in nearby states would generate more electricity (and emissions) to compensate for operational reductions that occurred among power plants in the Commonwealth.

Conclusion.

It is for these reasons, honorable members of the committee, that Pennsylvania's Executive Department does not currently have the authority to join or implement RGGI. I would be happy to try to answer your questions, if any, about these issues.

Attachment 2



Bureau of Air Quality

Air Quality Program Budget and Proposed Fee Concepts

**Citizens Advisory Council
January 16, 2017
Harrisburg, PA**

Tom Wolf, Governor

Patrick McDonnell, Secretary

Current Funding

- Clean Air Fund expenditures in FY 2016-17 were approx. \$27 million with a little over half being in personnel expenses.
- Clean Air Fund receipts were approx. \$22.6 million.
- The Clean Air Fund constitutes approx. 60% of the Air Quality Program budget.
- The General Fund and Federal Grants comprise the remaining 24% and 16%, respectively.

▶ Authority for Establishing Air Quality Fees

- The Air Pollution Control Act (APCA) requires the Environmental Quality Board (EQB) to establish fees to cover the costs of the Air Quality Program as required by the Clean Air Act (CAA), including the Small Business Assistance Program and Ombudsman.
- The EQB must also establish an annual air emission fee for regulated pollutants. This fee shall not apply to emissions of more than 4,000 tons for any regulated pollutant.
- The APCA also authorizes the EQB to establish fees to support activities which are not required by Section 502 of the CAA.

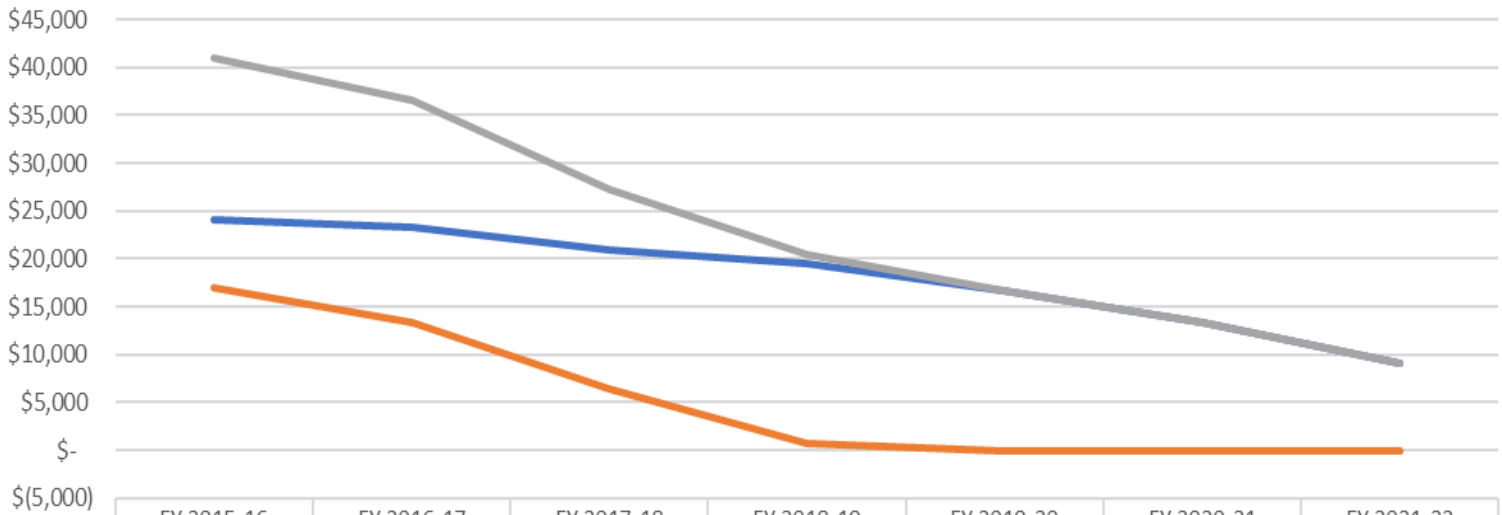
Pennsylvania Clean Air Fund

The Clean Air Fund is comprised of two executive appropriations:

- Title V Account for major source activities is supported by annual emission and major source permit fees.
- Non-Title V Account for non-major source activities is supported by civil penalties and permit fees.

Clean Air Fund Without Amendments

Clean Air Fund
(Thousand of Dollars)



	FY 2015-16	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22
— Title V Account	\$24,058	\$23,266	\$20,879	\$19,577	\$16,693	\$13,291	\$9,107
— Non-Title V Account	\$16,942	\$13,337	\$6,410	\$801	\$0	\$0	\$0
— Clean Air Fund (Total)	\$41,000	\$36,603	\$27,289	\$20,378	\$16,693	\$13,291	\$9,107

Pennsylvania Clean Air Fund

- The Clean Air Fund supports:
 - Personnel
 - Equipment
 - Contracts
 - Grants
- A Title V emissions fee increase will support:
 - Development of an electronic permit application system for general permits.
 - Deployment of an electronic fee payment system
 - Potential additional staff.

Air Quality Staffing

Total and Filled Air Quality Program Positions
2009 - 2017



Title V Emissions Fees

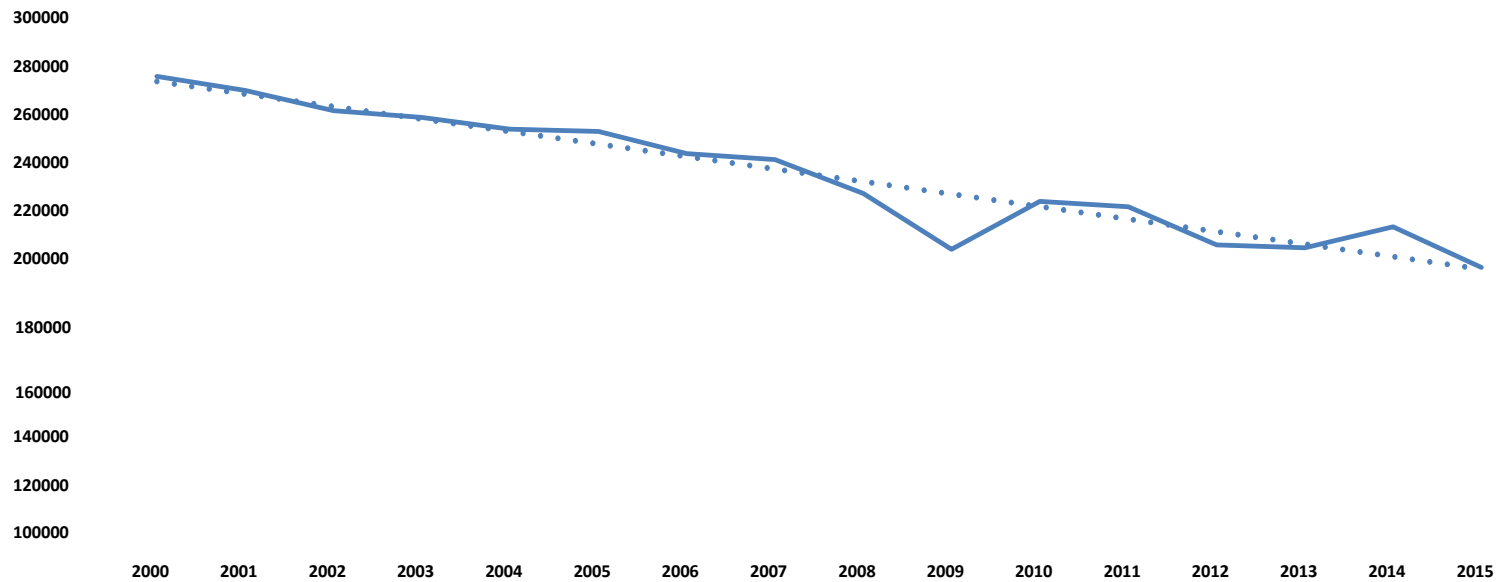
- The Title V emission fees required under § 127.705(a) are uniform throughout the commonwealth (DEP, Allegheny and Philadelphia Counties) and are collected for each ton of a regulated pollutant actually emitted up to a cap of 4,000 tons per pollutant per year.
- Title V emission fees have been collected since 1991, with the fee amount last changed in 2013. In that year the fee was set at \$85 per ton, increasing each year by the Consumer Price Index. We estimate the fee will be approx. \$93.87 for emission year 2019.

Title V Emission Fees: Neighboring States

State	Title V Permit Emission Fees payable in 2015/2016	Emissions Cap tons per year	Number of Active Title V Facilities
Connecticut	\$300.82 per ton, minimum \$5000, maximum \$950,000	No	67
Delaware	\$5,700 to \$277,020 and user fees \$3,950 to \$350,000	7,500	134
Illinois	\$21.50 per ton up to \$294,000 (based on allowable emissions)	13,675	455
Maryland	\$57.73 per ton of actual emissions plus \$5,000.00 base fee	No	122
Michigan	\$51.15 per ton + facility charge \$250 to \$5,250	4,500 to 6,100	390
New Jersey	\$116.30 per ton	No	260
New York	\$60 to \$90 per ton + \$2,000 base fee	7,000	417
N. Carolina	\$31.92 per ton + \$6,919 base fee	4,000	279
Ohio	\$48.49 per ton	4,000	532
Pennsylvania	\$86.73 per ton	4,000	569
Rhode Island	\$469 per ton	No	34
Virginia	\$60.91 per ton + maintenance fee \$1,577 to \$10,519	4,000	276
West Virginia	\$47.95 per ton	4,000	207

Title V Emissions

Emissions (tons) on which Title V emission fees are paid.



Proposed New Fees

- Modification of the existing fees would affect approximately 569 Title V facilities and approximately 2,100 permitted non-Title V facilities. It would also impact the owners/operators of approximately 7,000 asbestos projects per year. Proposed new fees would be established for:
 - Review of Request for Determination (RFD) of Changes of Minor Significance and Exemption from Plan Approval/Operating Permit Risk Assessment Review.
 - Plantwide Applicability Limits.
 - Review of ambient air modeling associated with certain plan approval applications.
 - Notification of Asbestos Abatement and Demolition/Renovation.

Proposed Amended Fees

- Application fees for plan approvals including new source review (NSR), prevention of significant deterioration (PSD), new source performance standards (NSPS), and maximum achievable control technology (MACT).
- Application fees for operating permits.
- Annual operating permit administration fee.
- General plan approval and general operating permits (GPs).
- Title V emission fees.

Summary of Proposed Permitting Fees: Non-Major Facility

Description	Proposed Section	# of Facilities	Current Fee	Current Revenue	2019 2023		Net Change
					Proposed Fee	Proposed Revenues	
Plan Approval (PA) Base Fee, Subchapter B	127.702(b)	125	\$1,000	\$125,000	\$2,500	\$312,500	\$187,500
Plan Approval with NSPS, NESHAPS & MACT	127.702(d)	87	\$1,700	\$147,900	\$2,500	\$217,500	\$69,600
PA- Minor Modification, Extension & Transfer of Ownership	127.702(g)	428	\$300	\$128,400	\$1,700	\$727,600	\$599,200
PA- Significant Modification, Reassessment of control technology	127.702(h)(1)	6	\$0	\$0	\$2,500	\$15,000	\$15,000
PA- Significant Modification, Ambient Impact Analysis	127.702(h)(2)	2	\$0	\$0	\$9,000	\$18,000	\$18,000
Non-Title V: Revision (amendment) & Modification (minor and significant)	127.703(b)(1)	140	\$375	\$52,500	\$1,500	\$210,000	\$157,500
Non-Title V Operating Permit: New & Renewal (base fees not including NSPS & MACT), Subchapter F	127.703(b)(1)	487	\$375	\$182,625	\$1,500	\$730,500	\$547,875
Non-Title V Operating Permit to incorporate NSPS, NESHAPS & MACT, Subchapter F	127.703(b)(2)	87	\$0	\$0	\$2,500	\$217,500	\$217,500
Annual Operating Permit Administration Fee for Non-Title V Facility	127.703(c)	2100	\$375	\$787,500	\$0	\$0	-\$787,500
Annual Operating Permit Maintenance Fee for Non-Title V Facility - not a Synthetic Minor (Natural Minor)	127.703(c)(1)	1345	\$0	\$0	\$2,000	\$2,690,000	\$2,690,000
Annual Operating Permit Maintenance Fee for Synthetic Minor Facility	127.703(c)(2)	755	\$0	\$0	\$2,500	\$1,887,500	\$1,887,500
Request for Determination - Meets the APCA definition of small business stationary source (Operating Permit or both Plan Approval&Operating Permit)	127.702(i)(1); 127.703(d)(1); 127.704(d)(1)	650	\$0	\$0	\$400	\$260,000	\$260,000
Request for Determination - Does not meet the APCA definition of small business stationary source (Operating Permit or both Plan Approval&Operating Permit)	127.702(i)(2); 127.703(d)(2); 127.704(d)(2)	350	\$0	\$0	\$600	\$210,000	\$210,000
Asbestos Notification	127.709	3000	\$0	\$0	\$300	\$900,000	\$900,000
Total:				\$1,423,925		\$8,396,100	\$6,972,175

Summary of Proposed Permitting Fees: Major Facility

Description	Proposed Section	# of Facilities	Current Fee	Current Revenue	2019 - 2020		Net Change
					Proposed Fee	Proposed Revenues	
NSR Plan Approval (base fees not including NSPS & MACT), Subchapter E	127.702(c)	5	\$5,300	\$26,500	\$10,000	\$50,000	\$23,500
Plan Approval Application for case by case MACT	127.702(e)	1	\$8,000	\$8,000	\$12,000	\$12,000	\$4,000
PSD Plan Approval (base fees not including NSPS & MACT), Subchapter D	127.702(f)	5	\$22,700	\$113,500	\$35,000	\$175,000	\$61,500
Title V Operating Permit: Extension, Modification, Revision, Subchapter G	127.704(b)(1)	95	\$750	\$71,250	\$1,500	\$142,500	\$71,250
Title V Operating Permit: New & Renewal (base fees not including NSPS, MACT), Subchapter G	127.704(b)(1)	93	\$750	\$69,750	\$1,500	\$139,500	\$69,750
Title V Operating Permit to incorporate NSPS, NESHAPS & MACT, Subchapter G	127.704(b)(2)	100	\$0	\$0	\$2,500	\$250,000	\$250,000
Title V Operating Permit to incorporate PAL	127.704(b)(3)	1	\$750	\$750	\$15,000	\$15,000	\$14,250
Annual Operating Permit Administration Fee for Title V Facility	127.704(c)	30	\$750	\$22,500	\$0	\$0	-\$22,500
Annual Operating Permit Maintenance Fee for Title V Facility	127.704(c)	500	\$0	\$0	\$5,000	\$2,500,000	\$2,500,000
Risk Assessment Analysis - Inhalation only	127.708(b)	10	\$0	\$0	\$10,000	\$100,000	\$100,000
Risk Assessment Analysis - Multi-pathway	127.708(c)	1	\$0	\$0	\$25,000	\$25,000	\$25,000
Total:				\$312,250		\$3,409,000	\$3,096,750

NOTE: The proposed Revenues reflect option 2 (see slide 11 for options)



Permit Fees: Neighboring States

Plan Approval Application Fees	Proposed PA	NJ	OH	WV	DC	VA	MD	DE
Base fee: Source is not subject to NSPS, NESHAP, PSD and NSR requirements. Section 127.702(b).	\$2,500	\$820	\$400	\$1,000	None	None	\$800	\$165
Source is subject to NSPS and state requirements. Section 127.702(b) and (d).	\$5,000	\$5,054	\$1,000	\$2,000	None	\$524	\$2,000	\$165
Source is subject to NSPS, MACT, nonattainment area NSR and state requirements. Section 127.702(b), (c), and (d).	\$17,500	\$50,000	\$3,750	\$14,500	None	\$31,697	\$20,500	\$1,290
Source is subject to NSPS, MACT, PSD and state requirements. Section 127.702 (b), (d), and (f).	\$42,500	\$50,000	\$3,750	\$14,500	None	\$31,697	\$20,500	\$1,290
Source is subject to NSPS, MACT, PSD, NSR and state requirements. Section 127.702(b), (c), (d), and (f).	\$52,500	\$50,000	\$3,750	\$14,500	None	\$31,697	\$40,500	\$1,290

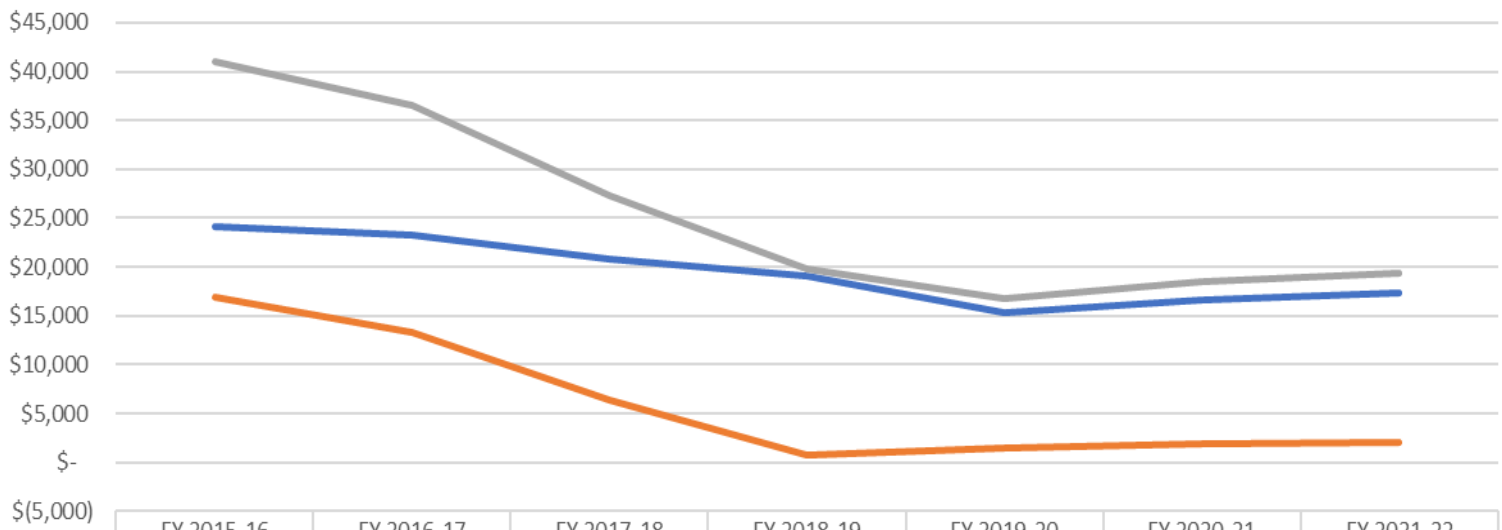
Title V Emission Fee Options

Options for Title V Fees Due on 9/1/2020

	Existing	Option 1	Option 2	Option 3
Title V Emission Fee per ton	\$93.87	\$93.87	\$110.00	\$118.00
Emission Fee Floor	\$0	\$0	\$0	\$5,000
Emission Fee Revenue	\$14,901,397	\$14,901,397	\$17,461,125	\$19,467,082
DEP regulated facilities that pay 90% of the Title V emissions fee	98	98	98	134
Maintenance Fee per year	\$0	\$10,000	\$5,000	\$0
Maintenance Fee Revenue	\$0	\$5,000,000	\$2,500,000	\$0
Other Permit Fee Revenue	\$303,500	\$647,000	\$647,000	\$647,000
Total Title V Facility Revenue	\$15,204,897	\$20,548,397	\$20,608,125	\$20,114,082

Clean Air Fund with Amendments

Clean Air Fund
(Thousand of Dollars)



	FY 2015-16	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22
Title V Account	\$24,058	\$23,266	\$20,879	\$19,048	\$15,371	\$16,633	\$17,360
Non-Title V Account	\$16,942	\$13,337	\$6,410	\$801	\$1,444	\$1,829	\$2,034
Clean Air Fund (Total)	\$41,000	\$36,603	\$27,289	\$19,849	\$16,815	\$18,462	\$19,394



pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION



Bureau of Air Quality

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Attachment 3



Testimony of Caleb Stewart Rossiter, Ph.D.,
Executive Director of the CO2 Coalition
Before the Pennsylvania House Environmental Resources and Energy
Committee

August 24, 2020

“Analysis of DEP’s Modeling of the Economic, Health, and
Environmental Impacts of the Regional Greenhouse Gas Initiative”

Chairman Metcalfe, Chairman Vitali, Members of the Committee, it is an honor to have this opportunity to discuss with you the possible impacts of your state’s role in what I consider the most important public policy issue of today, the balancing of energy needs and environmental protection. Not just quality of life, but lives themselves are in the balance, whichever way you lean. So before leaning, it’s important to know why.

I am a former professor of statistics, mathematics, and public policy at American University. I also worked for many years in and around the U.S. Congress on foreign policy, particularly toward Africa. My CV is available on my website.¹

Having been actively involved in the climate change debate in both of my careers – teaching climate statistics and modeling, and supporting U.S. policies to improve access to electricity in Africa from its current one-third of households – in 2016 I was invited to join an alliance of 55 climate scientists and energy economists called the CO2 Coalition. When the founder became President Trump’s climate adviser on the National Security Council in 2018, I accepted the position of executive director. I am happy to report that when I retire at the end of this year, I will be replaced by a talented Pennsylvanian who has testified before this committee in the past, geologist Gregory Wrightstone.

Mark Twain famously identified three descending gradations of falsehood: lies, damn lies, and statistics. Analyzing the claims by the Department of

¹ <http://calebrossiter.com/cv.html>



Environmental Protection about the effects of Pennsylvania's participation in the Regional Greenhouse Gas Initiative, I felt like adding an even lower class to that. Your DEP, charged with providing unbiased analysis to guide policy-makers, traffics in lies, damn lies, statistics...and models.

As a professor I taught not just statistics and mathematical modeling, but also their use in cost-benefit analysis for public policy. As I constantly told my students, the core responsibility of all of us in these fields is to search for truth, not proof. These are tools to help us evaluate a claim, not stake one. We must test a variety of assumptions, not just those that make a particular case. We must include all the costs, not just all the benefits, to find the net effect of a policy decision like RGGI.

My testimony today will cover just a few of the ways in which DEP is committing public policy malpractice by searching for proof, not truth. DEP has provided you with a lawyer's brief, rather than an accountant's analysis. This is the sort of thing that gives statistics and modeling a bad name, and encourages the public to distrust rather than appreciate the useful projections of experts in these fields.

Statistics and modeling are often combined into one technique, which we broadly call multiple regression, or, when applied to economics, econometrics. Using the mathematically-derived equations of probability, which remarkably match the reality of distributions of actual events in the real world, multiple regression controls for all variables so that you can see the independent effect of each one.

But DEP dispenses with this technique. It uses models that can't distinguish between correlation and causation, and simply generate projections of impact based on assumptions, without controlling statistically for how different variables interact with each other, and sum up benefits without considering costs to arrive at a net figure. That's why I've added models to Mark Twain's list as a separate, particularly misleading item.

My conclusion is that if you properly included reasonable assumptions, followed the normal statistical techniques that control for other variables so that you can distinguish simple correlation from true causation, and summed up both costs and benefits, you would find that the RGGI is an act of economic, health, and environmental suicide. It will raise electricity prices, increase health problems and mortality, and damage the environment. Ironically, even if it were expanded to the



entire nation and the entire world, a RGGI regime would be very likely to have minimal effect on climate variables or even on the level of warming gases in the atmosphere.

So, let's get to it, starting with the lead picture on the DEP website for the RGGI. Shamefully, incorrectly, in contradiction to all the peer-reviewed science and the conclusions of the UN body that studies the impact of greenhouse gases on climate, DEP starts its cascade of argumentation with a photo of emergency workers surveying a flooded town.²



As a professor of statistics and public policy for many years, I always taught my students about the classic Latin enemies of logic. This one is called *post hoc ergo propter hoc*. That means that since one thing happens after another occurs, it must be caused by it; or, “correlation is causation.” CO₂ concentrations in the atmosphere have increased due to industrial energy emissions since 1900 from three parts per million to four. We have a flood. The increase must be the cause of the flood. This is an example of one of the most prevalent and dangerous errors in human learning.

But weather is not climate change. The UN reports that there has been no statistically significant change in rates of extreme weather, including floods, since the era in which CO₂ emissions were large enough to cause measurable warming began around 1950.³ Let me be clear: as I have testified before the U.S. Congress,

² <https://www.dep.pa.gov/Citizens/climate/Pages/RGGI.aspx#>

³ <https://co2coalition.org/2020/06/16/climate-statistics-101/>;

<https://co2coalition.org/publications/equal-warming-1900-to-1950-versus-1950-to-2018-why-the-un-knows-the-first-half-was-natural/>



the rates per decade of floods, sea-level rise, droughts, wildfires, tornadoes, and hurricanes are no higher today in the United States, and in the world, than they were 100 years ago.⁴

The DEC implication that CO₂ emissions have caused more floods and its very carefully cherry-picked claim that, “Between 1958 and 2010, the Northeast U.S. saw more than a 70% increase in precipitation falling in very heavy rain events” are nothing but misdirection. Even if true, this claim in itself provides no backing for the implication that this was a trend rather than a typical fluctuation, and that if it was a trend, its cause was CO₂-driven warming.

We are not in a CO₂-driven climate crisis; that is the scientific fact. Some models predict we may be in one in a hundred years, but even their estimated damages pale next to the fossil-fueled increase in wealth we will have to manage them.⁵ And remember, there are benefits to CO₂ emissions as well, since the molecule is a crucial plant and plankton food that improves crop and ocean productivity.⁶

ECONOMY

Now, to economics. RGGI is not a market-based approach, as claimed on the DEP website. We already have an energy market based on price and technology, and the result is that over 80 percent of American energy, and world energy, comes from fossil fuels. Why? Because they are more inexpensive, reliable, and efficient than the current alternatives.

RGGI is a market-distorting approach. Indeed, its entire purpose is market distortion of its states’ energy that is generated by the electricity sector. It exists to tax affordable, reliable fossil fuels even more than they already are net taxed by, as a recent study by our coalition finds, \$50 billion in the United States, \$363 billion in the other industrialized democracies, and \$102 billion in the so-called BRIC

⁴ <https://www.congress.gov/116/meeting/house/109352/witnesses/HHRG-116-GO28-Wstate-RossiterC-20190430-U1.pdf>

⁵ <http://co2coalition.org/publications/the-social-cost-of-carbon-and-carbon-taxes-pick-a-number-any-number/>

⁶ <https://co2coalition.org/2019/02/25/new-white-paper-what-rising-co2-means-for-global-food-security/>; <http://co2coalition.org/2020/06/01/ocean-health-is-there-an-acidification-problem/>



countries – Brazil, Russia, India, and China.⁷ In turn, RGGI subsidizes wind and solar with preferential mandates even more than they already are subsidized. Why? Obviously, to get states to use the so-called “renewable” sources of electricity.

I put that term in quotation marks to indicate that there is nothing renewable about so-called renewable energy. The Sun and wind are indeed free and recurring daily, but the infrastructure needed to turn their energy into electricity is just as fossil-fuel intensive, and so just as generative of warming gases and real pollutants like sulfur dioxide, nitrogen oxide, fly ash, and particulate matter, as fossil fuels. Here’s why.

* To have wind turbines and solar panels, and the batteries to store – very poorly at present technologies – the intermittent, expensive, and inefficient energy that wind and solar produce, minerals have to be mined in horrific conditions in the Democratic Republic of the Congo and slightly better conditions at other sites in central and southern Africa. All of this activity is powered by, you guessed it, fossil fuels.

* Then the minerals have to be processed into a usable form, transported to America, and built into final products which are then transported again and erected on huge platforms requiring massive amounts of concrete – another major source of CO₂ emissions, by the way.

* Then the initial electricity must be transformed for lengthy transmission lines that bring it to populated areas thousands of miles from the source.

* And, to top it off, the intermittent electricity, to date, must be backed up with largely fossil-fueled generation of electricity on demand. All that expense, all that CO₂ generated to create the “renewable” power, all those subsidies paid for by taxpayers, and you still need your gas and coal-fired power plants to keep the lights on. Detailed analysis of this phenomenon can be found in the work of engineer Norm Rogers, a member of our CO₂ Coalition.⁸

⁷ <https://co2coalition.org/2020/07/23/study-finds-fossil-fuels-arent-subsidized-theyre-overtaxed/>

⁸ <https://www.climateviews.com/index.html>



It's really a bad joke so far, which makes it appropriate that one of the easiest explanations to follow comes from a funny guy, the left-leaning film-maker Michael Moore, in his new documentary, Planet of the Humans. Moore, like your Governor Wolf, is a true believer in a fossil-fueled climate crisis, but he knows how to count: the film shows, hilariously, how renewables can't possibly meet our energy needs, so his solution to the supposed climate crisis is to slash our energy use and economic growth. My advice is to take his first point to heart, and run from his devastating solution to what is so far a non-problem.

Let's look at what DEP says about the economic impact of raising the price of energy: "Economic modeling shows that participating in RGGI will lead to a net increase of more than 27,000 jobs and add \$1.9 billion to the Gross State Product in Pennsylvania."⁹

Huh? You are going to raise the true cost, and probably the market price, of energy dramatically, reduce reliable fuels in favor of intermittent ones, and that's going to increase jobs and productivity? How's that working out for California this week? Renewable mandates have taken an effective energy regime in California and turned it into one that even some of the more successful African countries, like South Africa and Egypt, would reject.

Renewable energy, once the government subsidies are factored in, currently costs four times as much per kilowatt-hour as natural gas-fired electricity.¹⁰ When states are mandated to provide renewable electricity, their budgets are distorted to support it rather than routine maintenance, let alone expansion, of cheaper, more reliable, more efficient fossil-fueled electricity. The result will be blackouts and misery, and reduced economic activity.

We are told by DEP that the full analysis will be available soon. I can't wait ... But for now, we are directed to the Regional Economic Models Inc., or REMI, and its input-output model. REMI is part of the LEDS global partnership. LEDS, a play on the LED, or Light-Emitting Diode bulbs, stands for Low Emissions Development Strategies. It's part of the Paris Agreement that President Trump wisely renounced,

⁹ <https://www.ahs.dep.pa.gov/NewsRoomPublic/articleviewer.aspx?id=21833&typeid=1>

¹⁰ <http://co2coalition.org/publications/the-social-cost-of-carbon-and-carbon-taxes-pick-a-number-any-number/>



and is funded by developed country governments to encourage poor countries to do as we say and not as we did.

These countries are told to reject our fossil-fueled route to increased wealth and another 20 years of life expectancy. This is a prime example of what has been called Eco-imperialism or Green Colonialism, and includes America outsourcing its mining to the Third World, the European Union banning imports of genetically-modified crop varieties from Africa, and foreign aid donors forcing African governments not to use DDT to reduce the transmission of malaria, or other pesticides to fight locusts.¹¹

Despite the efforts of LEDS, by the way, developing countries are still building coal plants, lots of them, as their economies grow and hence their life expectancy increases. That's because for them, coal power is so much cheaper and easier to operate and maintain than the alternatives. Unfortunately, given our current restrictions, these countries are turning to China, and not us, when we have the better cleaning technologies available.

Input-output models like REMI's change a single parameter, in this case the addition of the money taken from electricity providers in RGGI auctions, and then estimate the effect as it cascades through the economy for a period of time.¹² Sure, spending that money creates growth and jobs. But remember, that exact same amount of money is also removed from the economy as the effective tax is passed along to consumers of the electricity in rate hikes or absorbed by the utilities, so its impact on growth and jobs is immediately cancelled out by the spending on other goods and services or investment that is foregone. Your RGGI estimates incorrectly count only benefits and not costs. In addition, the models ignore the loss of competitiveness for your industries and other businesses as the increased cost of energy raises their prices.

¹¹ <https://www.amazon.com/Eco-Imperialism-Driessen-Paul-Merril-Paperback/dp/B00E2RNZ18>; <https://www.wsj.com/articles/africas-locust-plague-shows-the-danger-of-green-colonialism-11582586979>

¹²

https://www.analysisgroup.com/globalassets/uploadedfiles/content/insights/publishing/analysis_group_rggi_report_april_2018.pdf



And please remember that input-output models are dependent on thousands of parameter estimates that be controlled by the groups that run them. The father of climate models was the famed mathematician and Cold War military theorist John von Neumann, who tried and thankfully failed to see if we could cause drought in the Soviet Union. He famously joked, “with four parameters I can draw an elephant, and with five I can make him wiggle his trunk.” That claim was recently proved true in a tongue-in-cheek paper by Jürgen Mayer of the Max Planck Institute.¹³

Mr. Chairman, I recommend to the Committee, and to DEP, a detailed analysis of RGGI’s magical thinking that raising energy costs leads to economic growth, by the Cato Institute.¹⁴

HEALTH

Now let’s turn to the modeled health claims:

DEP makes an estimate of the monetized value of health benefits from RGGI’s reductions not in CO₂, which is not damaging to human health, but in pollutants like sulfur dioxide, nitrogen oxide, and particulate matter that are associated with fossil fuels. This modeling fails to follow the two core rules of cost-benefit analysis: (1) your calculations must capture benefits only from the policy change itself, and not from trends caused by other factors, and (2) you must calculate both the costs and the benefits of the policy change. Leaving aside estimates of monetization, which are inherently problematic, let’s take something real that the DEP models: deaths from coal-based pollutants.

DEP estimates that up to 639 premature deaths will be avoided by 2030 because of Pennsylvania’s participation in the RGGI. But that will mostly be due not to RGGI policy, but rather the dramatic drop in the price of natural gas-generated electricity as compared to coal as hydraulic fracturing became more and more successful.

¹³ <http://co2coalition.org/2019/09/24/why-climate-models-cant-guide-energy-policy-there-are-too-many-free-parameters-for-the-alarmist-cooks-to-bake-in/>

¹⁴ <https://www.cato.org/cato-journal/winter-2018/review-regional-greenhouse-gas-initiative#related-content;>
https://www.analysisgroup.com/uploadedfiles/content/insights/publishing/2018_hibbard_tierney_darling_cullinan_an_expanding_carbon_cap_and_trade_regime.pdf



This estimate clearly ignores the costs of RGGI when it increases the cost of natural gas-fired electricity in the future, which its lower and lower auction amounts are intended to do.

Affordable heating saves far more lives than coal-fired electricity loses! In fact, a 2019 study for the National Institutes of Health estimated that 11,000 lives have been saved in America each year from the effect of fracking on heating costs.¹⁵ When costs are low, more people use enough heat to stay healthy. When costs are high, more people cut back on the heat that protects them from respiratory diseases.

Natural gas saves lives. Thank you, Pennsylvania, for producing it. As a native of New York's Southern Tier, I come to you embarrassed by my state's free-riding on your production, and horrified by my state's resistance to allowing you to share your life-saving product with New England through pipelines, rather than far more dangerous trucks and trains.

Failure to do a full cost-benefit mortality analysis for a policy change, or even, in this case, a production change due to other factors, is inexcusable in your Department of Environmental Protection. Get a refund!

The same goes for the claimed 30,000 less hospital visits from asthma from ground-based ozone and other respiratory problems. DEP did not factor in increased hospitalization for deadly pneumonia and bronchitis as a result of more expensive heating. This is an obvious cost, based on the 2019 study for NIH. In addition, the NOx that creates ozone, which then stimulates asthma, can be successfully "scrubbed" to low levels (along with sulfur dioxide and particulate matter) with modern coal power technology (and modern vehicle catalytic converters).

The latest coal-cleaning technology is in operation in America in only one plant, the Turk Plant in Arkansas, because it was the only one under construction when the natural gas revolution exploded in the late 2000's and made coal less competitive. DEP failed to estimate how much it would cost to retrofit coal generation, but my guess is that it would be a lot cheaper to handle this with better

¹⁵ <https://www.nber.org/papers/w25681.pdf>



technology rather than by hamstringing the economy, which has its own health impacts.

In sum, DEP's health model is a brief for one side, not a balanced analysis that you can use to make policy decisions.

ENVIRONMENT

Finally, let's take DEP's environmental claims. There is no entirely clean source of power. One should, and increasingly can, find cost-effective ways to reduce the effects of making energy, but again, the environmental costs and benefits, all of them, must be calculated to get a fair policy picture. For example, as you reduce emissions from coal and natural gas electricity under RGGI, you will have to compensate with increased wind, solar, hydro, and nuclear power.

I have already explained why some of the "renewables" themselves require massive amounts of fossil-fueled energy in production and transmission. And I have explained why the attendant emission of CO₂ is not, in itself, an environmental problem. But the construction of dams – say, in the Pine Creek Gorge – or wind turbines – say throughout your state's Game Lands – would indeed have indeed tremendous environmental costs.

And while the solar-powered grid electricity you would use comes from states that are thousands of miles away, as Americans we can't just ignore their environmental costs. As Johnny Cash sang of trucking, there ain't no easy run when it comes to providing Pennsylvanians with affordable, reliable energy. There will always be tradeoffs.

CONCLUSION

Let me conclude by exploring the dubious basis for your RGGI policy once more. Governor Wolf justified his executive order for RGGI by dramatically claiming that average temperature in Pennsylvania has increased 1.8 degrees Fahrenheit in the past 110 years.¹⁶ This estimate is consistent with the national and world surface temperature data sets.

¹⁶<https://www.oa.pa.gov/Policies/eo/Documents/2019-07.pdf>



But the global increase began with an entirely natural warming after the Little Ice Age ended in the 18th century. As mentioned earlier in my testimony, fully half of the measured increase came from 1920 to 1950, which was before CO₂ levels were large enough to cause measurable warming. National and global warming stopped from 1950 to 1980, and then resumed. The UN climate body is only confident that half of the recent half of the total warming since 1900, which occurred from 1980 to today, came from industrial CO₂. Pretending that all the warming for 110 years was human-caused is misleading. A quarter is more likely.

And please, Pennsylvania, note that RGGI errs scientifically in including methane in the warming gasses it controls. As two of our coalition's atmospheric physicists recently showed in a major paper on the spectroscopy, or warming potential, of methane, the "radiative forcing" of each methane molecule is 30 times larger than that of a carbon dioxide molecule, but the increase in global methane is *300 times less* than that of carbon dioxide. As a result, methane is only one tenth (30/300) as powerful in forcing as carbon dioxide, which itself adds about a degree Celsius to global warming as it doubles in the atmosphere. A methane doubling would provide only a tiny fraction of total greenhouse forcing.¹⁷

Thank you for your attention, and I look forward to hearing your perspectives and taking your questions.

¹⁷ <https://co2coalition.org/2019/11/26/methane-and-climate/>

Attachment 4

PA RGGI – Information, Observations and Outcomes relating to Pennsylvania’s participation in RGGI

PA Senate Environmental Resources & Energy Hearing
June 23, 2020

Vince Brisini

Director of Environmental Affairs

Olympus Power, LLC

PA Regional Greenhouse Gas Initiative (RGGI)

The following information and observations are not about climate change belief or denial

The information and observations address the outcomes from Pennsylvania participating in RGGI or having a “RGGI-Like” rule for Pennsylvania EGUs based upon the history of RGGI participation by other states

The PADEP/ICF April 23, 2020 modeling presentation to AQTAC did not quantify meaningful climate change benefits or other environmental benefits as likely outcomes of PA participation in RGGI

We do know that CO2 reductions in PA and the region due to PA RGGI participation will not be meaningful relative to global, regional or local climate

The **maximum** CO2 reduction if all remaining coal-fired generation lost to RGGI were replaced by natural gas-fired generation, **based on 2019 data**:

Pipeline natural Gas – 42.1 million tons CO2/90.3 million GMWh = 0.466 ton CO2/GWWh

32.8 million GMWh (Coal-fired) X 0.466 = 15.3 million tons of CO2

32.8 million tons CO2 (from coal-fired) – 15.3 million tons CO2 (from natural GAS) = **17.5 million tons of CO2 reduction; Or,**

1.0% of all US EGU CO2 emissions in 2019 would be eliminated

*However, if retired PA coal generation or if PA natural Gas-fired generation is replaced by coal or coal refuse-fired generation in another non-RGGI PJM state then there is **no CO2 reduction and there could be increases in CO2 and the emissions of other pollutants***

Policy Case Generation vs Reference Case Generation

Net Generation (GWh) - Policy						Net Generation (GWh) - Reference					
Pennsylvania						Pennsylvania					
	2020	2022	2025	2028	2030		2020	2022	2025	2028	2030
Biomass	146	307	307	152	152	Biomass	146	307	307	152	152
Coal	34,123	4,381	3,120	3,027	2,415	Coal	34,123	20,265	14,621	16,540	6,925
Combined	94,339	113,263	112,111	103,785	104,840	Combined	92,259	124,127	123,392	114,236	113,125
Combustion	312	970	810	810	868	Combustion	304	1,359	2,562	1,141	1,348
Nuclear	76,125	76,125	76,125	76,125	76,125	Nuclear	76,125	76,125	76,125	76,125	76,109
Oil/Gas Steam	0	14	14	12	12	Oil/Gas Steam	0	8	14	12	12
New Combined	1,448	10,111	10,970	10,236	10,236	New Combined	1,448	10,970	10,970	10,970	10,970
New Combustion	0	25	31	25	25	New Combustion	0	20	10	6	16
Other	1,671	1,671	1,671	1,671	1,671	Other	1,671	1,671	1,671	1,671	1,671
Conventional	208,164	206,868	205,160	195,843	196,345	Conventional	206,077	234,853	229,672	220,854	210,328
Hydro	4,327	4,012	4,010	4,027	3,805	Hydro	4,292	4,130	3,991	3,939	3,816
Solar	122	122	122	122	122	Solar	122	122	122	122	122
LBW	5,156	5,156	5,156	5,156	5,156	LBW	5,156	5,156	5,156	5,156	5,156
New Solar	122	363	527	690	800	New Solar	122	363	527	690	800
New LBW	0	142	795	795	795	New LBW	0	142	795	795	795
Offshore Wind	0	0	0	0	0	Offshore Wind	0	0	0	0	0
Other Renewables	812	812	812	812	812	Other Renewables	812	812	812	812	812
Renewable	10,539	10,608	11,423	11,603	11,491	Renewable	10,505	10,726	11,404	11,516	11,502
Total	218,704	217,476	216,583	207,446	207,836	Total	216,581	245,578	241,076	232,370	221,829

We know RGGI implementation typically results in less generation of electricity in the RGGI participating states!

The RGGI History 5.8% imported to 15.9% imported electric sales:

State	2008 Total Electric Sales (MWh)	2008 Net Total Electric Generation (MWh)	2008 Net Total Electric Generation vs Total Electric Sales - Import or Export (%)	2018 Total Electric Sales (MWh)	2018 Net Total Electric Generation (MWh)	2018 Net Total Electric Generation vs Total Electric Sales - Import or Export (%)
CT	30,956,544	30,409,473	-1.8	28,833,925	39,453,552	26.9
DE	11,748,783	7,523,839	-36.0	11,773,100	6,240,644	-47.0
MA	55,884,105	42,505,478	-23.9	53,285,029	27,172,882	-49.0
MD	63,325,777	47,360,953	-25.2	62,086,455	43,809,646	-29.4
ME	11,673,673	17,094,919	31.7	12,354,819	11,280,700	-8.7
NH	10,977,289	22,876,992	52.0	11,046,284	17,087,156	35.4
NY	144,052,936	140,322,100	-2.6	149,929,851	132,520,498	-11.6
RI	7,818,594	7,387,266	-5.5	7,583,339	8,375,257	9.5
VT	5,741,204	6,820,216	15.8	5,530,948	2,178,915	-60.6
RGGI Total	342,178,905	322,301,236	-5.8	342,423,750	288,119,250	-15.9
NJ	80,519,543	63,674,789	-20.9	76,016,762	75,033,600	-1.3
PA	150,400,589	222,350,925	32.4	148,976,731	215,385,830	30.8

We know what participation in RGGI actually does to the bid price of electricity!

RGGI works by requiring fossil fuel-fired EGUs to purchase CO2 allowances to account for their CO2 emissions.

This results in higher prices being bid into the markets which causes most coal-fired generation to be retired or to be used at very low capacity factors in RGGI participating states.

PA RGGI Price Adders at a recent RGGI allowance clearing price

(see the separate attachment for PA unit by unit RGGI price adders):

Coal-fired - ≈\$6.00/MWh

Coal switched to Pipeline natural gas - ≈\$3.70 - \$3.80/MWh

older Pipeline natural gas-fired - ≈\$3.50 - \$3.90/MWh

Newer Pipeline natural Gas-fired - ≈\$2.35 - \$2.50/MWh

Newest Pipeline natural Gas-fired - ≈\$2.00/MWh

Natural Gas Combined Cycle Plants In Ohio (11/3/17)

Operating Facilities ▲

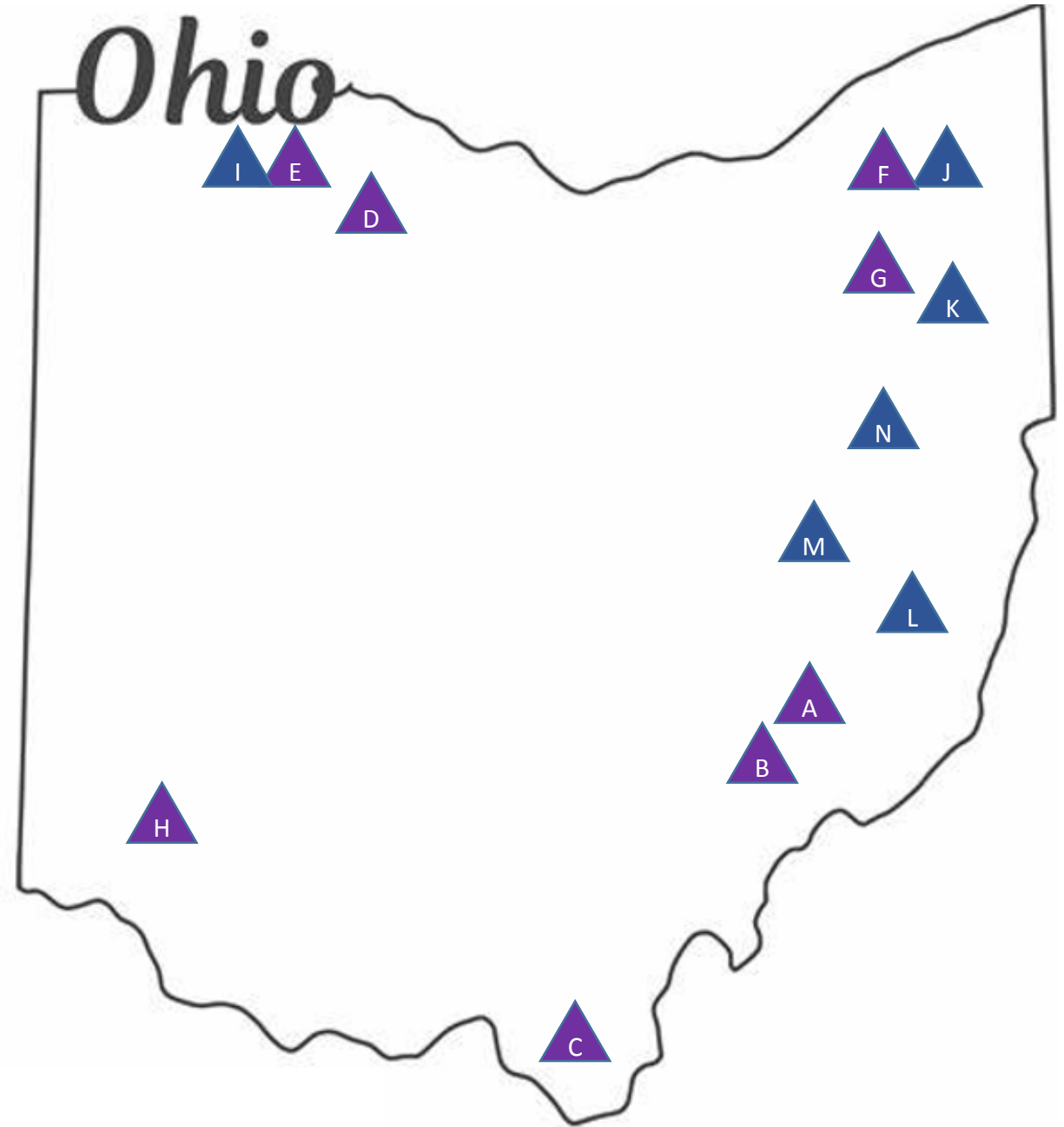
- A) Washington Energy Facility (Beverly, OH), 715 MW
- B) Waterford Plant (Waterford, OH), 921 MW
- C) Hanging Rock Energy Facility (Ironton, OH), 1430 MW
- D) Fremont Energy Center (Fremont, OH), 740 MW
- E) Oregon Clean Energy Center (Oregon, OH), 1060 MW
- F) Clean Energy Future Lordstown (Lordstown, OH), 962 MW
- G) Carroll County Energy, LLC (Washington Twp., OH), 832 MW
- H) NTE Ohio, LLC - Middletown Energy Center (Middletown, OH), 544 MW

Total – 7204 MW

Recently Permitted Facilities ▲

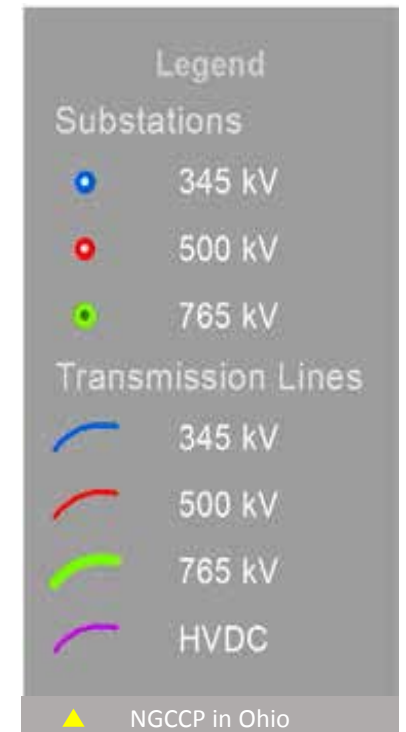
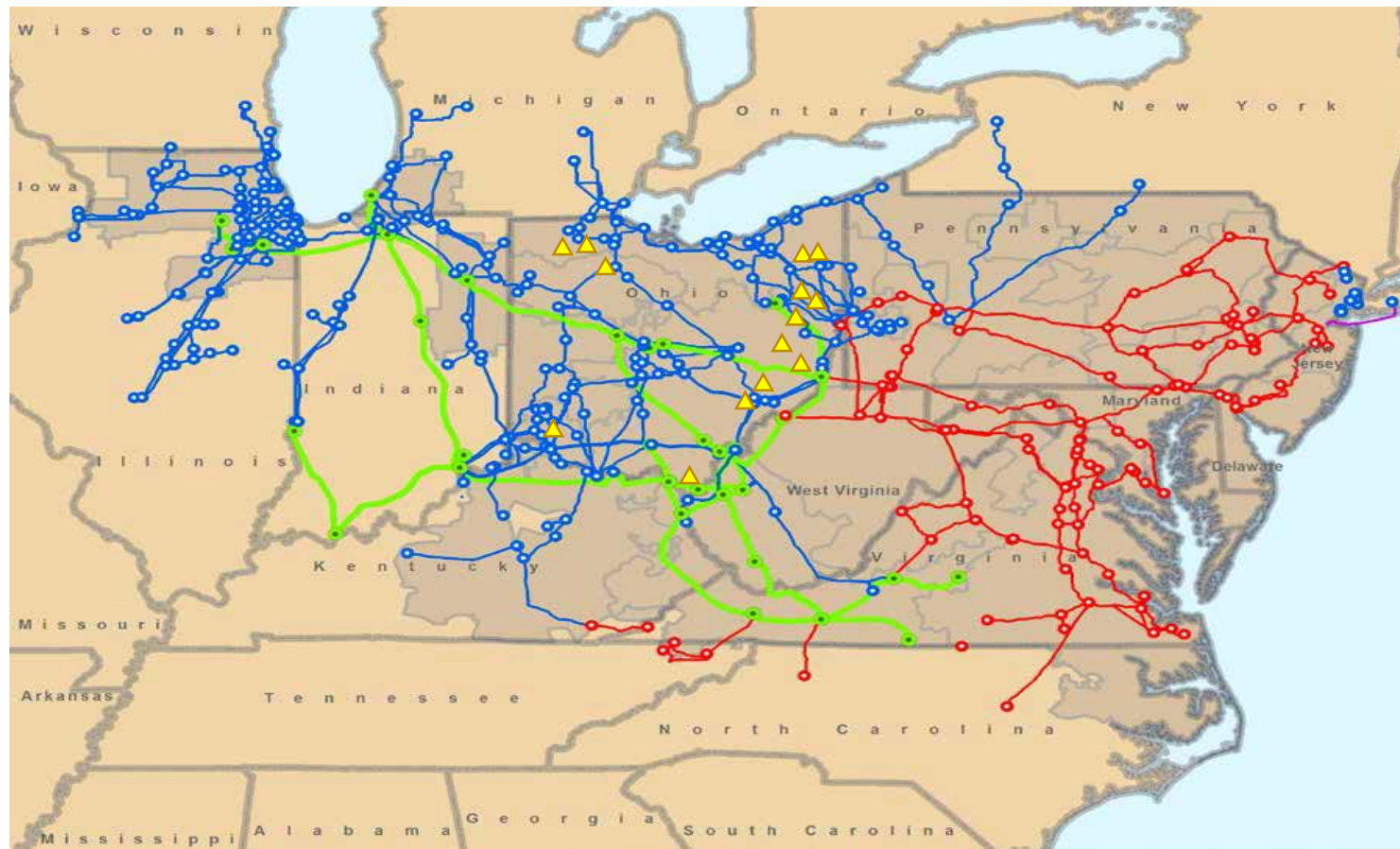
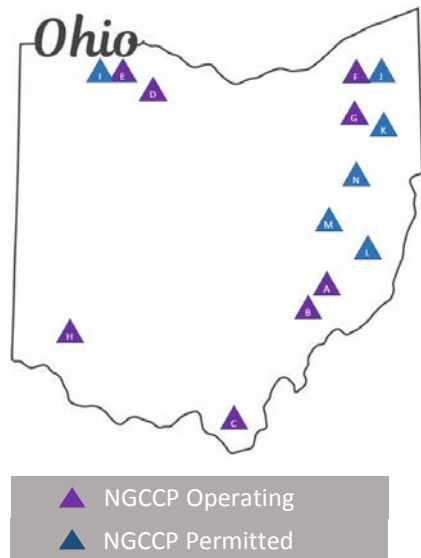
- I) Oregon Energy Center (Oregon, OH), PTI issued March 2020, 955 MW net
- J) Trumbull Energy Center (Lordstown, OH), PTI issued Feb 2020, 940 MW
- K) South Field Energy (Wellsville, OH), PTI issued Sept 2016, 1150 MW – Broke Ground May 2019
- L) Hannibal Port Power Station (Hannibal, OH), PTI issued Nov 2017
(Long Ridge Energy Generation LLC – Hannibal Power), 485 MW – Broke Ground May 2019
- M) Guernsey Power Station (Byesville, OH), PTI issued Oct 2017, 1650 MW
- N) Ohio River Partners LLC: Harrison Power (Cadiz, OH), PTI issued April 2018, 1000 MW

Total – 6180 MW



We don't know if PA joining RGGI will result in regional reductions of CO₂ or any other emissions!

PJM Service Territory – All or portions of PA, NJ, DE, MD, VA, NC, WV, KY, OH, IL, IN, MI, TN and DC



We know the maximum amount of RGGI tax revenue that would be generated if all lost coal –fired generation were replaced by natural gas-fired generation in PA!

42.1 million tons of CO₂ from PA natural gas-Fired EGUs + 15.3 million tons of Co₂ from natural gas-fired replacement generation plus = 57.4 million tons of CO₂ emitted

57.4 million tons of CO₂ X \$5.61 (December RGGI allowance clearing price) = **\$322.0 million/year Maximum**

\$322.0 million is the **most** that would be generated annually by the **RGGI taX in PA. *But!!!*** **Because RGGI history has shown those states that can import from non-RGGI areas do, and because of high PA natural gas-fired unit RGGI price adders which will affect their operations -** **the amount is likely to be considerably less - \$175 to \$200 million/year is a more likely range.**

We know CO2 emissions from PA EGUs have been decreasing without RGGI!

We know U.S. EGU CO2 emissions in 2019 were 1,773.3 million short tons while Pennsylvania EGUs emitted 82.8 million short tons.

We know in 2019 PA EGUs were:
the 3rd largest emitter by state of EGU CO2, *But!!!*
either 33rd (lb/MMBtu) or 31st (lb/GMWh) in CO2 intensity.

Without RGGI, PA EGUs have reduced CO2 Mass emissions in 2019 by 32.1% from 2005 emissions *while remaining the #1 Electricity Exporting state!*
Consequently, PA emits CO2 for other PJM states !

Governor Wolf's CO2 Reduction Goal	26% from 2005 emissions by 2025
Paris Agreement CO2 Reduction Goal	26-28% from 2005 emissions by 2025
Obama CPP PA Target	90,931,637 tons CO2 - PA is 8.9% Lower

We know that the lost PA electric generation due to RGGI participation will not be replaced by renewables!

if all of the remaining PA coal-fired installed MWs are retired, what would it take to replace the power?

Assuming replacement by land-based wind turbines because they are the lowest priced and highest capacity factor renewable generator.

Currently there are about 1,300 MW installed wind generation capacity in PA according to PADEP. Consequently at current capacity factors PA Needs about 6 times more installed wind capacity than is currently installed.

Coal-fired and wind turbines – Newest wind turbine at about the same capacity factor for 2019 coal-fired plants so replace installed capacity at a 1:1 ratio

$8,025 \text{ MW} / 2.43 \text{ Mw/turbine} = \mathbf{3,302 \text{ turbines needed}}$

We know that PA joining RGGI...

...will artificially accelerate the retirement of coal-fired electric generating units that will likely all be retired before 2030 **without RGGI** and will also affect the operations of some PA natural gas-fired units including possible retirements

...will reduce the amount of electricity generated in and exported by PA

...will result in some or all lost PA coal-fired generation and some natural gas-fired generation being replaced by generation from other RGGI and non-RGGI PJM states

...that the lost PA coal-fired and natural gas-fired generation being replaced by non-RGGI PJM states generation can be replaced by either coal-fired or natural gas-fired electric generation

We know that PA joining RGGI... (cont.)

...won't cause a shift to renewable electric generation

...won't help nuclear generation because the PJM market will dispatch the lowest cost units

...will result in companies moving the development of new natural gas-fired generating units to other non-RGGI PJM states

...results in a RGGI tax that will be borne disproportionately by residential customers

...won't result in local or regional CO2 emissions reductions that meaningfully affect or benefit local, regional or global climates

...will only generate \$175-200 million per year in RGGI tax revenue

We know the immediate economic impacts in western Pennsylvania of PA joining RGGI...

- >the loss of 8,000 plus jobs
- >the loss of \$2.87 billion in total economic impact
- >the loss of \$539 million in employee compensation
- >the loss of \$34.2 million to state and local taxes base

Source: IMPLAN (2015), Econsult Solutions (2019)

PA RGGI – Information, Observations and Outcomes relating to Pennsylvania’s participation in RGGI

PA Senate Environmental Resources & Energy Hearing
June 23, 2020

Vince Brisini, Olympus Power, LLC

Thank you for the opportunity to testify today.

Attachment 5

Pennsylvania Senate Environmental Resources and Energy Committee
Hearing on Pennsylvania Participation in the Regional Greenhouse Gas Initiative (RGGI)

June 23, 2020

Testimony of Vincent J. Brisini

Director of Environmental Affairs, Olympus Power, LLC

Slide 1

Good morning Chairman Yaw and committee members. My name is Vince Brisini and I'm the Director of Environmental Affairs for Olympus Power. I appreciate the opportunity to provide testimony today regarding Pennsylvania's participation in RGGI.

Slide 2

I've conducted considerable research and assessment regarding RGGI and have also reviewed the work performed by ICF International Inc. (ICF), a contractor to RGGI and the RGGI states since 2005, for the Department of Environmental Protection. Based on these efforts, it is clear Pennsylvania's participation in RGGI will not produce carbon dioxide or other pollutant reductions that provide any meaningful impact on local, regional or global climate change or ambient air quality.

Slide 3

The maximum amount of carbon dioxide reduction that would occur from the replacement of all Pennsylvania coal-fired electric generation by natural gas-fired electric generation is only about 1% of the total US electric generator carbon dioxide emissions. That is the maximum amount of carbon dioxide reduction that could occur regardless of where the replacement natural gas-fired electric generation is located. However, if the Pennsylvania coal-fired generation or natural gas-fired electric generation lost to RGGI participation are replaced by coal-fired electric generation in another non-RGGI PJM state, then there is no reduction in carbon dioxide and there could actually be increases in carbon dioxide as well as other pollutants.

Slide 4

What we also know is that any representation of emissions reduction benefits due to Pennsylvania RGGI participation are significantly over-estimated by the ICF modeling effort. If you look at the 2020 electric generation in the Policy Case, which represents RGGI participation, and in the Reference Case, which represents no RGGI participation, you can see a similar modeled total electric generation at levels that are consistent with Pennsylvania's electric generation in 2018. But then in 2022 under the Reference Case, generation inflates by 30 million megawatt-hours. That is a huge number of additional megawatt-hours without any logical basis for that increase in PJM system demand.

Slide 5

For context, that represents an almost 50% increase above the 2018 Pennsylvania generation which at that time made Pennsylvania the #1 exporter of electric power in the US. There is simply not an ability to sell that additional 30 million megawatt-hours of generation in the PJM market. As an example, Maryland would have to eliminate over 65% of its electric generation to provide a market for that much electricity.

That inflated generation results in inflated Reference Case emissions which results in ICF's grossly overstated benefits due to Pennsylvania's participation in RGGI. The PJM market defines the amount of electricity that can be sold, not the ICF integrated planning model. Clearly there is a problem with that model or possibly with the modelling inputs.

But RGGI history does show that RGGI participation typically results in less in-state electric generation and the purchase of more electricity from non-RGGI participating areas, Canada in the case of New York and the New England states or Pennsylvania in the case of Delaware and Maryland which are part of PJM.

Slide 6

The reason there is less generation in the RGGI states is the allowance dispatch price adder necessary to recover the cost of the RGGI allowances. To put the price adder into context, if the clearing price of electricity is \$16.50 per megawatt-hour, then in the case of coal, the RGGI price adder alone is over 36% of the clearing price. Adding the RGGI allowance cost to the cost of generation means that the Pennsylvania coal-fired units will be immediately retired because they will not be called into service.

While the majority of the RGGI discussions have focused upon the impacts to the coal-fired plants, the RGGI price adders for a significant number of natural gas-fired units are over \$3.50 per megawatt hours. That artificial price increase, 20% and more of the clearing price, necessary to recover RGGI allowance costs would considerably increase their prices which will reduce the amount of generation from those facilities and could even result in some retirements.

As an addendum to my testimony I am providing a listing of the Pennsylvania unit by unit RGGI price adders that I have developed which also identifies the fuel used by each unit.

Slide 7

RGGI history has shown us that if there is non-RGGI electricity available, that electricity will be used by RGGI participating states.

And as you can see on this slide, there are a number of natural gas-fired combined cycles permitted in Ohio, some of which are under construction, that are positioned to take away Pennsylvania's role as the #1 electricity provider in PJM and the US. And this slide doesn't even show the 2,200 megawatt W.H. Sammis coal-fired power plant located near the Pennsylvania/Ohio border or the 1,300 megawatt Pleasants coal-fired power plant in West Virginia, both of which have recently avoided deactivation and now stand ready to generate and sell power into PJM.

Slide 8

If you look back on the Policy Case generation slide, RGGI participation, the availability of non-RGGI electricity makes the projections unrealistically optimistic for future generation. Plus, the Policy Case generation shows no growth of natural gas fired electric generation in Pennsylvania over the period 2022 through 2030. This begs the question to the natural gas-fired developers that have just brought their plants into service or will soon bring their plants into service in Pennsylvania, “Would you have made this investment in Pennsylvania if you had known RGGI was any possibility in 2022?”

Slide 9

We know that the Pennsylvania Department of Environmental Protection has estimated the RGGI tax revenue at over \$300 million dollars annually, but because of the RGGI price adder increase on natural gas-fired electric generation of \$3.50 per megawatt-hour and more and the subsequent pricing of Pennsylvania electric generation compared to electric generation pricing in non-RGGI PJM states, the amount of RGGI tax revenue will be considerably less. I am estimating \$175 - \$200 million dollars annually. And importantly, those tax revenues are going to be placed into the Clean Air Fund so it's unlikely that without some very creative interpretations that these RGGI tax revenues could be used to assist those workers whose jobs will be lost to Pennsylvania RGGI participation as some have suggested.

Slide 10

We also know that the Pennsylvania electric generation industry has been reducing carbon dioxide emissions without Pennsylvania participation in RGGI. Pennsylvania electric generation has reduced carbon dioxide emissions below the targets set by Governor Wolf, the Paris Accord and the final target set by the Obama Administration's “Clean Power Plan” all ahead of schedule and without a carbon dioxide mandate on existing units.

Slide 11

We also know from RGGI history that RGGI does not result in the growth of renewable generation. The RGGI participating states are still legislating mandates for the development and implementation of renewable electric generation.

We also know that in a best case scenario, it would require an additional 3,300 land based wind turbines to replace the lost coal fired-capacity.

It's noteworthy that the Policy Case projected renewable generation is only 4.9% of total generation in 2020 and increases to only 5.5% of total generation in 2030. Clearly not even the ICF model predicts RGGI as a driver of renewable electric generation.

Slide 12

So what do we know about Pennsylvania participation in RGGI:

We know that it will artificially accelerate the retirement of coal-fired electric generating units that will likely all be retired before 2030 without RGGI and it will also affect the operations of some PA natural gas-fired units including possible early retirements.

We know it will reduce the amount of electricity generated in and exported from PA.

We know it will result in some or all lost PA coal-fired generation and some natural gas-fired generation being replaced by generation from other RGGI and non-RGGI PJM states.

We know the lost PA coal-fired and natural gas-fired generation being replaced by non-RGGI PJM states generation can be replaced by either coal-fired or natural gas-fired electric generation.

Slide 13

We know it won't cause a shift to renewable electric generation.

We know it won't help nuclear generation because the PJM market will dispatch the lowest cost units, minimizing any price increases.

We know it will result in companies moving the development of new natural gas-fired generating units to other non-RGGI PJM states, and the ICF modeling supports that assessment.

We know that any RGGI tax will be borne disproportionately by residential customers.

We know it won't results in local or regional CO2 emissions reductions that will meaningfully affect or benefit local, regional or global climates.

And, we know it will only generate \$175-200 million per year in RGGI tax revenue.

Slide 14

And we know what the immediate economic impacts will be in western Pennsylvania if Pennsylvania participates in RGGI:

- the loss of 8,000 plus jobs
- the loss of \$2.87 billion in total economic impact
- the loss of \$539 million in employee compensation
- The loss of \$34.2 million to state and local taxes base

With no meaningful benefits to show for the effort except \$175 to \$200 million dollar a year in RGGI tax revenue.

Slide 15

Thank you for the opportunity to testify today.

Attachment 6



Industrial Energy Consumers of Pennsylvania

June 19, 2020

Senator Gene Yaw
Chairman, Senate Environmental Resources and Energy Committee
Senate Box 203023
Harrisburg, PA 17120-3023

Senator Steven Santarsiero
Minority Chair, Senate Environmental Resources and Energy Committee
Senate Box 203010
Harrisburg, PA 17120-3010

Dear Chairman Yaw and Senator Santarsiero,

The Industrial Energy Consumers of Pennsylvania (IECPA) is a trade association of energy intensive large manufacturing companies with over 25,000 employees across the state. **Our issue is not with the underlying goals of reducing carbon emissions, but rather the unnecessary cost that would be imposed on electric generators in Pennsylvania associated with a carbon cap and trade program like the Regional Greenhouse Gas Initiative (RGGI). A RGGI program will increase the cost of electricity to Pennsylvania residents, commercial businesses and large energy intensive, trade exposed manufacturers.**

As the legislature considers RGGI or any such carbon cap-and-trade program, we ask that you consider the following:

The overall cost of the RGGI program in Pennsylvania would not be comparable to any of the other states in the RGGI program.

Pennsylvania is an energy producing state and would be penalized for that energy production. Looking at the annual amount of RGGI auction revenues collected in each participating state spread over the Electric Power sector CO₂ emissions in those states results in a cost of \$3.35 per metric ton. When applied to 82.1 metric tons of Electric Power sector CO₂ emissions in Pennsylvania, the financial impact just from the RGGI carbon allowance auction on PA would be approx. \$275 million per year in additional cost to electric generators that will be passed along to consumers. However, this does not even consider the costs of additional secondary market CO₂ allowances that generators may need to purchase or the increased cost to electric generators to reduce CO₂ emissions to comply with RGGI.



Industrial Energy Consumers of Pennsylvania

Table 4. 2016 State energy-related carbon dioxide emissions by sector

Million metric tons of carbon dioxide

State	Commercial	Electric Power	Residential	Industrial	Transportation	Total
Connecticut	3.9	7.0	6.3	1.9	15.3	34.3
Delaware	0.9	3.6	0.8	3.4	4.6	13.3
Maine	1.6	1.5	2.9	1.5	8.9	16.5
Maryland	5.2	17.2	5.5	2.2	27.6	57.6
Massachusetts	7.0	10.7	11.4	3.4	31.7	64.2
New Hampshire	1.4	2.4	2.5	0.8	6.7	13.8
New York	21.7	27.7	30.6	8.3	75.4	163.7
Pennsylvania	10.7	82.1	18.4	45.6	60.7	217.4
Rhode Island	0.9	2.6	1.8	0.6	3.9	9.8
Vermont	0.9	0.0	1.3	0.4	3.4	6.0

Source: Energy Information Administration (EIA)

According to Jeff Berman, manager of emissions and clean energy at S&P Global Platts Analytics¹, the cost of the RGGI program would result in:

- About \$6/MWh added to coal-fired power cost
- About \$2/MWh added to gas-fired generation

Carbon dioxide emissions in Pennsylvania have decreased just as much on a percentage basis as the other states participating in RGGI and have decreased MORE than other RGGI states on an absolute basis without the added cost of the RGGI program!

Table 2. State energy-related carbon dioxide emissions by year, adjusted (2005–2016)

million metric tons of carbon dioxide

State	Change (2005–2016)	
	Percent	Absolute
Connecticut	-23.0%	-10.3
Delaware	-21.5%	-3.7
Maine	-29.6%	-7.0
Maryland	-30.6%	-25.5
Massachusetts	-24.8%	-21.3
New Hampshire	-36.0%	-7.8
New York	-22.7%	-48.3
Pennsylvania	-22.8%	-64.7
Rhode Island	-13.9%	-1.6
Vermont	-13.5%	-0.9

Source: United States total, *Monthly Energy Review*,

Source: EIA, State Energy Data System, and EIA calculations made for this analysis.

¹ “Joining RGGI to boost Pennsylvania gas-, coal-fired power prices, double emissions traded”, Oct. 4, 2019
<https://www.spglobal.com/platts/en/market-insights/latest-news/coal/100419-joining-rggi-to-boost-pennsylvania-gas-coal-fired-power-prices-double-emissions-traded>



Industrial Energy Consumers of Pennsylvania

Pennsylvania has already taken steps and passed laws to increase renewable energy supply and improve energy efficiency. More importantly Pennsylvania's competitive electricity market continues to add lower carbon dioxide emitting generation while decreasing cost to customers!

Joining RGGI and incurring the increased cost associated with the initiative needs to be analyzed closely as the data suggest that the carbon reduction goals sought by the Commonwealth can be achieved without the adoption of a regional framework. Additionally, the Federal Energy Regulatory Commission's (FERC) recent order on PJM's Minimum Offer Price Rule adds further uncertainty to the ultimate cost impact of a RGGI program to utility customers.

IECPA member companies operate manufacturing facilities with significant expenditures dedicated to electricity costs. Moreover, because these manufacturing businesses are exposed to global trade, they cannot merely pass additional costs on to their customers without risking the loss of those customers to their global competition. For these companies, this places them at a competitive disadvantage to facilities in others states and countries that do not incur the cost of a RGGI like program. This will result in manufacturing moving production and the associated jobs out of Pennsylvania.

However, if after considering these facts the legislature decides to move forward with RGGI or a RGGI like carbon cap-and-trade program, the impact to electricity prices to energy intensive manufacturing must be studied and cost control mechanisms such as direct allocation of auction revenues to energy intensive manufacturing must be provided. Also, if a regional program like RGGI is put in place then the legislature should eliminate the local state energy efficiency and renewable programs so that we do not have a pancaking of cost from multiple programs.

For instance, Maine's RGGI program has a set aside of a certain amount of CO2 offset allowances to serve as a buffer for CO2 credit cost control.

"(2) Cost Containment Reserve (CCR) allocation. The Department shall allocate CO2 CCR allowances, separate from and additional to the CO2 Budget Trading Program base budget set forth in subsection 2(A) of this Chapter to the auction account. The CCR allocation is for the purpose of containing the cost of CO2 allowances."²

Examples of California customer protections:

Electrical Distribution Utility and Natural Gas Supplier Use of Allocated Allowance Value

https://ww3.arb.ca.gov/cc/capandtrade/allowanceallocation/edu-ng-allowance-value.htm?utm_medium=email&utm_source=govdelivery

The Cap-and-Trade Regulation (Regulation) places limits on the use of allowances that the California Air Resources Board (CARB) allocates to electrical distribution utilities (EDU) and natural gas suppliers (NG suppliers). These requirements, which are in sections 95892 (EDUs) and 95893 (NG suppliers) of the Regulation, require that each EDU and NG supplier annually report to CARB on how its uses of allocated allowances met these requirements. The requirements focus on the value of allowances being "used for the primary benefit of retail [electricity or natural gas] ratepayers of each [EDU or NG supplier], consistent with the goals of AB 32" (sections 95892(d)(3) and 95893(d)(3) of the Regulation).

² State Statutes & Regulations: <https://www.rggi.org/program-overview-and-design/state-regulations>



Industrial Energy Consumers of Pennsylvania

Summary of 2013-2018 Electrical Distribution Utility Use of Allocated Allowance Value

<https://ww3.arb.ca.gov/cc/capandtrade/allowanceallocation/edu2013-2018useofvaluereport.pdf>

2013-2018 EDU Allocated Allowance Value Expenditure Data

https://ww3.arb.ca.gov/cc/capandtrade/allowanceallocation/edu_uofavtables.xlsx

GHG Cap-and-Trade - CA Industry Assistance

<https://www.cpuc.ca.gov/industryassistance/>

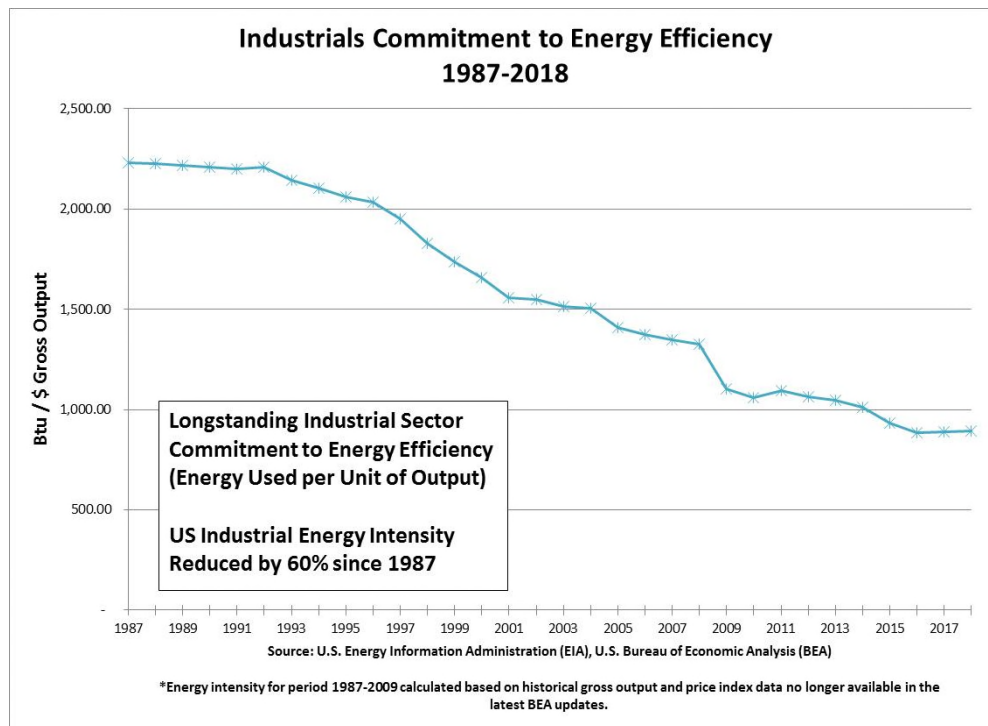
The CA Industry Assistance Credit is an annual credit for eligible industrial facilities that are customers of the investor-owned electric utilities. The CPUC created this credit program, calculates the credit amount, and oversees the utilities' distribution of the credits to their customers.

The credit is part of California's greenhouse gas reduction program. It is designed to reward businesses that have taken early action to reduce their energy use and greenhouse gas emissions, and to help prevent emissions increases.

The amount of the credit is determined by the CPUC for each facility using emissions-efficiency benchmarks that reward businesses and help provide an incentive to make products in California in the most energy-efficient way possible.

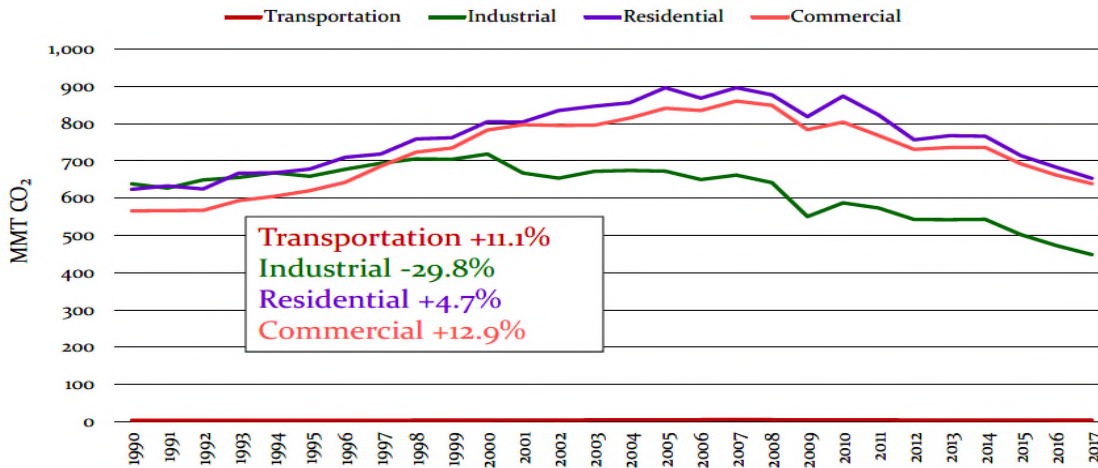
This credit is part of a State program - the money is from the State, not from the utility, even though the utilities deliver the credit on the State's behalf.

Industrial / manufacturing customers have already achieved the greatest reduction of their CO₂ emissions associated with energy usage through their commitment to energy efficiency and should not be penalized by a RGGI program.



Data from the U.S. Energy Information Administration and U.S. Bureau of Economic Analysis presented in the chart here shows a steady 52% decrease in Industrial Manufacturing Energy Intensity going back to 1987. The behaviors exhibited by large industrial customers over this time are not a function of any federal or state energy efficiency program. Rather, set of the behaviors that produced this data are simply what is required to survive in an increasingly competitive global market.

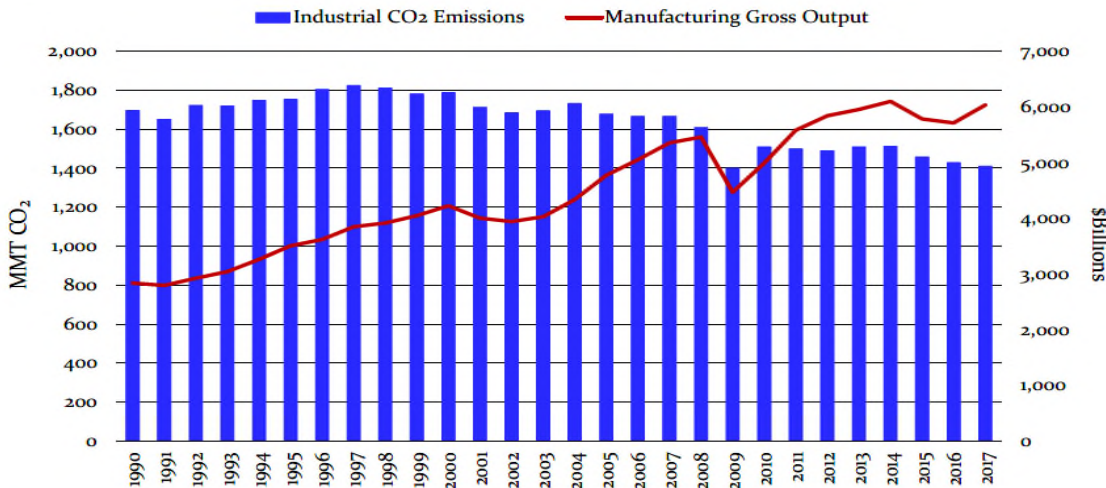
CO₂ Indirect Emissions by Sector: Industrial sector emissions are 30% below 1990



Source: Total Energy, U.S. Energy Information Administration (EIA)



Since 1990, Total Industrial Carbon Emissions Decreased 17%, while Manufacturing Gross Output went up 113%



Source: Total Energy, U.S. Energy Information Administration (EIA) and U.S. Bureau of Economic Analysis (BEA)



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Industrial Energy Consumers of Pennsylvania

In summary joining RGGI and incurring the increased cost associated with the initiative needs careful consideration as the data suggest that the carbon reduction goals sought by the Commonwealth can be achieved without the adoption of a regional framework. Energy Intensive manufacturing companies located in Pennsylvania cannot afford further increases in energy cost.

Rod E. Williamson

IECPA Executive Director