

# EQB Petition to Create Economy-Wide GHG Auction-Cap-and-Trade Program

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# Rulemaking Petition Filed With EQB

- **Seeks adoption of regulation establishing economy-wide GHG auction-cap-and-trade program.**
  - <https://www.calltothebar.org/petition-to-keystone-state-seeks-carbon-pricing-as-climate-change-solution/>
  - Filed Nov. 27, 2018. Supplemented & re-filed Feb. 28, 2019.
  - 192 Petitioners, including 22 environmental, 8 municipal, 26 businesses and investment organizations, 11 educational, 33 faith-based (including PA Council of Churches), 7 community organizations and 97 individual Petitioners on 104 entries.
- **Accepted by EQB on April 16, 2019, triggering requirement for DEP report and recommendations.**



# Evidence of Damage from Climate Disruption Increasing Since EPA 2009 Finding

## Summary of New Evidence Since the Endangerment Finding new evidence for impacts in areas included in and emergent beyond the EF

	Impacts Areas Included in EF		
	Confidence in Impacts	Evidence of More Severe or Pervasive Impacts	Emergent Impacts Beyond the EF
Public Health	↑	↑	↑
Air Quality	↑	↑	↑
Food Production and Agriculture	↑	↑	↑
Forestry	↑	↑	
Water Resources	↑	↑	↑
Sea Level Rise and Coastal Areas	↑	↑	
Energy, Infrastructure and Settlements	↑		
Ecosystems and Wildlife	↑	↑	
Ocean Acidification			↑
Violence			↑
National Security			↑
Economic Wellbeing			↑

P. B. Duffy et al.,  
*Science*,  
10.1126/science.aat  
5982 (2018).

# Social Cost of Carbon Measures Damage

- 2016 federal interagency task force
  - Average cost = \$42/ton of emissions, with 95<sup>th</sup> percentile \$123/ton.
  - Cost increases as action delayed = 2050 increased to \$69/ton and \$212/ton.
- More recent study - \$48/ton considering only US damages. Ricke, et al., *Country-level social cost of carbon*, 8 Nature Climate Change 895 (2018).
- Dr. Bob Litterman – likely greater if factor in risk



# 2018 IPCC Report

- A 2°C rise temperature rise will have severe impacts that can be avoided at 1.5°C, with more catastrophic impacts on current trajectory.
- To avoid worst impacts, world emissions must be reduced by 45% from 2010 levels by 2030 and reach neutrality around 2050.
  - At minimum, PA emissions must do same.
  - Requires at least a cap descending at this rate.



# Enforceable Constitutional Duty

- Robert B. McKinstry, Jr. & John C. Dernbach, *Applying the Pennsylvania Environmental Rights Amendment Meaningfully to Climate Disruption*, 10 Mich. J. Env't'l & Admin. L 102 (2018).
- Article I, § 27 creates duty to conserve climate from undue disruption by GHG pollution.
- Economy-wide auction-cap-and-trade program with descending cap consistent with IPCC report will provide framework for conservation.
- Regulation authorized by Pa APCA.
- Approach consistent with *Funk* decision.





# Importance of Uniform Cap with Leakage Control



# The Regulation

- Based on successful model of an economy-wide program already active in two jurisdictions. Oregon and others poised to join.
- Regulates at three points:
  - Larger facilities subject to federal reporting regulation must surrender allowances equal to emissions.
  - Fossil fuel distributors must surrender allowances equal to emissions caused by combustion of their products.
  - Imported electricity not subject to a linked program must surrender allowances equivalent to emissions created during its generation.





# The Cap

- **Basis – 2016 baseline emissions reduced by 3% annually, with reductions in the presumptive cap starting in 2018.**
  - If program starts in 2020, the initial cap = 91% of 2016 emissions. If it starts in 2021, the initial cap = 88% of 2016 emissions, *etc.*
- **Will achieve necessary reductions per 2018 IPCC report: 45% reduction from 2010 levels by 2030, going to zero about 2050 (2052).**



# Reporting

- The federal Mandatory Reporting of Greenhouse Gases Regulation set forth in 40 C.F.R. pt. 98 incorporated by reference and made applicable to PA.
- Baseline report – report PA-related emissions from 2016 federal report within 60 days of publication of final rule in PA Bulletin.
- Annual reports serve as basis for allowance surrender.



# Auction

- **Most allowances auctioned.**
  - All auctioned after 20 years.
- **Reserve price**
  - \$10, increasing 10% plus inflation until it reaches CA/QE reserve.
  - Below RGGI CCR trigger.
  - Latest CA/QE auction - \$15.62 reserve and \$17.45 settlement  
[https://www.arb.ca.gov/cc/capandtrade/auction/may-2019/summary\\_results\\_report.pdf](https://www.arb.ca.gov/cc/capandtrade/auction/may-2019/summary_results_report.pdf)
- **Unsold allowances moved to CCR or retired.**
- **CCR at CA/QE release trigger – above social cost of carbon.**
- **Both advance auctions and current auctions.**
  - Schedule to be established consistent with CA/QE.



# Structure Avoids Past Mistakes

- **Mistakes cause other programs to become non-constraining.**
  - Cap set too high or price set too low.
  - Cap doesn't decrease and tax/price doesn't increase.
- **Reserve price checks cap if cap set too high and cap checks price if price set too low, and excess allowances retired**
- **Reserve increases, while cap decreases.**
- **Cap coincides with environmentally established end points.**
  - Regulation can be more readily amended to adapt to changing conditions.



# Direct Distribution

- **Entities subject to leakage apply to DEP for direct distribution.**
  - Equal to best performer in sector, but if leakage for poor performers, others in sector get same rate.
  - 5% reduction per year.
  - Reduced if close or reduce production.
- **Limited to industrial sector - electricity generators and fossil fuel distributors ineligible.**



# Leakage Prevention

- **Interstate electricity.**
  - Automatic connection to RGGI.
  - Requires surrender of allowances from imported electricity unless PJM adopts carbon adder.
- **Intersectoral.**
  - Economy-wide - Deep decarbonization requires electrification of building, industrial, and transportation sectors.
- **Industry – Provision of direct allowances.**



# Linkage and Trading

- Allowances may be freely traded or banked.
- Automatic to RGGI, CA-QE, VA or linked programs if they accept PA allowances.
  - CA-QE program will expand.
  - CO legislation has passed House (HB 19-1261), WA SB5981 will be reintroduced, and Mexico rereleased rules for pilot cap-and-trade.
- Transition – Accept RGGI allowances for first 3-5 years even if RGGI does not accept PA allowances.



# Impacts

- 2020 revenue estimate = \$1.563 billion.
- RGGI increased GDP and jobs.
- Based on Social Cost of Carbon, the benefits significantly exceed costs.
- Effects vary by sector:
  - Saves remaining 4 nuke plants & benefits low and non-emitting generation, particularly w/ PJM adder (but program is technology neutral).
  - Forestry & forest products benefit.
  - Free allowances will allow many industries to make money initially.
  - Likely increases demand for natural gas in shorter term and decreases longer term.
  - Decreases demand for coal short-term but may allow development of CCS.



# 2020 Price Effects (at Reserve)

- Depends on allocation between buyers and sellers.
- Max. gallon of gasoline - 8¢/gal. – 5% of average annual variation over last decade.
- Max. mcf natural gas – 5.3¢/mcf or 0.0053¢/cu. ft.
  - No impact on natural gas used in products (e.g. Shell cracker).
- Electricity generation depends on margin.
  - CC gas increase bid by \$3.82 (based on CA statewide average emission)
  - Coal will increase bid by \$3.81 between approx. \$7.72 and \$10/MWh
- No increase in transmission or distribution costs.



# **Superior to RGGI or Other Program Limited to Electricity Generation**

- **RGGI allowance prices too low to save nukes.**
  - Modeling suggests PA would swamp allowance market and crash RGGI prices.
  - Economy-wide program can save remaining nukes at a lower allowance price than electricity generation alone.
- **RGGI and RPS approaches put an additional cost on electricity distribution, resulting in intersectoral leakage.**
  - Deep decarbonization will require electrification of transportation and building sectors and RGGI approach.
- **Proposal will allow use of RGGI allowances, driving price up without need to initially negotiate with many states.**

# Superior to RGGI Plus Transportation and Climate Initiative (TCI)

- **No format for TCI, which will still require rulemaking.**
- **Still leave out building sector (11.21%) and industrial (30.96%). RGGI + TCI would cover only 50.87% of PA emissions (neither program covers ag emissions).**
  - **Need to create conditions for electrification of building sector.**
  - **This mechanism can create incentive for industrial sector to reduce and electrify without driving out business.**



# Federal Program – Waiting for Godot

- No time to wait – No federal program for at least two years and cannot know structure of federal program.
- Can readily integrate with federal program if administrative.
  - Could submit as SIP even under current proposal.
- If federal tax
  - Can integrate by giving full or partial credit for federal payment in bids.
  - Tax alone unlikely to be as effective as this program.





# How This Differs From a Tax

- Sale of a public natural resource rather than a tax – similar program upheld as not a tax in CA.
- Can implement administratively without legislation.
  - Legislation will require regulations.
  - Both will require a supporting monitoring and reporting structure.
  - Legislation can become dated and is less amenable to change to meet changed circumstances.
- Tax and cap-and-trade with auction two sides of coin, with reserve price get a coin with two heads.
  - Tax does not guarantee necessary reductions
- Leakage a problem with a state tax.
  - Under proposal, can create incentive for industry while preventing leakage.
  - Trading can create a uniform price across state and international lines.



# Support Piling Up – Policy

- Executive Order 2019-01 *Commonwealth Leadership in Addressing Climate Change and Promoting Conservation and Sustainable Governance* (Jan. 8, 2019) – Proposed Regulation necessary to achieve goals.
- PA part of *Transportation & Climate Initiative Statement* (Dec. 18, 2018) – proposed rule represents implementation mechanism.
- Pennsylvania Independent Fiscal Office report of “structural budget deficit” – we cite Pa. Const. Art. VIII, § 13 and *PEDF* as providing further mandate.
- Nuclear caucus report suggests four solutions, including carbon pricing.
  - Pricing only mechanism that can be implemented without legislation, which has failed.
  - Strange bedfellows – only solution palatable to opposing groups.
- Gerrard, Dernbach, *Legal Pathways to Deep Decarbonization* – 1,000 mechanisms – GHG pricing part of every sectoral recommendation.

# Support Piling Up - Scientific

- IPCC Report and U.S.G.R.P *Fourth National Climate Assessment, Volume II: Impacts, Risks, and Adaptation in the United States* came out as went to press.
- New scientific reports supporting action released weekly between November 27, 2018 and April 16, 2019.
- U.S. level social cost of carbon of \$48/ton.
- Science article showing increased and additional impacts beyond EPA's 2009 endangerment finding.



# Post April 16 Reports

## Higher Levels and Accelerating Pace

- Atmospheric levels and increases accelerating.
- 2019- 414.8 ppmv, 3.5 ppmv increase over one year.
- 450 ppmv represents a threshold.

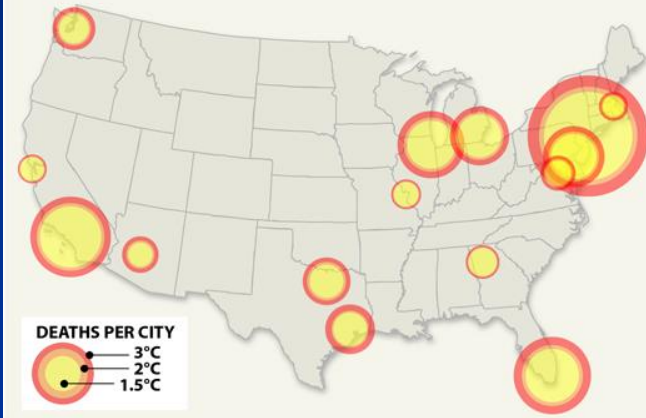
## Increased Damage

### Extreme Heat Risks Rise in U.S. Cities

Global warming is putting more lives in danger during extreme heat waves, and even half a degree Celsius can make a big difference. A new study used past heat wave health data to project death tolls in 15 big cities if global temperatures rise 3°C (5.4°F) compared to meeting the Paris climate goals of an increase under 2°C.

Inside  
Climate  
news

#### DEATHS PER 1-IN-30-YEAR EXTREME HEAT EVENT



CITY	3°C INCREASE	2°C INCREASE	1.5°C INCREASE
New York	5,798 deaths	3,818 deaths	3,082 deaths
Los Angeles	2,561	1,802	1,476
Miami	2,359	1,465	1,124
Chicago	1,781	1,145	906
Philadelphia	1,484	984	800
Detroit	1,372	910	732
Dallas	901	595	446
Houston	792	538	440
Seattle	725	446	341
Phoenix	526	310	226
Washington, DC	486	312	251
Atlanta	446	346	312
St. Louis	351	269	234
Boston	330	215	172
San Francisco	328	253	214

# Future Schedule

- **June 15, 2019 – DEP report was due unless more time needed (60 days post-April 16 acceptance).**
  - Expect request for extension at June 18 EQB meeting.
- **30 days from DEP report – Petitioners' response.**
- **If Department recommends denial – first EQB meeting at least 45 days from DEP report.**
- **If DEP recommends regulatory amendments - DEP rulemaking package due 180 days from DEP report.**

