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.
  – 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.
Three IPCC Reports Show Urgency


• October 8, 2018, Global Warming of 1.5 ºC, https://www.ipcc.ch/sr15/
2018 IPCC Report

• A 2ºC rise temperature rise will have severe impacts that can be avoided at 1.5ºC, with more catastrophic impacts on current trajectory.
  – Two later reports on biodiversity and on oceans and cryosphere confirm need.

• 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.
Even Before, Evidence of Damage from Climate Disruption Increasing Since EPA 2009 Finding


<table>
<thead>
<tr>
<th>Impacts Areas Included in EF</th>
<th>Evidence of More Severe or Pervasive Impacts</th>
<th>Emergent Impacts Beyond the EF</th>
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<td>Sea Level Rise and Coastal Areas</td>
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<td>Energy, Infrastructure and Settlements</td>
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<td>Ecosystems and Wildlife</td>
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<td>National Security</td>
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<td>Economic Wellbeing</td>
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Social Cost of Carbon Measures Damage

• 2016 federal interagency task force
  – Average cost = $42/ton of emissions, with 95th percentile $123/ton.
  – Cost increases as action delayed = 2050 increased to $69/ton and $212/ton.


• Dr. Bob Litterman – likely greater if factor in risk
Enforceable Constitutional Duty

- 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

• 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.
  – No impact on natural gas used in products (e.g. Shell cracker).

• Max. mcf natural gas – 5.3¢/mcf or 0.0053¢/cu. ft.

• Electricit 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.
  – 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

- 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.

<table>
<thead>
<tr>
<th>CITY</th>
<th>3°C INCREASE</th>
<th>2°C INCREASE</th>
<th>1.5°C INCREASE</th>
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<tr>
<td>New York</td>
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<td>3,818 deaths</td>
<td>3,082 deaths</td>
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**Source:** Union of Concerned Scientists, Lo et al., 2019
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.