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Voluntary Action in Present and Future Climate Policy

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International Symposium on Voluntary Approaches
Evaluating Industry-led Voluntary Approach and Discussing the Future of Climate Change Policy: Achievements and Future Roles of Japan's Voluntary Action Plan on the Environment
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Insight in Economics™

Summary

- How national measures are replacing global carbon pricing
- All global agreements must be voluntary
- Modalities of industry-led voluntary action
- An example of effective voluntary action in the USA

National Policies Use Regulatory Measures Not CO_2 Pricing

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US Climate Action Plan

- Stated contents of plan
  - CO_2 emission standards for powerplants
  - Very ambitious new car and truck fuel economy standards
  - Tighter energy efficiency standards
  - Renewable fuel standards
- Insufficient to reach goal of 17% reduction by 2020
- Achieving the goal will take more regulatory measures and/or subsidies

Elsewhere

- European Union
  - Regulatory measures, renewable subsidies and standards
  - Limited attention to industrial emissions
  - EU ETS price too low to affect behavior
- China
  - Pledges amount to business as usual emissions growth
  - Cap and trade programs not supported by institutional change
- Australia
  - Adopts then abandons Cap and Trade

Even Though Regulatory Measures Cost More and Do Less

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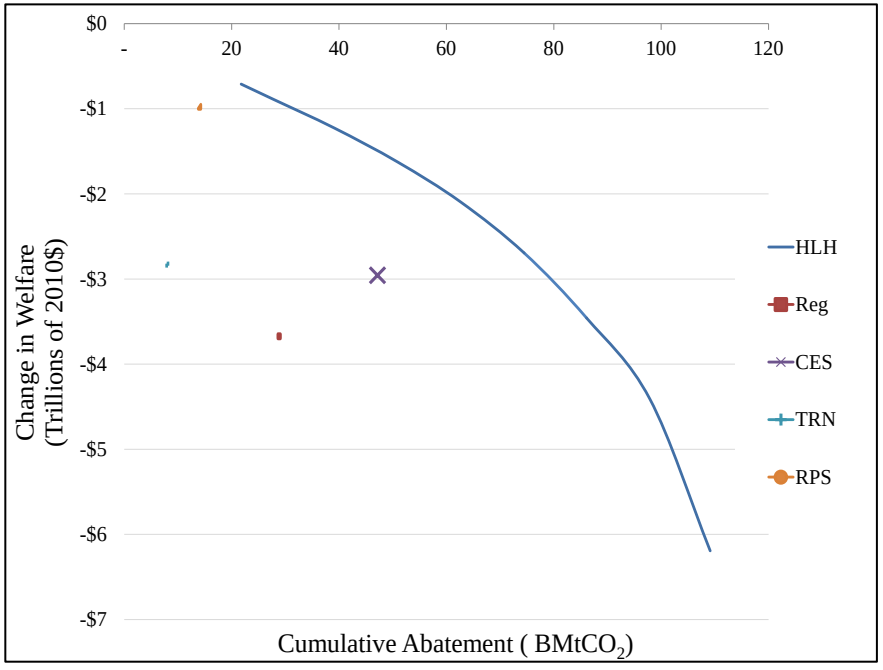
- Regulatory measures that come out of real political processes fail to equate marginal cost of emission reduction across all sources
  - Bias toward transportation sector measures leaves much less costly methods of reducing emissions in power generation untouched
  - Coverage of only sectors and measures that can be monitored and regulated leaves out many potentially cost-effective options
- Set of measures like the Climate Action Plan would cost US 4 times as much as carbon tax achieving same result

Changes in Welfare from 2010-2050 for Regulatory Mandates Compared to Efficient Frontier (Trillions of 2010$)



Source: Sugandha D. Tuladhar, Sebastian Mankowski, and Paul Bernstein. The Interaction Effects of Market-Based and Command-and-Control Policies. Energy Journal, Vol. 35, No. SI1.

Global Agreements Must Be Voluntary

- All national action is VA
- Countries pursue national interests in negotiations and withdraw from commitments that turn out to be contrary to national interests
- No enforcement regime for global emission caps or other agreements exists
- National regulatory programs are impossible to harmonize with global cap or carbon price
- Only a Mosaic World with each country choosing policies based on its only national interest and political institutions likely to emerge
- Even a Mosaic World with stringent policies and measures would be costly to Japan, North America and Europe

Cost Are Higher and Emission Reduction Less In Mosaic World

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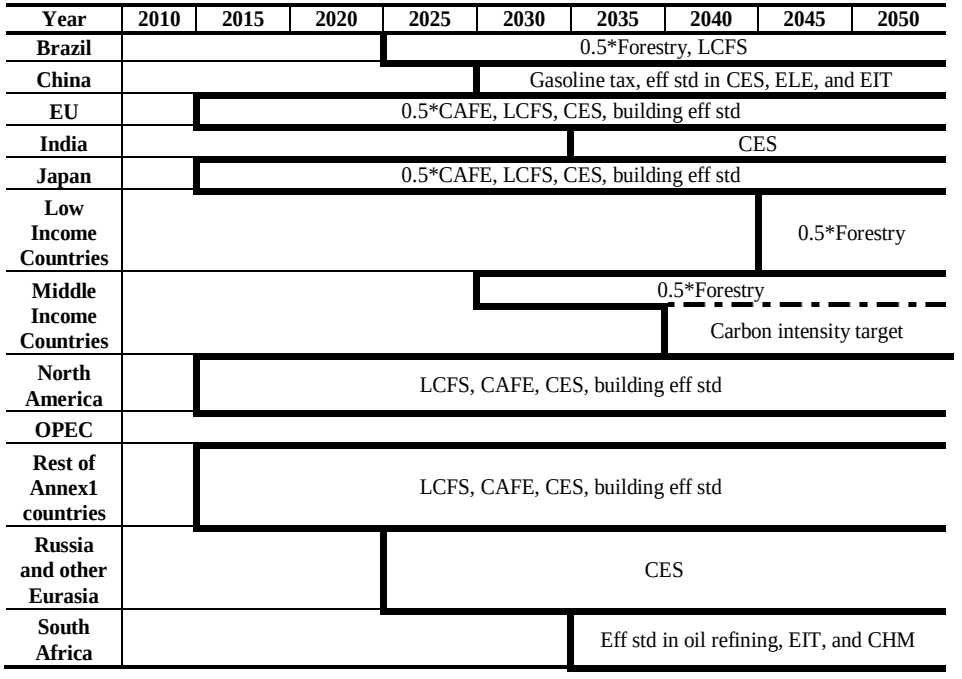
National Policies in a Mosaic World



Welfare Loss By Region 2010-2050	Mosaic World @ 700 ppm	Global Cap and Trade @ 550 ppm
Japan	-1.2%	0.0%
Europe	-0.8%	-0.2%
North America	-0.7%	-0.4%
China	-0.1%	0.7%
Middle Income	0.0%	0.2%
India	0.2%	0.3%
Low Income	0.4%	-0.1%
OPEC	-3.9%	-3.0%

Voluntary Action by National Governments

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Attributes of VA

- Potentially more cost-effective than comprehensive regulatory approach
- Consistent with international regime that recognizes each country will pursue its own measures
- Effectiveness depends on national institutions

Evaluation of VA

- Less likely to be heavily biased toward one sector by political outcomes

  Draws on industry knowledge for cost-effectiveness
- Emission reductions uncertain
- Lack of formal enforcement implies informal institutions will determine effectiveness

Modalities of Industry-Based Voluntary Action

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United States

- Company-based due to
  - Competitive norms
  - Antitrust
- Individually rational
  - Shareholder pr[illegible]e
  - Green image
  - New technology that is economic without carbon prices
- R&D producing economic low carbon technology can stimulate voluntary action
  - Explains reliance on mandatory regulation for immediate results

Only if CO2 emissions are negligible to begin with

Japan

- Industry-based because
  - Strong industry associations
  - Government-industry alliances
  - Deviation violates norms
- Collectively rational
  - Adherence by rivals guarantees cost passthrough to consumers
  - Trade protection obtainable
- Industry-agreed standards are feasible even if they increase costs with available technology

The Shale Gas Revolution: Voluntary Action, US Style

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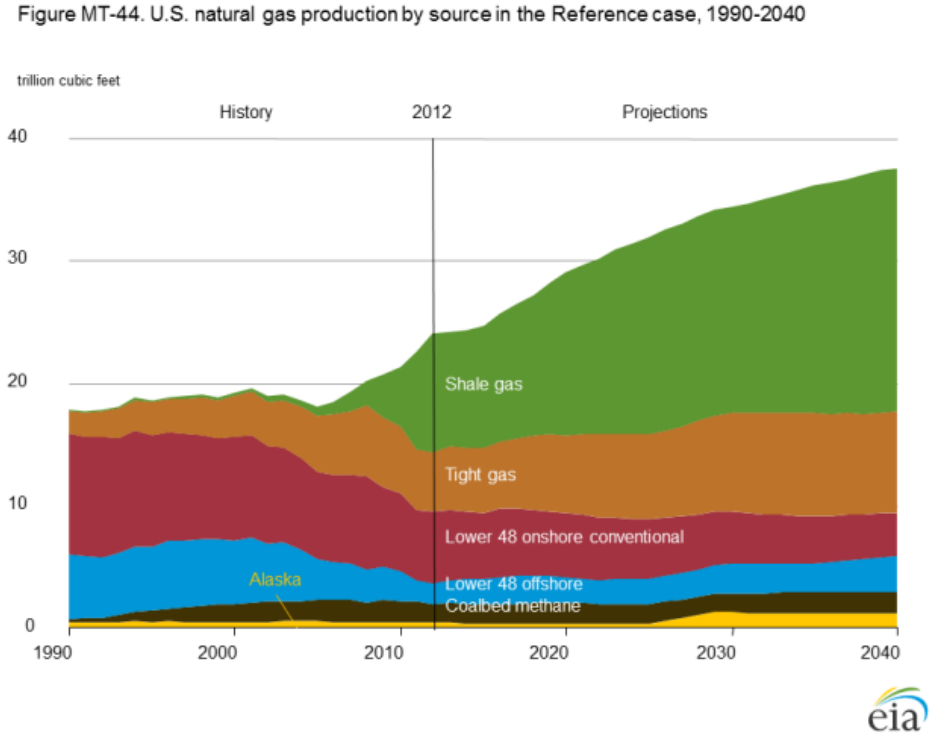
- Shale gas production will grow from almost nothing in 2009 to over 20 TCF by 2040
- Actual natural gas wellhead prices in 2012 were half what they were predicted to be in AEO2009
- Coal production in 2012 was 900 million tons, compared to a forecast of 1200 million tons in AEO2009



The Technology Breakthrough for Shale Gas Production

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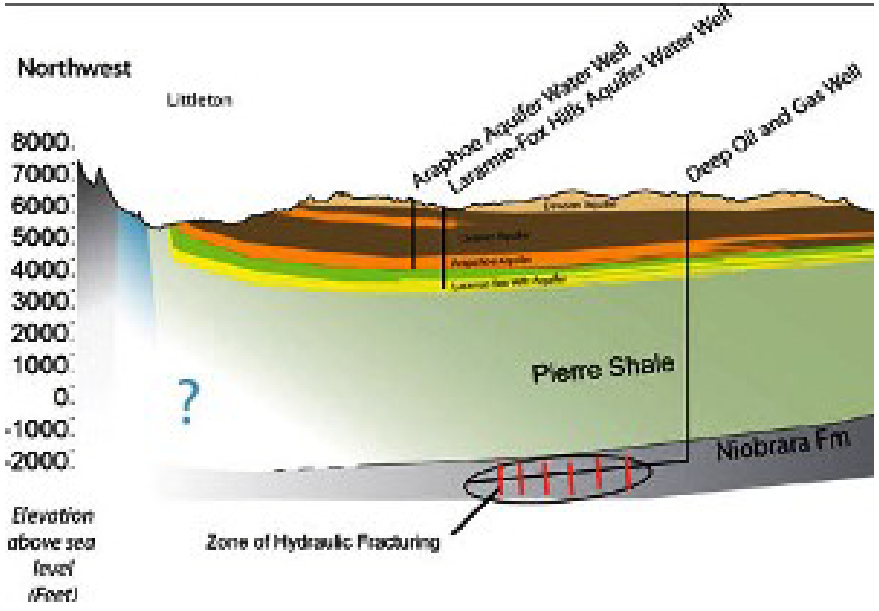
- Two enabling technologies
  - Horizontal drilling makes production from thin deposits economic
  - Multi-stage fracturing gets gas out of rock where it is trapped in separate small bubbles
- Fracturing requires
  - Fluid to make cracks
  - Proppant to keep them open
- Innovation was finding the right combination
  - Trial and error by Murphy Oil
  - Pure profit motivation – Murphy bought up land cheap that had deposits that could be produced economically if fracturing worked

Horizontal drilling and multistage fracturing in Colorado (Littleton Basin)



Shale Revolution as Voluntary Action to Adopt New Technology

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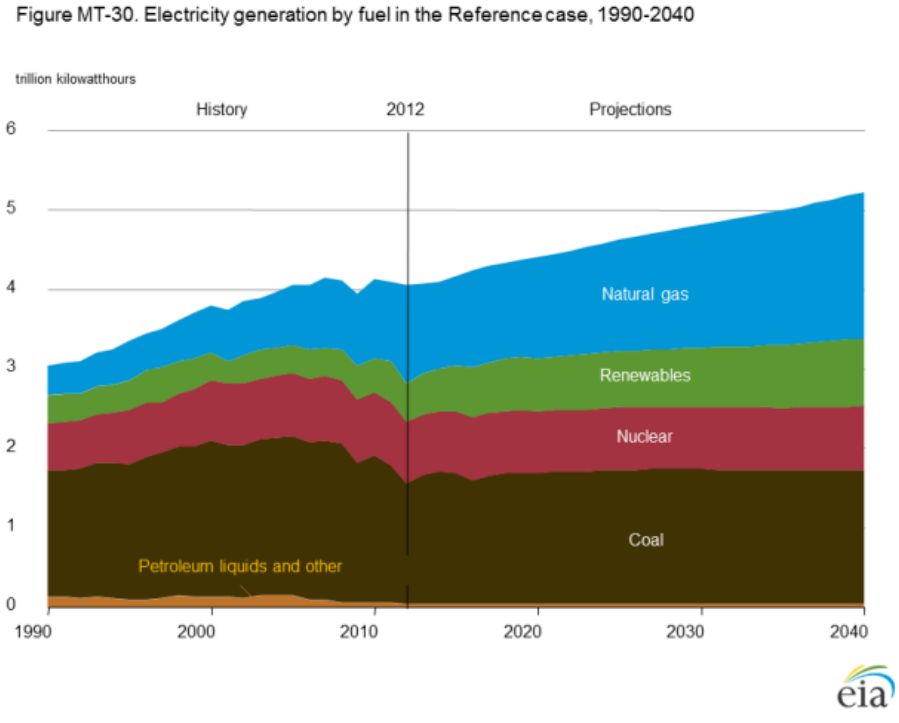
- Due to the shale gas revolution, natural gas replaced coal for power generation
- Without shale revolution, coal generation would be 33% higher in 2012
  - Difference in coal consumption equals 600 million tons of CO_2
  - In 2012 total CO_2 emissions from power generation were 2000 million metric tons and total CO_2 emission were 5200 million metric tons
- Shale gas revolution achieves 60% of goal to reduce CO_2 emissions to 17% below 2005 levels by 2020.



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Thank you for your attention

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