

# Turtles and A380s

## Trade and climate change: existing issues and tensions

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# Outline

- Border carbon adjustments
- California's cap-and-trade policy
- Aviation and the EU ETS
- Conclusions

# Border carbon adjustments

- Border carbon adjustment (BCA): A tariff on a good imported from a country that has not ‘comparably offset’ greenhouse gas emissions associated with production of the good
- Have been proposed to address leakage and competitiveness concerns
- Much discussion in developed countries surrounding the implementation of BCAs, but sparse legislation
- Have sparked heated discussions in climate change negotiations
  - In the lead up to the Copenhagen Accord, Indian and Chinese officials proposed that “developed countries shall not resort to any form of countervailing border measures against imports from developing countries.”
- No language on BCAs is included in the Copenhagen Accord

# BCA legislation in H.R. 2454

- H.R. 2454 (Waxman-Markey bill) contained a ‘carbon tax adjustment’ provision that would allow the president to place tariffs on energy-intensive, trade exposed goods manufactured in countries that fail to regulate GHGs
  - March 31, 2009 discussion draft, Title IV, Subtitle A, “Ensuring Domestic Competiveness” aimed “to compensate domestic industrial sectors for carbon emission costs.” (p. 537)
  - Title IV, Subtitle A seeks to “prevent an increase in greenhouse gas emissions in countries other than the US” (p.1087-8)
- The bill did not specify how embodied emissions should be calculated
  - “a general methodology for calculating the quantity of international reserve allowances that a US importer of any covered good must submit” (US Congress, 2009a, p. 1123)

# BCAs and the World Trade Organization (WTO)

- GATT Article II.2(a) allows countries to impose a border tax adjustment equivalent to an internal tax on imports:
  - i. in respect to *articles* from which the imported product has been manufactured or produced, and
  - ii. against taxes imposed on “like” domestic products
- Exemptions to WTO rules:
  - GATT Article XX(b) allows import restrictions that violate trade rules to be applied if they are necessary to protect human, animal or plant life or health
  - GATT Article XX(g) relates to the conservation of exhaustible natural resources

- Relevant historical cases
  1. In the 1980s, the US introduced a tariff on products containing or produced using ozone-depleting chemicals (but the tariff was never challenged under WTO law)
  2. In 1986, a GATT dispute settlement panel allowed BTAs on chemicals contained in imported petroleum products in *US-Taxes on Petroleum and Certain Imported Substances* (but the panel did not state whether or not the chemicals had to be physically present in the final product)
  3. The Turtle-Shrimp case, 1994: The WTO allowed the US to impose standards on imported products based on the **process** of production
  4. US steel tariffs, 2002: The Bush administration imposed tariffs on imported steel, allegedly to win political support in Rustbelt states. The WTO ruled that the tariffs violated trade rules, but they were only removed when the EU threatened to impose tariffs on goods produced in political swing states

- The process for determining the legality of BCAs is that, once implemented, countries “harmed” by the measures would need to lodge a complaint with the WTO, which would result in a ruling by the Dispute Settlements Board
- WTO-UNEP (2009, p. 89) concludes that “the general approach under WTO rules has been to acknowledge that some degree of trade restriction may be necessary to achieve certain policy objectives, as long as a number of carefully crafted conditions are respected.”

# A stylized BCA analysis

- Winchester (2012) considers a cap-and-trade policy imposed by OECD countries (the climate coalition) on non-OECD countries (the non-Coalition)

## Modeling scenarios

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Scenario	Description
CAT	Coalition cap-and-trade policy
BCA	CAT1+ BCAs imposed by the Coalition on the non-Coalition
EQV	CAT + non-Coalition cap-and-trade policy to eliminate leakage

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## Simulation results

	CAT	BCA	EQV
<i>Welfare change relative to reference (EV, %):</i>			
Coalition	-0.59	-0.48	-0.91
Non-Coalition	-0.19	-0.50	-0.43
Global	-0.44	-0.49	-0.45
<i>CO<sub>2</sub> price (2004\$/tCO<sub>2</sub>):</i>			
Coalition	112.33	115.59	113.09
Non-Coalition	-	-	2.36
<i>Leakage (%)</i>			
Coalition	24.8	16.3	0.0

- The coalition has an incentive to impose BCAs
- The non-coalition has an incentives to reduce emissions to avoid BCAs
- BCAs may be an effective coercion device in global climate policy negotiations

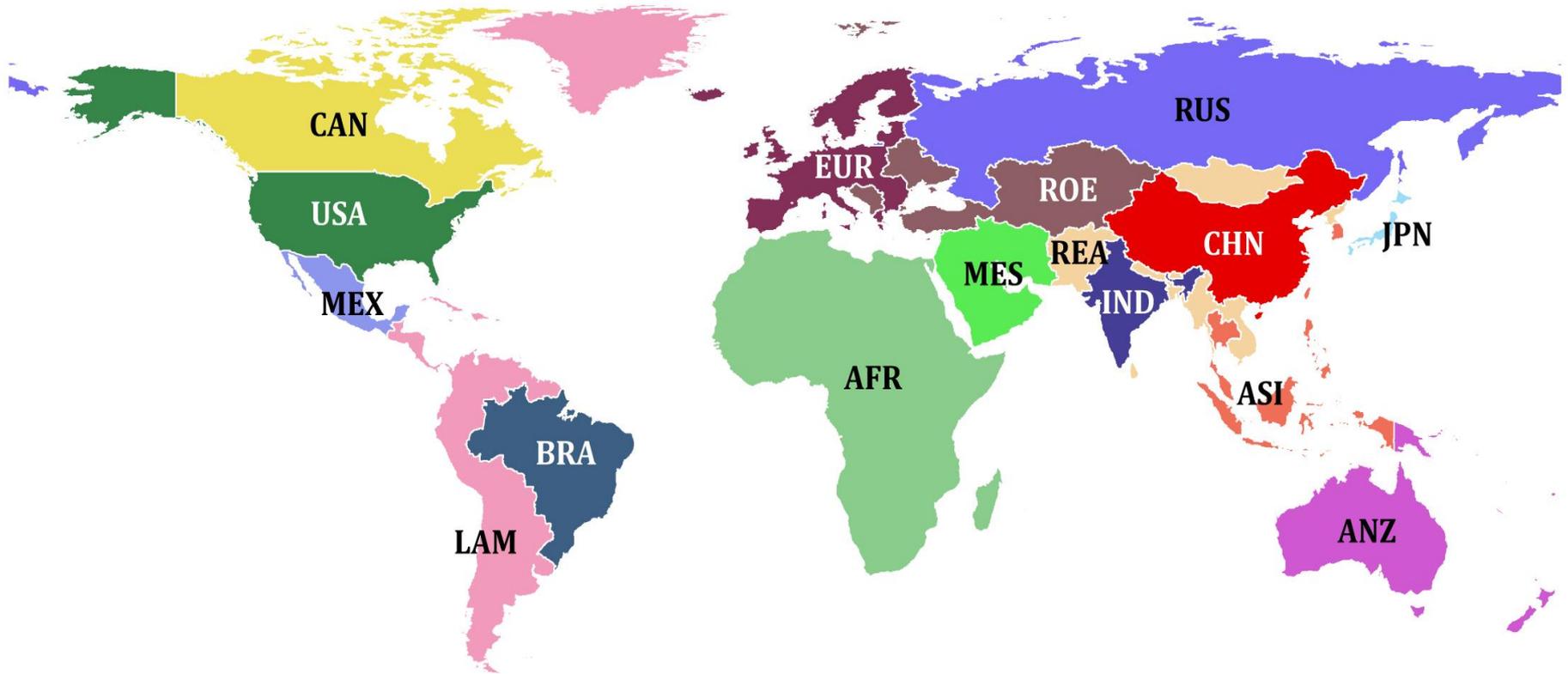
# California's cap-and-trade policy



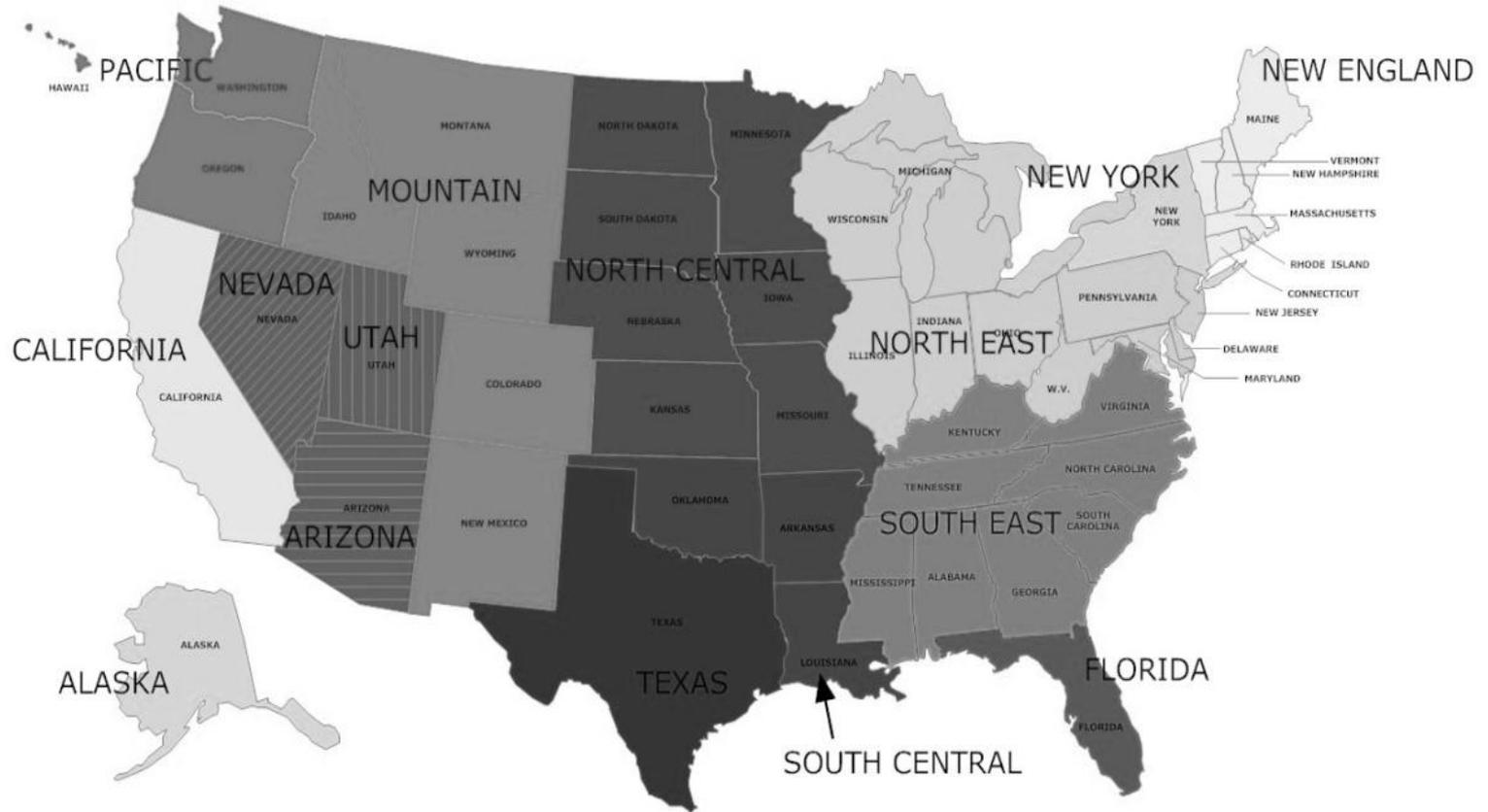
# California's cap-and-trade policy

- Aims to reduce Californian emissions to 1990 levels by 2020
- By 2015, the program will include electric utilities, **electricity importers**, certain industrial facilities, transportation fuels, natural gas and other fuels
- In addition to imposing an electricity “tariff”, the legislation prohibits resource shuffling: “Any scheme to receive credit based on emissions reductions that have not occurred, involving the delivery of electricity to the Californian grid” (CARB, 2011, p. 38)
- Caron *et al.* (2012) evaluate California's cap-and-trade policy using a CGE model that identifies 15 states or regions in the US and 15 regions in the rest of the world

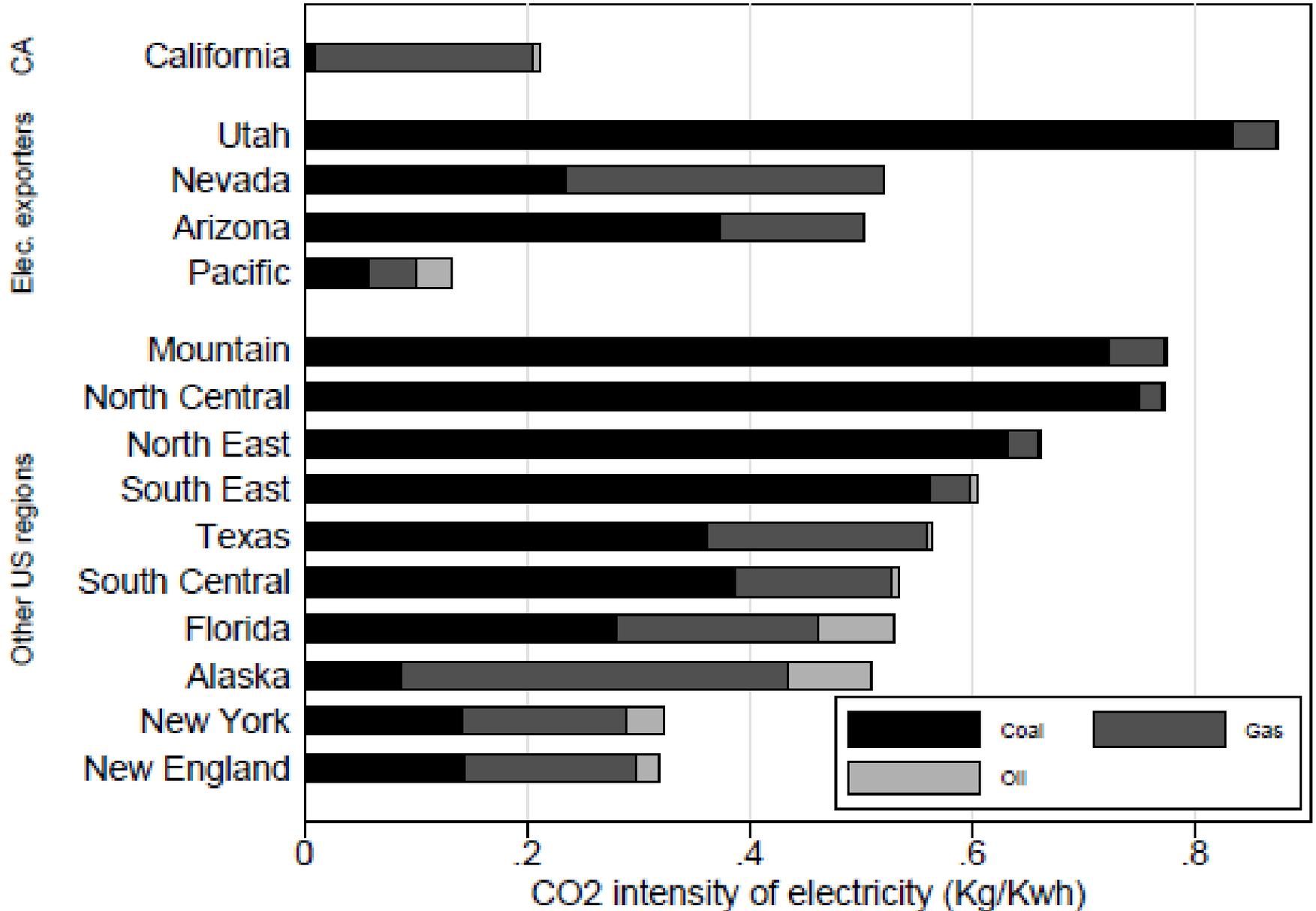
## World regions



# US regions



# CO<sub>2</sub> intensities of electricity (Kg/Kwh)



## CO<sub>2</sub> prices and leakage rates

	CA <sup>noTariff</sup>	CA <sup>Shuffling</sup>	CA <sup>noShuffling</sup>
<b>CO price (2004\$/t)</b>			
California	11.6	22.3	65.3
<b>Leakage rate (%)</b>			
Electricity exporters	53.3	38.1	-34.8
Other US	-0.9	10.6	29.3
International	-6.2	-0.6	6.9
Total	46.3	48.1	1.4

- Banning resource shuffling (and an electricity tariff) is required to reduce leakage from the policy, but this requires California to regulate out-of-state generators

# Aviation and the EU ETS



# EU ETS legislation

- Aviation has been included in the EU ETS since January 1, 2012 (under directive 2008/101/EC)
- All flights to or from airports in the 30 EU ETS countries will have to surrender allowances to cover CO<sub>2</sub> emissions
  - Allowances for 2012 operations have to be surrendered in early 2013
- Total Emissions are 'capped' at 97% of the annual average from 2004 to 2006 for the year 2012 and at 95% for the period 2013-2020
- The majority of allowances (85% in 2012, 82% in 2013-2020) are allocated for free, based on each carrier's market share in 2010 (but the share of free allowances may be revised in 2015)
- On average, free allowances currently equate to around two-thirds of allowances required for current operations

# The impact of the EU ETS on US airlines

- Malina et al. (2012) consider three cost pass-through scenarios

<b>FULL</b>	Airlines pass on all additional costs (including opportunity costs)
<b>EXPENSE</b>	Airlines pass on the cost of purchased allowances only
<b>ABSORB</b>	Airlines absorb all cost increases

## Cumulative US carrier outcomes on the North Atlantic, 2012-2020

	<b>BaU</b>	<b>FULL</b>	<b>EXPENSE</b>	<b>ABSORB</b>
RTKs (CAGR, %)	3.3	3.1	3.2	3.3
CO <sub>2</sub> emissions (Mt)	210	207	209	210
Profit margin (%)	3.0	4.6	2.9	2.0
US to EU transfer, NPV (\$b)	-	-1.2	1.4	1.4

# US carriers on the North Atlantic, 2012



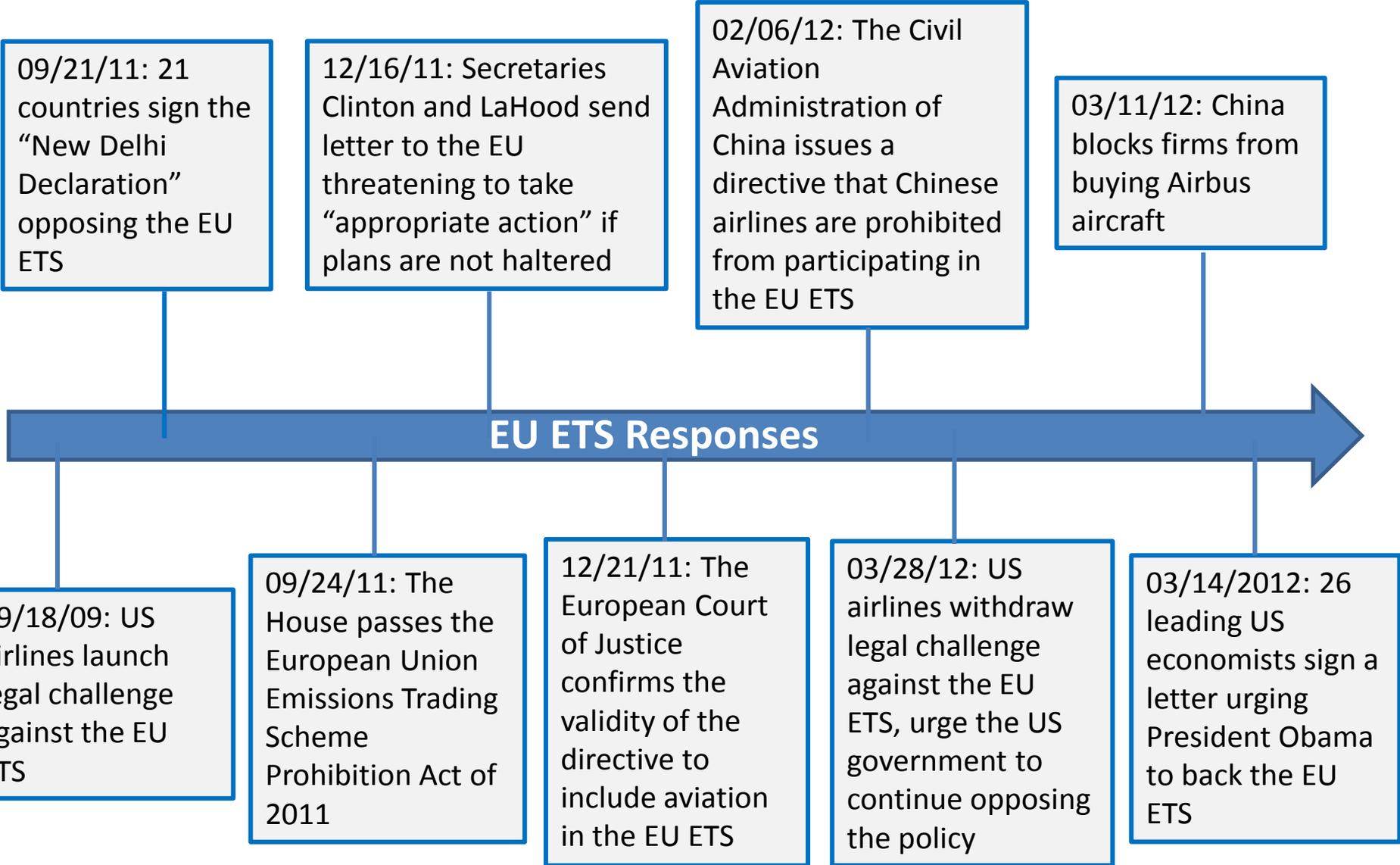
North Atlantic surcharge (USD/pax)	3.00
Cost of purchased allowances (USD/pax)	1.75 to 2.66
Total cost of allowances (USD/pax)	7.35 to 8.54

# Qantas, 2013



EU-ETS surcharge (USD/pax)	3.48
Cost of purchased allowances (USD/pax)	-0.80 to 0.32
Total cost of allowances (USD/pax)	11.38 to 12.51

## EU ETS Responses



09/21/11: 21 countries sign the “New Delhi Declaration” opposing the EU ETS

12/16/11: Secretaries Clinton and LaHood send letter to the EU threatening to take “appropriate action” if plans are not halted

02/06/12: The Civil Aviation Administration of China issues a directive that Chinese airlines are prohibited from participating in the EU ETS

03/11/12: China blocks firms from buying Airbus aircraft

09/18/09: US airlines launch legal challenge against the EU ETS

09/24/11: The House passes the European Union Emissions Trading Scheme Prohibition Act of 2011

12/21/11: The European Court of Justice confirms the validity of the directive to include aviation in the EU ETS

03/28/12: US airlines withdraw legal challenge against the EU ETS, urge the US government to continue opposing the policy

03/14/2012: 26 leading US economists sign a letter urging President Obama to back the EU ETS

# Conclusions

- Border measures will be important in sub-global climate agreements
- The legality of border measures has yet to be tested, but watch this space...
- Retaliatory action may be more important than legal issues

# Climate & trade policy in a mosaic world...

## BCAs imposed by the US

“... we cannot sacrifice another job to competitors overseas... There is no reason we should surrender our marketplace to countries that do not accept environmental standards.”

Kerry J. and L. Graham, 2009: Yes We Can (Pass Climate Change Legislation). *New York Times*, October 10.

## BCAs imposed against the US

“If the EU can tax the emissions over the entirety of a flight merely because it touches down in Europe, what is to keep the EU from imposing GHG import taxes on U.S. autos, pharmaceuticals, chemicals and other goods? And on what basis will the United States stand up against other countries that seek to do the same?”

Airlines for America Oral Testimony of Nancy Young, VP for Environmental Affairs Before the Senate Committee on Commerce, Sciences and Transportation.

# References

- Caron, J., Rausch, S. & N. Winchester (2012), “Leakage from sub-national climate initiative: The case of California,” MIT Joint Program on the Science and Policy of Global Change.
- Malina, R., D. McConnachie, N. Winchester, C. Wollersheim, S. Paltsev & I.A. Waitz (2012), “The impact of the European Emissions Trading System on US aviation,” *Journal of Air Transport Management*, 19, 36-41.
- US Congress (2009a), “The American Clean Energy and Security Act of 2009 (H.R. 2454), US House of Representatives,” Washington, DC.
- US Congress (2009b), “The American Clean Energy and Security Act of 2009 (Discussion draft, March 31, 2009),” US House of Representatives,” Washington, DC.
- Winchester, N. (2012), “The impact of border carbon adjustments under alternative producer responses,” *American Journal of Agricultural Economics*, 94(2), 354-359.
- Winchester, N., S. Paltsev & J.M. Reilly (2011), “Will border carbon adjustments work?” *The B.E. Journal of Economic Analysis & Policy*, 11(1) (Topics), Article 7.
- WTO-UNEP (World Trade Organisation- United Nations Environment Programme), 2009: *Trade and Climate Change*, WTO Secretariat: Geneva.