# Discussion on "Expected the unexpected : Emissions uncertainty and environmental market design" By Severin Borenstein *et al.*

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# What we learn from the paper

Two main issues addressed here :

1. Why are allowance prices volatile ?
   - Standard argument $\Rightarrow$ Demand side (volatility in carbon emissions).
   - Other argument proposed (and tested) by the authors $\Rightarrow$ inelastic abatement supply curve (supply side).
2. Response of the policy makers to mitigate price uncertainty $\Rightarrow$ Price controls by introducing lower and upper bounds (the APCR mechanism in the Californian case).

# What we learn from the paper

- Objective $\Rightarrow$ Estimate the probability distribution of future allowance prices that accounts for these features.
- Main results :
  - Price uncertainty due to both the demand and supply side of the cap-and-trade market.
  - Most likely scenario : either low or high prices (bi-modal distribution due to the steep abatement supply curve).
  - The great majority of the abatement effort is made independently of the allowance price or near the price floor.
  - Almost all the remaining abatement is made for low allowance prices.

# Questions about item 1 (price volatility)

- Probability distribution of allowance prices depending on : i) the level of abatement and ii) emission intensity in transportation $\Rightarrow$ Why this choice of scenarios ?
- Low price-elasticity of abatement supply explains some part of the price volatility $\Rightarrow$ What is the economic meaning ?
- Other sources of uncertainty : Future allowance availability, interferences with complementary overlapping policies...

# About item 2 (policy responses to price volatility)

- Do your results suggest that the APCR system is not correctly designed ?
- More generally, asks the question of whether to intervene, or not, to control prices (since too low or too volatile). And if so, how ?
- Other responses than price bounds $\Rightarrow$ Quantity-adjustment measures, length-adjustment of the periods, withdrawal of allowances in case of complementary policies, rolling emissions cap...
- Argument in favor of a carbon tax ?