Promoting Clean Energy in the American Power Sector

Joseph E. Aldy
Harvard Kennedy School
Resources for the Future
National Bureau of Economic Research

May 2011
National Clean Energy Standard

Technology-neutral performance goals
• Metric tons of CO2 per megawatt hour

 Tradable clean energy credits
• Power plants create and trade credits

Compliance
• Alternative compliance: federal clean energy credits

Clean energy fund
• Finance energy R&D
U.S. Power Emission Intensity

metric ton CO$_2$/MWh

NCES Goals
Investment Incentive

Federal clean energy credit price
- $15 per credit in 2015 ramping up to $30 in 2025

Federal credits will effectively set tradable credit price
- $21/MWh average return for renewable thru 2024

Implicit price on CO2 pollution equal to its social cost
- By 2025, the credit price will be consistent with the economic damages caused by CO2 emissions
Electricity Rate Impacts

Federal clean energy credit price
• $15 per credit in 2015

Upper bound U.S. electricity rate impact in 2015
• About one-quarter of a cent per kWh

Regional electricity rate impacts
• About two out of three states would have lower electricity prices in 2015 under NCES than in 2008
Clean Energy Fund

Clean energy fund would support energy R&D
  • ARPA-E, Deutch proposal, etc.

Federal clean energy credit revenues directed to fund
  • $2 billion in 2015, ramping up to $5 billion in 2025

Balance of revenues to finance reductions in tax rates and/or deficit reduction