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1. Title slide
2. The Clean Air Act (CAA) was enacted in 1970 and strengthened in 1977 and 1990 with overwhelming bipartisan support. Since then the environmental issue has become polarized and no new legislation is in sight.
3. The CAA was not designed to address GHGs and has many shortcomings, but it is the best tool we have under existing law.
4. Coal-fired power plants are by far the largest U.S. source of GHG emissions; motor vehicles are second.
5. Among large stationary sources, power plants are 72.3% of U.S. emissions.
6. Title I of the CAA addresses stationary sources and air quality planning.
7. Other titles of the CAA address mobile sources, acid rain, stratospheric ozone, and administrative matters.
8. The mobile source provisions are triggered by an EPA finding that vehicle emissions cause or contribute to air pollution that may reasonably be anticipated to endanger public health or welfare.
9. The CAA's definitions of "air pollutant" and "welfare" are broad and clearly encompass GHGs and climate impacts.
10. To address mobile sources, the Obama administration doubled CAFE standards to 2025, a major achievement, but the U.S. is still behind many other countries in vehicle efficiency.
11. CAA Section 111(b) authorizes EPA to issue new source performance standards for new stationary sources of air pollution.
12. CAA Section 111(d) allows standards for certain existing sources, but it is a convoluted process that requires going through the states.
13. President Obama has put EPA on a timetable to issue standards for new power plants and existing power plants.
14. In issuing these new source performance standards, and the related best available control technology standards, several key issues arise that EPA will have to resolve.
15. Even if EPA vigorously exercises its authority under the CAA, the U.S. would still not meet the 17% and 83% emission reduction pathway that the U.S. pledged at Copenhagen.
16. Vigorous action by the states would bring us closer to meeting this pledge.
17. Under one set of projections, business as usual brings us to global GHG emissions of about 80 GtCO<sub>2</sub>eq. in 2050. If the U.S. and every other country met the pledges it made in Copenhagen, that level would be about 60. In order to achieve the Copenhagen objective of keeping global average temperatures within 2°C above pre-industrial conditions, we need to be around 18; and to keep within 1.5°C (which appears to be the level at which the small island states survive), it would need to be around 10.
18. Focusing on emissions from energy use (as opposed to deforestation and other land use activities being addressed by other speakers), this enormous gap between projected emissions and what would allow stabilization at acceptable levels can be met by a combination of actions. The International Energy Agency has presented a scenario in which 38% of the required reductions are achieved through end-use fuel and electricity efficiency; 19%, carbon capture and

sequestration; 17%, renewables; 15%, end-use fuel efficiency; 6% nuclear; and 5% power generation efficiency and fuel switching.

19. Energy efficiency is by far the least costly method of meeting energy needs, when considering the levelized cost (the combination of operating costs and amortized capital costs).

20. Many energy efficiency measures yield large net savings; most new renewable, nuclear and fossil sources have high net costs, and carbon capture and sequestration is among the most costly.

21. As shown by the example of refrigerators, appliance standards can yield enormous reductions in energy consumption without a loss of service.

22. Switching topics -- the National Environmental Policy Act (NEPA) is a major process for consideration of the environmental impacts of federal actions.

23. The current focus of NEPA in considering climate change impacts is whether the specific project under consideration, in itself, will have a significant effect on the global climate. The answer to that question is almost always no, because climate change results from the cumulative impacts of global emissions over more than century. Thus trying to attribute climate impacts to specific actions is not a worthwhile exercise.

24. Instead, when considering climate impacts, NEPA should look at three issues: 1) Does the project use energy and water in the most efficient matter? 2) Of the energy used by the project, is it from carbon-free sources? 3) Will be project be resilient -- will it be able to cope with the climate change that will occur over the project's useful life? This inquiry could yield modifications to projects (or selection of alternatives) that would benefit the climate and also help society cope with climate change.