



Testimony

Carbon Management Caucus of the Texas Legislature

Testimony by Kathleen Hartnett White, Distinguished Senior Fellow and Director of the Center for Natural Resources, Texas Public Policy Foundation

by Kathleen Hartnett
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Introduction

I commend the Carbon Caucus for establishing this forum to pursue optimal paths forward for Texas in the event of carbon dioxide (CO₂) reduction mandates intended to avert global warming. The stakes are unprecedented for Texas. Given the size of our population, the productivity of our economy, and the national scope of our energy sector, the Texas economy could be far more adversely impacted by ambitious CO₂ mandates than other states. Yet, the very factors which elevate carbon risk for Texas could provide advantages for Texas in the development of carbon capture, storage, long-term sequestration, and productive CO₂ use. These technologies, if commercially available to the free market, would be of extraordinary economic value, not only for Texas enterprise, but also for the entire country and world.

Unlike conventional pollutants such as nitrogen oxides (NO_x) and sulfur dioxide (SO_x) that have been regulated for decades, carbon controls capable of major reduction and commercial availability do not exist at this time. Texas already is home to 12 clean-coal demonstration projects backed by private investment of over \$35 million. Yet, without highly accelerated development, commercial scale application remains decades away. Although alternative energy sources have received billions in federal and state financial supports, carbon controls have not. This disparity is still apparent in the federal stimulus bill in the U.S. House of Representatives which proposes approximately \$20 billion for alternative energies and \$2 billion for clean carbon-based energies.

Technology Must Precede Mandatory Reduction

Ambitious carbon reduction mandates are premature until carbon control technology is commercially available. Thus, the optimal path forward now is accelerated, market-driven technological development. Carbon control technologies must *first* be developed before imposition of stringent carbon mandates. Preliminary technological development also will allow time for the emerging empirical refinement of the climate change science driving the policy discussions about CO₂. And although I fully recognize that this forum is not about climate science, I note that genuine science of any stripe is categorically different than dogma; science is never beyond dispute but always evolving and improving. Science supporting policy decisions to rupture the energy system which made modern industrial economies possible must be of the most substantial quality.

Texas Carbon Management Advantages

Carbon capture technologies which can be utilized by coal and gas-fired power plants, refineries, and chemical and manufacturing industries are a prerequisite for genuine and measurable carbon reductions. Once captured, CO₂ can either be stored—often in underground saltwater reservoirs—or put to commercial use. Captured CO₂ can be put to productive industrial use as in enhanced oil recovery (EOR) in the Permian basin. Texas has three decades of experience using EOR to recover oil that would otherwise be left in the ground with conventional extraction methods. Texas retains a market demand

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for captured CO₂ in EOR but needs more infrastructure and access to CO₂.

Texas has the geological capacity, not found elsewhere, for long-term storage of massive amounts of CO₂. At the University of Texas, the Bureau of Economic Geology has determined that Texas coastal waters provide a suitable underground CO₂ repository that could store all the man-made CO₂ that the U.S. could produce for 1,000 years.

Clean coal technologies such as post-combustion CO₂ capture, gasification, and coal-to-liquids are also under development in Texas. These technologies offer not only the means for major CO₂ reduction from coal-fired electric generation, but also yield highly valuable fuel and chemical by-products. Texas remains the place where a major project like FutureGen should emerge. Many unresolved challenges, however, must be addressed before CCS can become an established commercially-viable technology for large scale deployment. Existing pipeline systems are inadequate to transport large amounts of CO₂. In order to accommodate large-scale CO₂ transport, a network of CO₂ pipelines must be built because CO₂ corrodes typical pipelines carrying gases, oil, and/or water.

Another major economic issue is the “parasitic load” caused by most technically viable CCS technologies. This is not a new challenge to the power industry. Emission control equipment to capture ash, sulfur dioxide, and nitrogen oxides require electricity to operate. In many cases, more efficient plant design and operation yield some or all of the power needed to operate the emission controls. With current technology, however, CO₂ capture might utilize one-fourth to one-half of the power plant’s generation. This means a plant with an installed capacity of 800 MW might only have 400 to 500 MW of electricity to sell—unavoidably increasing the cost of the electricity.

Finally, CCS remains expensive. Commercial viability of CCS on a scale large enough to power major population and industry centers could be years or even decades away. Studies conducted by the U.S. Department of Energy conclude that CCS with today’s technologies would result in electricity costs from 30-90 percent higher than new coal plants without CCS. However, as the technology advances and as companies increase their operational efficiency, the cost of CCS could fall over time.

Realism: Demand Exceeds Supply

Given the stakes involved, policy proposals for CO₂ reduction need realistic analyses of key variables. The magnitude

of the undertaking is often lost. Science from the United Nations’ Intergovernmental Panel on Climate Change (IPCC) is driving the national and international policies. This science concludes that 50-85 percent reduction of CO₂ from 2000 levels must be achieved by 2050 to avert serious climate consequences. Thus, carbon control must be massive to have beneficial effect. Modest control on a local, state or even country-wide level would have no tangible impact. This is why effective technological controls for capture, facility for storage, long term sequestration, and infrastructure for productive re-use of captured CO₂ must come before mandates.

Energy alternatives to fossil fuels also merit more realistic scrutiny. Fossil fuels provide 85 percent of our fuels and power in the U.S. Alternative sources and energy efficiencies, while welcome contributors to the energy supply needed to meet ever-growing demand, are not likely to displace major amounts of fossil fuel resources in the next 20 to 30 years. Renewable energy is growing rapidly, but plays a minor role in the energy mix. Even with dramatic expansion of wind power, wind accounted for only 0.77 percent of electric generation nationally and 2 percent in Texas. In order to reach President Obama’s announced goal of 20 percent of electric power from wind by 2025, industry experts estimate around 20,000 miles of new high voltage transmission lines across the nation would be needed.

To maintain an affordable, reliable, adequate energy supply, growth must be anticipated. As Dr. Clemente’s presentation will vividly underline, future growth in energy demand poses a challenge even without carbon mandates. To meet energy demand in 2030, the U.S. would need more of the following sources: 38 percent nuclear, 43 percent oil production, 61 percent renewable energy, 64 percent natural gas production and 70 percent coal production. Short of miraculous technological breakthroughs or no-holds barred, aggressive nuclear deployment, it is unrealistic to suppose alternative energies can supplant our fossil fuel dominated energy supply in the next 20 years.

Carbon Mandates: Alternative Regulatory Mechanisms

International, federal and state proposals for CO₂ reduction include; a) existing air quality law, b) cap and trade schemes and c) carbon taxes. EPA’s recent Advanced Notice of Proposed Rulemaking to Regulate Greenhouse Gases uses the authority and rubric of the *Federal Clean Air Act*. This includes the prospect of a National Ambient Air Quality Standard for CO₂, non-attainment area delineation, CO₂ State Imple-

mentation Plans, New Source Review and Title V permitting requirements. This approach would make the entire country non-attainment and increase the universe of permitting requirements to large buildings and modest sized farms and ranches. Governor Perry's recently formed Governor's Advisory Group on Federal Environmental Regulation submitted extensive comments joining thousands across the country concluding that existing law is totally unsuited to regulate CO₂.

A cap and trade scheme is the most prevalently promoted regulatory method for mandatory CO₂ reduction, but has many recently acknowledged drawbacks. CO₂ cap and trade is far more complicated, expensive and murky than previous schemes for conventional pollutants. Regardless of how much Texas prefers to control its own destiny without federal micro-management, carbon cap and trade must be on a federal scale to generate a viable market. Unlike conventional pollutants directly impacting human health at ground level, the ambient location of man-made CO₂ sources is irrelevant. The objective is to reduce global accumulation in the upper atmosphere.

Existing carbon credit trading systems in the European Union, United Nations and private institutions have failed to achieve clear carbon reductions and have led to considerable smoke and mirrors. Examples include the United Nations giving developing countries carbon credits for new coal-fired power plants with first generation controls for conventional pollutants, but not CO₂. Silvicultural and agronomical carbon sequestrations projects are practically impossible to verify over time except through the most hazy of models. Credits may be bought, sold, or banked, but actual carbon reduction is doubtful in many cases. If avoiding dangerous planetary warming is the goal and one pursued at great expense, realistic measurement of results is imperative.

Cap and trade schemes also require substantial enlargement of government's role in the economy. Establishment of ever decreasing CO₂ caps, auction of allowances, oversight of offset creation and credit trading translate to a dramatically enlarged government hand in basic economic activity. The major cap and trade bill on the floor of the U.S. Senate last summer would have created two new federal financial institutions with awesome authority: a Climate Change Credit Corporation and Carbon Market Efficiency Board.

Major economists and some industry leaders recently have recommended carbon taxes as the least disruptive, straight-

forward, market-friendly means of reducing carbon. In principle, tax provides more certainty and clarity to the market than traditional EPA regulation and ever changing trading schemes.

Less than eight months ago, the *Wall Street Journal* called the Lieberman-Warner cap and trade bill then on the U.S. Senate floor, "the most extensive government reorganization of the economy since the 1930s." After the billions to now trillions of federal bail-out, recovery, and stimulus money and federal programs, carbon mandates are a perilous addition. Growing numbers of policy makers in the E.U. and the U.S., including within the new presidential administration, now question the imposition of complicated, expensive carbon mandates on a recessionary economy with rising unemployment. Recall that EPA's conservative estimate of the economic impact of Lieberman-Warner included major annual loss to the Gross Domestic Product (GDP) and job loss.

Texas may now have the opportunity to accelerate development of carbon management technologies before federal mandates are imposed. In the last session, the Legislature passed a number of bills to advance clean-coal technologies, most notably House Bill 3732 (2007), an advanced clean-energy bill that created financial and regulatory incentives for certain emission-reducing projects. The current legislative session presents timely opportunities for accelerated development and deployment of carbon management and control technologies.

As Texas' policymakers begin the 81st session, the following principles offer important guides for assessment of policy to expedite commercially useful carbon management technologies.

- Carbon management and control projects require vigorous cost-benefit analyses in the face of uncertainty. Analyses of the potential burdens and benefits to electric ratepayers and taxpayers should be completed.
- The market is best suited to pick energy winners and losers. Certain energy resources and technologies should not be shown favoritism over others. Incentives should not distort the market. ★

About the Author

Kathleen Hartnett White joined the Texas Public Policy Foundation in January 2008 as Director of the Center for Natural Resources.

Prior to joining the Foundation, White served a six-year term as Chairman and Commissioner of the Texas Commission on Environmental Quality (TCEQ). With regulatory jurisdiction over air quality, water quality, water rights and utilities, and storage and disposal of waste. TCEQ's staff of 3,000, annual budget of over \$600 million, and 16 regional offices make it the second largest environmental regulatory agency in the world after the U.S. Environmental Protection Agency.

Prior to Governor Rick Perry's appointment of White to the TCEQ in 2001, she served as then-Governor George Bush's appointee to the Texas Water Development Board, where she sat until appointed to TCEQ. She also served on the Texas Economic Development Commission and the Environmental Flows Study Commission.

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