



TAXING CARBON: ARE THE BENEFITS WORTH THE COSTS?

Executive Summary

An enormous balancing act is rapidly unfolding in our nation, with the very real possibility of bankrupting us all. The goal of this essay is to urge an immediate and active debate about proposals to tax carbon, in recognition of the costs involved, recent findings that significant reductions in carbon emissions will not dramatically impact global temperatures, and renewed concerns that the science of global warming has yet to be settled.

The Obama Administration has proposed a federal budget that includes nearly \$650,000,000,000 in new “climate-related” revenues through 2019. These revenues would be collected as taxes, primarily from energy producers, manufacturers, and other industries that emit carbon dioxide. *J. Pollock, Incorporated*¹ has determined that the proposal would result in nearly \$577,318,000,000 of additional costs on the electric industry alone. The huge impact of such a tax most certainly guarantees much higher electricity costs for all consumers.

However, the impact of carbon taxes on individual consumers will vary widely because coal is a more dominant source of electricity in the North and South Central and South Atlantic census regions. Recognizing the different mix of fuels utilized by generators and the potential for consumer concern, *J. Pollock* has estimated the following distribution of carbon taxes by

¹ *J. Pollock Incorporated (J. Pollock)* is an independent energy consultancy that advises consumers on the procurement and management of electricity and natural gas in both competitive and regulated markets. Because *J. Pollock* is not affiliated with a utility or other energy supplier, we can provide timely, accurate and objective advice. See www.jpollockinc.com.

census region. Not surprisingly, the census regions with the least amount of coal-fired generation (New England and Pacific) would be the least affected by the proposed carbon taxes.

Estimated Carbon Taxes Charged to Electricity Producers 2012 to 2023	
Census Region	Amount
New England	\$10,340,000,000
Middle Atlantic	\$42,840,000,000
East North Central	\$117,640,000,000
West North Central	\$59,210,000,000
South Atlantic	\$117,210,000,000
East South Central	\$65,710,000,000
West South Central	\$82,730,000,000
Mountain	\$64,540,000,000
Pacific	\$17,090,000,000
US Total	\$577,320,000,000

Translating the projected regional carbon taxes into consumer impacts, *J.Pollock* estimates that, by 2023, every consumer will be paying significantly higher electricity costs.

Consumer Impact of Projected Carbon Taxes on Electricity Producers (Nominal \$ per year)		
Census Region	Typical Customer*	Increase by 2023
New England	Residential	\$111
	Commercial	\$17,000
	Industrial	\$2,770,000
Middle Atlantic	Residential	\$152
	Commercial	\$23,000
	Industrial	\$3,800,000
East North Central	Residential	\$275
	Commercial	\$41,000
	Industrial	\$6,876,000
West North Central	Residential	\$278
	Commercial	\$42,000
	Industrial	\$6,947,000
South Atlantic	Residential	\$191
	Commercial	\$29,000
	Industrial	\$4,785,000
East South Central	Residential	\$272
	Commercial	\$41,000
	Industrial	\$6,802,000
West South Central	Residential	\$202
	Commercial	\$30,000
	Industrial	\$5,062,000
Mountain	Residential	\$308
	Commercial	\$46,000
	Industrial	\$7,694,000
Pacific	Residential	\$53
	Commercial	\$8,000
	Industrial	\$1,322,000
* Monthly kWh Usage	Residential:	1,000
	Commercial:	150,000
	Industrial:	25,000,000

Environmentally conscious consumers might be willing to pay \$50 to \$100 more on their monthly bills to combat what they perceive to be a serious problem. However, carbon taxes will dramatically increase electricity costs paid by the many businesses and manufacturers, which are the “engine” of our economy—by providing jobs, creating disposable income, and generating tax revenues to fund local, state, and federal governments.

According to the National Association of Manufacturers, about one-third of the energy consumed in the United States, including 40% of the natural gas and 30% of the electricity, is consumed by manufacturers. Electricity is also a significant operating cost in the manufacture of a wide range of consumer and durable goods made from metals, plastics, and/or chemicals. Economic reality dictates that these businesses will be forced to pass the higher costs on to consumers, cease domestic operations, or relocate to nations that choose not to levy a carbon tax. Ultimately, American citizens could suffer due to higher costs for goods and services and higher unemployment.

The question we should be asking as citizens and as a nation is whether the anticipated benefits derived from the proposed carbon taxes (*i.e.*, lower greenhouse gas emissions) are likely to outweigh the huge costs. On this important question, the carbon tax proponents have been curiously silent.

However, one significant recent study has concluded that reducing carbon emissions will have virtually no impact on global temperatures, casting serious doubt that electricity consumers will see any benefit from their \$577,318,000,000 investment. Specifically,

The benefit of reducing these emissions, in terms of projected climate temperature changes, can be readily measured by factoring these avoided emissions directly into the formulas used by the United Nation’s

Intergovernmental Panel on Climate Change (IPCC) to estimate future average global temperature increases. This analysis finds that the very science now driving climate action predicts that the WCI plan **will produce a future temperature benefit of [sic] in approximately the year 2100 of one ten-thousandth of a degree Celsius.**²

The study further concluded, “These findings do illustrate that claims that the U.S. power sector is the primary driver of global warming are without merit.”³ In other words: **What is the benefit of raising taxes by trillions of dollars nationwide and \$577 billion on electricity bills if reducing GHG emissions does not have the desired effect?**

Of additional concern to **J.Pollock** is the current public view of political leaders and the media that the “science [of global warming] is settled.” With very little effort, we found many articles and statements by numerous researchers and, scientists with dissenting opinions about manmade global warming concerns.⁴ The dissenters include scientists from a wide range of disciplines from all over the globe. While the common thinking is to adopt prevailing views as truth, this is the exact juncture to become educated about opposing opinions. Their dissents:

- *Attack* the very essence of the IPCC Report (i.e., no strong correlation between higher CO₂ emissions and higher temperatures) and assert that global temperatures are more closely related with sunspot activity;
- *Assail* the lack of scientific review of the final IPCC findings;

² *Analysis, Comment And Constructive Suggestions To The Western Climate Initiative, Ideas For Reducing GHG Emissions While “Keeping The Lights On” and The Economy Growing in the West*, February 2009 at 10. (emphasis added)

³ *Id.* at 11.

⁴ U.S. Senate Minority Report: More than 650 International Scientists Dissent Over Manmade Global Warming Claims; Scientists Continue to Debunk “Consensus” in 2008, updated January 27, 2009.

- *Demonstrate* that there has not been any global warming since 1998, which was the hottest year on record (in fact, some scientists state that average global temperatures have fallen);
- *Observe* that manmade carbon emissions account for about 5% of the total atmospheric CO₂ levels and are incapable of wreaking the predicted havoc on global climate;
- *Conclude* that evidence of higher carbon concentrations in the past means that there are natural forces regulating CO₂ emissions; and
- *Challenge* the very computer models that project the certainty of dire consequences of global warming but cannot accurately predict the weather two days in advance.

Some of these very dissenting scientists were once supporters of the IPCC's findings.

While analyzing these opinions is beyond the scope of this essay, they do raise serious concerns about why we are committing to give the federal government over \$650 billion in the name of "saving our planet in peril" without a more vigorous debate..” History demonstrates that, once established, it is highly unlikely that a carbon tax (like the personal income tax) would ever be repealed. Hence, the time for questioning is now.

We at **J.Pollock** believe that the costs of the Obama Administration's climate policies on the electric industry and its consumers are many, while the benefits are questionable at best. The stakes are too high to dismiss the growing chorus of skepticism within the science community. Our political leaders and the public must insist upon a continued open and vigorous public debate about these global issues in order to identify the most effective and efficient strategies and to address unintended consequences. Otherwise, the Obama Administration will be guilty of using the same tactics it accuses the Bush Administration of: elevating politics over science.

Background

Ever since the United Nations Intergovernmental Panel on Climate Change (IPCC), former Vice President Al Gore, and several high-profile scientists and related organizations sounded the alarm that anthropogenic (manmade) carbon-dioxide (CO₂) emissions are the principle cause of global warming, the issue has ascended to “rock-star” status. The “talk of the nation” is not about if the inevitable perils to planet Earth that some scientists have predicted (using various climate models) will occur, but when and what we must do to avert them.

The proposed principle action for solving global warming is the reduction of manmade green-house gas (GHG) emissions, principally CO₂. The theory is that reducing manmade CO₂ would prevent global temperatures from rising, thereby averting any number of disastrous outcomes, as discussed later in this essay.

The primary tool for reducing CO₂ would be to tax carbon emissions under the guise of a “market-based” carbon cap-and-trade system. Styled after regulations enacted to regulate sulfur dioxide (SO₂) emissions from fossil-fuel (primarily coal-fired) power plants, a carbon -cap-and- trade system would require carbon emitters (again, primarily coal-fired power plants) to pay the government for the privilege of emitting CO₂. It is, fundamentally, a tax on CO₂, and it could potentially apply to every ton of CO₂ emitted. A CO₂ tax will dramatically increase energy and transportation costs, since these industries account for the vast majority of carbon emissions. There is no doubt that these higher costs will be passed-through to consumers.

Facing huge federal budget deficits, it should, therefore, come as no surprise that the Obama administration has is proposing to collect nearly \$650,000,000,000 in “climate revenues”

between 2012 and 2019.⁵ What is troublesome is that the President and his team have bought in to assertions by some that this strategy is the best solution and the “science of global warming is a settled issue.”

Regardless of whether you believe in the “science” or “certainty” of global warming, every citizen should be asking two questions:

1. What are the actual costs of taxing carbon, not just to me individually, but to our economy?
2. What is the likelihood that the anticipated benefits of carbon taxes will actually materialize; that is, will they avert the predicted perils of global warming, resulting in a stronger, more secure and vibrant economy?

Unfortunately, and this is the crux of the problem, the carbon tax advocates fail to provide any answers to these two important questions.

To answer the first question, **J.Pollock** has estimated the impact of the proposed carbon taxes on electricity costs. Our estimates and the methodology used to derive them are discussed next. We shall then offer some insights about the second question: whether the benefits of GHG emission reduction are likely to outweigh the costs.

Impact on Electricity Costs

J.Pollock has projected the impact of possible carbon legislation on consumer electricity costs by census region beginning as early as 2012. In the ensuing ten years, the higher costs will be significant, as summarized below:

⁵ A New Era of Responsibility at 119.

Higher Consumer Electric Bills Resulting From Projected Carbon Taxes on Electricity Producers (\$ per year)			
Census Region ⁶	Typical Customer*	2016	2023
New England	Residential	\$67	\$111
	Commercial	\$10,000	\$17,000
	Industrial	\$1,668,000	\$2,770,000
Middle Atlantic	Residential	\$95	\$152
	Commercial	\$14,000	\$23,000
	Industrial	\$2,369,000	\$3,800,000
East North Central	Residential	\$174	\$275
	Commercial	\$26,000	\$41,000
	Industrial	\$4,351,000	\$6,876,000
West North Central	Residential	\$168	\$278
	Commercial	\$25,000	\$42,000
	Industrial	\$4,192,000	\$6,947,000
South Atlantic	Residential	\$122	\$191
	Commercial	\$18,000	\$29,000
	Industrial	\$3,040,000	\$4,785,000
East South Central	Residential	\$165	\$272

⁶ Census Regions are defined as follows:

New England:	Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont.
Middle Atlantic:	New Jersey, New York, Pennsylvania.
East North Central:	Illinois, Indiana, Michigan, Ohio, Wisconsin.
West North Central:	Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, South Dakota.
South Atlantic:	Delaware, District of Columbia, Florida, Georgia, Maryland, North Carolina, South Carolina, Virginia, West Virginia.
East South Central:	Alabama, Kentucky, Mississippi, Tennessee.
West South Central:	Arkansas, Louisiana, Oklahoma, Texas.
Mountain:	Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, Wyoming.
Pacific:	Alaska, California, Hawaii, Oregon, Washington

Higher Consumer Electric Bills Resulting From Projected Carbon Taxes on Electricity Producers (\$ per year)			
Census Region ⁶	Typical Customer*	2016	2023
	Commercial	\$25,000	\$41,000
	Industrial	\$4,113,000	\$6,802,000
	Residential	\$122	\$202
West South Central	Commercial	\$18,000	\$30,000
	Industrial	\$3,055,000	\$5,062,000
	Residential	\$189	\$308
Mountain	Commercial	\$28,000	\$46,000
	Industrial	\$4,722,000	\$7,694,000
	Residential	\$34	\$53
Pacific	Commercial	\$5,000	\$8,000
	Industrial	\$842,000	\$1,322,000
	Residential	1,000	
*Assumed monthly kWh Usage	Commercial	150,000	
	Industrial	25,000,000	

The basis for these estimates is *J.Pollock's* analysis of the possible range of impacts under a carbon cap-and-trade system, coupled with projections of CO₂ emissions and electricity consumption.

The range of impacts is based on the Obama Administration's "climate revenue projections" (on the low end) and the assumption that all GHG emissions would be subject to a tax of \$12 per metric ton beginning in 2012 with the tax escalating at a 5% real rate (on the high end). The latter assumption is consistent with analysis of prior legislative proposals.⁷ This

⁷ See various analyses available from the Energy Information Administration at <http://www.eia.doe.gov/oiaf/emissions.html>. Some industry analysts assume that a carbon tax would be \$20 per ton or higher in 2012. A recent Carnegie Mellon study argued that the future price of CO₂ must rise to at least \$50 per ton before electric power generating companies will find carbon capture and storage cost-effective and that "[The] cap and trade proposals now being discussed will not yield prices that high for several decades."

would result in overall climate revenues of between \$1,058,000,000,000 (Obama) to \$1,759,000,000,000 through 2023.⁸ The projected GHG emissions were derived from published information. The electricity sector emits about 40% of the total GHG emissions.⁹ Thus, the projected range of carbon taxes on the electricity sector would be \$432,979,000,000 to \$721,656,000,000. Because of the specifics of future legislation are unknown, **J.Pollock** has chosen the mid-point, or \$577,318,000,000, for projecting the impact on electricity costs.

The impact on individual consumers will vary by region. This is because the types of fuel used to generate electricity vary widely regionally. Coal, a prominent carbon emitter, is a more dominant source of electricity in the North and South Central and South Atlantic census regions, as shown below.

⁸ Since the Administration's estimates terminate at 2019, we extended the projection to 2023 by multiplying the projected total emissions by the projected carbon tax.

⁹ Energy Information Administration, Energy Market and Economic Impacts of S. 2191, the Lieberman-Warner Climate Security Act of 2007, Reference Case.

Electricity Generation from Coal as a Percent of Total Generation (2008)	
Census Region	Percent
New England	16.4%
Middle Atlantic	35.7%
East North Central	74.1%
West North Central	60.9%
South Atlantic	46.6%
East South Central	51.2%
West South Central	47.8%
Mountain	43.0%
Pacific	19.8%

To estimate the impact by region, **J.Pollock** used GHG emissions projected in the Energy Information Administration’s (EIA) *Annual Energy Outlook 2009*. These projections reveal the distribution of GHG emissions by region, as follows:

Distribution of GHG Emissions by Census Region¹⁰	
New England	1.79%
Middle Atlantic	7.42%
East North Central	20.45%
West North Central	10.26%
South Atlantic	20.29%
East South Central	11.36%
West South Central	14.29%
Mountain	11.18%
Pacific	2.96%

¹⁰ The table is an average for the period 2012-2023. The impacts were calculated annually based on projected tax revenues and GHG emissions.

The projected annual carbon impact was distributed among the census regions in proportion to the stated emission rates.

Consumer impacts were calculated by dividing the projected carbon taxes for each census region by the corresponding projected kilowatt-hour (kWh) usage. The resulting cost impact is the product of the carbon tax per kWh and the assumed kWh usage. **J.Pollock** developed projected kWh growth rates by census region using long-term forecasts submitted by each NERC Reliability Council.¹¹

Benefits of Reducing Manmade Carbon Emissions

While the costs of carbon dioxide abatement have been subject to intense scrutiny and quantification, the benefits of carbon emissions reduction have often been portrayed in terms of averting various disasters such as more volatile weather, rising sea levels, higher mortality rates, disruptions in the food supply, increased civil strife, intensified regional conflicts, and the eventual decay and collapse of various societies.¹² Thus, disaster aversion is itself the benefit.

Moving beyond conjecture, **J.Pollock** conducted a literature search for studies that quantify the tangible, direct, or perhaps immediate benefits of reducing CO₂ emissions. This comprehensive search revealed a dearth of research quantifying the economic benefits of carbon reduction. The lack of research confirms the difficulties that underlie the estimation of such benefits: the inter-temporal and inter-generational nature of accrued benefits and its

¹¹ Energy Information Administration, *EIA 411 Reports*, <http://www.eia.doe.gov/cneaf/electricity/page/eia411/eia411.html>

¹² Diamond, 2005. *Collapse: How Societies Choose to Fail or Succeed*.

corollary, the selection of a discount rate. Even when a body of research concurs on the nature and extent of the problem, the parameters vary by a considerable magnitude. While certain studies have sought to rectify this matter by applying standard research techniques to a comprehensive literature review, no definitive answer has yet emerged—only tentative conclusions with numerous qualifications.¹³

Nonetheless, a few widely-circulated, and widely-criticized, studies aimed at quantifying the benefits of GHG reduction are less concerned with benefits valuation than with measuring results in terms of quantity, morbidity, or mortality of human life.¹⁴ In other words, these studies estimate the number of lives lost, the number of deaths avoided, and the effect of emissions levels on human health. The resulting impact is stated as a fraction of national output. However, none of these studies establish the link between reducing carbon emissions and mortality rates.

Other studies have linked reductions in carbon emissions to lower particulate matter (PM), which is associated with total carbon emissions. As the Working Group on Public Health and Fossil-Fuel Combustion states:

Many of the fossil-fuel combustion processes that produce CO₂ and other greenhouse gases also produce a host of air pollutants such as particulate matter (PM), sulphate, ozone, and other pollutants, all of which have short-term adverse effects on public health. We use PM as a sentinel air pollutant because it

¹³ Anthoff et al, Risk Aversion, Time Preference, and the Social Cost of Carbon; EDF, Technical Support Document on Benefits of Reducing GHG Emissions; Tol, The Social Cost of Carbon: Trends, Outliers and Catastrophes.

¹⁴ Garbaccio et al, The Health Benefits of Controlling Carbon Emissions in China; World Bank, Clear Water, Blue Skies: China's Environment in the New Century; Working Group, Short-term Improvements in Public Health from Global-Climate Policies on Fossil-Fuel Combustion: An Interim Report.

is **commonly associated with fossil-fuel combustion**. Extensive public-health literature in several countries has shown that both mortality and morbidity are **significantly associated with exposure to PM**. Most air pollutants from fossil fuels have local impacts but some airborne pollutants (e.g., fine particulates) can be transported thousands of miles and have global impacts.¹⁵

Though carbon emissions and PM may be correlated, correlation does not imply causality. Curtailing carbon emissions may not be necessary to reduce particulate matter output. Research design is one thing, public policy design is quite another. Put simply, carbon may not be the real culprit.

Of the various climate change studies that have been conducted since the past two decades, the Assessment Reports endorsed by the IPCC are considered by some, though not all, to be the most comprehensive, authoritative, and credible. Published regularly, the IPCC

Assessment Reports:

...assess on a comprehensive, objective, open and transparent basis the latest scientific, technical and socio-economic literature produced worldwide relevant to the understanding of the risk of human-induced climate change, its observed and projected impacts and options for adaptation and mitigation."¹⁶

Furthermore, the IPCC Assessment Reports provide:

...a synthesis that specifically addresses the issues of concern to policymakers in the domain of climate change: **it confirms that climate change is occurring now, mostly as a result of human activities; it illustrates the impacts of global warming already under way and to be expected in future**, and describes the potential for adaptation of society to reduce its vulnerability; finally

¹⁵ Working Group on Public Health and Fossil-Fuel Combustion, *Short-term Improvements in Public Health from Global-Climate Policies on Fossil-Fuel Combustion: An Interim Report*, at. 1341. Emphasis added.

¹⁶ IPCC homepage, <http://www.ipcc.ch/about/index.htm>.

it presents an analysis of costs, policies and technologies intended to limit the extent of future changes in the climate system.¹⁷

To aid in this endeavor, the IPCC solicits contributions and assistance from “...hundreds of scientists from all over the world”¹⁸. A partial list of the studies cited by the IPCC is provided in

Appendix B.

The most recent IPCC Assessment Report¹⁹ presents an array of estimates for the impact on average global temperature change. Several scenarios were considered, and although each one is considered equally possible, the most conservative scenario, which holds emissions constant at year 2000 levels, projects an average temperature increase of 0.6 degrees Celsius (range, 0.3 - 0.9 degrees) from the 2090 - 2099, relative to 1980 - 1999.²⁰ Additionally, the IPCC evaluated various scenarios involving emissions stabilization, and the costs associated with these efforts. The estimated reduction of global GDP growth ranges from 0.06 to 0.12 percentage points from 2012 to 2030.²¹ This translates into a global-wide cost of between \$22.4 and \$44.6 trillion.²²

¹⁷ United Nations Intergovernmental Panel on Climate Change, *Fourth Assessment Report*, 2007, p. iii. Emphasis added.

¹⁸ IPCC homepage at <http://www.ipcc.ch/about/index.htm>.

¹⁹ United Nations Intergovernmental Panel on Climate Change, *Fourth Assessment Report*, 2007

²⁰ *Id.* at 45.

²¹ *Id.* at 69.

²² This is based on applying the same percentages to projected global GDP using data from the Energy Information Administration, *International Energy Outlook 2008*, Table A3. The IPCC estimated the based on using market exchange rates, rather than the more accepted practice of using purchasing power parity. The former method understates the cost by about 50%.

The controversy remains whether spending \$22.4 to \$44.6 trillion to reduce carbon emissions will lower global temperatures. For this to occur, the link between carbon emissions and global temperatures must be irrefutable and supported by consensus within the scientific community. With very little effort, **J.Pollock** has found evidence of a growing chorus of skepticism among scientists and other researchers from all over the globe that the IPCC's carbon emissions estimates have been considerably exaggerated.²³ Indeed, not just the IPCC Assessments, but other studies, initiatives, and climate proposals supporting carbon reduction are failing to withstand scientific scrutiny and are bowing to the rigorous tests of the scientific method.²⁴

One notable skeptic, Dr. Robert Giegengack, chair of the Department of Earth and Environmental Science at the University of Pennsylvania, refuted former Vice-President Gore's claims in the documentary "An Inconvenient Truth" by arguing that it is "replete with inaccuracies and misrepresentations"²⁵ while also noting that cause and effect were erroneously transposed. Dr. Giegengack's colleague, Dr. Ed Doheny, concurs, arguing that Vice-President Gore "got his independent and dependent variables all mixed up".²⁶ Other scientists have expressed similar concerns about such inferences as dubious methods of inquiry. For example,

²³ Ashworth, *No Evidence to Support Carbon Dioxide Causing Global Warming!*; Siddons, *UN IPCC Man-Made Emissions Grossly Overstated*.

²⁴ U.S. Senate Committee on Environment and Public Works, *New Peer-Reviewed Scientific Studies Chill Global Warming Fears*.

²⁵ U.S. Senate Minority Report: *More than 650 International Scientists Dissent Over Manmade Global Warming Claims; Scientists Continue to Debunk "Consensus" in 2008*, updated January 27, 2009. at 120.

²⁶ *Id.*

climate statistician Dr. William Briggs, who serves on the American Meteorological Society's Probability and Statistics Committee, explains that a given climate model tends to "show just what it was programmed to show" while using the results as evidence to confirm the validity of the assumptions underlying it. This, as Dr. Briggs laments, is "backwards".²⁷

Some of the dissenting scientists were once supporters of the IPCC's findings. They include physicist Dr. Miklós Zágoni, meteorologist Hajo Smit, and climatologist Dr. Robert Balling among others. A common theme among many of the renunciations is the questionable science behind the IPCC's conclusions.²⁸ In particular, meteorologist Hajo Smith, who was once a supporter and member of the Dutch UN IPCC committee, stated that "Gore prompted me to start delving into the science again and I quickly found myself solidly in the skeptic camp...Climate models can at best be useful for explaining climate changes after the fact".²⁹

Until recently, none of the studies demonstrated that reducing GHG emissions would have a significant impact on what has been advertised as rising global temperatures. In a study commissioned by the Western Business Roundtable, in response to the Western Climate Initiative (WCI), the authors concluded that:

The benefit of reducing these emissions, in terms of projected climate temperature changes, can be readily measured by factoring these avoided emissions directly into the formulas used by the United Nation's Intergovernmental Panel on Climate Change (IPCC) to estimate future average global temperature increases. This analysis finds that the very science now

²⁷ *Id.* at 18.

²⁸ *Id.* at 4, 5, 14, & 15.

²⁹ *Id.* at 5.

driving climate action predicts that the WCI plan **will produce a future temperature benefit of in approximately the year 2100 of one ten-thousandth of a degree Celsius.**³⁰

Three other scenarios were considered by the Western Business Roundtable, yet each produced only trivial temperature gains.³¹

Future Temperature Benefit in the Year 2100	
Scenario	Temperature Reduction (°Celsius)
Absolute, cumulative GHG emission reductions by the year 2020 of 383 million tons of CO ₂ equivalent (MMtCO ₂ -eq) from Arizona, British Columbia, California, New Mexico, Oregon and Washington combined.	0.0001
Complete eradication of CO ₂ emissions from all sectors in the participating western states by 2100	0.03
Close all fossil-fuel power plants in the United States by 2100	0.06
Eliminate all greenhouse gas emissions from the U.S. until 2100	0.18

³⁰ *Analysis, Comment And Constructive Suggestions To The Western Climate Initiative, Ideas For Reducing GHG Emissions While “Keeping The Lights On” and The Economy Growing in the West*, February 2009 at 10. (emphasis added)

³¹ *Id.* at 10 & 11.

The benefits, apparently, are appallingly minimal. Again, the Western Business Roundtable, in what may be described as a prophetic maneuver foreshadowing any controversy, used the same scientific formulas the IPCC used in its current Fourth Assessment Report.³²

The Study concludes, “These findings do illustrate that claims that the U.S. power sector is the primary driver of global warming are without merit.”³³ In other words: ***What is the benefit of raising taxes by trillions of dollars nationwide and \$577 billion on electricity bills if reducing GHG emissions does not have the desired effect?***

We conclude that the clamor surrounding carbon emissions may be attributable to a notion of false cause, which is the fallacy of erroneously ascribing a specific cause to an effect. Hence, CO₂ *causes* global warming, which in turn, will inevitably *cause* cataclysmic events to occur. As noted earlier, a growing number of studies and dissent within the science community raise serious questions about whether the link between CO₂ emissions and temperature increases are sufficient to induce global warming—first false cause. Second, if global warming is occurring (which is also debated), it is unclear that reducing carbon emissions would meaningfully affect temperatures. This is the second false cause.

Indeed, the only definitive statement that can be made about global warming is that it is a theory and a concern, nothing more, nothing less. Therefore, further public debate is warranted before committing to spend trillions of dollars in tax revenues for no measurable benefit.

³² United Nations Intergovernmental Panel on Climate Change, *Fourth Assessment Report*, 2007.

³³ *Id.* at 11.

Appendix A References

- Ashworth, R. A. (2008). *No Evidence to Support Carbon Dioxide Causing Global Warming!* [Electronic version]. Retrieved from http://www.ilovemycarbondioxide.com/pdf/No_Evidence.pdf.
- Anthoff, D., Tol, R. S. J., & Yohe, G. W. (2008). *Risk Aversion, Time Preference, and the Social Cost of Carbon* [Electronic version]. Retrieved from <http://www.economicsclimatechange.com/2008/09/risk-aversion-time-preference-and.html>.
- Carnegie Mellon University, Department of Engineering and Public Policy; *Cap and Trade Is Not Enough: Improving U.S. Climate Policy*, March 2009.
- Diamond, J. (2005). *Collapse: How Societies Choose to Fail or Succeed*. New York: Penguin Group.
- Garbaccio, R. F., Ho, M. S., & Jorgenson, D. W. (2000). *The Health Benefits of Controlling Carbon Emissions in China*. Retrieved from <http://www.hks.harvard.edu/m-rcbg/ptep/china.health.pdf>.
- Energy Information Administration. (2009). *Form EIA-411 - "Coordinated Bulk Power Supply Program Report" Data*. Washington, DC: Author. Retrieved from <http://www.eia.doe.gov/cneaf/electricity/page/eia411/eia411.html>.
- Energy Information Administration. (2009). *Annual Energy Outlook 2009* (DOE/EIA-0383). Washington, DC: Author. Retrieved from <http://www.eia.doe.gov/oiaf/aeo/index.html>.
- Energy Information Administration. (2008). *Energy Market and Economic Impacts of S. 2191, the Lieberman-Warner Climate Security Act of 2007* (SR-OIAF/2008-01). Washington, DC: Author. Retrieved from <http://www.eia.doe.gov/oiaf/servicerpt/s2191/index.html>.
- Energy Information Administration. (2009). *Short-Term Energy Outlook 2009*. Washington, DC: Author. Retrieved from <http://www.eia.doe.gov/emeu/steo/pub/contents.html>.
- Energy Information Administration. (2008). *International Energy Outlook 2008*, Table A3 (DOE/EIA-0484(2008)). Washington, DC: Author. Retrieved from <http://www.eia.doe.gov/oiaf/ieo/ieorefcase.html>.
- Environmental Defense Fund. (2008). *Technical Support Document on Benefits of Reducing GHG Emissions* (EPA-HQ-OAR-2008-0318-0100). Boulder, CO: Author. Retrieved from <http://www.regulations.gov/fdmspublic/component/main?main=DocumentDetail&o=09000064806b1d94>.
- Intergovernmental Panel on Climate Change. (2007). *Climate Change 2007: Synthesis Report. Contribution of Working Groups I, II and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*. Geneva, Switzerland: IPCC. Retrieved from <http://www.ipcc.ch/ipccreports/ar4-syr.htm>.

- Intergovernmental Panel on Climate Change. (2009). *About IPCC*. Retrieved from <http://www.ipcc.ch/about/index.htm>.
- Siddons, A. (2008). *UN IPCC Manmade Emissions Grossly Overstated* [Electronic version]. Retrieved from <http://www.ilovemycarbon dioxide.com>.
- Tol, R. S. J. (2008). *The Social Cost of Carbon: Trends, Outliers and Catastrophes* [Electronic version]. Retrieved from <http://www.economics-ejournal.org/economics/journalarticles>.
- U.S. Senate Committee on Environment and Public Works. (2007). *New Peer-Reviewed Scientific Studies Chill Global Warming Fears*. Washington, DC: Author. Retrieved from http://epw.senate.gov/public/index.cfm?FuseAction=Minority.Blogs&ContentRecord_id=84E9E44A-802A-23AD-493A-B35D0842FED8.
- U.S. Senate Environment and Public Works Committee Minority Staff Report (Inhofe). (2008, Updated 2009). *More Than 650 International Scientists Dissent Over Manmade Global Warming Claims: Scientists Continue to Debunk "Consensus" in 2008* [Electronic version]. Washington, DC: Author. Retrieved from <http://www.epw.senate.gov/minority>.
- Western Business Roundtable. (2009). *Analysis, Comment And Constructive Suggestions To The Western Climate Initiative, Ideas For Reducing GHG Emissions While "Keeping The Lights On" and The Economy Growing in the West* [Electronic version]. Retrieved from http://www.westernroundtable.com/Portals/1/Docs/WCI_Analysis_FINAL.pdf.
- White House. (2009). *A New Era of Responsibility: Renewing America's Promise*. Washington, DC.
- World Bank. (1997). *Clear water, Blue Skies: China's Environment in the New Century*. Washington, DC: World Bank.
- Working Group on Public Health and Fossil-Fuel Combustion. (1997). *Short-term Improvements in Public Health from Global-Climate Policies on Fossil-Fuel Combustion: An Interim Report* [Electronic version]. *Lancet*, 350, 1341–49. Retrieved from <http://www.thelancet.com/journals/lancet/article/PIIS0140673697102094.pdf>.

Appendix B

Selected References As Cited In IPCC Fourth Assessment Report

(Note: References which follow are similar in source, content, and/or conclusions to references used in the J.Pollock study)

EIA, 2006a: U.S. Department of Energy, Energy Information Administration, Washington, D.C., 20585, <http://www.eia.doe.gov/emeu/international/crude1.html>, accessed 15 December 2006.

EIA, 2006b: International Energy Outlook 2006. DOE/EIA-0484(2006), U.S. Department of Energy, Energy Information Administration, Washington, D.C., 20585.

USDOE, 2004: International Energy Outlook. United States Department of Energy - Energy Information Administration, Washington DC, 248 pp.
[http://tonto.eia.doe.gov/FTP/ROOT/forecasting/0484\(2004\).pdf](http://tonto.eia.doe.gov/FTP/ROOT/forecasting/0484(2004).pdf), accessed 1 June 2007.

US EIA, 2005: International Energy Outlook 2005. U.S. Energy Information Administration, Office of Integrated Analysis and Forecasting, U.S. Department of Energy, Washington, D.C., 186 pp, <http://www.eia.doe.gov/oiaf/ieo/index.html> accessed 03/07/07.

Tol, R.S.J., 1999: The marginal costs of greenhouse gas emissions. *Energy Journal*, 20(1), pp. 61-81.

Tol, R.S.J., 2000: Timing of greenhouse gas emission reduction. *Pacific and Asian Journal of Energy*, 10(1), pp. 63-68.

Tol, R.S.J. and H. Dowlatabadi, 2001: Vector-borne diseases, development & climate change, *The Integrated Assessment Journal*, 2, pp. 173-181.

Tol, R.S.J., 2002a: Estimates of the damage costs of climate change. Part 1: Benchmark estimates. *Environmental and Resource Economics*, 21(1), pp. 47-73.

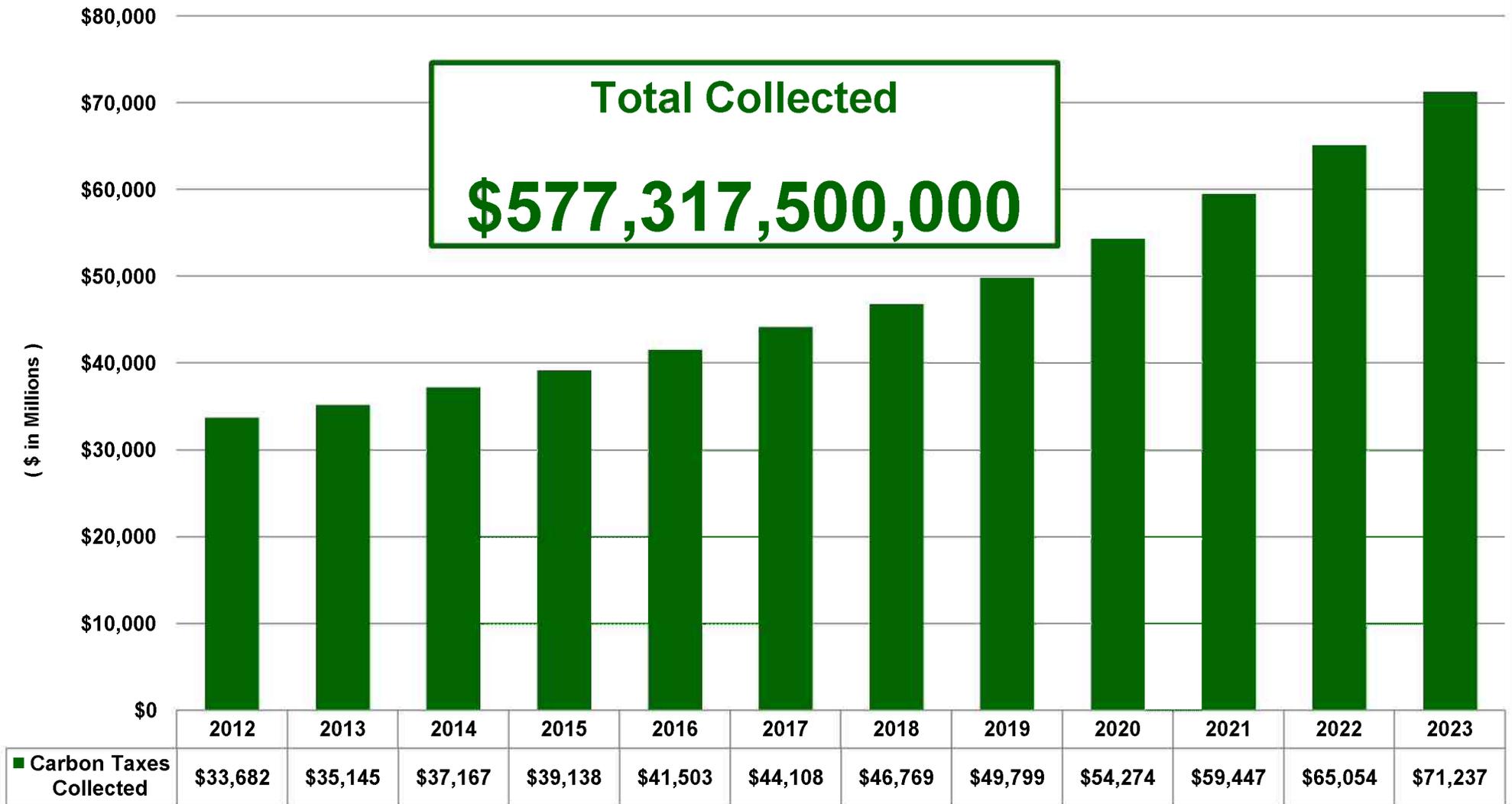
Tol, R.S.J., 2002b: Estimates of the damage costs of climate change. Part 2: Dynamic estimates. *Environmental and Resource Economics*, 21(1), pp. 135-160.

Tol, R.S.J., 2005a: Adaptation and mitigation: trade-offs in substance and methods. *Environmental Science & Policy*, 8, pp. 572-578.

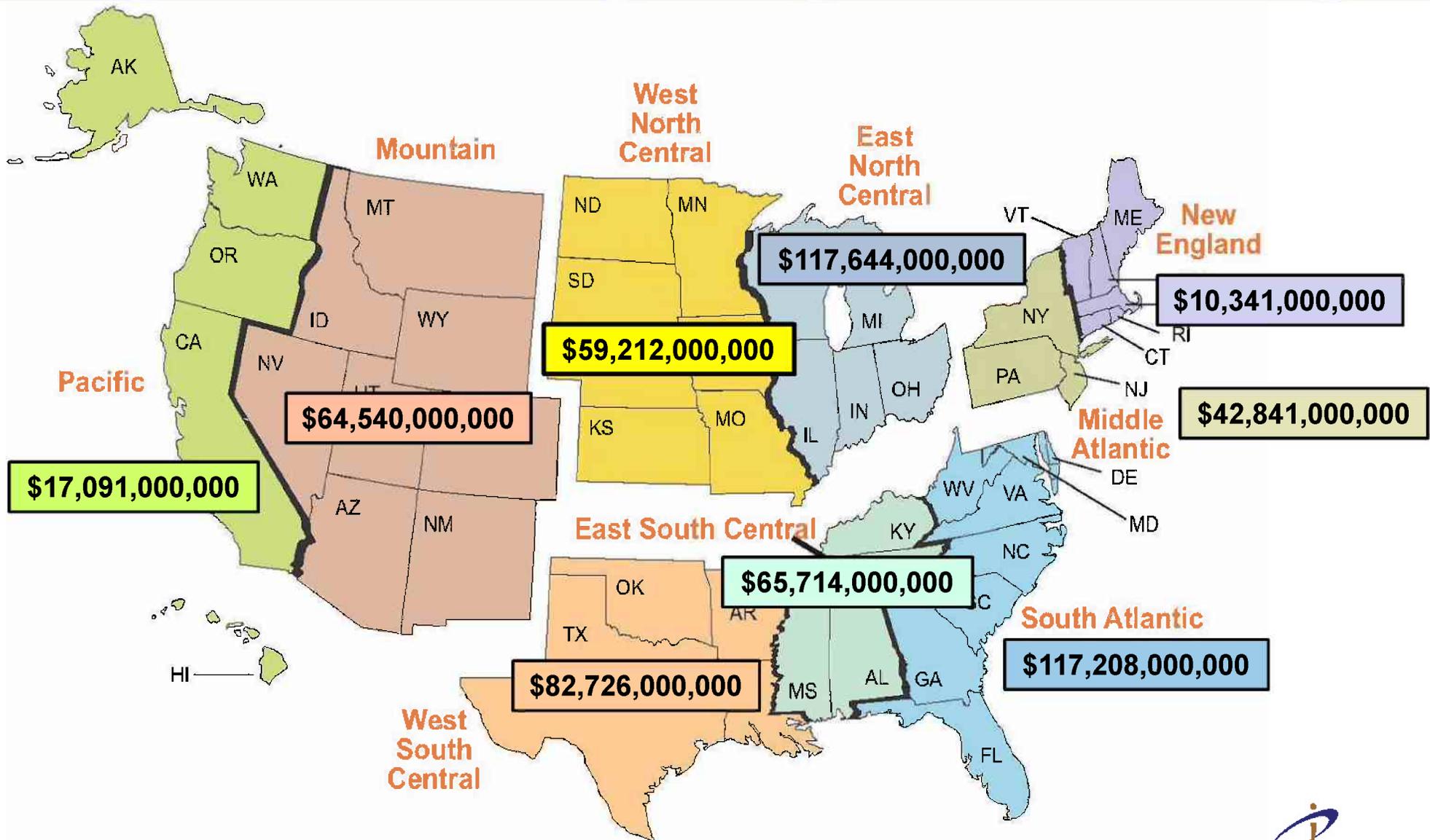
Tol, R.S.J., 2005b: The marginal damage costs of climate change: an assessment of the uncertainties. *Energy Policy*, 33(16), pp. 2064-2074.

Tol, R.S.J. and G. Yohe, 2006: On dangerous climate change and dangerous emission reduction. In *Avoiding Dangerous Climate Change*, H.J. Schellnhuber, W. Cramer, N. Nakicenovic, T. Wigley, and G. Yohe (eds.), Cambridge University Press, Cambridge, pp. 291-298.

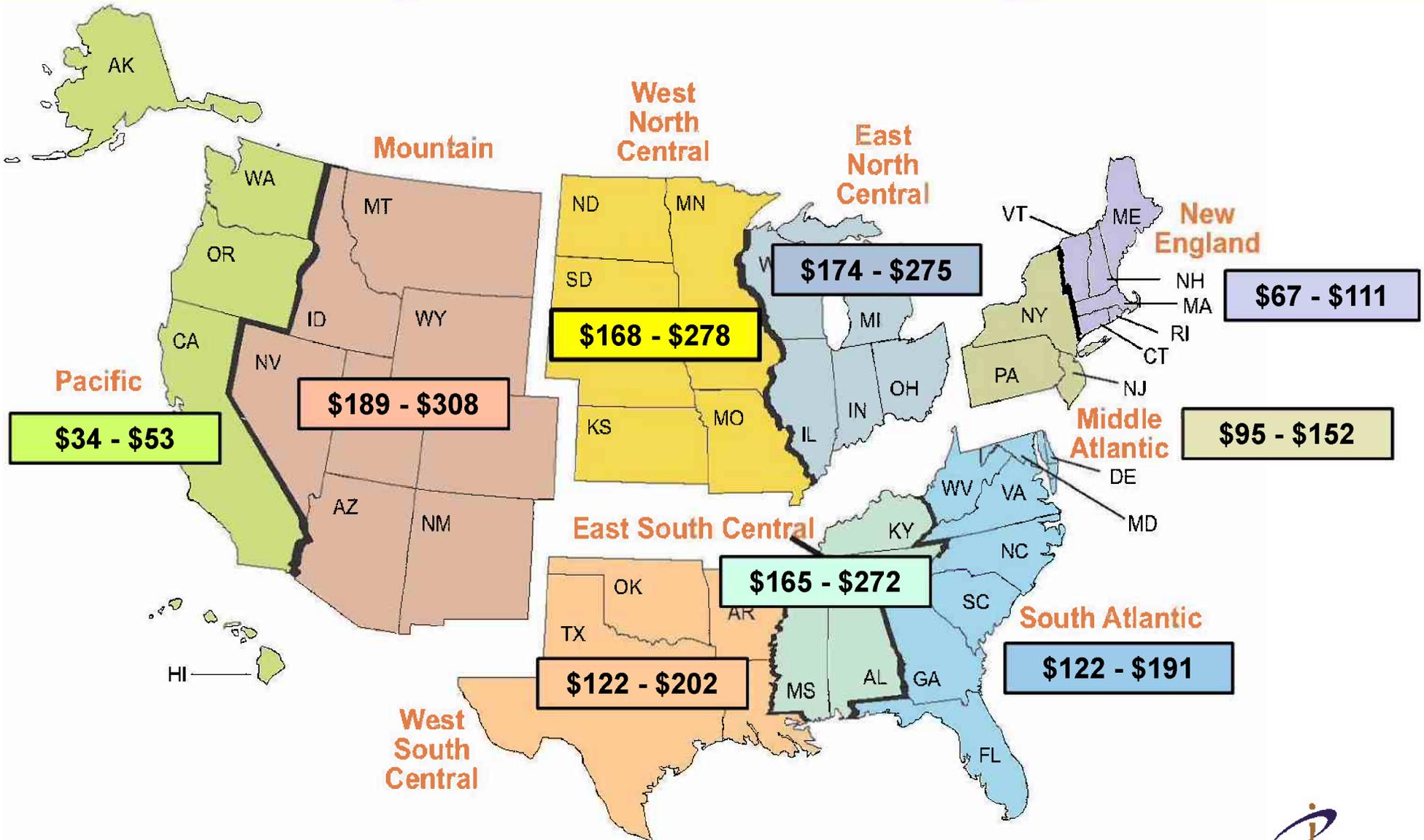
Projected Carbon Taxes



Projected Carbon Taxes by Census Region (2012 – 2023)



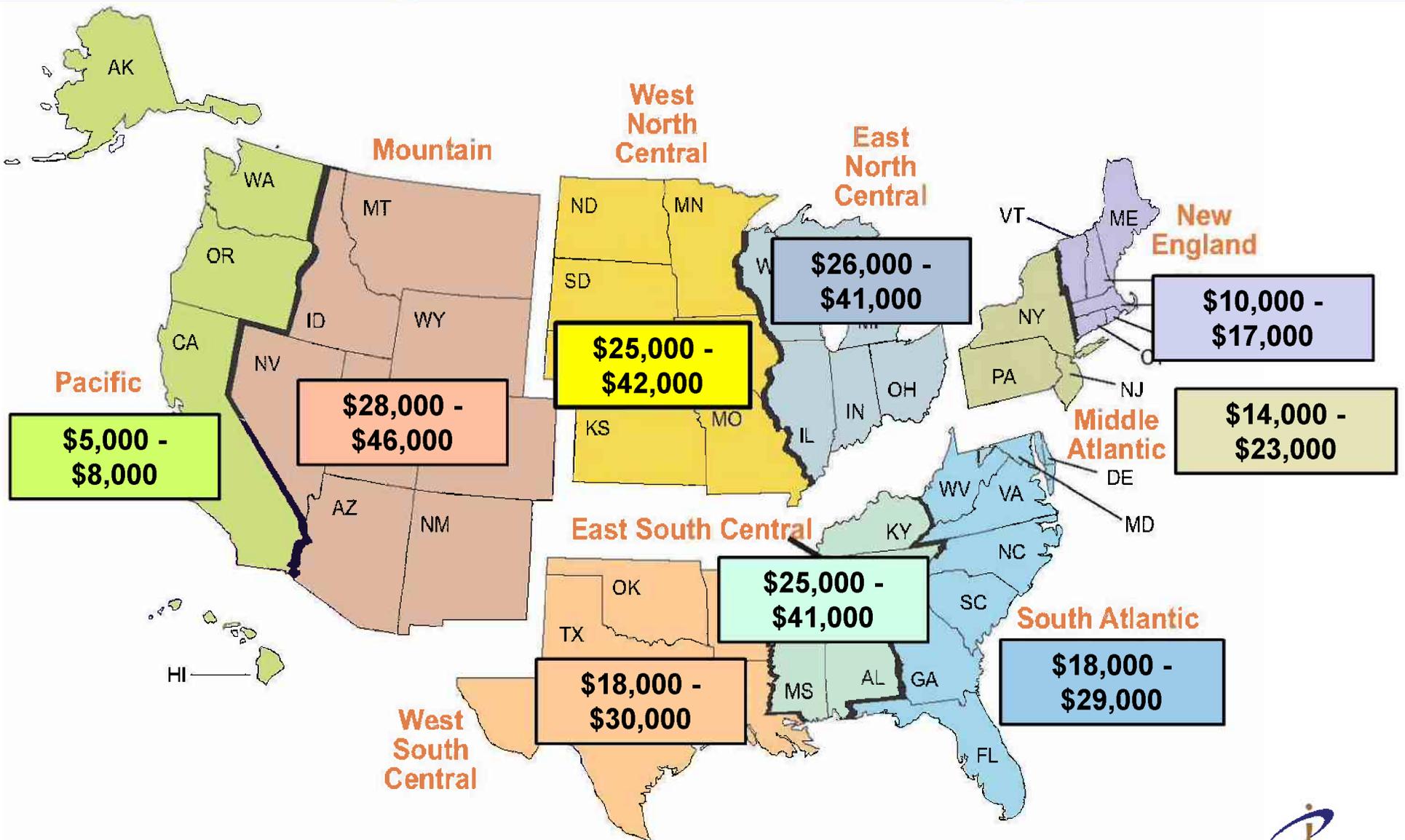
Annual Bill Impact: Residential (2016 and 2023)



3 1000 kWh per Month



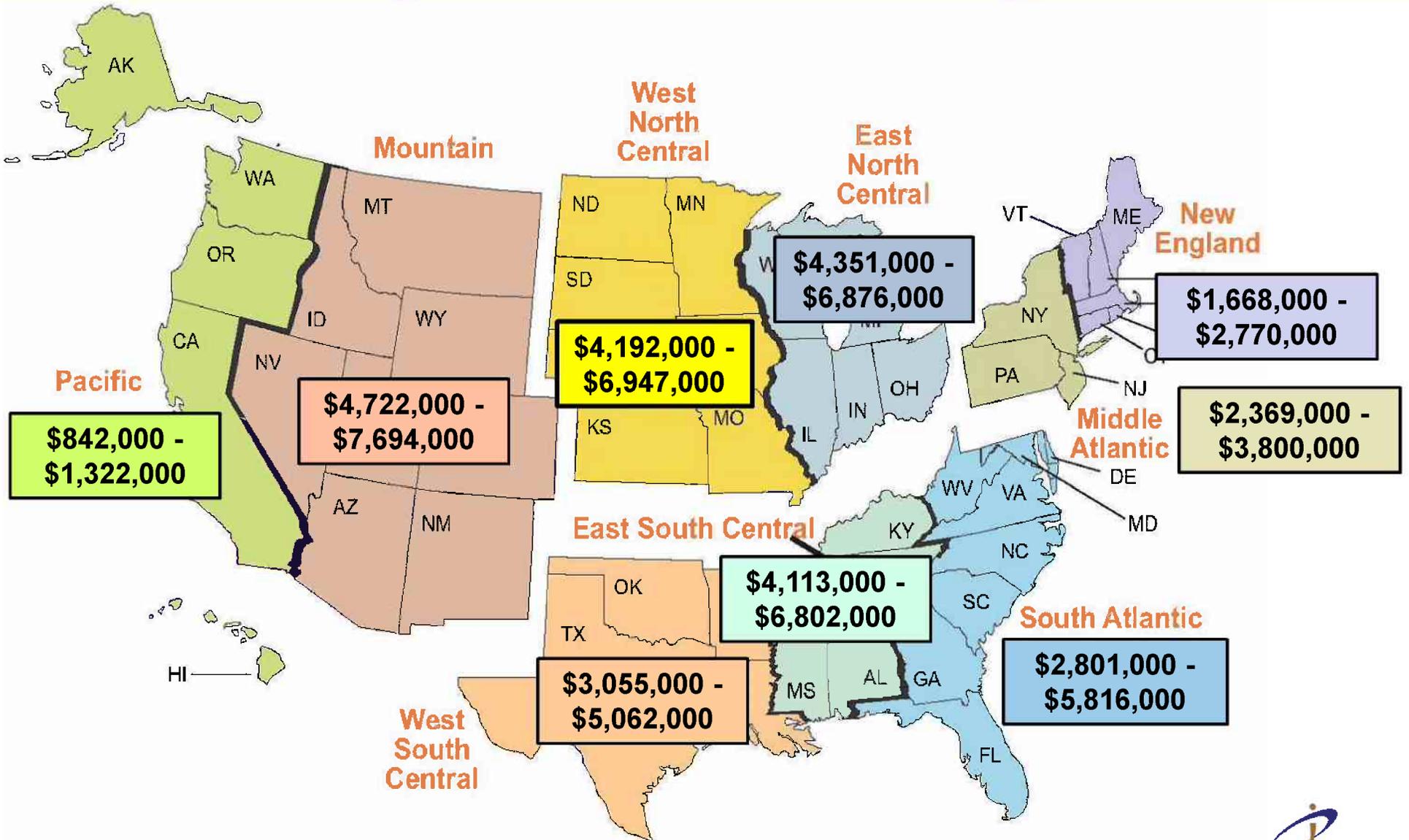
Annual Bill Impact: Commercial (2016 and 2023)



4 150,000 kWh per Month



Annual Bill Impact: Industrial (2016 and 2023)



5 25,000,000 kWh per Month

