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**"The Deepwater Drilling Moratorium:
A Second Economic Disaster for Small Businesses?"**

My testimony first describes some of the job loss numbers from my study, "The Economic Cost of a Moratorium on Offshore Oil and Gas Exploration to the Gulf Region," released last week. I then discuss some of the responses from Congress, beyond the moratorium. I conclude with some observations about regulation and policy that can help craft meaningful approach to regulation, whether in energy or financial services sectors.

I.   My Analysis of the Economic Cost of the Moratorium is a Conservative Estimate of Loss

My study, "The Economic Cost of a Moratorium on Offshore Oil and Gas Exploration to the Gulf Region," released last week and included here for the record presents a conservative estimate of economic loss caused by the moratorium. Several scenarios could cause actual losses to substantially exceed those offered there.

First, the analysis considers the loss to continue only for six months, followed by an immediate return to normal operations. It is possible, however, that the moratorium and/or its effects could last up to a year and half.   [1] Until a final decision is made by the administration and the courts, it is hard to predict the scope of the losses for the Gulf region. Thus, the losses could easily, in fact, increase by a factor of 2 or 3.

Second, the initial investment stage in oil and natural gas extraction produces many economic benefits. It is conceivable that some of these benefits will be deferred or simply lost as projects are delayed or moved.[2] As discussed in the study, the effects could be particularly

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[1]. A study by Morgan Stanley, for example, appears "confident that the ban will meaningfully exceed 6-months" and of the affected floaters, at least "a portion of the 35 floaters will leave the region, as operators declare force majeure." The study continues that "the legislative process could take 9-18 months [and that] it could take even longer for rigs to come back into the region after the ban is lifted." *Global Oil Services, Drilling & Equipment*, Morgan Stanley, Jun. 1, 2010, 1 (available at http://www.offshoremarine.org/images/stories/GOM_Drilling_Moratorium_06_01_10.pdf).

[2]. Morgan Stanley "expect[s] a major supply/demand imbalance as the 35 GOM floaters attempt to relocate internationally, while an additional 30 un-contracted new builds exacerbate the issue. Subsea equipment companies are likely to feel the after-burn, as their orders are a direct function of deepwater drilling." *See Id.*

detrimental for smaller oil companies.[3] ATP Oil and Gas Corp., for example, "expected to see its 2010 production double to at least 12 million barrels of oil and gas but has now dropped its guidance to between 9 million and 10 million."[4] It is challenging, however, to quantify this effect accurately across the whole industry. Thus do not include investment loss in my analysis. This means that I under-report the economic losses for communities in the Gulf and nationwide.

Third, if the end result of the moratorium is to place severe restrictions on offshore drilling and production in the long-term, costs could increase to operators significantly. That could lead to decreased operations, increased oil and natural gas prices, and the movement of operations to cheaper locations. That would again impose significant economic hardship on communities throughout the Gulf region and the nation.

Last, refining also has significant benefits to the economies of the Gulf and the nation. Again, it is difficult to determine the effect of the moratorium on refining capacity. It is reasonable to assume that some capacity will be reduced as a result of stagnant oil and gas extraction, which would further add to the economic hardship caused by the moratorium.

II.   Offshore Oil Production Stimulates Diverse Onshore Economies

Offshore oil production benefits federal, state, and local onshore economies. Broadly speaking, there are three "phases" of development that contribute to state economic growth: (1) the initial exploration and development of offshore facilities; (2) the extraction of oil reserves; and (3) the refining of crude oil into finished petroleum products.

Businesses that support those phases are prevalent in the Gulf of Mexico region. With regard to the exploration and development stage, the U.S. shipbuilding industry, for example, has a strong presence in the Gulf region and benefits significantly from initial offshore oil exploration

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[3]. Angel Gonzalez, *Stiffer Costs, Rules in Gulf Will Squeeze Smaller Players*, THE WALL STREET JOURNAL, Jun. 22, 2010 (available at http://online.wsj.com/article/SB10001424052748704256304575321104202428906.html) [hereinafter *Stiffer Costs, Rules in Gulf*].
[4]. *Id.*

efforts.[5] This early phase requires specialized exploration and drilling vessels, floating drilling rigs, and miles and miles of steel pipe, as well as highly educated and specialized labor to staff the efforts.

Onshore personnel work on the oil extraction phase as well. A recent report prepared for the U.S. Department of Energy indicates that Louisiana's economy is "highly dependent on a wide variety of industries that depend on offshore oil and gas production,"[6] and that offshore production supports onshore production in the chemicals, platform fabrication, drilling services, transportation, and gas processing industries.[7] Fleets of helicopters and U.S.-built vessels also supply offshore facilities with a wide range of industrial and consumer goods, from industrial spare parts to groceries.

The economic benefits produced by the refining phase are even more widespread than the effects for the two preceding phases. Although capacity is largely concentrated in California, Illinois, New Jersey, Louisiana, Pennsylvania, Texas, and Washington, additional U.S. refining capacity exists throughout the country. As a result, refinery jobs, wages, and tax revenues are more likely to "spill-over" into other areas of the country, even to non-coastal states like Illinois.

The economic benefits to coastal and state communities from offshore drilling are substantial. The Associated Press reports that offshore workers from Louisiana, for example, "frequently earn $50,000 a year or more."[8] One in three jobs in coastal Louisiana "is related to the

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[5]. U.S. Department of Commerce, Bureau of Export Administration, U.S. Shipbuilding and Repair, National Security Assessment (003-009-00719-4), at 9 ("In some niches, however, the United States currently has a significant world market share based mostly on domestic sales. These niches include offshore oil platforms, yachts, fast patrol boats, and recreational vessels," a preponderance of which are produced in the Gulf Coast region).

[6]. Advanced Resources International, Inc., Basin Oriented Strategies for CO2 Enhanced Oil Recovery: Offshore Louisiana, Prepared for the U.S. Department of Energy, Mar. 2005, at EX-1.

[7]. *Id.* ("For example, Louisiana is the third largest consumer of natural gas in the U.S., and a large number of chemical industry jobs in Louisiana are highly dependent on the continued availability of adequate volumes of moderately priced natural gas. Moreover, offshore oil and gas production operations support a vast spectrum of other activities in the state, including platform fabrication, drilling and related services, offshore transport and helicopter operations, and gas processing.").

[8]. Cain Burdeau, *Rig workers job hunt after drill ban*, ASSOCIATED PRESS for MSNBC (June 18, 2010) (available at http://www.msnbc.msn.com/id/37762247/ns/business-us_business/).

oil and natural gas industry [and] many of the workers earn between $40,000 and $100,000 a year."[9]

Louisiana alone could lose up to 10,000 jobs in only a few months.[10] The state of Louisiana

estimates that oil and gas production, primarily from the Gulf, supports $12.7 billion in household

earnings, "representing 15.4 percent of total Louisiana household earnings in 2005."[11]

The moratorium would put a halt to training new workers and cut jobs for workers already

employed within the offshore industry. Additionally, offshore workers that lose their jobs due to the

moratorium would receive only a fraction of their wages in unemployment benefits. This will

directly affect local businesses, many of which were already weakened by Hurricane Katrina in 2005

and Hurricane Gustav in 2008. Some companies in Louisiana, for example, are already worried that

after taking on "heavy debts after Hurricane Katrina [they] may not [be] able to take on additional

loans."[12]

In response, President Obama asserted that the Small Business Administration "has stepped

in to help businesses by approving loans [and] allowing many to defer existing loan payments."[13]

This demonstrates a key understanding by the current administration that small businesses in the

Gulf will be hit significantly by the moratorium. It is unclear, however, whether new loans and

deferments will effectively mitigate the substantial losses taken by small businesses in the Gulf

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[9]. Stephen C. Fehr, Gulf region fear long-term fiscal effects of oil disaster, STATELINE, Jun. 24, 2010 (available at http://www.stateline.org/live/details/story?contentId=493859); Press Release, *JUST THE FACTS: Drilling Moratorium's Impact on Louisiana's Families and Economy*, Government of Louisiana, Jun. 14, 2010 (available at http://emergency.louisiana.gov/Releases/06142010-moratorium.html) [hereinafter *Just the Facts*].

[10]. The projected employment loss forecasted by my analysis is lower that the estimates presented in this section. The likely reason for this is that my assessment is conservative. For instance, I assume the period of loss from the moratorium is only six months, while the Louisiana Department of Economic Development assumes that the period of loss will be 12 to 18 months. Section VI, subsection F outlines some of the ways in which my analysis may create a lower bound for loss.

[11]. *Just the Facts*, *supra*.

[12]. *Louisiana's economic hurt from drilling moratorium warrants action: An editorial*, THE TIMES-PICAYUNE, Jun. 8, 2010 (available at http://www.nola.com/news/gulf-oil-spill/index.ssf/2010/06/louisianas_economic_hurt_from.html).

[13]. President Barack Obama, Remarks by the President After Briefing on BP Oil Spill, The White House (May 28, 2010) (transcript available at http://www.whitehouse.gov/the-press-office/remarks-president-after-briefing-bp-oil-spill).

region. Indeed, a far simpler solution would be to simply withdraw the moratorium and allow businesses to operate normally.

Wood Mackenzie Research and Consulting's findings about the impact of a six-month moratorium illustrate the extent to which the offshore industry contributes to local and state economies in the nation. Their research shows that as many as 1,400 workers would be left without jobs, and as many as 46,200 jobs, both on and off shore, would go idle if the 33 drilling platforms were shut down.[14] The report goes on to say that as many as 120,000 jobs could be lost by 2014. Louisiana would lose 3,000 to 6,000 jobs alone in "the first 2-3 weeks and potentially more than 20,000 Louisiana jobs within the next 12-18 months."[15]

In addition to onshore businesses, smaller oil companies that stimulate the economy of the region will be crippled by the moratorium. Offshore drilling revolves around small businesses. The Wall Street Journal reports that the oil industry in the Gulf of Mexico was largely developed by relatively small oil and gas companies.[16] In the early 1990s "relatively small players like Kerr-McGee, Ocean Energy and Unocal were acquiring acreage in deep water; their finds helped prove the Gulf's worth to bigger brethren like Chevron, Devon Energy Corp. and Anadarko Petroleum Corp., which later bought these companies at a premium."[17] New generations of companies have started exploratory offshore businesses in the Gulf. Cobalt International Energy, for example, is already

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[14]. Kimberly Morin, *GOP Senator introduces bill to terminate Obama's economy killing drilling moratorium*, THE EXAMINER, Jun. 17, 2010 (available at http://www.examiner.com/x-9100-Boston-Conservative-Independent-Examiner~y2010m6d17-GOP-Senators-introduce-bill-to-terminate-Obamas-economy-killing-drilling-moratorium).

[15]. *Id,* citing the Wood MacKenzie Research and Consulting report. Section VI, Subsection F outlines some reasons for why my analysis predicts lower job loss projections.

[16]. Angel Gonzalez, *Stiffer Costs, Rules in Gulf Will Squeeze Smaller Players*, THE WALL STREET JOURNAL, Jun. 22, 2010 (available at http://online.wsj.com/article/SB10001424052748704256304575321104202428906.html) [hereinafter *Stiffer Costs, Rules in Gulf*].

[17]. *Id.*

experiencing delays in its business because the "U.S. government moratorium on drilling would delay the planned drilling of an exploratory well in the Gulf by six months."[18]

III.   The RIMS II Model and the Economic Impact of the Moratorium

Onshore state and local economies benefit from offshore oil production by providing goods and services to offshore oil and gas extraction sites. A variety of industries are involved in this effort: shipbuilders provide exploration vessels, permanent and movable platforms, and resupply vessels; steelworkers fashion the drilling machinery and specialized pipes required for offshore resource extraction; accountants and bankers provide financial services; and other onshore employees provide groceries, transportation, refining, and other duties. These onshore jobs, in turn, support other jobs and other industries (such as retail and hospitality establishments).

The statistical approach known as an "input-output" analysis can be used to measure the economic effects associated with a particular development project, or in this case a drilling moratorium. This approach, pioneered by Nobel Prize winner Wassily Leontif, has been refined by the U.S. Department of Commerce in the form of the Regional Input-Output Modelling System, or "RIMS II." The RIMS II model provides a variety of multipliers that measure how a plant shutdown or slowdown would affect local and regional economies in the U.S., accounting for the elimination of jobs, decreases in wages, and the drain on potential government revenues. This analysis focuses on the negative direct *and* indirect effects associated with placing a moratorium on offshore drilling.

The RIMS II model is the standard method that governmental authorities use to evaluate the benefits associated with an economic development project. According to the Commerce Department, the RIMS II model has been used to evaluate the economic effects of many projects, including: opening or closing military bases, tourist expenditures, new energy facilities, opening or

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[18]. *Id.*

closing manufacturing plants, shopping malls, sports stadiums, and new airport or port facilities.[19] State and local governments have also used the RIMS II model to perform economic analyses.

The Bureau of Economic Analysis RIMS II model provides multipliers that allow researchers to estimate the comprehensive effect on output, income, or employment as a result of changes to product outputs ("final-demand").[20]

The product outputs analyzed here are the oil and natural gas prevented from reaching the market due to operations halted on 33 existing deepwater rigs.[21] According to the Louisiana Mid-Continent Oil and Gas Association (crediting Wood & Mackenzie), 80,000 barrels of oil equivalent (both oil and natural gas) a day will not go to market as a result of the moratorium.[22] This equals 2.4 million barrels a month, and 14.6 million barrels during the six-month moratorium. I assume that the moratorium only lasts for six months, and that after this point the lost production will resume (thus this estimate may be conservative). This figure can be converted to a dollar value by applying the appropriate price.

Three final sets of demand multipliers are applied to the production loss estimate. First, BEA output multipliers measure the total decrease in economic activity—including the effect on all other industries—resulting from $1 of loss of industrial activity in a particular geographic region.[23]

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[19]. *See* U.S. Department of Commerce, Bureau of Economic Analysis, Brief Description: Applications of RIMS II (available at http://www.bea.gov/bea/regional/rims/brfdesc.cfm).

[20]. *See* Everett Ehrlich, Steven Landefeld & Betty Barker, *Regional Multipliers: A User Handbook for the Regional Input-Output Modeling System (RIMS II),* U.S. Department of Commerce, Third Edition, at 3 (Mar. 1997). ("If the user can estimate the change in final demand in the initially affected industry, the user can estimate the impact on output, earnings, or employment on the basis of final-demand multipliers.") [hereinafter *Rims II Handbook*].

[21]. My calculations are based on the provisions of the original moratorium, and do not include additional provisions provided by the July 12th moratorium. As such, my estimates are conservative.

[22]. Katherine Schmidt, *Oil Industry Predicts Damage to Economy (80,000 bpd says Wood Mackenzie),* INVESTOR VILLAGE, Jun. 4, 2010 (available at http://www.investorvillage.com/smbd.asp?mb=14535&mid=9098568&pt=msg) [hereinafter *Oil Industry Predicts Damage*].

[23]. *RIMS II Handbook, supra,* at 3, ("In this [final demand output multiplier] table, each column entry indicates the change in output in each row industry that results from a $1 change in final demand in the column industry. The impact on each row industry is calculated by multiplying the final-demand change in the column industry by the multiplier for each row.") [hereinafter *Rims II Handbook*].

Next, BEA earnings multipliers measure the decrease in wages resulting from a $1 loss of industrial activity.[24] Finally, BEA employment multipliers measure the decrease in employment (in full-time equivalent jobs) associated with a $1,000,000 decrease in industrial activity.[25] For example, in Texas the oil and gas extraction output multiplier is 2.0721, the wage multiplier is 0.5085, and the employment multiplier is 8.2985. Thus, a loss of $1 million of oil and natural gas extraction translates into a loss of $2,072,100 in annual output, $508,500 in annual wage income, and approximately 8.30 additional full-time jobs for the year.

The direct effect associated with the loss of oil and natural gas production varies by state. The same $1 million loss in production in Louisiana, for example, translates into a loss of $1,793,200 in output, $407,900 in wage income, and approximately 6.8 full-time jobs for the year.

The time period over which this loss is felt has been subject to much debate. In most cases, the BEA considers one year to be the horizon over which its multipliers will achieve full effect.[26] For our purposes, I assume that each BEA multiplier measures the changes that are expected to occur within one year.[27]

To determine the economic effect of a moratorium on deepwater oil and natural gas drilling, the BEA multipliers for "Oil and Natural Gas Extraction" are used. The multipliers are available at the county level, but since I am interested in a broader range of effects, state and national multipliers

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[24]. *See Id.* ("In this [final demand earnings multiplier] table, each column entry indicates the change in earnings in each row industry that results from a $1 change in final demand in the column industry. The impact on each row industry is calculated by multiplying the final-demand change in the column industry by the multiplier for each row.").

[25]. *See Id.* at 4 ("In the final-demand employment multiplier table, each column entry indicates the change in employment in each row industry that results from a $1 million change in final demand in the column industry. The impact on each row industry is calculated by multiplying the final-demand change in the column industry by the multiplier for each row.").

[26]. *RIMS II Handbook*, *supra*, at 8 ("RIMS II, like all I-O models, is a "static equilibrium" model, so impacts calculated with RIMS II have no specific time dimension. However, because the model is based on annual data, it is customary to assume that the impacts occur in 1 year. For many situations, this assumption is reasonable.").

[27]. *Id.*, ("RIMS II, like all I-O models, is a 'static equilibrium' model, so impacts calculated with RIMS II have no specific time dimension. However, because the model is based on annual data, it is customary to assume that the impacts occur in 1 year.").

are used in this paper. In the following sections, these multipliers are applied to production loss

estimates to determine the state-by-state, and overall effects of the deepwater drilling moratorium on

the Gulf economy.

IV.   Present Offshore Oil and Gas Reserve Estimates

As stated above, to determine the economic effect of the moratorium on offshore oil and

gas production on Gulf region, it is necessary to the estimate the lost production of oil and natural

gas for each state as a result of the moratorium. I take a two-step approach to estimate state-by-state

production in the Gulf of Mexico ("GOM"). First, GOM production figures are apportioned to the

GOM coastline states by assuming that a state's share of oil and gas reserves (and hence the benefits

of utilizing those reserves) is proportional to its share of the GOM production. Then, the dollar

value of state production is estimated by applying the current price of oil and gas to each state's

share.

For the first step, I assume that a state's production is tied to its available reserves, and by

association the state's proximity to oil. The analysis of economic impact therefore hypothesizes that

the economic benefits associated with offshore oil and gas production accrue onshore firstly in the

local communities that provide the most convenient labor, materials, and support services for

offshore production. Thus, to apportion total production to the Gulf states, I use each state's share

of the total oil and natural gas reserves in the GOM. In a previous paper, I calculated each state's

share of total oil and natural gas reserves, and I use those estimates to apportion production in the

current analysis.[28] Table 2 (all table numbers are those in my previous study) presents the result of

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[28]. In a previous paper, I apportioned OCS Planning Area reserves—and the local economic benefits associated with exploiting those reserves—by each state's share of the ocean coastline bordering an OCS Planning Area. Based on that allocation, the percentage of loss in this study allocated each state would be*: LA: 59%; MS: 6%; AL: 7%; TX: 25%; FL: .01%. See* Joseph R. Mason, The Economic Contribution of Increased Offshore Oil Exploration and Production to Regional and National Economies, American Energy Alliance (Feb. 2009).

this calculation. Louisiana stands to lose the most in terms of production, followed by Texas, Alabama, and Mississippi.

For the second step, I quantify the monetary loss by using the EIA's latest oil and gas price forecasts from the *Short Term Energy Outlook July, 7 2010*. The report indicates that for the second half of 2010, the average price of oil will be $79.00 per barrel.[29] The value of each state's production is calculated as its share of available GOM offshore oil production times $79.00 per barrel. At this price, the production losses apportioned to coastal states have the dollar values reported in Table 2 below.

TABLE 2

ESTIMATED SIX-MONTH PRODUCTION LOSS OF OIL EQUIVALENT BARRELS IN THE GOM

State	Mbbl	$ Millions
Texas	3,801	$300
Alabama	1,162	$92
Mississippi	965	$76
Louisiana	8,704	$688
Total	*14,632*	*$1,156*

Sources: The Louisiana Mid-Continent Oil and Gas Association (citing Wood & Mackenzie); U.S Energy Information Administration, Short Term Energy Outlook, July 2010; Joseph R. Mason, *The Economic Contribution of Increased Offshore Oil Exploration and Production to Regional and National Economies*, American Energy Alliance (Feb. 2009).

V.   **Decreased Investments in Offshore Oil and Gas Production will cause Substantial Losses in Wages and, Employment, and will have Profound Effects on Communities throughout the Gulf**

The BEA multipliers for "Oil and Natural Gas Extraction" are applied to the estimates of production loss to determine the probable effect of the moratorium on both Gulf region and total U.S. economic output. Section B quantifies the effect of the moratorium on employment. Section C explains the negative impact of the moratorium on wages. Section D explains the negative impact of a moratorium on local, state, and federal tax revenues. These analyses paint a bleak picture of the economic impact of the moratorium. Further, as is shown in Section E, the analyses do not even

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[29]. U.S Energy Information Administration, *Short Term Energy Outlook* (July 2010).

consider a number of loss factors, such as rigs not coming back to the GOM after leaving or the loss

of economic benefits as a result of investment in exploration.

In no way are these figures meant to be definitive. Instead, the estimates presented represent

a reasonable approach to assessing the economic impact of a deepwater drilling moratorium. In fact,

the greater conservatism of my estimates over other studies highlights the importance of the

economic costs of the drilling moratorium: the economic costs of the drilling moratorium are large

in even the most conservative economic analysis.

A. The Six-Month Moratorium on Offshore Drilling Activity Will Cost More than $2.7 Billion in Economic Activity Nationwide, and $2.1 Billion in Gulf communities

The broadest measure of the incremental effect of the moratorium is the effect on total

economic output. As discussed earlier, GDP and GSP represent the two main measures of output.

The BEA's final demand output multipliers can be used to perform a "RIMS II" analysis. First, the

production loss estimate is used to measure the change in demand. Then, the multipliers are applied

to the production estimates in Table 2 to determine the expected total decrease in output as a result

of the moratorium. In summary, the losses in output can be expected to top $2.1 billion in the Gulf

region, and $2.7 billion nationwide.

Using the production estimates from Table 2 and the BEA multipliers, the estimated

decrease in economic output based on the estimated oil and natural gas production is presented in

Table 3. It is important to note, that the multipliers in this table only provide the decrease in output

that *is generated at the same location as the decrease in production*. As an integrated economy, however,

output in one state is tied to output in other states. For example, the oil and natural gas produced in

Louisiana may be used as an input to production in Illinois or Pennsylvania. These effects may be

considered "spill-over" effects because they spread from one location to another location. Using the

individual multiplier for Louisiana would thus under-report the total loss associated with a

moratorium in Louisiana. Comparing the total U.S. result to the additive total of the output

decreases in the individual Gulf region, therefore, suggests that there are over $659 million dollars in lost spillover effects from the moratorium, for a total decrease in U.S. economic activity arising from the moratorium of roughly $2.75 billion.

TABLE 3
DECREASE IN OUTPUT FROM THE SIX-MONTH
MORATORIUM ON DEEPWATER DRILLING

State	GSP/GDP ($ Mil)
Texas	-$622
Alabama	-$138
Mississippi	-$117
Louisiana	-$1,233
Total Gulf Region	*-$2,110*
United States	*-$2,769*
Spillover Effects	*-$659*

Source: Regional Input-Output Modeling System (RIMS II), Regional Product Division, Bureau of Economic Analysis, U.S. Commerce Department; Production estimates from Table 2; Navigant Economics, LLC Calculations.

B. The Six-Month Moratorium on Offshore Drilling Could Cost Thousands of Jobs

The moratorium on deepwater oil drilling would also result in the loss of thousands of jobs, not only on the various oil rigs, but also in associated industries. The Louisiana Department of Economic Development estimates a loss of 10,000 jobs within a few months after the moratorium.[30] Moreover, they predict that the state "risks losing more than 20,000 existing and potential new jobs during a 12 to 18 month period."[31] The analysis below offers an alternative estimate for employment losses based on the RIMS II model. My results are slightly more conservative, because I only estimate the period of loss to be six months, with no residual effects thereafter. As before, effects are calculated using estimated state-level production losses.

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[30]. *Just the Facts*, *supra*.
[31]. *Id.*

1. **BEA Multiplier Analysis**

As presented above, this analysis estimates the total economic effects associated with stopping deepwater drilling. Using the BEA's final-demand employment multipliers (denominated in job-years per $1 million change in final demand), the estimated production loss in Table 1 yields the expected losses in employment in Table 4. The decrease in employment is estimated to be 8,169 full-time jobs in the Gulf region. Louisiana alone stands to lose 4,719 full time jobs. Nationwide, there will be an estimated loss of 12,046 jobs.

TABLE 4
DECREASE IN EMPLOYMENT FROM THE SIX-MONTH MORATORIUM ON DEEPWATER DRILLING

State	Jobs Lost
Texas	-2,492
Alabama	-527
Mississippi	-432
Louisiana	-4,719
Total Gulf Region	*-8,169*
United States	*-12,046*
Spillover Effects	*-3,877*

Source: Regional Input-Output Modeling System (RIMS II), Regional Product Division, Bureau of Economic Analysis, U.S. Commerce Department; Production estimates from Table 2; Navigant Economics Calculations.

These projections are lower than those presented by other studies because I estimate the period of new production loss to be only six months. However, if we were to extend the loss in new production in our model to the 18 months assumed by other sources, we would see a loss of 36,137 jobs nationally, 24,532 jobs lost in the Gulf region, and 14,156 jobs lost in Louisiana. These estimates are more in line with the projections published by the Louisiana Department of Economic Development and Wood & Mackenzie Consulting.

The state-level BEA multipliers do not account for decreases in employment outside of the state. As a result, jobs lost in one state because of the deepwater drilling being halted in another state

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are omitted from the totals. Again, comparing the nationwide jobs lost to the additive total of the state job losses, yields a spillover effect of 3,877 jobs lost for the year spanning the moratorium period for a total of just over 12,000 lobs lost, nationwide.

2.   Evaluation of the Types of Employment Loss

The BEA data can also be used to analyze the types of employment that would be lost by a moratorium on deepwater drilling. The drilling moratorium will result in job loss in the ancillary industries that support the oil industry throughout the U.S. and cause instability for thousands of Americans already coping with a turbulent economic climate. Further, the oil industry will reduce their investment in local economies as exploration and development, and later production, is moved or shut down.

Oil companies have a great incentive to invest in local communities to improve the quality of life for their employees and attract talent to their offices and rigs. Shell, for example, started a Center for Petroleum Workforce Development at their training center in 2006. The joint venture between the state of Louisiana, Louisiana State University and Shell, made the center "available to the entire industry" in hopes of encouraging oil and gas employees from around the world to develop their skills.[32] As production decreases and rigs and offices are shut down or moved, the incentive for investments such as those spurred on by Shell will evaporate.

For this analysis, job losses are broken down using specific BEA multipliers that determine which industries will stand to lose the most from the moratorium on deepwater drilling. Table 5 reports the expected total losses in employment.

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[32]. "In 2006, Louisiana announced the creation of the Center for Petroleum Workforce Development at Shell Oil Company's Robert, La., training center – the result of a joint venture agreement among the State of Louisiana, Louisiana State University and Shell by Developing the center and making it available to the entire industry, the replacement rate of trained employees will increase. The center's training concept is to have oil companies hire and send employees from all over the world to the Shell/LSU facility to obtain the highest training level possible. This process will ensure a supply of highly trained and skilled personnel. It will also help develop a long-lasting, satisfying career path for workers in the industry." See *Oil & Gas Industry of Louisiana: Exploration and Production*, Louisiana Economic Development (LED), at 3.

TABLE 5

TABLE 5
DECREASE IN EMPLOYMENT FROM THE SIX-MONTH MORATORIUM ON DEEPWATER DRILLING, BY SECTOR

Job Sector	Texas	Alabama	Mississippi	Louisiana	Total Gulf Region	United States
Agriculture, forestry, fishing, and hunting	-24	-3	-3	-29	*-60*	*-185*
Mining	-597	-168	-139	-1,230	*-2,133*	*-2,390*
Utilities	-10	-2	-2	-24	*-39*	*-49*
Construction	-15	-3	-2	-28	*-49*	*-77*
Manufacturing	-96	-24	-19	-141	*-279*	*-707*
Wholesale trade	-67	-15	-10	-130	*-223*	*-353*
Retail trade	-254	-54	-48	-510	*-865*	*-1,194*
Transportation and warehousing	-77	-13	-11	-134	*-236*	*-427*
Information	-35	-6	-4	-58	*-103*	*-208*
Finance and insurance	-130	-19	-14	-150	*-313*	*-639*
Real estate and rental and leasing	-178	-26	-16	-317	*-537*	*-819*
Professional, scientific, and technical services	-148	-24	-16	-233	*-421*	*-759*
Management of companies and enterprises	-23	-5	-7	-86	*-121*	*-194*
Administrative and waste management services	-135	-22	-13	-207	*-377*	*-706*
Educational services	-74	-19	-17	-150	*-260*	*-321*
Health care and social assistance	-277	-56	-50	-591	*-974*	*-1,270*
Arts, entertainment, and recreation	-34	-4	-4	-68	*-110*	*-243*
Accommodation and food services	-169	-36	-33	-352	*-590*	*-825*
Other services	-124	-24	-20	-252	*-420*	*-610*
Households	-24	-3	-3	-29	*-59*	*-71*
Total	*-2,492*	*-527*	*-432*	*-4,719*	*-8,169*	*-12,046*

Source: Regional Input-Output Modeling System (RIMS II), Regional Product Division, Bureau of Economic Analysis, U.S. Commerce Department; Production estimates from Table 2; Navigant Economics Calculations.

Table 5 represents the distribution of the jobs lost from the moratorium. A large proportion of job losses (approximately 38 percent) are in high-skill fields, such as health care, real estate, professional services, manufacturing, administration, finance, education, the arts, information, and management. A sizable portion of job loss will obviously occur in mining (which includes oil and gas

drilling) with these jobs accounting for over 26 percent of the total jobs lost in the Gulf region, and

about 20 percent nationally.[33]

C. The Six-Month Moratorium on Offshore Drilling Will Cause Massive Wage Loss for Workers Already Hit by Recession

The moratorium will also cause dramatic wage losses for an already distressed workforce.

Some analysts predict that wage losses could amount to $65 to $135 million per month.[34] The BEA

multipliers allow an analysis of the effect of a moratorium on deepwater drilling on wages in affected

states.

To estimate wage losses, the BEA's final demand earnings (wage) multipliers are applied to

the production estimates. Table 6 presents the results. As the data indicates, the moratorium will

result in well over $487 million in lost wages in the Gulf region, and over $707 million nationwide.

Table 6

**Decrease in Earnings from the Six-Month
Moratorium on Deepwater Drilling**

State	$ Millions
Texas	-$153
Alabama	-$29
Mississippi	-$25
Louisiana	-$280
Total Gulf Region	-$487
United States	-$707
Spillover Effects	*-$219*

*Source: Regional Input-Output Modeling System (RIMS II), Regional Product
Division, Bureau of Economic Analysis, U.S. Commerce Department;
Production estimates from Table 2; Navigant Economics Calculations.*

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[33]. For a full listing of the jobs included in "Mining", see *U.S. Census Bureau's 2007 NAICS Codes and Titles*, (available at http://www.census.gov/naics/2007/NAICOD07.HTM).

[34]. Gary Perilloux, *Groups struggle to assess oil's impact*, 2THEADVOCATE (Jun. 29, 2010)[hereinafter *Groups Struggle to Assess Oil's Impact*].

D. The Moratorium will Cause the Loss of Millions of Dollars in Taxes and other Public Revenues to Local, State, and Federal Governments

Decreased output, fewer jobs, and lost wages translate into lower tax collections and decreases in public revenues. The present analysis applies a broad measure of the total tax revenues (from all sources) that federal, state, and local governments will lose from the moratorium on deepwater drilling. The analysis, again using production loss, estimates that $97 million will be lost in state and local taxes.[35] This will translate into reduced investment in the local economy, schools, hospitals, and other necessary public services.

In order to estimate the decrease in state and local tax revenue attributable to the deepwater drilling moratorium on, the analysis follows the approach outlined by the Federal Reserve Bank of Boston to determine annual state and local tax burdens as a share of GSP.[36] For each state and the District of Columbia, the state and local tax burden can be calculated by dividing annual state and local tax revenue by annual GSP. Data for state and local tax revenues are released by the U.S. Census Bureau annually with a two year lag. As such, the state and local tax burden calculations are based on the most recent available fiscal year, 2008.[37] Those data produce the *average* state and local tax burden in 2008 in each state. The effective tax burdens are applied to the production estimates. Table 7 presents the estimated losses in tax revenues. As before, the losses in tax revenues presented have the same caveats regarding "spill-over" revenues.[38] The estimates thus represent a lower bound on potential state and local tax revenues lost from a moratorium on deepwater oil drilling.

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[35]. Note that this analysis is conservative because it does not consider the state and local taxes produced from "spill-over" effects. These tax revenues cannot be accurately measured because spill-over output cannot be attributed to particular states. Because spill-over output is significant, however, my estimate significantly understates the total incremental state and local taxes that would be produced *annually*.

[36]. Matthew Nagowski, *Measures of State and Local Tax Burden*, New England Public Policy Center, Federal Reserve Bank of Boston (Jul. 13, 2006), *available at*: http://www.bos.frb.org/economic/neppc/memos/2006/nagowski071306.pdf.

[37]. *Available at*: http://www.census.gov/govs/www/06censustechdoc.html#fiscalyr.

[38]. It is impossible to quantify these benefits because state and local taxes differ from state to state and because the BEA does not provide a means to allocate the spill-over revenues to particular states. To be conservative, the analysis estimates only the revenues that can be accurately assigned and measured.

Table 7
Decrease in State and Local Tax
Revenues from the Six-Month
Moratorium on Deepwater Drilling

State	Decrease in State and Local Tax Revenues
Texas	-$22,843,972
Alabama	-$7,247,044
Mississippi	-$8,418,401
Louisiana	-$59,356,236
Total Gulf Region	*-$97,865,652*

Sources: U.S. Census Bureau; Bureau of Economic Analysis; Regional Input-Output Modeling System (RIMS II), Regional Product Division, Bureau of Economic Analysis, U.S. Commerce Department; Production estimates from Table 2; Navigant Economics Calculations.

The decrease in economic activity resulting from a moratorium on deepwater oil drilling will also produce significant losses in *federal* tax revenues. According to the IRS, the average effective tax rate in the United States in FY2008 was 18.98 percent of GSP.[39] Applying this rate to the total oil and natural gas production loss ($1.16 billion) suggests that U.S. federal tax receipts would decrease by $219 million.[40] Applying that rate to the overall decline in economic activity results in lost Federal tax revenues of nearly $317 million.

E. Communities Nationwide will Suffer from Decreased Health, Education, Welfare, and Social Services

Communities around the Gulf and throughout the country will suffer additional negative effects associated with decreased economic activity as a result of a moratorium, including health care, education, and other community services. The oil and gas industry represents a significant portion of the Gulf region' tax revenue. In 2006, "the oil and gas industry paid more than 14 percent

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[39]. Department of the Treasury, Internal Revenue Service, SOI Tax Stats.- IRS Data Book: 2008, Table 5, (available at http://www.irs.gov/taxstats/article/0,,id=168593,00.html).

[40]. GNO Inc. estimated that the moratorium "could cut state and local tax revenue by more $700 million over four years, accruing at a rate of $8 million to $15 million a month." See *Groups Struggle to Assess Oil's Impact, supra.*

of total state taxes, licenses and fees collected by the state of Louisiana…[which represents] a

substantial portion of Louisiana's budget."[41]

The estimated decrease in employment in the health and education sectors is one indicator

of the tertiary effects associated with the moratorium. As indicated in Table 5, the drilling

moratorium would result in the loss of 974 health care providers and 260 teachers in the Gulf

region. Nationwide there would be a reduction of 1,270 health care providers and 321 teachers.

While those employment and wage losses may seem palatable on a national scale, many of

the job losses would be concentrated in small coastal towns like Port Fourchon, Louisiana (which is

home to substantial resources serving Gulf of Mexico offshore production).[42] Indeed, in some

communities the decrease in demand associated with lost jobs tied to the offshore drilling

moratorium may mean the difference between having a local hospital and school or not.

Coastal cities like Port Fourchon experienced significant growth as a direct result of their

central role in offshore oil and gas production.[43] Port Fourchon alone services half of all drilling rigs

presently operating in the Gulf of Mexico.[44] Furthermore, current plans call for more than half of all

new deep water drilling platforms in the Eastern and Central Gulf of Mexico to use towns like Port

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[41]. *Just the Facts*, *supra*.

[42]. In fact, the town houses one of the rigs that is affected by the moratorium. *See* Joe Nocera, *Moratorium Won't Reduce Drilling Risks*, Jun. 25, 2010, THE NEW YORK TIMES, (available at http://www.nytimes.com/2010/06/26/business/26nocera.html); For a discussion of Port Fourchon, *see* Loren C. Scott Associates, The Economic Impacts of Port Fourchon on the National and Houma MSA Economies, Apr. 2008, (available at http://www.portfourchon.com/site100-01/1001757/docs/port_fourchon_economic_impact_study.pdf).

[43]. The Greater Lafource Port Commission was first organized in 1960 (the surrounding community had a population of 55,381) *See* Greater Lafourche Port Commission, About Us, (available at http://www.portfourchon.com/overview.cfm); U.S. Census Bureau, Louisiana: Population of Counties by Decennial Census: 1900 to 1990, (available at http://www.census.gov/population/cencounts/la190090.txt) [hereinafter *Historical Census Data*].

[44]. *See* LA1 Coalition, Facts and Figures: Port Fourchon, (available at http://www.la1coalition.org/facts.html). The executive direct of Port Fourchon estimates that the port "services 90 percent of all the deepwater activity in the Gulf of Mexico, and all 33 of the rigs" that fall under the moratorium. *Louisiana Port Operator Pleased With Dismissal of Drilling Moratorium*, FOX NEWS, Jun. 23, 2010 (available at http://www.foxnews.com/story/0,2933,595184,00.html).

Fourchon as their service base.[45] Given the concentration of the deep water Gulf of Mexico operations at coastal communities, it is reasonable that losses to communities around the Gulf region like Port Fourchon will be substantial.

VI.   The Risk of Policy Rhetoric Regarding the Gulf and the Energy Industry

With each passing day, the Administration's moratorium on energy exploration in the Gulf of Mexico costs the region more jobs. The longer the moratorium continues, the greater the risk that these jobs won't come back. It's especially tragic that the negative economic impact of this action is harming a region that is still fighting to recover from the recent disasters of Hurricanes Katrina, Gustav, and Ike.

According to my research cited above, just under the current moratorium the Gulf Coast region will lose more than 8,000 jobs, nearly $500 million in wages, and over $2.1 billion in economic activity, as well as nearly $100 million it state and local tax revenue. The spillover effect could mean 12,000 jobs and nearly $3 billion nationwide (including almost $200 million in Federal tax revenues) in just in the first six months. If the moratorium lasts longer, some 25,000 jobs could be lost and under the worst case scenario – a permanent moratorium on all oil and natural gas production in the Gulf of Mexico – nationwide economic losses would exceed $95 billion and more than 400,000 jobs.

The data tell an unfortunate story: but the policy backlash that is building could make the moratorium look small, in comparison, and extend far beyond the Gulf, further crippling local economies, stifling one of the United State's primary economic engines, and impeding the nation's economic recovery. An administration that has spread hostility toward the health care and financial

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[45].   *See id.* Port Fourchon has seen an increase of their population to 95,554 in 2006. Overall, between 1960 and 2006, the Lafourche Parrish population grew by 72.5 percent whereas the State of Louisiana population grew 31.6 percent. *See* U.S. Census Bureau, Quickfacts, Lafourche Parrish, Louisiana, (available at http://quickfacts.census.gov/qfd/states/22/22057.html); *Historical Census Data, supra,* at note **Error! Bookmark not defined.**.

services industries is turning its attention to energy, with Congress now considering constraints on the energy – constraints that would handcuff energy development, reduce future investment in energy resources, and kill more U.S. jobs.

Specifically, the administration and some members of Congress are proposing two changes to the tax code that would put U.S. energy companies at a competitive disadvantage to foreign owned energy behemoths like BP, SINOPEC and Hugo Chavez' CITGO. Increased taxes on U.S. oil and gas companies could lead to an increase in the cost of energy to consumers, drive U.S.-based energy companies to relocate to foreign jurisdictions, and weaken our nation's energy security. Today, the U.S. energy sector supports more than 9 million jobs and about 7.5 percent of our nation's gross domestic product. But that could all be in jeopardy if these energy taxes are implemented.

Currently, the 'dual capacity' tax credit ensures that all American businesses with operations overseas receive a deduction on their U.S. taxes relative to the amount of taxes they have already paid other countries. This ensures that U.S. owned energy companies' revenues aren't taxed twice. The United States is the only country to provide a tax credit for foreign earnings in this way, however, because the United States is the only country that taxes foreign revenues, in the first place. Hence, the credit exists solely to allow U.S. companies to compete against foreign ones. Doing away with the credit, therefore, will place U.S. companies at a dramatic competitive disadvantage relative to foreign rivals.

Also on the table is a repeal of a critical deduction for all U.S. manufacturers known as Section 199. This piece of the tax code is currently enjoyed by all companies who produce goods inside American borders and employ American workers. But just like the changes to dual capacity, the President's budget and related legislation would fully repeal this incentive only for American-

owned oil and gas companies. A repeal of Section 199, would discourage investment in the nation's energy infrastructure and threaten energy production.

The Congressional Research Service already established that Section 199's repeal would "adversely affect domestic production and increase imports." According to analysis conducted on behalf of the Institute for Energy Research in 2008, a repeal of Section 199 deductions for domestic oil and gas companies would mean an increase in U.S. reliance on imported oil from politically unstable nations, would cost the U.S. economy 637,000 jobs and reduce U.S. household earnings by nearly $35 billion over the next 10 years.

Since policymakers claim that they want to enhance our nation's energy and economic security, it's counterintuitive that they would adopt energy policies that would force a greater reliance on other nations for our energy and hinder the sector's ability to provide jobs. But that's exactly what raising these energy taxes would do.

The energy industry is absolutely critical to our nation's economic health, both because of the affordable energy resources it provides and the jobs and revenues it produces. To single out any one industry for punitive tax treatment is wrong. To single out the American energy industry, by creating a tax scheme that makes it harder to compete with foreign and state-run companies, should be completely out of the question.

This policy rhetoric stirred up by the BP disaster is creating a perfect storm that could doom the nation's energy industry, costing tens of thousands of jobs, billions of dollars in economic activity, and, ironically, hundreds of millions of dollars in resources to the U.S. Treasury. The moratorium is already destroying thousands of jobs and greatly disrupting the economic activity that fuels our economy. U.S. policy uncertainty toward the energy sector is already promoting caution among prospective investors, as well as the companies themselves. And now these new tax

proposals would further eliminate oil and gas sector jobs, place new economic burdens on companies as energy prices rise, and threaten the viability of our energy sector for the future.

The President and Congress must consider the long-term economic and security consequences to their energy policy decisions. Fossil fuels continue to power our economy and, for decades companies have safely extracted these resources from the Gulf of Mexico. We're all upset about the environmental consequences of the BP spill, but short-sighted government policies could have a much worse consequence on our nation as a whole.

VII. Guidelines for Sound Supervisory Policy

Whether it is financial or environmental regulatory policy, regulators need to more effectively adapt to innovation and change. Drilling technologies have not remained static over the past thirty years. It is therefore important to keep the Administration's response in the context of the history of offshore energy policy.

As recently as March 31, 2010, President Obama proposed the opening of new stretches of water along the Atlantic, Gulf of Mexico, and Alaskan coasts to oil and gas drilling. That move marked a new era of progressive policy that matched technological and safety improvements over the previous three decades. But less than a month after President Obama unveiled his proposal, the debate was renewed by the explosion on the Deepwater Horizon oil rig 40 miles off the coast of Louisiana on April 20, 2010, Earth Day.

The escalating rhetoric makes it unlikely that current energy policy will stop at the current temporary moratorium. Repeating the analysis with the assumption that all Gulf drilling and production activity is halted can therefore be a useful exercise by providing an idea of the total amount of output, employment, wages, and tax revenue at stake.

The rhetoric needs to be replaced with a clear direction for energy regulation.

As in financial services, regulators need to be responsible for overseeing new technologies and encouraging applications of those technologies on scales corresponding with their established record of experience and safety. Too often, in both financial services and energy, regulatory investigations are stanched by politicians and officials who demonstrate a vested interest in the outcome. Whether it is the modern-day energy equivalent of the Keating five or just an official who desires a position in industry, the conflict of interests that detract from effective regulation must be addressed.

Regulators, regardless of sector, need not only clear responsibility, but clear unmitigated authority to act to investigate unfettered on the basis of their own suspicious.

The reason regulators require such freedom is that they are often investigating new applications of technologies (drilling or financial) that – because they are unproven – cannot be deemed safe or risky beyond a substantial degree of error. Nonetheless, the error must be biased in the direction of the social and economic good. That means that we can't just throw around moratoriums without economic analysis.

That also means, however, that we cannot rely on further specious applications of the precautionary principle merely in the name of public safety. The success of policies grounded in the precautionary principle depends in large part on policymakers' ability to place the risks associated with a given industry or product in the proper context. While public safety should be a paramount concern for regulators, absolute certainty about the safety of any item or application can never be scientifically *guaranteed*.

Applied in conjunction with the scientific method of investigation, therefore, the precautionary principle leads to a logical dead end. Scientific methods hypothesize experimental results based upon theories. An experiment can only support or not support a theory. Hence, the

only outcome of an experiment is another theory. No experiment, therefore, can – in and of itself – provide the one hundred percent certainty that is required of the precautionary principle.

Taken in extremis, economists Bob Hahn and Cass Sunstein have observed that "strong versions of the precautionary principle… would frequently eliminate *all* policies from consideration… because almost all policies impose risks of one kind or another."[46] The key, therefore, is to place the risks of any given policy in context, by comparing the risks of a product with the risks posed by its substitutes, and also to weigh the risks of the product against the benefits it creates.

Furthermore, policymakers who ban a known, relatively safe, element may push industries into less well-understood alternatives, the equivalent of jumping "out of the frying pan and into the fire." For instance, when the EPA attempted to regulate the use of all asbestos, federal courts intervened and over-ruled the regulation.[47] Although asbestos was harmful to humans, alternatives were deemed more dangerous and unknown.[48] In this case the precautionary principle increased risk by forcing unknown, untested substances to be used instead of known commodities.

Moreover, as long as we will be regulating new technological applications we will never have complete and unmitigated success. Hence, we will always be responding to supervisory failure and crisis and we must therefore become comfortable doing so. Whether it is financial or environmental disaster, we first need to audit our approaches to the proximate causes of the disaster, separating those that work from those that require remediation. Then, we must reward businesses operations

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[46].   *Hahn & Sunstein, supra,* at 7 ("Indeed, taken seriously, the precautionary principle can be paralyzing, providing no direction at all.").

[47].   Hahn & Sunstein provide multiple examples of such failures. For example, nuclear energy has several risks associated with it, including exposure to radiation, environmental contamination, and the threat of a catastrophic event at a nuclear facility. A strict interpretation of the precautionary rule would side against the widespread adoption of nuclear power. This perspective, however, fails to consider the environmental, health, and economic risks posed by alternative sources of power. Power generated by coal and fossil-fuel increases the threat of global warming, and nuclear power does not. Coal-based plants also contaminate the air with greenhouse gases and other pollutants, even when functioning properly; a risk not posed by properly functioning nuclear plants. The economic efficiencies of nuclear power also dwarf those of alternative power sources. *See Hahn & Sunstein, supra,* at 2.

[48].   *Id.*

based on prudent safety and technological standards, while punishing those who operate otherwise. Such an approach not only preserves economic activity and business investment, but provides incentives to direct investment rationally toward safe and sound applications of technology and away from socially harmful alternatives.

In summary, we need to be careful to preserve capitalism while acting, occasionally, where markets cannot. In such actions, however, we want to preserve, not usurp, market functions by helping align incentives so that markets can effectively *magnify* the effects of policy. All too often, however, poorly designed policy is obviated by markets, as firms contort their operations to meet the letter – while obviating the intent – of specific outdated and onerous regulations.