

ECONOMIC IMPACT OF FAILURE TO IMPLEMENT LEGISLATIVE  
MANDATES OF SEC 369, ENERGY POLICY ACT 2005

A WHITE PAPER

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## OUR NEED FOR DOMESTIC ENERGY IS INCREASING, NOT DECREASING

It is abundantly clear that US economy depends on affordable and available supplies of energy. While recent attention is being paid to prices, the long-term outlook places doubt on adequate supply. It is easy to see that the greater our domestic supply, and the more imported oil that is produced in the Western Hemisphere, the more secure will be our Nation and Economy.

Congress recognized these facts when they passed the Energy Policy Act of 2005 (Act). In particular, Sec 369 of that Act focused directly on promoting the development of liquid fuels from the Nation's vast unconventional hydrocarbon resources. In particular, the law provided for the leasing of federal oil shale lands and the study and mitigation of technical, economic and regulatory impediments to unconventional fuels development.

Immediately following passage of the Act, the Departments of Energy and Interior, assisted by the Department of Defense set about to pursue the mandates of Sec. 369. Tangible progress had been made in the prior Administration and this progress is outline in the Appendix at the end of this paper. However, further progress toward the goals of Sec 369 have not only languished, but in certain instances have been obstructed by the current Administration.

Given the increasing need for domestic energy, and the long lead times needed to produce such resources, what are the potential impacts of obstruction and delays in development of these resources?

## DEVELOPMENT OF RECOMMENDATIONS

Following passage of the Act an Unconventional Fuels Task Force was formed comprised of cognizant federal agencies (Energy, Interior and Defense), States that contained resources (Colorado, Utah, Wyoming, Kentucky and Mississippi), and local officials from potential producing areas.

The Task Force was staffed by the Office of Petroleum Reserves, Office of Naval Petroleum and Oil Shale Reserves (NPOSR) who were charged with the responsibility of executing the mandates of Sections 369 (h) and (i). As of the end of 2008 NPOSR had completed all requirements save the "implementation" part of the program. That path to implementation is clearly defined in both the subject Task Force Report and the Strategic Plan: Unconventional Fuels Development within the Western Energy Corridor, both found at [www.unconventionalfuels.org](http://www.unconventionalfuels.org).

Simultaneously, the US Dept of Interior pursued their mandate to promulgate leasing regulations for oil shale. Part of this effort also involved the preparation of a Programmatic Environmental Impact Statement (PEIS), the updating of Resource Management Plans (RMPs) in the oil shale resource areas, and the offering and issuance of technology Research,

Development and Demonstration (RD&D) leases. By the end of 2008, the Dept. of Interior had completed the PEIS, had awarded 6 RD&D leases and on Nov 18, 2008 issued final leasing regulations.

The Unconventional Fuels Task Force prepared a schedule for development and itemized in some detail the impediments to that development. Many of these impediments have their origins in policy and legislation controlled by the Federal Government. The greatest limitation to expeditious oil shale development is the uncertainty over access to resource and understanding of Federal regulations governing Federal lands. Had these impediments been mitigated, and leasing proceeded as mandated in Sec 369, the US would be well on its way to substantial production of oil from these vast, secure domestic resources.

Instead, not only has the current Administration failed to implement the Task Force action items, but has actually withdrawn leasing, which would have engaged the private sector in advancing development. Additionally, they have allowed the regulatory process to remain in a state of confusion. In particular, they have threatened to reopen the RMPs, and they have threatened to change the terms of the RD and D leases. The Administration (through the Department of Interior) has been complicit in a recent court ruling (Feb 15, 2011) delaying indefinitely the commercial and RD and D lease activities. All of this adds uncertainty to any investment, and causes capital to remain on the sideline.

The question some in Congress are asking, is ‘what are the implications of these adverse policies to our Nation’s energy supply and economic security?’ The adverse impact of this Administrative action can be quantified by comparing the *possible* with the *reality*.

#### THE ECONOMIC IMPACTS OF FAILURE TO IMPLEMENT RECOMMENDATIONS

As part of the Strategic Unconventional Fuels Program, the Office of Naval Petroleum and Oil Shale Reserves developed an economic model to project potential economic benefits that would accrue from an oil shale industry over a 25 year period, 2009 – 2035. Three different development scenarios were modeled on 2010 \$45/bbl and 2035 \$65/bbl oil:

1. Base Case: production of 0.5 million barrels per day by 2035 had no Government incentives other than a \$40/bbl floor and was based on development of three major insitu production companies.
2. Moderate Case: Production of 1.5 million barrels per day by 2035 had a \$40/bbl price floor and a \$5/bbl production tax credit and was based on six insitu projects and one surface retorting operation.
3. Accelerated Case: Production of 2.4 million barrels per day by 2035 with a price floor of \$40/bbl, \$5/bbl tax credit, and cost shared demonstration facilities for three technologies and was based on a variety of 17 projects.

Each scenario had a pre-production start-up time from between nine years for the Base and Moderate Cases and four years for the Accelerated Case. The clock on these cases was to

have started in 2008. Indeed, the Department of Interior promulgated regulations for leasing on November 18, 2008.

With oil prices currently in the \$100/bbl range and 2010 monthly closing prices averaging \$79/bbl the economic benefits calculated in the model are modest. There are few experts who foresee an appreciable decline in future oil prices while many predict dramatic increases based upon continuing supply uncertainty and growing demand in developing nations. Technological progress in the private sector has been increasingly aggressive and productive. The cumulative economic benefits of the three cases in the model are:

<i>Timeframe = 25 years</i>	<i>Base</i>	<i>Moderate</i>	<i>Accelerated</i>
<b>Production (Billion Bbls)</b>	0.8	1.4	2.2
<b>Federal Revenue</b>	11	15	29
<b>State &amp; Local Revenue</b>	7	13	23
<b>Public Sector Revenues</b>	18	28	52
<b>Growth in GDP</b>	71	146	255
<b>Value of Imports Avoided (Billions \$)</b>	52	108	215

To adjust the model numbers to reflect the current situation, the following assumptions are applied:

1. Oil price is increased by a flat 20% (the difference between the monthly closing average in 2010 of \$79/bbl and the models 2035 price of \$64/bbl). This is obviously very conservative since the difference in the 2035 price in the model and closing price of oil on March 1, 2011 was close to 40%.
2. There is no need for price floors, tax credits, and Federal cost-shared demonstrations.
3. All projects are delayed by half of their economic life, or approximately 12 years.

Under those very simplified assumptions, that do not account for the loss of time value of money nor current oil price escalation, the cost of government inertia is substantial, as below.

<i>Timeframe = 25 years</i>	<i>Base</i>	<i>Moderate</i>	<i>Accelerated</i>
<b>Production (Billion Bbls)</b>	0.4	0.7	1.1
<b>Federal Revenue</b>	6.6	9	17.5
<b>State &amp; Local Revenue</b>	4.2	7.8	13.8
<b>Public Sector Revenues</b>	10.8	16.8	31.2
<b>Growth in GDP</b>	42.6	87.6	153
<b>Value of Imports Avoided (Billions \$)</b>	31.2	64.8	129

It should also be noted that oil shale development, as with other oil and gas industry developments, are a source of high paying employment. In the negative employment environment we are now experiencing in the United States it is estimated that delay of oil shale development would result in the loss of high-paying direct jobs on the order of 4850, 13,000, and 21,700 for the Base, Moderate, and Accelerated Cases respectively.

Additionally, indirect jobs in the private service sector are several times the number of direct jobs, and these are lost as well.

## CONCLUSIONS

What makes oil shale important to United States national security is the nature of the resource itself. It is the largest hydrocarbon resource on earth. On a per acre basis, it is the most concentrated oil bearing resource on earth. Yet as a nation, we continue to avert attention from this valuable resource and consciously impede and deny those actions that are required to develop U.S. domestic resources in a safe and environmentally responsible manner. We continue, as a Government, to foreclose on our own success. This is mysteriously destructive behavior. In the Energy Policy Act of 2005 the President and the Congress of the United States declared that unconventional fuels, including oil shale, ***“are strategically important resources that should be developed to reduce the growing dependence of the United States on politically and economically unstable sources of foreign oil imports”***.

Today the implied threat engendered in those words could not be more poignant. Recent unrest throughout the Arab lateral has driven world oil prices over \$100/bbl. In Section 369 of the Act Congress outlines a rational process to begin the requisite planning and analysis to fully understand and eventually develop our domestic oil shale resources. The important work accomplished by DOI has been indefinitely suspended through the settlement of the oil shale leasing regulations suit. The Unconventional Fuels Program within the Office of Petroleum Reserves in the DOE is being de-funded and essentially abandoned. All the extensive preparatory work accomplished by the Task Force and Ad Hoc Working Group is to be ignored and archived, to the detriment of the nation’s energy security. It is in the hands of Congress to require that the provisions of the law be executed in a manner that will assure the objectives of the Act are accomplished.

## APPENDIX – SUMMARY OF SEC 369 AND MANDATED ACTIVITIES

### **SEC. 369. OIL SHALE, TAR SANDS, AND OTHER STRATEGIC UNCONVENTIONAL FUELS.**

*Declaration of Policy. – Congress declares that it is the policy of the United States that*

- (1) United States oil shale, tar sands, and other unconventional fuels are strategically important resources that should be developed to reduce the growing dependence of the United States on politically and economically unstable sources of foreign oil imports;*
- (2) The development of oil shale, tar sands, and other strategic unconventional fuels, for research and commercial development, should be conducted in an environmentally sound manner, using practices that minimize impacts; and*
- (3) Development of those strategic unconventional fuels should occur, with an emphasis on sustainability, to benefit the United States while taking into account affected States and communities.*

There followed a number of provisions (Sections) of the Act to assign responsibility and assure implementation of the policy.

#### **SECTIONS (c) thru (e): *Leasing Program for Research & Development; Programmatic Environmental Impact Statement and Commercial Leasing Program for Oil Shale and Tar Sands.***

The Secretary of the Interior was required to implement an oil shale and tar sands R&D leasing program to include: a Programmatic Environmental Impact Statement within 18 months; final leasing regulations not later than 6 months after the EIS; and begin commercial leasing no later than 180 days after publication of the subject regulations.

*Accomplishments: The PEIS and leasing regs have been completed. No commercial leasing has been offered or begun.*

#### **SECTION (h): *Task Force.***

The Secretary of Energy, in cooperation with the Secretary of the Interior and the Secretary of Defense was to establish a Task Force to develop a program to coordinate and accelerate the commercial development of strategic unconventional fuels and initiate partnerships with Alberta and nations with oil shale resources. Further, the Task Force was to make such recommendations regarding promoting the development of strategic unconventional fuels resources within the United States as it deemed appropriate. The Act directs that the Task Force provide Congress and the President a report that describes their analysis and recommendations within 180 days. (Section 369(i) of the Act designated the Office of Petroleum Reserves to coordinate and provide staff support to the Task Force.)

***Accomplishments:***

- Task Force established, with representatives of Sec. of Energy, Defense, and Interior; Governors of Colorado, Utah, Wyoming, Kentucky and Mississippi; and three local representatives from potentially effected counties – January 2006.
- Twelve Task Force Meetings and three conference calls held - March 2006 and December 2009.
- Initial Report to Congress: “*Development of America’s Strategic Unconventional Fuels Resources*”, forwarded to Congress and the President – September 2006.
- Three Volume comprehensive report, with recommendations, “*America’s Strategic Unconventional Fuels*”, forwarded to the President and Congress – February 2007.
- Last Annual Report to Congress – December 2008

**SECTION 369 (i): *Office of Petroleum Reserves.* -**

Directed the Office of Petroleum Reserves to coordinate the creation and implementation of a commercial strategic fuel development program; promote and coordinate actions that facilitate development; and evaluate importance of fuels for the security of the United States. The Act directs the Secretary to submit a report to Congress and the President on activities under this section.

***Accomplishments:***

- Report to Congress and President, “*Activities, Accomplishments, and Plans Related to Section 369 of the Energy Policy Act of 2005*” completed and forwarded to Office of Management and Budget for clearance - January 2006.
- Established an Ad Hoc Unconventional Fuels Working Group, over 30 representatives of public and private interests, convening multiple strategic planning meeting - Jan. 2006 - October 2009.
- Ad Hoc Working Group Strategic Plan - November 2008.
- Comprehensive economics decision model “*National Unconventional Fuels Model*” - December 2005.
- Report profiling companies engaged in domestic oil shale and tar sands resource and technology development “*Secure Fuels from Domestic Resources*”- June 2007.
- Report “*Carbon and Water Resources Impacts from Unconventional Fuels Development in the Western Energy Corridor*” – Los Alamos National Lab Draft Completed June 2010.
- Report “*Oil Shale Research in the United States*”- June 2009

**SECTION 369 (l): *Cost-sharing Demonstration Technologies.*-**

The Secretary of Energy shall identify technologies for the development of oil shale and tar sands ready for demonstration at commercially representative scale. ( Responsibility to Office of the Deputy Assistant Secretary for Oil and Gas Research and Development.)

*Accomplishments: None, due to lack of funding or appropriations.*

**SECTION (m): National Oil Shale and Tar Sands Assessment.-**

The Secretary of the Interior shall carry out a national assessment of oil shale and tar sands for the purpose of evaluating and mapping oil shale and tar sands deposits in the Green River Basin of Colorado, Utah, and Wyoming, Devonian shales east of the Mississippi; and areas of the central and western U.S. including Alaska, in that order of priority.

*Accomplishments: USGS has completed mapping the Colorado oil shale resource, increasing probable reserves estimates by 500 million barrels. Currently concluding work on Utah Green River Resource.*

**SECTION (p): Heavy Oil Technology and Economic Assessment.-**

The Secretary of Energy to update 1987 technical and economic assessment of domestic heavy oil resources prepared by the IOGCC, to include all of North America and all unconventional oil, including heavy oil, tar sands (oil sands) and oil shale. (Assigned to the Office of the Deputy Assistant Secretary for Oil and Gas Research and Development.)

*Accomplishments:*

- Report “A Technical, Economic, and Legal Assessment of North American Oil Shale, Oil Sands, and Heavy Oil Resources” - September 2007.  
University of Utah

**Conclusion:** The Task Force concluded that: *“The Nation is substantially at risk, from an economic and security perspective, to warrant development of an unconventional fuels program with attendant policies and government actions to promote and accelerate industry development”*. There has been misguided criticism regarding what is perceived as a recklessly accelerated pace of development of unconventional resources. Criticism that is founded in a distorted and exaggerated recollection of the history of past attempts to develop these resources and fueled by an almost complete misunderstanding of the objectives of Section 369 and subsequent analyses and plans published by the DOE. The intent of the Unconventional Fuels Program is to design a creative, rational, effective, and measured development roadmap that will mitigate the impacts the critics seem to believe are inevitable. The approach envisioned and designed by the Task Force and the Ad Hoc Unconventional Fuels Working Group is essentially an integrated regional energy development roadmap called the Western Energy Corridor Initiative.

Without such a roadmap; without a clear understanding of the technical, economic, and social impacts associated with developing these resources – solid decision-making based on facts gives way to decisions based on fear, innuendo, and misinformation. A worse scenario

would be to rush development of unconventional resources in response to crisis, in the same manner as the ill-fated and much criticize Colony project in 1982. The reason this is such an important program is to prevent what the critics fear the most.

#### [About the authors](#)

Anton (Tony) Dammer served as Director of the US Office of Naval Petroleum and Oil Shale Reserves (NPOSR) from 1988 until he retired from Government in 2008. During that time he managed the US interests in these important domestic resources, and was the driver to raise the profile on oil shale over the past decade. He can be reached at [anton.dammer@gmail.com](mailto:anton.dammer@gmail.com).

James Bungler has conducted research in unconventional fuels for more than 40 years. He served as technical project consultant for NPOSR, and co-authored the 2004 DOE publication Strategic Significance of America's Oil Shale Resources, credited by some as reinitiating the technical and policy dialog on US oil shale. He can be reached at [jwba@jwba.com](mailto:jwba@jwba.com).