Comments to the White House regarding the EISA Section 933 Energy Security Report to Congress

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The following comments are submitted as input to the content of the report the White House is required to submit to Congress under Section 933 of the Energy Independence and Security Act (EISA). This memo focuses on the role of Canadian oil sands, traditionally known as tar sands, and suggests that the White House begin dismantling myths about the supposed key role of oil from tar sands to provide energy security. We argue that growth in tar sands imports cannot provide energy security to the United States.

Summary

Proponents of large scale rapid expansion of the tar sands often say that every barrel of tar sands oil burned in the US is one less barrel from countries that "don't like us." According to this argument, Canada – a politically stable, free trade-friendly neighbor – is a secure source of oil that can help to reduce US dependence on unstable and unfriendly regimes propped up by burgeoning oil revenues.

However, scratch beneath the surface of the energy security argument and we find that tar sands cannot significantly contribute to US energy security because they:

- Are expensive, requiring oil prices to be as high as possible to turn a profit;
- Cannot respond quickly to supply shortages because of huge infrastructure requirements, high capital intensity and lack of spare capacity;
- Will not reduce OPEC's share in the global oil market or undermine OPEC's power;
- Will perpetuate America's dependence on oil, undermining the economics of the alternatives that bring genuine energy security.

In comparison, efficiency offers America a solution for which it does not have to compromise the environment, jobs, the economy or its values. America can reduce its daily oil consumption to a greater degree than tar sands production can augment supply. This will make America more secure, reducing expenditure on energy and easing the national deficit. It will also bring the added benefit of reduced greenhouse gases (GHGs), cleaner air in the nation's cities and along its highways and negate the need to destroy vast swathes of Alberta or our own last wilderness areas. Importantly, we cannot have it both ways: commitment to tar sands impedes America's ability to move the new energy agenda.

By embracing an aggressive reduction in oil consumption, we make this country infinitely more secure than opening up a few new sources here and there ever will. In

the words of retired Vice-Admiral Dennis McGinn to a recent Senate Foreign Relations Committee, "…*not just foreign oil – but all oil – and not just oil but all fossil fuels, pose significant security threats to military mission and the country."*

In this briefing we will first detail why tar sands does not make America more energy secure. We will then explain that by embracing the inevitable clean energy future, America is already helping to stabilize the oil market and has the potential to go much further, thereby releasing the stranglehold oil has on America's economy and bringing real security.

Tar Sands and Energy Security: The Myths

There are legitimate security concerns relating to the effect of rising oil prices on the economy, the threat of politically motivated supply squeezes and the channeling of funds to adversaries. However, tar sands do nothing to alleviate these concerns. In this section we dispel some of the myths frequently heard regarding the tar sands.

Myth 1: Tar sands oil helps to stabilize or reduce oil prices

Reality: Tar sands production does not stabilize oil prices because:
- tar sands producers need high oil prices over the long term;
- tar sands production will never challenge OPEC's role as price setter because it can never match OPEC's ability to maintain spare capacity;

Its impotency in stabilizing prices is evidenced by the fact that the recent boom in tar sands production did nothing to stop oil prices getting out of control in 2007-8.

Tar sands producers need $4 gas

Tar sands oil is widely described in the industry as the 'marginal barrel'.[1] This means it is the most expensive oil being produced in the market and as such makes the producer a smaller profit than other oil.

Tar sands production that was brought on stream in the early part of this decade may make a profit at $40 per barrel (/bbl).[2] But to grow production most producers are looking for average oil prices to stay above $75/bbl.[3] In fact for tar sands to really make

[1] International Energy Agency, June 2009. *Medium-Term Oil Market Report*. P.48
[2] The Toronto Star, 30 January 2009. *Oil sands cost $38 U.S. a barrel, Shell CEO says*.
[3] International Energy Agency, World Energy Outlook 2009.

a profit over the long term, the industry is looking for prices above $120/bbl[4]. When the oil price hit that level in May 2008 US gasoline prices averaged 373.5 cents per gallon.[5]

The industry's requirement for a high oil price was sharply demonstrated when the oil price crashed in the fall of 2008. Within a few months dozens of tar sands projects were shelved. Of the 2 million barrels a day (mb/d) of non-OPEC production capacity shelved in this period, 1.7mb/d – 85% was Canadian tar sands capacity.[6]

Whether the market will support the high prices sought by the industry over the long term is open to question (see Box 1) but what is certain is that there will only be more tar sands oil if consumers pay more for it. In other words, the presence of tar sands oil is a symptom of high gas prices, not a cause of low ones.

OPEC power will grow with or without tar sands

Perhaps the most compelling political reason to increase tar sands imports despite the toxic contamination and high carbon footprint they cause, is the idea that they can replace oil from declining fields or unfriendly countries. But this benefit is of trivial significance, because of the nature of the global oil industry. If Canada produces more, OPEC will produce less; the total supply and the price will stay the same. Furthermore, even if the US were to stop buying OPEC oil altogether, which is highly unlikely in the next 10 years, it would not change the fact that OPEC would have enough customers and market share to control the world market. The US imports no oil from Iran, for example, yet the Iranian regime benefits from selling oil at full price on the world market.

With little or no spare capacity and huge capital and time requirements attached to capacity growth, tar sands production poses no threat to OPEC.

The International Energy Agency (IEA) forecasts that OPEC's domination of global oil supply is set to rise; with or without tar sands growth. In its 2009 reference scenario, OPEC's market share rises from 44% in 2008 to 52% in 2030. This is despite tar sands

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[4] Canadian Energy Research Institute, 03 November 2009, *Oil Sands Industry Update: Production Outlook and Supply Costs 2009-2043, Media Brief.*

[5] See http://www.data360.org/dataset.aspx?Data_Set_Id=428 for monthly averages for WTI oil price and http://www.eia.doe.gov/oil_gas/petroleum/data_publications/wrgp/mogas_history.html for history of gasoline prices. We used regular gasoline as a marker and averaged the four weekly prices listed for May 2008.

[6] International Energy Agency, June 2009. *Medium-Term Oil Market Report*

production potentially reaching 3.9mb/d as non-OPEC conventional production is in terminal decline.[7]

Even with this aggressive growth scenario for tar sands that represents 18% growth in OPEC's share of the global oil market. Moreover, the reference scenario does, by the IEA's own admission, bring ecological disaster for the planet by failing to keep GHG concentrations in the atmosphere below 450 parts per million (ppm). The IEA's 450ppm scenario however, sees tar sands growth heavily impacted by a reduction in oil demand and price.

In this scenario OPEC's global market share rises three points further to 55% but the US will be importing 33% less oil overall. By contrast, the reference scenario sees US import dependence declining by a mere 5%.

In the reference scenario, the US is importing more oil from Canada but remains barely less dependent on imports from OPEC. The decline in non-OPEC sources of conventional oil is such that OPEC's market share rises despite tar sands growth. Further, this rise in OPEC's power over the market means that the cartel exerts ever more control over prices.

Spare capacity brings the power to set prices and the tar sands has none

The ability to control oil prices is in the hands of those who have spare capacity or the ability to add spare capacity relatively quickly. Currently, Saudi Arabia has over 4mb/d of spare capacity enabling it to control oil prices at the turn of a valve. Other OPEC producers are said to be sitting on 2-3mb/d of further spare capacity.[8]

It is fair to say that in the years leading up to 2008, OPEC lost some control. Demand was growing fast and OPEC spare capacity all but disappeared as it struggled to bring on sufficient new supply. While there were clearly political problems with supply growth in Iran, Iraq and Nigeria, other OPEC countries invested heavily in new capacity. Saudi Arabia in particular developed a massive 2.5mb/d of new capacity between 2007 and 2009[9] but this did not come on stream fast enough to prevent oil prices getting out of control. Within nine months of the economic crash and the drop in global oil demand it finished work on these new fields including the biggest oil field expansion project in the history of the oil industry.[10] Saudi capacity is now 12.5mb/d, some ten times that of the

[7] International Energy Agency, World Energy Outlook 2009.
[8] OPEC World Oil Outlook 2009
[9] Tamsin Carlisle, The National. *Saudi Aramco gears up for record oil production* http://www.thenational.ae/apps/pbcs.dll/article?AID=/20090728/BUSINESS/707289986/1050/rss
[10] Ibid.

Canadian tar sands. With 4mb/d currently being held back as spare capacity, Saudi's position as swing producer remains unassailable.

In contrast, between 2003 and 2008 tar sands production grew by a mere 350,000 b/d to reach 1.2mb/d.[11] While global oil demand grew by 8mb/d between 2003 and 2007 the tar sands industry spent nearly $50 billion to add this increment.[12] The impact of this so-called tar sands boom on rising oil prices during this period appears negligible.

The tar sands industry simply does not have the ability to challenge Saudi Arabia's or OPEC's role in maintaining spare capacity. This is because bringing on new tar sands capacity is such a capital intensive process that no private company could afford to idle capacity.

Myth 2: Buying Canadian oil diverts money away from unfriendly and unstable regimes

Reality: When we crunch the numbers, we find the benefits of buying additional oil from Canada are trivial.

At $75 a barrel, the 800,000 b/d of tar sands oil the US has been importing in the last year will send around $22 billion to Canada in a year. In comparison, OPEC countries netted $971 billion in 2008 and are estimated to net $576 billion in 2009 and $750 billion in 2010.[13] The $22 billion they are not earning because of the tar sands is little more than a drop in the ocean, the more so because of the way the cartel operates.

The way OPEC works means that as non-OPEC production increases, the cartel has the choice to either maintain its production levels, allowing prices to drop, or cut its production and maintain prices. The former spreads the loss between all members, whereas the latter primarily affects the members with the largest spare capacity – predominately Saudi Arabia. Either way, when you look at the figures involved, the effect on any one producer is marginal. Therefore, any country that really intends the US harm is not financially prevented from doing so by the diversion of oil funds to a non-OPEC country.

[11] Canadian Association of Petroleum Producers, Statistical Handbook 2009. http://www.capp.ca/library/statistics/handbook/Pages/default.aspx
[12] Ibid. based on capital expenditure for years 2004 to 2007 inclusive.
[13] http://www.eia.doe.gov/emeu/cabs/OPEC_Revenues/Factsheet.html

The IEA World Energy Outlook estimates that between 2008 and 2030 OPEC countries will net $30 trillion from oil exports which is some five times more than they have in the last 23 years.[14] This figure only changes slightly between the scenarios. Again growing tar sands production appears to have no significant impact on this.

Various US military strategic advisers and planners are recognizing today that the only way to insulate America from the threats posed by oil dependence is by ending oil dependence rather than hoping that supply increases will diminish the problem.

Myth 3: Importing oil from Canada means that we are less susceptible to an adversary cutting off our supply

Reality: Canadian tar sands oil does not protect us from a supply crisis because there is no spare capacity to fill a gap and neither is there likely to be (see above). Strategic petroleum reserves (SPR) do this job for us and have done it adequately for 36 years. Decreasing demand will make the SPR even more effective and reduce further the efficacy of the 'oil weapon'.

In October 1973, in response to US support for an Israeli invasion of Syria and Egypt, Middle Eastern oil exporters blocked shipments to the US. The result was the first oil shock, recession, inflation and an ingrained mistrust of Middle Eastern oil suppliers in the US.

A response to the crisis was the creation of the strategic petroleum reserves. This was the mission for which the IEA was founded in 1974. Today the combined strategic reserves of IEA member countries can replace a supply disruption of 4mb/d for one year.[15] China, India and Thailand are also building reserves to protect themselves with the knock-on effect of further insulating the global market from a major supply disruption.

This has severely undermined the effectiveness of the "oil weapon," evidenced by the non-reoccurrence of such an embargo in the last 36 years. Most supply disruptions since have been caused by natural events such as Hurricane Katrina, when IEA reserves released 60 million barrels to calm the market, and political events that cause general disruptions such as the invasion of Iraq, the Iranian revolution or the ongoing conflict in the Niger Delta.

Whatever the cause of supply disruption, the lack of spare capacity within Canada's tar sands production means it can only play a minor role in maintaining existing supply and has no ability to enhance production in times of need.

[14] IEA World Energy Outlook 2009, P.109
[15] IEA World Energy Outlook 2009, P.119

Myth 4: Peak Oil means that we need tar sands oil

Reality: Even the most aggressive tar sands growth cannot keep pace with declining oil production indefinitely, and any attempt to keep pace will cause catastrophic climate change.

Peak oil is a much contested concept and we do not have space here to discuss the specific arguments and data. It is however commonly accepted that some of the world's biggest oil fields are in decline, particularly the Cantarell field in Mexico, the North Sea and various fields in the US, which as a nation reached peak oil production in the 1970s.

If we look at all possible sources of oil including unconventional oil such as tar sands and other difficult to access oil such as ultra-deep water, the arctic and elsewhere we could argue that there is plenty of oil still to be drilled; but at what cost?

The IEA has suggested in its latest report that non-OPEC conventional oil will start to decline in the next 1-2 years. It suggests in its reference scenario that to meet future demand OPEC countries will make up for most of the decline in non-OPEC conventional production with unconventional oil, dominated by Canadian tar sands, making up most of the rest.

The IEA acknowledges, however, that not only does this situation fail to address climate change but it also will lead to high oil prices, high oil import dependence for major economies and consequently a volatile economy with greater propensity for conflict. The IEA scenario in which the climate is stabilized only sees a marginal growth in tar sands because of demand reduction policies aimed at reducing carbon in the atmosphere.

It is clear that the decline of non-OPEC oil supply cannot be ameliorated by increasing tar sands production. In fact policies that fail to address climate change, thereby creating market conditions that allow growth in tar sands production, simultaneously exacerbate energy security issues because they fail to address oil dependence. The peak oil question becomes mute if aggressive policies to reduce oil demand are pursued. This policy path leads to genuine energy security, will help to address climate change and negate the need to exploit the tar sands.

Myth 5: Fuel diversification, electric cars and efficiency are all good, but we should also expand tar sands, just in case

Reality: Once massive investments in tar sands infrastructure are made, the incentive to decrease oil use is weakened and the transition to a clean energy economy is disadvantaged.

The next section of this briefing discusses how we can reduce oil demand and be more secure. However some people question whether we can rely on efficiency and diversification and perhaps should hedge our bets by also encouraging tar sands production.

The problem with this is the effect that it will have on the economics of the efficiency and diversification transition.

Once billions of dollars of infrastructure to extract, process and transport tar sands crude oil is built costs are 'sunk' and the economic case to keep producing primarily becomes one of marginal cost of production. So "expanding capacity just in case" is really a decision to expand production no matter what.

In this situation clean technology solutions are competing against the marginal cost of tar sands production and not the average cost, which is marginal costs plus fixed costs.

While the "just in case" strategy may help in the short term we have to weigh the impact it may have on the longer term strategy to enhance energy security.

Fundamentally, once we accept that the problem cannot be adequately solved through a supply side solution, i.e. opening up ever more marginal sources of oil, the question becomes what can be achieved through demand side strategies. It is the potential of these strategies that we examine in the next section.

Energy Security Through Demand Reduction

"…every time that the United States or non-OPEC production increases OPEC decreases its production accordingly (…) So, we'll drill more, they will drill less. It won't affect the price. It won't affect the amount of oil in the market. (…) it's not going to break the monopoly of oil in transportation (…) it's a short-term solution and it essentially keeps oil as the only game in town and, therefore, it doesn't move us closer to energy independence really because energy independence is not about autarchy. It's not about not importing oil from other countries. It's about breaking oil's monopoly. It's about stripping oil of its strategic status. That's what energy independence is….

Gal Luft, Executive Director of the Institute for the Analysis of Global Security (10/15/2009).

Gal Luft's insight into America's oil problem goes to the heart of the tar sands issue. Adding supply makes no difference to the strategic status of oil, breaking oil's monopoly on transportation does.

So can we reduce oil demand in America enough to reduce oil's strategic status and put the country on a path to a more secure energy future? We believe we can cut America's oil demand in half by 2030 and we have already made great steps towards doing so. What we need now is to redouble our commitment to efficiency and diversification to cement the course we have already started upon.

The Deutsche Bank peak oil market report mentioned in Box 1 noted that the US is, "…*the last market-priced, oil inefficient, major oil consumer*."[16] The report goes on to detail how the massive scope for efficiency take-up in the US has the potential to end oil's dominance over transport forever.

This fact was recognized by this administration. The implementation of legislation to bring forward CAFE standards to 35.5mpg by 2016 and the granting of the right of individual states to set their own more rigorous standards marks a watershed for what analysts perceive to be a game-changing shift to more efficient oil use in the US economy. The opportunity to restructure the auto industry demanding more efficient vehicles in the process has also created seismic shifts.

These shifts have been recognized by industry analysts and have caused a rethink regarding the future shape of oil demand. Analysts at JBC Energy[17] forecast in July 2009 that by 2020 US gasoline demand would fall dramatically to 5.3mb/d. This is compared to a peak of 9.5mb/d in 2007. The analysis examined the effect of ethanol blending, CAFE standards, hybrid and other alternative fuel vehicles (EVs, CNG and LPG) market penetration and a marginal shift from gasoline to diesel.[18]

Deutsche Bank meanwhile sees massive potential for the hybrid and notes that the technology has much greater potential for efficiency than has been initially realized. Their analysis sees more moderate savings to 2020 but forecasts US gasoline demand in 2030 to fall to 4.9mbpd.[19]

Both of these analyses focus on specific elements of the transition ahead, primarily the potential for automobile efficiency gains and the market penetration of new technologies.

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[16] Deutsche Bank Global Markets Research, 04 October 2009. *The Peak Oil Market: Price Dynamics at the end of the oil age*. Subscription Only. P.4
[17] See www.jbcenergy.com
[18] JBC Energy Market Watch, July 2009. Subscription Only.
[19] Deutsche Bank Global Markets Research, 04 October 2009. *The Peak Oil Market: Price Dynamics at the end of the oil age*. Subscription Only.

One of the most startling figures in the Deutsche Bank report is that detailing the nature of the majority of US light duty passenger vehicle trips. The data points to the huge potential for savings not only from technology that can make these trips more efficient, which Deutsche Bank focuses on, but also from the potential of structural changes in development and urban planning that could simply reduce the number of such trips.

Reducing Vehicle Miles Travelled through Smart Growth

Technology to make vehicles more efficient can make big dents in America's oil use but unless we address the quantity of miles driven in America the savings may be undermined by the increase in vehicle miles travelled.[20]

97% of US private vehicle trips are under 40 miles, 91% under 20 miles. These trips are typically commutes to work or shopping trips involving congested traffic conditions and stop-start driving patterns. The Deutsche Bank report notes that the efficiency of hybrid vehicles in these driving conditions is much greater than the officially rated level. The electric motor driving hybrid vehicles at low speeds is exponentially more efficient than the traditional internal combustion engine at stop-start driving. Deutsche Bank suggest that the 2009 Toyota Prius gets 60-70mpg when driven under normal commuting conditions compared to its official rating of 51mpg.[21]

However, while these commuter trips could be made significantly more efficient with the help of hybrids and electric cars there is great potential to reduce the need for those trips altogether.

Studies suggest that the US population will grow to 420 million by 2050 from 300 million today. This will require 89 million new homes and 190 billion square feet of new nonresidential buildings to be constructed by 2050.[22] If we continue to follow a pattern of development that assumes that the private car is the only means by which people will transport themselves we will likely cancel out much of the fuel efficiency savings discussed above. However, if we combine vehicle fuel efficiency with smart growth planning and improvements in public transportation we could add another 1.5mb/d to the savings made by fuel efficiency in 2030 (see table below).

[20] *Growing Cooler: The Evidence on Urban Development and Climate Change*, available at http://www.smartgrowthamerica.org/gcindex.html
[21] Deutsche Bank Global Markets Research, 04 October 2009. *The Peak Oil Market: Price Dynamics at the end of the oil age*. Subscription Only. P.29
[22] *Growing Cooler: The Evidence on Urban Development and Climate Change*, available at http://www.smartgrowthamerica.org/gcindex.html p.8

Combined with measures to improve efficiency in heavy-duty trucks and aviation these measures could cut America's oil demand in half by 2030, saving 10mb/d.[23] All of this can be achieved without sacrificing economic growth and bringing with it the added benefit of cleaner air, healthier lifestyles, reduced national deficit and much greater energy security.

In the appendix we show two tables produced by our colleagues at Natural Resources Defense Council. These show how oil demand could be reduced by 4.2mb/d in 2020 rising to 9.7mb/d by 2030. If we implement these policies we can reduce oil's strategic importance in the economy and secure our future to an extent that renders tar sands oil insignificant.

Conclusion

It is common to hear that oil will play a dominant role in the future energy mix for a long time to come. Certainly it is true that oil will remain a useful commodity for quite a while, but it need not remain, indefinitely, a strategic commodity over which human rights are violated, the environment despoiled, wars fought and the planet over-heated. Over-reliance and excessive consumption of oil – no matter where it is from – perpetuates dependence and insecurity.

Had we continued the efficiency drives that followed the oil crises of 1973 and 1979, the United States would be a more secure nation today. Instead, we lost that initiative as new discoveries such as the giant Cantarell field in Mexico, the North Sea and Alaska made oil cheap again. Now those fields are declining fast and tar sands proponents are advocating that we make the same mistake again. Tar sands oil is not another Cantarell. It will never make oil cheap again and it comes with the heavy price tag of increased greenhouse gases at exactly the time when we need to aggressively reduce those pollutants.

The recent peaking of OECD oil demand[24], the oil price spike of 2008, and the wide support for green job creation make this an opportune moment to finally set long term energy policy that can truly make us more secure. Rather than merely replacing each transient oil source with another we now have the historic opportunity to move gradually away from oil toward cleaner and more secure alternatives.

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[23] Natural Resources Defence Council January 2009. http://www.nrdc.org/energy/gaspricesolutions.pdf

[24] Cambridge Energy Research Associates, September 2009, Peak Oil Demand in the Developed World: It's Here. http://www.cera.com/aspx/cda/public1/news/researchHighlights/researchHighlights.aspx

The White House should report to Congress on the suite of policies available to achieve energy security outlined in the appendices below. These policies are achievable given the political will and smart policy making that distinguishes this administration from its predecessor.

Furthermore, these policies bring additional benefits in the form of cleaner air, GHG reductions, more sustainable communities and healthier lifestyles on top of the security benefits discussed. In comparison, the idea that tar sands oil brings benefits to the US has to be seen in the light of the continued dependence on the inefficient use of oil that it signifies. The additional costs of that pathway include rising GHGs, increased air pollution, deteriorating levels of health and the continuation of a model of development that is unsustainable in every way. If we fail to tackle the problem of insecurity caused by oil dependence, our children and grandchildren may not forgive us.

The EISA report should note that dirty oil derived from the tar sands does not substantially enhance energy security but is in fact a symptom of insecurity, high gasoline prices and unsustainable development. If you add in the fact that tar sands make the fight against climate change -- and climate insecurity -- even more difficult, and lock us in to high carbon infrastructure, on balance the plan to grow the tar sands industry is reckless and will worsen US national security. Such a plan is not in the national interest.

Box 1 – Tar sands growth needs high oil prices but can the market support it?

To grow tar sands production, the industry needs oil prices to remain above $70-90/bbl depending on the project and what happens to cost structures in the coming years. Whatever the final figure for individual projects, it is widely accepted that tar sands are "the marginal barrel," with production costs among the most expensive in the industry.[25] This has been sharply demonstrated by the shelving of most proposed tar sands projects following the oil price crash in the last months of the 2008.

The industry currently looks forward to the return of economic growth and generally assumes that once this recession is over, oil demand and oil prices will resume an inexorable upward trend.[26] But is the boom-bust cycle in energy prices that we have just been through an anomaly or the norm? What evidence is there that the economy can withstand sustained high oil prices?

A look at the history of the impact of high oil prices on economic growth and the consequences for oil demand suggests that it is far from certain that oil prices will stay on a steady upward trend following the return to economic growth. In fact there is far more evidence to suggest that what lies ahead is an extended period of quite harsh volatility. Price volatility makes investing in tar sands production risky and viewed through this lens it is unclear whether tar sands producers will really deliver the capacity growth that the industry promises.

Volatility is the norm not the exception:

The chief economist of the Centre for Global Energy Studies has given a number of presentations this year that show that oil price volatility has been a persistent trend for much of the fuel's history apart from the "halcyon days" of the 1930s to 1960s. Changing the politics surrounding oil supply that is at the root of the problem will be a major challenge.[27]

Other studies point to a ceiling for oil prices beyond which economic growth is curtailed followed by oil demand. This works increasingly in tandem with the declining costs of alternatives and efficiency leading to demand destruction as opposed to the demand suppression caused by the constraint on economic growth.

Cambridge Energy Research Associates posited in 2006 that at prices above a range between $100-120/bbl, a break point in oil demand occurs due to the downward effect on GDP growth and consumer moves to efficiency.[28]

Energy analyst firm Douglas Westwood produced further research that suggested that at prices above $80/bbl (in 2008 dollars) the US economy has repeatedly gone into recession leading to oil demand suppression. They showed that this was a consistent response since the first major oil shock in 1973.[29]

[25] International Energy Agency, June 2009. *Medium-Term Oil Market Report*. P.48

[26] See for example the oil price assumptions in Canadian Energy Research Institute, 03 November 2009, *Oil Sands Industry Update:Production Outlook and Supply Costs 2009-2043, Media Brief.*

[27] Dr Leo Drollas, May 2009. *Oil Price Stability: A charming delusion?* Available at http://www.cges.co.uk/pub/LD%20PlattsGeneva%20May09.pdf

[28] *Dawn of a New Age: Global Energy Scenarios for Strategic Decision Making-The Energy Future to 2030;* Cambridge Energy Research Associates 2006 Multi-client Study. Cited in *Macro-Economic Limits to Oil Price and 'non-conventional' Oil*. Innovest Strategic Value Advisors. February 2009. Available by request from tarsands@uk.greenpeace.org

Augmenting this pattern of boom-bust cycles triggered by rising oil prices is the coming of age of technologies that are significantly boosting the efficiency with which we can use oil and the choices available for switching a proportion of our transportation needs to electricity.

Deutsche Bank analysts recently published a detailed research paper that suggested that as we head into the next period of economic growth, tight oil supply and rising oil prices will precipitate a game-changing shift to high efficiency vehicles that will change the trajectory of oil demand forever. In other words, another period of high oil prices is so intolerable for the global economy and the availability of efficiency technology is now so much more accessible, that a global oil demand peak is within reach. The analysts claim that as result, "(t)*he value of high capex intensity, long lead time, currently undeveloped oil, such as undeveloped Canadian heavy oil sands, oil shales and Brazilian pre-salt and other ultra-deepwater plays could be far lower than the market currently expects."*[30]

Policy drivers merging to hasten oil's demise:

A report by leading global management consultancy, Arthur D. Little, in February 2009 caused a stir when it suggested peak oil may be "a demand-side phenomenon".[31]

The report questioned the consensus that the pattern of future of oil demand and price is an inexorable upward curve. It proposed that a set of mutually reinforcing policy drivers have the potential to significantly constrain future demand growth. These drivers are:

- The political undesirability of oil price volatility;
- Security of supply;
- Climate change.

The three drivers are individually seen as major forces for change that will affect oil demand but the real power lies in "*their strong alignment in terms of the required policy responses that multiplies their power to bring about major change*."

The author cited recent policies aimed at efficiency in the two countries that exert the greatest influence on global oil demand; the US and China.

These are just a few examples of the ongoing debate on oil prices and oil demand and the volatility challenge. A debate that the tar sands industry currently chooses to ignore preferring to assume that as the economy picks up so will its prospects. But as the debate builds it appears to be getting clearer that tar sands production growth is at risk. So too then is US energy security if it is based on the assumption that tar sands production is secure.

[29] Douglas Westwood Energy Business Analysts, 22 June 2009. Oil: What price can America afford? Available at: http://www.dw-1.com/files/files/438-06-09_-_Research_Note_-_Oil_-_What_Price_can_America_Afford_-_DWL_website_version.pdf

[30] Deutsche Bank Global Markets Research, 04 October 2009. *The Peak Oil Market: Price Dynamics at the end of the oil age*. Subscription Only.

[31] www.adl.com/peakoil Available through free registration.

Appendix 1:
Achievable oil demand reductions in 2020 and 2030

Table 1: Oil Savings in 2020 (Million Barrels per Day)

Measure	Description	Oil Savings (mbd)[32]
Higher-efficiency new cars and light-duty trucks	Implement fuel economy and emissions standards to reach a fleet wide average of 35 miles per gallon (mpg) in 2016, consistent with President Obama's announcement. Continue improvements to achieve at least 42 mpg in 2020.[33]	**1.5**
Improved fuel economy of on-road vehicle fleet	Improve fuel economy of on-road fleet of cars and light trucks by 4 percent through low rolling resistance tires, tire inflation, and fuel-efficient motor oil.	**0.3**
Improved fuel economy for new and on-road heavy-duty trucks	Implement fuel economy standards as authorized by the Energy Independence and Security Act of 2007 and greenhouse gas emissions standards authorized by the Clean Air Act to increase fuel economy of new medium- and heavy-duty trucks by at least 20 percent by 2020. Retrofit tractor-trailer stock with fuel-efficient EPA SmartWay technologies such as trailer aerodynamic improvements, single-wide tires, and idling reduction equipment by 2014.	**0.1**
Advanced biofuels	Cap corn ethanol production at 15 billion gallons. Produce another 14 billion gallons of sustainable ethanol and 1 billion gallons of renewable diesel per year by 2020.	**1.1**

[32] Oil savings from each measure are calculated by comparing to a baseline in which new light-duty vehicle fuel economy stays at today's levels of 27.5 mpg for cars and 23.1 mpg for light-trucks and in which heavy-duty truck fuel economy levels are those forecasted by the EIA's *Annual Energy Outlook 2009* (AEO 2009) Reference Case, April 2009 release, which includes the American Recovery and Reinvestment Act. For both light passenger vehicles and heavy trucks, the baseline vehicle miles traveled are also taken from the AEO 2009 Reference Case, April 2009.

[33] Savings are in comparison to a baseline that would maintain efficiency at today's levels. For technical and economic feasibility assessment of higher fuel economy levels, see Jim Kliesch, "Setting the Standard: How Cost-Effective Technology Can Increase Vehicle Fuel Economy," Union of Concerned Scientists, April 2008.

Smart growth and transit	Slow the increase in light-duty vehicle miles traveled levels through smart community planning and development and investments in public transit to achieve a 10 percent reduction from 2020 baseline forecasts.[34]	**0.8**
Plug-in hybrid and electric cars	Promote plug-in hybrid and electric vehicles so that vehicle miles traveled on grid electricity reach 2 percent in 2020.	**0.1**
Air travel Improvements	Improve fuel consumption per revenue mile by 1 percent per year from 2009 to 2012, and then at least maintain efficiency levels.	**0.2**
Building efficiency	Retrofit oil-heated homes and commercial buildings to cut fuel consumption by 50 percent.	**0.1**
Total Oil Savings		**4.2**

[34] Reductions in light-duty vehicle miles are based on measures analyzed in two books published by the Urban Land Institute: *Moving Cooler: An Analysis of Transportation Strategies for Greenhouse Gas Emissions*, available at www.movingcooler.info, and *Growing Cooler: The Evidence on Urban Development and Climate Change*, available at http://www.smartgrowthamerica.org/gcindex.html. Baseline forecast is the light-duty vehicle miles in AEO 2009, April 2009.

Table 2: Oil Savings in 2030

Measure	**2030 Savings (Mb/d)**
Higher Efficiency New Cars and Light-Duty Trucks	4.3
Improved Fuel Economy of On-road Vehicle Fleet	0.2
Improved Fuel Economy for New and On-road Heavy-duty Trucks	0.6
Building Efficiency	0.2
Advanced Bio-fuels	2.3
Air Travel Improvements	0.3
Smart Growth and Transit	1.5
Plug-in Electric Cars	0.3
Total	**9.7**

Source: *Clean Energy: the Solution to Volatile Gas Prices,* Natural Resources Defense Council, Energy Facts Series, January 2009. Available at: http://www.nrdc.org/energy/gaspricesolutions.pdf