Comments of Rep. Henry A. Waxman and Sen. Sheldon Whitehouse on the Final Supplemental Environmental Impact Statement and National Interest Determination on the Keystone XL Tar Sands Pipeline

The Final Supplemental Environmental Impact Statement for the Keystone XL tar sands pipeline is fatally flawed because it systematically and comprehensively discounts the impact of the pipeline on tar sands production and carbon pollution. The FSEIS does this in two distinct ways. First, in evaluating the impacts of the project, the FSEIS repeatedly makes assumptions that downplay the effects of the Keystone XL tar sands pipeline on tar sands production and hence on net carbon pollution. Second, even after millions of public comments raising this issue, the FSEIS simply fails to address the role of Keystone XL in the larger context of avoiding catastrophic climate change. Correcting for these flaws shows that approval of the Keystone XL pipeline would significantly exacerbate the problem of carbon pollution, which violates the standard laid out by President Obama and makes the pipeline contrary to the national interest.

FSEIS Acknowledges Some Key Tar Sands and Market Facts

The FSEIS actually acknowledges that tar sands development will significantly contribute to climate change.[1] Tar sands crude is estimated to be on average 17% more greenhouse gas intensive than the average crude oil refined in the U.S.[2] The additional carbon pollution associated with the 830,000 barrels of tar sands crude to be transported through the pipeline each day alone is equivalent to adding 5.7 million cars on the roads.[3] Although the report fails to calculate the costs of this pollution, the additional carbon emissions due to tar sands in Keystone XL could impose up to $128 billion in climate costs over the pipeline's projected lifespan.[4]

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[1] U.S. Dept. of State, *Final Supplemental Environmental Impact Statement for the Keystone XL Project*, 4.14-39 (Jan. 2014) (online at: http://keystonepipeline-xl.state.gov/documents/organization/221190.pdf) (*hereinafter FSEIS*).

[2] *Id.* at ES-15; National Energy Technology Laboratory, *Development of Baseline Data and Analysis of Life Cycle Greenhouse Gas Emissions of Petroleum-Based Fuels*, 12 (2008).

[3] *Id.* at 4.14-39

[4] This is based on the Administration's best estimate of the net present value costs of climate change, referred to as the social costs of carbon. In 2007 dollars, the social cost of Keystone XL's incremental 1.4 billion metric ton carbon impact is between $80.6 billion and $114 billion using the administration's SCC figures with a discount rate of 2.5% to 3%. Adjusting to 2014 dollars, that figure rises to between $90 billion to $128 billion. Interagency Working Group on Social Cost of Carbon, U.S. Government, *Technical Support Document: Technical Update of the Social Cost of Carbon for Regulatory Impact Analysis Under Executive Order 12866* (May, 2013) (online at: www.whitehouse .gov/sites/default/files/omb/inforeg/social_cost_of_carbon_for_ria_2013_update.pdf) (all dollar amounts in 2007$); Bureau of Labor Statistics, *Inflation Calculator* (accessed Feb. 28, 2014) (online at: http://www.bls.gov/data/inflation_calculator.htm).

The FSEIS also contains information demonstrating that ongoing rapid expansion of tar sands development is a critical reason why Canada will miss its 2020 target for carbon pollution reductions, which Canada committed to in 2009 under the United Nations Framework Convention on Climate Change.[5] Today, the Canadian government projects that in 2020, Canada's carbon pollution will be 21% higher than its Copenhagen target.[6] The oil and gas sector is now the single largest source of Canada's carbon pollution, emitting 25% of Canada's carbon pollution in 2012, and this is expected to grow to 27% of total emissions by 2020.[7]

Absent the projected expansion of the tar sands, emissions from the oil and gas sector would actually fall, as conventional oil production is projected to continue to decrease over this period.[8] Emissions from the tar sands are projected to almost double between 2010 and 2020.[9] Additionally, the FSEIS recognizes some key economic facts related to tar sands development, although it requires a close read to uncover them. Most significant, the FSEIS finally acknowledges that expansion of the tar sands depends on getting the oil to market, and that if access to transport is limited this will slow the rate at which tar sands operations expand.[10] This is the mechanism by which Keystone XL will increase carbon pollution, and the FSEIS admits that this scenario is, in fact, possible.

The FSEIS also effectively concedes the following points. Today, transporting oil by pipeline is substantially less expensive than transporting it by rail.[11] The costs are also more certain.[12] If pipeline expansion is blocked broadly, it will raise transport costs for tar sands, and with higher costs, expansion will not occur as rapidly as it otherwise would have.[13] Of the

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[5] Canada and the United States each committed to reduce carbon pollution to 17% below 2005 levels. United Nations, Framework Convention on Climate Change, *Compilation of economy-wide emission reduction targets to be implemented by Parties included in Annex I to the Convention* (June 7, 2011) (online at: http://unfccc.int/resource/docs/2011/sb/eng/inf01r01.pdf); *FSEIS* at 4.14-46 to 4.14-47. *See also* Pembina Institute, *Getting on Track to 2020* (Apr. 2, 2013) (online at: http://www.pembina.org/pub/2427).

[6] *FSEIS* at 4.14-46. *See also* Pembina Institute, *Getting on Track to 2020* (Apr. 2, 2013) (online at: http://www.pembina.org/pub/2427).

[7] Environment Canada, *National Inventory Report 1990-2012: Greenhouse Gas Sources and Sinks in Canada – Executive Summary* (April 2012) (online at: https://www.ec.gc.ca/ges-ghg/default.asp?lang=En&n=3808457C-1); *FSEIS* at 4.14-46 (citing older data).

[8] *FSEIS* at 4.14-47 (citing report by Environment Canada).

[9] *Id.*

[10] *Id.* at 1.4-8.

[11] *Id.* at 1.4-83 to 1.4-85.

[12] *Id.*

[13] *Id.* at 1.4-8.

various pipeline proposals, Keystone XL is the second-to-largest and is farthest along in the process.[14]

FSEIS Assumes Away Keystone XL's Impact on Climate Change

However, the FSEIS obscures the significance of these facts by making assumptions about what will happen to market conditions for tar sands development in the future and then concluding that under the scenario deemed most likely, Keystone XL will have no effect on the rate of tar sands expansion. The FSEIS combines a series of assumptions about the future to create a scenario that is used to model the impacts of Keystone XL. The assumptions include a low rate of tar sands development in the reference case, high oil prices, and low rail transport costs.

The FSEIS also assumes that denial of Keystone XL would have no impact on the rate of investment in the tar sands. Under this implausible scenario, the FSEIS predicts that tar sands crude will be developed and get to market in the same quantity and within the same timeframe with or without the Keystone XL pipeline. This set of assumptions is not credible, yet the FSEIS bases its conclusions about the pipeline's climate impacts on the premise that this scenario will come to pass.

First, the FSEIS assumes that the tar sands industry is not serious about its expansion plans.[15] According to the FSEIS, even if oil prices remain high and all the pipelines needed are built, tar sands extraction will grow at a substantially slower rate than it did over the last decade.[16] The tar sands industry itself projects that it will grow almost three times faster than the

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[14] *Id.* at 1.4-45 to 1.4-47. Transcanada's new Energy East proposal, which just had its project description filed with the National Energy Board of Canada last month, would carry 1.1 million bpd. Transcanada, *Energy East Files Project Description with NEB* (online at: http://www.energyeastpipeline.com/energy-east-files-project-description-with-neb/).

[15] *Id.* at Appendix C, Attachment 6, Ensys Energy, *World Model Overview and Results*, 4 (Nov. 2013). The FSEIS reference case projects 5.35 million bpd of total Western Canadian Sedimentary Basin (WCSB) crude to markets in 2035, which includes both tar sands bitumen and conventional crude from the WCSB. In contrast, industry and Canadian government projections for WCSB production/supply in 2035 range from 5.7 million bpd (National Energy Board) to 9.1 million bpd (Canadian Association of Petroleum Producers). National Energy Board of Canada, *Canada's Energy Future 2013 – Energy Supply and Demand Projections to 2035 – An Energy Market Assessment*, Figure 5.1 and Appendices: Crude Oil Production) (Nov. 2013) (online at: http://www.neb-one.gc.ca/clf-nsi/rnrgynfmtn/nrgyrprt/nrgyftr/2013/nrgftr2013-eng.html#s5; http://www.neb-one.gc.ca/clf-nsi/rnrgynfmtn/nrgyrprt/nrgyftr/2013/ppndcs/pxlprdctn-eng.html); Canadian Association of Petroleum Producers, *Crude Oil: Forecast, Markets & Transportation,* 37 (June 2013) (projection through 2030, extrapolated to 2035).

[16]As of 2012, WCSB supply was 3.20 million. Canadian Association of Petroleum Producers, *Crude Oil: Forecast, Markets & Transportation,* 37 (June 2013). Assuming that the FSEIS is using this 2012 number, the FSEIS projects an average annual growth rate of WCSB crude to markets (this includes tar sands and conventional supply) of 93,000 bpd through 2035 to reach 5.35 million bpd. *See FSEIS* at Appendix C, Attachment 6, Ensys Energy, *World Model Overview and Results*, 4 (Nov. 2013). Actual

FSEIS assumes.[17] Canadian government estimates for tar sands growth rates are also higher than the FSEIS assumes.[18] Because the FSEIS assumes that tar sands development will grow more slowly in the reference case, it minimizes the effect that transportation constraints could have. The FSEIS actually recognizes that in a scenario where the tar sands are already less profitable due to low oil prices, transportation constraints in general, and Keystone XL in particular, would in fact affect the rate of tar sands growth.[19] But the FSEIS then claims that such a scenario is "unlikely" and concludes that therefore the Keystone XL pipeline is unlikely to affect carbon pollution.[20]

Contrary to the report's assumptions, there is a real chance that crude oil prices will fall below $75/barrel, which the FSEIS concludes is the price at which tar sands expansion could start to be affected. Both the International Energy Agency and energy commodity traders at the Chicago Mercantile Exchange forecast a sharp decline in oil prices over the next decade. [21] The Energy Information Agency's low oil price forecast, which assumes slower economic growth in developing countries, projects oil prices below $75 from 2015 through 2040.[22] Also, the more successful international efforts are at promoting energy efficiency and new forms of clean

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tar sands supply expanded from 1 million bpd in 2003 to 2.2 million bpd in 2012, an average annual growth rate of 120,000 bpd, for tar sands (exclusive of conventional production). Canadian Association of Petroleum Producers, *Canadian Crude Oil Production and Supply Forecast 2006-2020*, 10 (May 2006) (for 2003 figure); Canadian Association of Petroleum Producers, *Crude Oil: Forecast, Markets & Transportation,* 37 (June 2013) (for 2012 figure).

[17] The Canadian Association of Petroleum Producers projects WCSB production to grow by 258,000 bpd annually through 2030 (from 3.20 million bpd to 7.85 million bpd). Canadian Association of Petroleum Producers, *Crude Oil Forecast, Markets & Transportation* at 37 (June 2013) (online at: http://www.capp.ca/getdoc.aspx?DocId=227308&DT=NTV).

[18] The Alberta Energy Regulator (AER) projects that Alberta production (including tar sands and conventional oil) will grow on average by 180,000 bpd annually through 2022 (from 2.5 million bpd in 2012 to 4.3 million bpd in 2022). Alberta Energy Regulator, Energy Resources Conservation Board, *ST98-2013: Alberta's Energy Reserves 2012 and Supply/Demand Outlook 2013-2022*, 3.2, 3.19-20, 4.10, 4.19 (May 2013) (online at: www.aer.ca/documents/sts/ST98/ST98-2013.pdf).

[19] *FSEIS* at 1.4-137 ("Assuming prices fell in this range [$65-$75/barrel], higher transportation costs could have a substantial impact on oil sands production levels…").

[20] *Id.* at ES-16.

[21] International Energy Agency (IEA), *Medium-Term Oil Market Report*, 18 (2013); CME Group, *Crude Oil Futures Quotes* (online at: http://www.cmegroup.com/trading/energy/crude-oil/light-sweet-crude.html).

[22] EIA, *Annual Energy Outlook 2013*, 31-32 (2013) (online at: http://www.eia.gov/forecasts/aeo/pdf/0383(2013).pdf).

energy, the more demand for traditional fossil fuels will shrink, pushing prices down.[23] Precisely because predicting future oil prices is such an uncertain business, it is simply not defensible to conclude that Keystone XL is unlikely to have any effect based on the report's expectation that oil prices will stay above $75 per barrel.

Despite substantial uncertainty regarding future oil prices and the strong effect of projected future oil prices on the rate of tar sands development in the analysis, the FSEIS fails to account for this uncertainty in its conclusions about whether the Keystone XL pipeline would exacerbate climate change. The report simply assumes that it is unlikely that oil prices fall below $75 per barrel, and under that scenario, the report finds that Keystone XL is unlikely to affect the rate of tar sands development. The finding that oil prices are unlikely to fall below $75 per barrel between now and 2035 is itself debatable. Worse, however, is the report's failure to incorporate this uncertainty into the analysis through a probabilistic weighting of oil price projections.

This approach turns an assessment that one outcome is more likely than another into an assumption that the more likely outcome will happen and the risk of the less likely assumption is zero. This is simply not credible risk analysis, and it is particularly irresponsible with a risk of this magnitude. By casting the question as all-or-nothing, the report turns a highly uncertain projection of future oil prices into a conclusion that approval or denial of Keystone XL is "unlikely to significantly impact the rate of extraction in the oil sands....based on expected oil prices, oil-sands supply costs, transport costs, and supply-demand scenarios."[24]

There are many other dubious assumptions in the FSEIS that also downplay the effect of Keystone XL on development of the tar sands. For example, the FSEIS is overly optimistic regarding the costs and logistical challenges for rail transport, including disregarding the effects of upcoming stronger rail safety regulations.[25]

The FSEIS also assumes that tar sands expansion will be driven by lower-cost in situ projects with costs at or below $65 to $75 per barrel, and that high cost tar sands mining projects will not affect the overall rate of expansion in the tar sands.[26] In reality, production projections

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[23] *See, e.g.,* Enerdata, *The impact of lower oil consumption in Europe on world oil prices* (2009) (online at: http://www.transportenvironment.org/publications/impact-lower-oil-consumption-europe-world-oil-prices).

[24] *FSEIS at ES-16.*

[25] *See Analysis – As Keystone looms larger, Canada oil-rail builders face delays*, Reuters (Feb. 3, 2014) (online at: http://uk.reuters.com/article/2014/02/03/uk-keystone-canada-rail-analysis-idUKBREA1218S20140203); Natural Resources Defense Council, *NRDC Comment on Proposed Keystone XL Tar Sands Pipeline Final Supplemental Environmental Impact Statement: Evaluation of Section 1.4 Market Analysis Assumptions*, 15-17 (Mar. 2014). *See, e.g.,* Department of Transportation, Pipeline and Hazardous Materials Safety Administration, *Advance Notice of Proposed Rulemaking, Hazardous Materials: Rail Petitions and Recommendations To Improve the Safety of Railroad Tank Car Transportation (RRR)*, 78 Fed. Reg. 54849 (Sept. 6, 2013).

[26] *FSEIS* at 1.4-126.

are not a quota to be filled by the lowest cost projects. Rather, individual projects will or will not move forward based on variables specific to each project. The ultimate rate of expansion will be determined by the viability of individual projects. Thus, to the extent that Keystone XL enables high cost projects to move forward that might not be able to do so in the absence of the pipeline, this will affect the overall rate of expansion in the tar sands. High cost mining projects are under construction today and additional projects already have the necessary government approvals.[27] These higher cost projects are likely to be more vulnerable to the effects of rejecting Keystone XL, so by assuming them away, the FSEIS is able to discount the effects of Keystone XL on the viability of those projects and the overall rate of expansion.

Another glaring blind spot is the FSEIS's utter failure to consider how disapproval of Keystone XL, or its approval, would affect investment in the tar sands. Tar sands operations are highly capital-intensive, so the ability to attract capital is essential to the expansion of this sector.[28] Investors have choices, even within the oil and gas sector. The explosion of hydraulic fracturing for shale oil production provides a vast array of alternative investment opportunities, along with opportunities in offshore oil, and conventional production in other countries. The attractiveness of investment in the tar sands depends upon the costs of production, including transportation, and the price of the product, which also depends upon transportation to access more lucrative markets.[29]

It is overwhelmingly obvious to energy analysts, investment banks, the Canadian government, and the tar sands companies themselves that a massive expansion of tar sands production cannot occur without an equally massive expansion of transport capacity.[30] Recently,

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[27] *Id.* at Appendix C, Attachment 5, Oil Sands Development Group: *Oil Sands Project List* (updated July 1, 2013) (listing twelve mining projects under construction or approved with total capacity of over 1 million bpd, as well as eight more projects in the application stage). *See also* Pembina Institute, *Keystone XL Final Supplemental Environmental Impact Statement Assessment of Market Analysis*, 8-15 (Mar. 7, 2014) (includes supply costs for some mining projects).

[28] *Id.* at 1.4-31 ("…capital expenditures account for the largest share of total oil sands supply costs. Oil sands projects are generally capital-intensive…"); Deloitte, *Gaining Ground in the Sands 2014*, 14-16 (2014) (online at: http://www.deloitte.com/assets/Dcom-Canada/Local%20Assets/Documents/EandR/ca_en_energy_resor__GainingGround2014_1200x627_011314.pdf) (*citing* Conference Board of Canada forecast that tar sands need $364 billion of investment between 2012 and 2035).

[29] *See Oil sands investment slowing because of tough market, not new SOE rules, execs say,* Financial Post (Apr. 4, 2014) (online at: http://business.financialpost.com/2014/04/04/oil-sands-investment-slowing-because-of-tough-market-not-new-soe-rules-execs-say/?__lsa=3225-6de5) (providing quote explaining why "the oil sands business has become less attractive for investment" -- "'Capital cost pressures in the oil sands have tripled, operation costs in the oil sands at least doubled, . . . continued delays in pipelines that allow us to move products out to maximize revenue, negative public sentiment toward the oil sands, plus you have the emergence of other opportunities in the U.S. and elsewhere.'")

[30] Deloitte, *Gaining ground in the sands 2013*, 3 (2013) (online at: http://www.deloitte.com/assets/DcomCanada/Local%20Assets/Documents/EandR/ca_en_energy_oil_sands_2013_110612.pdf); Deloitte, *Gaining ground in the sands 2014*, 19 (2014) (online at:

the CEO of major tar sands producer Cenovus told reporters that his company's plan to triple production in coming years was contingent on more pipeline capacity.[31] Meanwhile financial giants, including RBC Capital, Goldman Sachs, Barclays and CIBC, have publicly acknowledged that a tar sands industry without new pipelines will be smaller than one with them.[32] Existing pipelines are projected to hit capacity in the next one to two years.[33] Keystone alone is not sufficient, but it is absolutely necessary, to get expanded tar sands production to market. It is one of the largest pipeline projects that has been proposed and it is furthest along in the development process.[34]

The decision on Keystone will send a critically important signal to the investment community about the future of the tar sands.[35] If this project is approved, the message is "don't

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http://www.deloitte.com/assets/Dcom-Canada/Local%20Assets/Documents/EandR/ca_en_energy_resor__GainingGround2014_1200x627_011314.pdf) ("None of this, meanwhile, is to say that the big challenge of market access…is any less significant this year than it was last year. Uncertainty over new takeaway capacity only adds to the challenge and the urgency of developing it.")

[31] Shawn McCarthy and Richard Blackwell, *Oil Industry Rebuts Trash Talking Celebrity Critics*, Globe and Mail (Jan. 15, 2014) (online at: http://www.theglobeandmail.com/report-on-business/industry-news/energy-and-resources/oil-industry-rebuts-trash-talking-celebrity-critics/article16357980/)

[32]RBC Capital Markets, *Energy Insights: Keystone XL – Weighing the Outcomes* at 5 (Feb. 11, 2013); Goldman Sachs, *Getting oil out of Canada: Heavy oil diffs expected to stay wide and volatile* at 16 (June 2, 2013); Barclays (2013). *Global 2014 E&P Spending Outlook*. Barclays Equity Research – North America Oil Services & Drilling, New York; CIBC, A Look to the Future – 2013; Oil: Uncertainty Reigns . . . Again, 2 (Dec. 2012) (online at: http://files.newswire.ca/256/Oil_-_Uncertainty_Reigns_Again.pdf).

[33] *Pipeline bottlenecks will continue to discount price for Canadian crude: CIBC,* Newswire (Dec 17, 2012) (online at: http://www.newswire.ca/en/story/1090187/pipeline-bottlenecks-will-continue-to-discount-price-for-canadian-crude-cibc); CIBC, A Look to the Future – 2013; Oil: Uncertainty Reigns . . . Again (Dec. 2012) (online at: http://files.newswire.ca/256/Oil_-_Uncertainty_Reigns_Again.pdf).

[34] *FSEIS* at 1.4-45 to 1.4-47. Transcanada's new Energy East proposal, which just had its project description filed with the National Energy Board of Canada last month, would carry 1.1 million bpd. Transcanada, *Energy East Files Project Description with NEB* (online at: http://www.energyeastpipeline.com/energy-east-files-project-description-with-neb/); Canadian Energy Research Institute, *Pacific Access: Part I – Linking Oil Sands Supply to New and Existing Markets*, 28 (July 2012) (online at: http://www.ceri.ca/images/stories/part_i_-_impacts_of_oil_sands_production_-_final_july_2012.pdf) ("KXL is likely, therefore to be moving Canadian bitumen before any of the other major pipeline projects considered in this report.")

[35] *Keystone XL: Waiting for the light bulb moment*, Financial Post (Apr. 3, 2014) (online at: http://business.financialpost.com/2014/04/03/waiting-for-the-light-bulb-moment/?__lsa=9862-0107) ("Mr. Mottahed said the Keystone debacle has resulted in negative investor sentiment toward Canadian energy stocks, depressing their values relative to U.S. counterparts….Keystone XL's approval 'would certainly take some of that overhang off, and a lot of the psychology, with investors saying: "Canada is in the game again,' …'Many investors feel that Keystone XL delays are constraining the development of

worry about the carbon pollution, it's full speed ahead for tar sands." If this project is denied, the message is "carbon pollution matters, and the United States government will act accordingly." Denial of Keystone XL would not block all future pipelines. But it would mean that the tar sands' transport problem is worse than has been assumed, transport capacity delays and bottlenecks are likely to continue, and transport costs will be higher than they otherwise would have been. It is contrary to market economics and basic common sense to claim that these issues will have no effect on future investment in the tar sands or the resulting rate of the industry's expansion.

The Canadian government absolutely understands the importance of Keystone XL to the future of tar sands development. According to news reports, the government is engaged in a $24 million international advertising campaign to "raise awareness that Canada is a secure, reliable and responsible supplier of energy" and, apparently, to push for approval of Keystone XL.[36] If all of this tar sands oil were going to get to market anyway, as the FSEIS concludes, approval of Keystone XL simply would not be such a major issue for the tar sands industry and the Canadian government.

FSEIS Fails to Consider Response to Climate Change

Yet perhaps the most serious deficiency of the FSEIS is its failure to take into account the actions needed to prevent catastrophic climate change. In Copenhagen in 2009, the United States and more than 100 other nations agreed that we need to limit the global temperature increase from carbon pollution to two degrees centigrade.[37] The scientific literature shows the risks of allowing the climate to warm more than 2°C above the pre-industrial average.[38] Among other dangers, more than 2°C of temperature change could induce abrupt climatic changes otherwise known as "climate tipping points." Some of these changes include rapid melting of terrestrial ice sheets, shifts in monsoonal circulation, dieback of forest ecosystems, and changes in ocean

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the energy sector in Canada and that other transportation options would not kick in as quickly as the Alberta-to-Texas pipeline'")

[36] Desmog Canada, *Joe Oliver Draws Criticism for Calling Canada a "21st Century Energy Superpower"* (Mar. 14, 2014) (online at: http://desmog.ca/2014/03/13/joe-oliver-draws-criticism-calls-canada-21st-century-energy-superpower).

[37] United Nations, Framework Convention on Climate Change, *Copenhagen Climate Change Conference – December 2009* (online at: https://unfccc.int/meetings/copenhagen_dec_2009/meeting/6295.php).

[38] Timothy M. Lenton et al., *Tipping Elements in the Earth's Climate System*, Proceedings of the National Academy of Sciences (Feb. 7, 2008); Joel B. Smith et al. *Assessing Dangerous Climate Change through an Update of the Intergovernmental Panel on Climate Change (IPCC) "Reasons for Concern,"* Proceedings of the National Academy of Sciences 106, no. 11, 4133–37 (Mar. 17, 2009).

circulation.[39] In essence, greater warming could shift the climate system into a different mode of operation, which could dramatically exacerbate the devastating effects of climate change.[40]

According to models used in the Intergovernmental Panel on Climate Change analysis, to maintain a reasonable chance of limiting climate change to 2°C we must keep total atmospheric carbon dioxide-equivalent concentrations below 450 parts per million.[41] Staying below this atmospheric limit will require significant additional action from all of the world's major emitters to reduce their emissions from combustion of fossil fuels.

In effect, to avoid catastrophic climate change, it will be necessary for the United States, Canada, and other major emitters to put a price on carbon or otherwise reduce demand for coal and oil, at minimum. A price on carbon would raise the costs of tar sands development, and sharp cuts in oil consumption would lower the price of oil. Each of these effects would make tar sands development more economically marginal. Under the approach applied in the FSEIS, Keystone XL would have a greater impact on the rate of tar sands development in a carbon-constrained world.

Increasingly, even the major multi-national oil companies are applying a shadow price for carbon in evaluating the risk of investments in long-lived carbon-intensive projects. ExxonMobil, Shell, BP, and Chevron all recognize the likelihood that there will be a price on carbon in the coming decades, and they explicitly factor that cost in to their strategic and investment decisions.[42]

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[39] Joel B. Smith et al. *Assessing Dangerous Climate Change through an Update of the Intergovernmental Panel on Climate Change (IPCC) "Reasons for Concern,"* Proceedings of the National Academy of Sciences, 106, no. 11, 4133–37 (Mar. 17, 2009).

[40] Intergovernmental Panel on Climate Change, *Climate Change 2014: Impacts, Adaptation, and Vulnerability: Summary for Policy Makers*, 13 (2014) (online at: http://ipcc-wg2.gov/AR5/images/uploads/IPCC_WG2AR5_SPM_Approved.pdf).

[41] Intergovernmental Panel on Climate Change, *Fourth Assessment Report: Climate Change 2007: Synthesis Report,* Table 5.1 (2007) (online at: https://www.ipcc.ch/publications_and_data/ar4/syr/en/mains5-4.html).

[42] ExxonMobil, *The Outlook for Energy: A View to 2040*, 34 (2013) (online at http://www.exxonmobil.com/Corporate/Files/news_pub_eo2013.pdf) ("for purposes of the outlook to 2040, ExxonMobil assumes a cost of carbon as a proxy for a wide variety of potential policies that might be adopted by governments over time to help stem GHG emissions . . . [I]n most OECD nations, ExxonMobil expects the implied cost of CO_2 emissions to reach about $80 per ton in 2040.); Royal Dutch Shell PLC, *Sustainability Report 2012*, 4 (Apr. 11, 2013) (online at http://reports.shell.com/sustainability-report/2012/servicepages/downloads/files/entire_shell_sr12.pdf) ("We consider the potential cost of a project's CO2 emissions, which we set at $40 a tonne, in all our major investment decisions."); BP, *Sustainability Review 2012*, 17 (Mar. 20, 2013) (online at http://www.bp.com/content/dam/bp/pdf/sustainability/group-reports/BP_Sustainability_Review_2012.pdf) ("In industrialized countries, this standard cost assumption is currently $40 per tonne of CO_2 equivalent."); Chevron, *2012 CDP response for Chevron Corporation -*

Yet in analyzing the impacts of the Keystone XL pipeline on climate change, the FSEIS failed even to consider the possibility that the United States or Canada might take serious action to address climate change within the 20-year time-frame considered in projecting growth in tar sands or even within the 50-year timeframe analyzed in other portions of the report.[43] The FSEIS made no attempt whatsoever to assess the effect of Keystone XL on expansion of tar sands production under carbon constraints. Instead, the report assumes the continuation of business-as-usual practices for the foreseeable future. We have virtually no chance of avoiding catastrophic climate change under any of the scenarios analyzed in the report.

Last summer, President Obama declared that "the pipeline's impact on our climate will be absolutely critical to determining whether this project is allowed to go forward." Millions of Americans oppose the Keystone XL pipeline because it will incentivize expansion of tar sands development and significantly worsen carbon pollution. The FSEIS acknowledges the effect of tar sands expansion on climate change, as well as the connection between access to transport and the rate of tar sands expansion, but still manages to assume away any effect of building Keystone XL to transport the tar sands. Despite its unfounded conclusions, the FSEIS contains information sufficient to demonstrate that the Keystone XL pipeline will significantly exacerbate the problem of carbon pollution. Keystone XL fails the test laid out by President Obama, and it is contrary to our national interest.

Sincerely,

Henry A. Waxman
Ranking Member
Committee on Energy and Commerce

Sheldon Whitehouse
Chairman
Subcommittee on Oversight,
Senate Committee on Environment and Public Works

Investor CDP 2012, 32 (online at http://www.chevron.com/documents/pdf/Chevron_2012_Investor_CDP_Response.pdf).

[43] *FSEIS* at 1.4-30 (citing oil production growth through 2035); 4.14-51 (assuming that the pipeline will last 50 years or longer).