**COST-BENEFIT ANALYSIS OF THE KEYSTONE XL PIPELINE PROJECT**

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**ABSTRACT**: The Keystone XL Pipeline has attracted considerable attention since its proposal in both the political and public sphere. Key arguments describe the economic benefits and costs that the creation of this project will entail. By looking at the main arguments in support of and against the project, this research paper will suggest that the Keystone XL project was not necessary for economic growth in the United States supporting President Obama's recent veto of the pipeline project. This essay will illustrate a Cost-Benefit analysis and evaluate the Keystone XL within the U.S. Environmental Policy.

**Key words**: Keystone XL, U.S. Environmental Policy, TransCanada, Oil, Cost-Benefit Analysis.

**JEL codes**: O22, O44, Q47, Q58

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**I. INTRODUCTION**

The Keystone XL Pipeline has attracted considerable attention since its proposal in both the political and public sphere. Some of the many arguments supporting the Keystone XL pipeline project argue that the project would help the U.S. secure a necessary resource and “reduce dependence on overseas oil.”[[1]](#footnote-1) However, the opponents of this project, who are mostly environmentalist, insist that this project will cause some very catastrophic effects on the environment.[[2]](#footnote-2) Supporters of the Keystone XL rest their case in assumptions that gas prices will decrease in the U.S., it will strengthen national security, and it will alleviate unemployment rates by creating new jobs. Critics, on the other hand, see the paramount opportunity costs to the environment, such as: carbon emissions, hazards of oil extraction and possible oil spills. Before deliberating further on the polemic debate, this paper will provide a description of the project and the permit process it entails.

**II. KEYSTONE XL OVERVIEW**

The Keystone XL pipeline has raised all of the issues discussed further due to its potential environmental impact and the undermined assessment that the State Department completed. The fact that the Keystone XL pipeline would easily double the current output of oil to 1.3 million a day had environmentalist and the public concerned.[[3]](#footnote-3) The project is expected to cost about $7.0 Billon although the corresponding portion of the U.S. is about $5.4 Billion.[[4]](#footnote-4) Opponents[[5]](#footnote-5) of the Keystone project suggest that the proponents[[6]](#footnote-6) have inflated the information on jobs as well as the other benefits. Opponents insist that the project will cause irreversible damages to the U.S. environment. To understand the Keystone XL controversy, we provide a description, timeline of events, policy requirements and expand on the two sides of the debate in the following sections.

**A. Description and Timeline of events**

The Keystone project consists of proposed and existing pipelines. The existing pipeline known as *Phase I* is a 2,148-mile pipeline that runs from Alberta across Canada to Manitoba then it heads south crossing the U.S. border into North Dakota. From there, it continues south into Steele City, Nebraska where the pipeline splits. One side runs east through Missouri ending in Illinois. The other side known as *Phase II* or the Keystone Cushing Extension is a 298-mile pipeline running from Steele City into Cushing, OK. The existing pipeline has a capacity to carry up to 590K barrels per day into refining markets in North America. [[7]](#footnote-7)

The proposed extension, the Keystone XL, is a two-part expansion of the existing pipeline. The first part also known as the “Gulf Coast Extension, Gulf Coast Project or *Phase III*” is a 485-mile pipeline that would run from Cushing to terminals in Texas where half of U.S. refining establishments are located. This pipeline has begun construction after its approval in 2012 because it did not need a President Permit since it does not pass national borders. The second part of the proposal, the Keystone XL or *Phase IV*, would create a direct link from Canadian oil fields to U.S. refining markets and also connecting to other pipelines in Montana and North Dakota specifically in the Bakken formation. *Phase IV* could transport up to 830K bpd costing about seven billion dollars to build.[[8]](#footnote-8)  After its partnership with ConocoPhillips, TransCanada became the sole owners of the pipeline in 2009. One of the biggest challenges TransCanada faced was during the preconstruction phase, in which acquiring permits and working with over 4500 landowners was a major obstacle.[[9]](#footnote-9)

**B. Keystone XL within the U.S. Environmental Policy**

The initial permit application submitted by TransCanada in September 2008 included the two proposed pipelines. However, because *Phase IV* would cross international level the Department of State required a Presidential permit. In the process the Secretary must decide approval or denial of a project in accordance to National Interest Determination (NID)[[10]](#footnote-10). The Department of State addresses environmental justice in compliance with the National Environmental Policy Act (NEPA), the National Historic Preservation Act (NHPA) and the Endangered Species Act (ESA) alongside with other federal agencies. Within the U.S. it is the Department of transportation´s Pipelines and Hazardous Materials Safety Administration (PHMSA) who is responsible for construction, maintenance and regulations and they will enforce the requirements included in the Final Environmental Impact Statement (FEIS)[[11]](#footnote-11). The DOS issued the FEIS on August 26, 2011 stating that “there would be no significant impacts to most resources along the project corridor”, then the Department of State began its NID[[12]](#footnote-12). In November 10, 2011 DOS asked to review alternative routes after outcries from environmentalists and communities in Nebraska. Four days after, TransCanada agreed to change the route to protect the Sand Hills region of Nebraska[[13]](#footnote-13). On December 2011 the House Republicans passed the Temporary Payroll Tax Cut Continuation Act giving the Obama administration 60 days to grant or deny permit for the project[[14]](#footnote-14). President Obama denied the permit in the national interest determination on January 18, 2012 saying that this action was not a “final judgment on the merits”. On May 4, 2012 TransCanada resubmitted the permit application[[15]](#footnote-15).

1. *Environmental Impact Statement*

The EIS must include environmental impacts of the proposed action, potential alternatives, relationship of local short term and the maintenance and enhancement of long-term productivity as well as “any irreversible and irretrievable commitments of resources”.[[16]](#footnote-16) When the EIS results in accurate or incomplete information, the purpose of the assessment is undermined. The problem is that its content is limited to individual states and fail to recognize the problems that any project will entail across borders.

*2. Environmental Protection Agency Rating*

When completing the EIS the State Department must meet two aims. First, it must consider the environmental impacts before the project is undertaken and it must inform the public about the environmental impacts and its final action. The State Department must receive input from any local, state tribal or federal agencies regarding any of the impacts involved with the project. The Environmental Protection Agency (EPA) is required to review the EIS to rate its adequacy and the impacts as “lack of objections to environmentally unsatisfactory”[[17]](#footnote-17). The EIS draft was released to the public on April 14, 2010 receiving its lowest rating. On July 16, 2010 the EPA rated the Keystone XL project poorly and it requested modifications for its lack of adequacy and underestimation of its impacts.

**C. Arguments Against the Pipeline Addition**

*1. Historical and Potential Oil Spills in the U.S.*

Throughout U.S. history there have been a great amount of oil pipelines serving economical benefits but that have also created externalities yielding financial and environmental consequences. Among them, the Trans-Alaska Pipeline System (1973) and the original Keystone Pipeline (2008), which were created within the "National Interest". However, this national interest could result in devastating oil spills that "counteract any benefit"[[18]](#footnote-18). The TAPS has resulted in approximately 760 spills and leaking about 281K barrels of oil, with its largest being the Exoon Valdez which spilled around 11 million gallons to the Prince William Sound. The Keystone, which carries tar sand oil, spilled 12 times within the first year of operation leaking about 23.5K gallons of oil.[[19]](#footnote-19)

Congress has passed a number of acts to protect federal liability for oil spills. Eventually, previous acts were reinforced by the Oil Pollution Act of 1990 in response to the Exxon Valdez accident. The OPA holds liable the owners and operators of oil practices for the costs of cleanup and damages.[[20]](#footnote-20) The application of this act is limited to "navigable waters"[[21]](#footnote-21) of the U.S. and adjoining shorelines. Besides the national economic responsibility, a possible spill in the Nebraska Sandhills will pose serious risks due to the contaminated Ogallala Aquifer that is used for drinking and farming. Nebraska's economy depends mostly on agriculture[[22]](#footnote-22) and in the event of a spill it will be affected tremendously. Many arguments debating the possible spill have been made mainly based on technological advancement and strategic planning. TransCanada has taken major steps to ensure that the pipelines have no cracks in them, as to avoid leaks.[[23]](#footnote-23) Nonetheless, the probability of an oil spill still remains and federal and state laws would be "inadequate to mitigate economic losses".[[24]](#footnote-24)

*2. Externalities*

In the construction of the Keystone XL many temporary areas would be needed for pipe storage and to conduct all the necessary construction.[[25]](#footnote-25) It is estimated that these areas will account for 1,206 acres of ground disturbance. Altogether, it is a "massive project with an equally massive impact on the environment"[[26]](#footnote-26). For instance, environmentalists expect to see a sizable increase in greenhouse gases emissions and a dependence on fossil fuels.[[27]](#footnote-27)

The Department of State, the FWS and TransCanada have underestimated the paramount impacts. They have failed to consider "imperiled species”[[28]](#footnote-28) under the Endangered Species Act. Under Section 7 of the ESA it is required that all federal agencies and departments should aim to conserve and protect species and their habitats while using their authority to pursue this goal. The FWS issues an Incidental Take Statement to prevent unauthorized takes. This statement was completed in May 2011 for the Keystone XL project, then it was resubmitted in September 2012 after rerouting the project to protect Nebraska's Sand Hill region.[[29]](#footnote-29)

In the Biological Assessment, the State Department recognized massive impacts such as: increased human interaction, habitat fragmentation, alteration, reduced breeding, ground disturbance, barriers to movement and loss. In recognition of the impacts, the Department suggested many alternatives to minimize the effects, such as: bird flight diverters to reduce collision and mortality from power lines, prohibiting construction under a certain radius and better surveying/monitoring procedures. However this assurance is filled with things that [could] be implemented but that do not yield a sufficient warranty as the efficacy of these suggestions is "highly variable" and the personnel conducting the procedures are not necessarily experts in identifying species, habitats and blooming periods.[[30]](#footnote-30) The measures suggested are substantively inadequate, vague and undefined without a "binding timeline".[[31]](#footnote-31)

*3. Non-Reduction of Oil Prices*

The Keystone pipeline addition could bring a new source of oil to America´s strong demand. Crude oil is “the world´s most important energy resource based on its availability, energy density, and ease of transport”. Unlike electricity, "there is no current viable substitute for oil as the principal fuel for transportation around the world”.[[32]](#footnote-32) The U.S. Energy Information Administration (U.S. EIA) organizes the factors that influence crude oil prices in present and future expectations. In the past, the Organization of the Petroleum Exporting Countries (OPEC) assisted in stabilizing oil prices by increasing or decreasing oil production. However, because of other producers pumping oil to aid their economies the OPEC lost the key role and prices are therefore unstable.[[33]](#footnote-33)

The primary oil-pricing benchmarks in the U.S. are the West Texas Intermediate (WTI) and the Brent North Sea (Brent). The Brent is generally used on the coasts where more oil is imported and the WTI is used in the middle of the country. At the beginning of 2011 the gap between the two benchmarks began to grow and although Brent is usually priced lower than WTI (Higher quality), we find the opposite today -one major factor being the turmoil in the Middle East because of the loss of supply and uncertainty. [[34]](#footnote-34)

Because of the limited pipeline capacity the oil is getting caught up around Cushing, benefiting Midwest refineries with lower crude oil prices. The Keystone XL will possibly continue to keep low prices for the Midwest region but as far as the Gulf Coast refineries that is not the case since they are not restricted to a “localized market and will not hold oil for solely domestic use”[[35]](#footnote-35) they would export to the global market at Brent prices for higher profits as their potential to refine is about 40 percent of the nation’s oil, prices would then be set based on the larger market and that does not necessarily mean lower prices.[[36]](#footnote-36) "Gasoline demand has decreased in the U.S. due to higher efficiency vehicles, demand worldwide for diesel and other oil products has increased”[[37]](#footnote-37) especially in countries with a growing need but with a limited refining capacity as in markets in Latin America.

*4. Transboundary Problem: Inaccuracy and Inefficiency of the EIS*

The problem with the Keystone XL pipeline is that the law is stuck between the state lines. Recognizing the costs of energy decisions affect outside borders is essential to moving towards a sustainable future. The EIA mandates the internalization of environmental cost of policy decisions. Because the EIA is a domestic law it is limited to its jurisdiction borders. This limitation makes it hard to recognize the transboundary effects; therefore, the final assessment does not reflect the true environmental cost and fails to fully inform the decision maker.  With this consideration one can argue that the structure of the U.S. EIA law discounted the transboundary costs of the Keystone XL project with inaccurate and incomplete information.[[38]](#footnote-38)

The Department of State made three assumptions when discounting the gravity of the transboundary harms. After the first EIS draft that was poorly rated, the EPA asked the Department of State (DOS) to better asses alternative scenarios specially on how they will affect national energy and climate change policy objectives while addressing them in long-term project life.[[39]](#footnote-39) EPA also asked to specify the differences between non-Canadian crude oil sources and Canadian oil sands crude and how that will impact national security. The EPA also explained that the use of Canadian tar sands oil could potentially result in “82 percent more greenhouse gas (GHG) emissions”.[[40]](#footnote-40) The DOS released its final EIS for the Keystone XL Pipeline on August 26, 2011. It received a better rating but still not sufficiently covering transboundary problems, it is the perfect example of how using a domestic EIA law brings problems to accuracy assessing international impacts.[[41]](#footnote-41)

In the Final EIS the DOS assumed that the project would not have an effect on the world demand for Canadian crude oil or the U.S. demand for other foreign heavy crude oils in the short term.[[42]](#footnote-42) This overall assumption of an inelastic demand would entail that global GHG emissions would not be affected. However, The Keystone XL will be key to unlocking a great amount of GHGs that would significantly contribute to global climate change. Moreover, it assumed that the extraction process would be more efficient by using lower-emission technology since the extraction processes of foreign crude are becoming more difficult requiring more energy and emissions. To support this the DOS relied on decisions that would implicate Canadian government, the improvement of technology in Albertan extractors and the mixing of Canadian crude oil to ease transportation.[[43]](#footnote-43) Yet, in order to extract Canadian oil the *in situ* process must be used which releases more GHGs than the other strip-mining methods.  Finally, it assumed that other federal agencies would ensure that the extraction and transportation processes of Canadian crude oil would have no significant impact on the environment.[[44]](#footnote-44) These three assumptions clearly undermined the informational purpose of the EIS assessment. All the assumptions are based on variables controlled by Canadian regulation and making a domestic assessment based on another nation´s policy choices is beyond the scope and is therefore inefficient.

The article *The Grass Is Always Greener* suggests a solution by encouraging the use of the EIA law to be more cooperative. When thinking about a project with massive impacts countries are placed in different bargaining positions because of the asymmetrical and fundamentally different harms they address. By using a cooperative EIA agreement, it would ensure that the resulting document fulfills the parties’ domestic obligations and it will seek to fulfill the goals of the environmental assessment at a domestic and international level. The process will therefore be more efficient by creating a more “transparent assessment”. Doing this will help fill the hole in environmental policy by bringing more awareness to the transboundary harms which will likely result in better decision making and better environmental quality.

**D. Arguments Supporting the Pipeline Addition**

With the implementation of the Keystone XL the U.S. will face an increase in energy security, which will secure U.S. National Security overall by replacing the imports from volatile countries such as Venezuela, Nigeria and Saudi Arabia.[[45]](#footnote-45) The imports will also reduce the vulnerability premium.[[46]](#footnote-46) By using more Canadian oil the efficiency costs lessens and the hidden costs to the United States of importing oil decrease. The EnSys petroleum-consulting firm believes that imports will not be replaced by Canadian oil without the construction of the project because Canada will begin importing to Asia.[[47]](#footnote-47) It is about “three dollars cheaper per barrel to transport WCSB oil to Asia via pipeline and tanker than to transport it to the Gulf Coast”[[48]](#footnote-48) therefore; the U.S. will still continue to rely on the Middle East.

Supporters of the Keystone XL project insist that the project will help boost the U.S. economy via a huge reduction in foreign oil dependence and an increase in employment. Although alleviating unemployment will only be a short-term effect so the argument gets dismissed. In a study conducted by the Department of Energy, it was concluded that Western Canadian Sedimentary Basin (WCSB) crude would be “lost” in the event that the project does not receive the permit and the oil will be going to Asia instead. The world’s balancing of crude oils would be displaced. Crude oils going to Asia, if the Keystone XL is disapproved, would raise transport costs above an “economic threshold” preventing some marginal oil sands projects from developing, "building any pipeline can lower the cost of oil and oil products in associated markets, it enables lower transport or refining costs, and not building the pipeline would reduce global supply".[[49]](#footnote-49)

**III. ECONOMIC ANALYSIS**

1. **Was the Keystone XL Pipeline Necessary for Economic Growth in the U.S.?**

There are much more concerning environmental issues that require attention, and the use of coal is one, because the burning of coal may have a much stronger impact on green-house gasses than the type of oil that would flow through the pipeline.

Barack Obama insisted that he would only co-sign the project if it “does not significantly exacerbate the problem of carbon pollution”.

Keystone pipeline project will not be the only project built, there will be more needed.

The U.S. Department of state found that stopping the Keystone project would have very little impact, in regards to stopping this type of oil from being used. The U.S. Department of State hinted that the development of tar sands would still occur, because producers would look for alternative ways to bring in the oil. One of the methods used is rail cars. The U.S. Department of State suggests that rail cars would also cause pollution because rail cars use coal, which also harm the environment. Moreover, these rail cars need to be heated, because the oil must be maintained at a specific temperature, during the travel. Combining the fact that the trains, must travel further in order to get the oil where it needs to it destination, the price in oil should see an additional $20 added per barrel.

1. Cost-Benefit Analysis

IV. CONCLUSION

The effect of the project on gasoline prices in the U.S. and its effect on national security concluding that it will not reduce prices but it will strengthen security when Canadian oil replaces oil from troublesome countries.

Pros: increasing diversity of U.S. petroleum supply, economic benefits, creation of jobs.

Cons: negative environmental impacts and promotes U.S. continuing dependence on fossil fuels.

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2. *Ibid.* [↑](#footnote-ref-2)
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5. A formal letter written by His Holiness, the Dalai Lama, and Desmond Tutu addressed to President Obama. [↑](#footnote-ref-5)
6. TransCanada and other profit seeking corporations [↑](#footnote-ref-6)
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8. *Ibid*. [↑](#footnote-ref-8)
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10. Slade, *The Keystone Pipeline Addition*.  [↑](#footnote-ref-10)
11. *Ibid.*  [↑](#footnote-ref-11)
12. *Ibid.* [↑](#footnote-ref-12)
13. *Ibid.* [↑](#footnote-ref-13)
14. *Ibid.* [↑](#footnote-ref-14)
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19. *Ibid.* [↑](#footnote-ref-19)
20. TransCanada would not be held liable for clean up costs because its type of crude is exempted in the Trust. [↑](#footnote-ref-20)
21. There has been different interpretations of the term "navigable waters" but some courts have applied the term to all waterways that the Commerce Clause covers; others have applied a "navigable-in-fact" approach, which protects nation's shorelines. [↑](#footnote-ref-21)
22. One tenth of jobs and one sixth of its GDP [↑](#footnote-ref-22)
23. Buddy, Ives. "*Keystone Pipeline Project Moving Toward Completion*." Pipeline & Gas Journal, 2010, 30-36. [↑](#footnote-ref-23)
24. Read further: *Shifting The Costs To Those Best Able To Bear Them.* [↑](#footnote-ref-24)
25. These areas were not accounted in the Environmental Impact Assessment [↑](#footnote-ref-25)
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27. Harrigan, *TransCanada's Keystone XL Pipeline*. [↑](#footnote-ref-27)
28. The American burying beetle, black-footed ferret, greater sage grouse, interior least tern, northern swift fox, pallid sturgeon, piping plover, Sprague's pipit, western prairie fringed orchid, whooping crane [↑](#footnote-ref-28)
29. Burd, and Resto-Spotts, *The Keystone XL Pipeline.* [↑](#footnote-ref-29)
30. *Ibid.* [↑](#footnote-ref-30)
31. *Ibid.* [↑](#footnote-ref-31)
32. Slade, *The Keystone Pipeline Addition*. [↑](#footnote-ref-32)
33. *Ibid.* [↑](#footnote-ref-33)
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39. *Ibid.* [↑](#footnote-ref-39)
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41. *Ibid.* [↑](#footnote-ref-41)
42. *Ibid.* [↑](#footnote-ref-42)
43. *Ibid.* [↑](#footnote-ref-43)
44. *Ibid.* [↑](#footnote-ref-44)
45. Slade, *The Keystone Pipeline Addition.* [↑](#footnote-ref-45)
46. The added price of crude oil imports paid by consumers and not reflected in the market price of oil. [↑](#footnote-ref-46)
47. *Ibid.* [↑](#footnote-ref-47)
48. *Ibid.* [↑](#footnote-ref-48)
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