

New Oil Refinery Possibilities in Kansas

A Policy Working Paper

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The Current State of Things:

The United States is currently in a very fragile energy situation. Our demand for oil has increased steadily over the past twenty years and our dependence on imported oil has increased in order to meet this demand. More recently we have begun to import more and more refined oil products as well. This is in part due to our nations demand, but more so because our oil refining capabilities have not kept pace with our rising consumption. In order to fulfill the country's need for refined oil products we must either continue to become reliant on imports or begin to increase our refining capacity.

The current administration supports this second option and is encouraging states to look to build new oil refineries. In a speech to a Small Business Administration conference, President Bush set forth this idea and suggested that the recently closed military bases around the country could be ideal spots for new refinery construction. While Kansas was fortunate enough to not have any bases closed, the prospect of a new oil refinery is still economically appealing. There are abandoned bases, like the air base outside of Liberal, which could be utilized along with many other possible private sites.

There has not been a new petroleum refinery built in this country since 1976, so why now? Since 1981, with the removal of refinery subsidies, the number of oil refineries has decreased from 315 to 144 at the end of 2004¹. The decrease in refineries is also due to the environmental restrictions in the Clean Air Act Amendment of 1990. The operating costs of meeting these regulations became too high for smaller refineries. Today, large corporations own most refineries and to compensate for their lack in number they have become more efficient in their operations in order to meet demand. However, refineries are now operating at around 94% capacity and demand continues to grow. We have reached a point where this high capacity utilization rate poses the potential for supply interruption and a relatively minor incident may quickly cause a supply disruption and potential price shocks². To offset this we have begun to import more refined products from overseas. Currently gasoline imports account for 10 percent of domestic consumption, but imports could become more expensive as China and India continue to increase their demand. If ever the time to build new refineries, it is now.

The solution, however, is not as simple as just building new refineries. There are many problems that could make this project unappealing to Kansas. Meeting environmental regulations and competing with other refineries in the area, as well as foreign refineries, could prove to be insurmountable obstacles in the development of a new refinery. The purpose of this paper then, is to determine if Kansas would be an attractive place for a new refinery to locate, and also if it is economically beneficial for the state to have it.

¹ "U.S. Refining Industry: A System Stretched to the Limit." American Petroleum Institute website, 6/6/2005. <http://api-ep.api.org>.

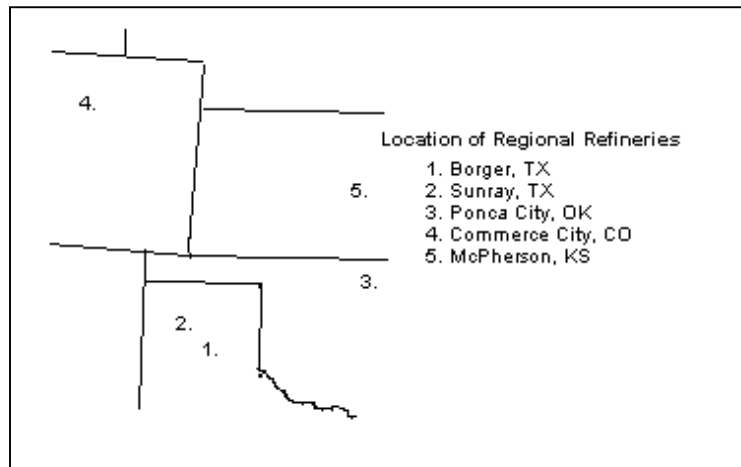
² Ibid.

Possible Solution:

The Kansas economy, like most other states, runs on petroleum. The gasoline in our cars, diesel fuel for farming machinery, and countless other products that very few of us even realize; all of it depends on refined oil products. What Kansas has over many of these other states though is we also produce a great deal of the crude oil that is transformed into these products. Kansas is the 8th largest oil producing state in the country and produces around three million barrels of oil each month³. Because the state is already a substantial producer it would be worthwhile to at least look into building a larger refining industry.

For a refinery to be cost-effective it must have a substantial capacity. This is because the profit margins for refineries are very low (between 2 and 15 percent since 1990) compared to other sectors of the industry⁴. In order to be profitable then, refineries must process large amounts of oil and capture economies of scale. This is why a number of the smaller refineries closed in the 1980's and 1990's. The operating costs were just too high compared to the larger refineries, therefore they were no longer profitable. There are three oil refineries currently operating in the state, but McPherson is the farthest west that any of them are located. The western half of the state has a number of oil producers and of the few that were contacted by Kansas Inc. some expressed interest in the idea of a new refinery. However, there were mixed beliefs on if there would be enough oil to sustain a new refinery. Currently Kansas is a net importer of oil, so supply for a new refinery would have to come strictly from out-of-state supply.

One solution would be to bring in crude oil from out of state. In the region near southwest Kansas there is oil being produced in Colorado as well as the Oklahoma and Texas panhandles. There are a few refineries in this region already, the major one being in Borger, TX, so a study to determine how much oil can be brought in from these surrounding states would need to be done in order to



determine if a refinery can be supported in this area. The major concern that would need to be addressed is whether or not the competition for oil in the area is too high and would not allow for entrant into the market.

³ Kansas Inc. Annual Report 2005.

⁴ "The Impact of Environmental Compliance Costs on U.S. Refining Profitability 1995-2001." Energy Information Administration, Office of Energy Markets and End Use, U.S. Department of Energy. May 2003.

In addition to logistical considerations, there are other reasons why southwest Kansas would be the best site for a new refinery, if one were to be built. Currently the areas economy revolves around the agriculture and livestock industries. The area is in need of economic growth, and by already having oil and gas exploration it would be an easy next step to move into refining.

Despite appearing to have fairly good conditions for the construction of a new refinery, no one has yet to build one. However, now that interest in refining is beginning to reemerge there could be corporations looking into building new refineries. The first step for the state then is to find a company that would be willing to construct and then to persuade them that Kansas is the place to do it. If there is to be a new refinery built in this country then whoever decides to embark on this endeavor will have their pick of location. There will be competition between counties and states and incentives will be the major tool used by each. Tax breaks on land and equipment is a very common incentive used to lure corporations to build in certain places. However, while these will probably be used in this situation there is another offer that the state could make. Oil refineries are unique in that because they produce a great deal of emissions they require a number of permits before construction can begin. If the state were to prepare a site and obtain some of the necessary permits, then it would be much easier for a company to come in and begin construction. We believe that this, when it takes years to obtain permits and meet land use regulations, would be a huge incentive for prospective developers.

Economic Impact on the Area:

If a company chooses to build a new refinery in this part of the state the economic impact on the area would be immense. The taxes collected, salaries and the net impact of the refinery would add hundreds of millions of dollars into the local economy. As an example, ChevronTexaco's Pascagoula Refinery in Mississippi employs around 1200 people with salaries totaling \$150 million⁵. The facility also pays around \$15 million in local taxes each year⁶. This refinery is very large however and processes about 325,000 barrels of oil per day. The largest refinery in Kansas only processes 125, 000. Even if you divide these numbers by three, it still results in a great deal of money being pumped into a small economy.

Also, refinery employees would not be the only beneficiaries of a new refinery. It costs upwards of \$2 billion to build a refinery, and a lot of that goes to construction companies. If state contractors were employed to build the refinery then that would produce thousands of more jobs. The impact does not stop at employee salaries either. When money circulates it multiplies, so if Kansan's are employed then their salaries impact the local economy two and three fold. We can also not forget the fact that gasoline and other refined products will provide local benefits by being produced nearby.

⁵ "Refinery Profile." <http://www.chevron.com/products/about/pascagoula/refineryprofile>.

⁶ Ibid.

Problems:

Even though a refinery has not been built in 30 years, this does not mean we are the first ones to look into doing so. Currently Arizona Clean Fuels, an oil company based out of Phoenix, is in the middle of a struggle to construct one. By looking at this example we can get a better idea of what it would take to successfully build a new oil refinery in this state.

To start with, the project in Arizona has already consumed six years and \$30 million and they have yet to break ground. There are many factors that have caused this and all of them would seem applicable to a similar project in Kansas. First of all the company has had to change their proposed location from outside Phoenix to a site twenty miles outside a small town on the Mexican border⁷. This is because the state was considering expanding the city's clean-air limits⁸. This caused time delays and cost a lot of money by having to find and submit proposals on a new site. As was mentioned before, if Kansas were to already prepare a site a prospective builder would not have to deal with this problem and would allow them to shorten their construction timetable.

Secondly, and most importantly, the company is spending a great deal of time and money in getting permits. There are a number of environmental conditions that must be met (which we will discuss later), but there are also other permits which also must be acquired. The project still needs to get the site's zoning changed by the county from agricultural to heavy industrial⁹. But even before this can be done the company needs to get approval from the federal Bureau of Land Management (BLM). In order to develop public lands a lease or permit must be issued by the BLM. This requires an environmental impact statement separate from the other environmental permits. In the event that public land is used for the refinery (for instance if we used one of the abandoned military bases) then BLM would come into play.

Environmental permits are perhaps the toughest obstacle in building any new pollution emitting plant and this is especially so with oil refineries. The permit that is required is called the Prevention of Significant Deterioration Permit, and it entails a number of different requirements. There needs to be a modeling on the potential impact on the National Ambient Air Quality Standard (NAAQS). This would include the maximum emission rates and an analysis of the best available control technology that the refinery would propose to use to limit emissions. All of this falls under the New Source Review section of the Clean Air Act, which provides for the strictest controls on emissions. The whole process takes nine months to a year according to the Kansas Department of Health and Environment, and that is if there are no problems. Even after construction is completed the refinery is still subject to more regulations. The industry as a whole has spent \$47 billion in the last ten years to change production to meet new standards for

⁷ Mouwad, Jad. "No New Refineries in 29 Years? There Might Well Be a Reason." New York Times, May 9, 2005.

⁸ Ibid.

⁹ Ibid.

cleaner gasoline and diesel fuel¹⁰. Future changes in environmental regulations will have a lot to do with determining if a new refinery will be able to keep its doors open.

As this paper is being produced there is currently legislation being proposed which would streamline the existing permitting process. HR 6, the Energy Policy Act of 2005, which is now before the U.S. Senate contains the Refinery Revitalization Act¹¹. The Act addresses the same questions as this paper and acknowledges that there needs to be regulatory certainty for refinery owners to stimulate investment. In speeding up the permitting process the Act calls for the Department of Energy, as the lead agency, to coordinate all Federal authorizations and reviews of a proposed refining facility¹². This mirrors what we suggest the state can do for local authorization procedures, because this bill directs the DOE to coordinate the EPA and other federal agencies to expedite the permitting process. If this bill is passed then the environmental hurdles for refinery owners will become much shorter.

As for the environmental permits, the project in Arizona just recently received its emissions permit. Steve Owen, Director of the Arizona Department of Environmental Quality, claims that it will be the cleanest refinery ever built, and it would have to be in order to meet current standards¹³. With this permit however there is a time limit for construction. Construction must begin within 18 months of when the permit is issued otherwise they would have to reapply¹⁴. With a price tag of \$2 billion, finding enough investors has become a problem for the company and this time limit could prove to be disastrous. However, company officials believe they will be able to raise the capital and begin construction in time. Even so, it would not be completed until 2009, ten years after it was first proposed.

The Arizona Clean Fuels example leads us to consider whether or not other companies in the industry will risk building a new refinery. Refining has never been the most lucrative sector in the oil industry, and on top of that it is highly cyclical. This is why smaller refineries have not lasted and why no new refineries have been built. The entry costs into the market are very high which is a risk in and of itself, but the risk is multiplied when you take into account that we do not know what the price of oil will be in a year or if environmental standards will change again.

Currently there are a small number of refineries operating at higher capacities trying to capture the very large economies of scale that are present in the oil industry. There are also very small profit margins, which mean that any minor change in the price of oil or refined product has a significant effect on returns. This is why larger petroleum corporations are weary of new refineries being built in the U.S. What some executives are

¹⁰ Mouwad, Jad. "No New Refineries in 29 Years? There Might Well Be a Reason." New York Times, May 9, 2005.

¹¹ United States Senate website.

<http://thomas.loc.gov/cgi-bin/query/F?c109:3:./temp/~c109YNXnvh:e192724>:

¹² Ibid.

¹³ Athens, Jonathan. "Refinery Gets Permit: Group to take permit battle to EPA as State issues permit." The Yuma Sun, April 15, 2005.

¹⁴ Ibid.

worried about is overbuilding capacity. New refineries increase the supply being produced, which lowers the price and decreases the profits over the whole industry. This is why the vice president of ChevronTexaco said, “In the past few years, there’s been much more discipline in the market for not overbuilding capacity¹⁵.” Larger corporations have begun to move their refining operations overseas because it is cheaper. Also, throughout the industry there is skepticism on the construction of new refineries as the future of enlarging our refining capacity. The president of the National Petrochemical and Refiners Association and executives at Valero, the top independent oil company, both say that additional capacity will come from the expansion of existing refineries¹⁶. There is still some interest in the idea of new refineries however, and despite being expensive and time consuming it is still something that the state should consider.

¹⁵ Mouwad, Jad. “No New Refineries in 29 Years? There Might Well Be a Reason.” New York Times, May 9, 2005.

¹⁶ Ibid.