

US petroleum dependency factor of history

February 14 2009

When the Drake Oil Well in Titusville, Pennsylvania began seeping crude oil 150 years ago, humanity allowed itself to become engulfed in the ecology of oil, according to a Penn State environmental historian. Now in the midst of an energy transition, the U.S. and the world need to keep moving forward toward alternative methods of power generation.

"American consumers must take stock and understand our dependency on oil in the context of how we got to this point," said Brian Black, associate professor of history and environmental studies, Penn State Altoona. "Just as a certain path of consumption led us to petroleum dependence, a path will lead us out of it. These paths, of course, are composed by the choices made by the American consumer."

In the late 1800s, oil was not a commodity. In fact, crude oil was a product looking for a purpose. While people did distill a little kerosene and use it in place of whale oil in lamps, one of the first commercial products produced was petroleum jelly -- Vaseline -- patented in 1872 and discovered when it accumulated in the equipment and workers found it softened their hands. It took Henry Ford and the mass production of automobiles to push the industry into complex processes like cracking, fractionation and distillation that now produce the gasoline, kerosene, Jet A, benzene and the myriad other products that derive from crude oil. This also opened up industry to other petroleum-based products including plastics, fabrics, coatings, medications, cosmetics and the entire world of petrochemicals that permeate modern life.

"Together, these uses composed a dependence so pervasive that it

remade the ecology of human life," said Black. "This slow growth of petroleum products over the 20th century led to a centrality in American life that no resource had possessed for humans before. This occurred to the point that in the 21st century petroleum dictates decisions of national security and human security," he told attendees at the annual meeting of the American Association for the Advancement of Science today (Jan. 14) in Chicago.

Such a dependence on petroleum really contradicts the United States' founding principles. Black considers that it would be a telling exercise to imagine the reaction of the founding fathers, Thomas Jefferson or Benjamin Franklin perhaps, allowing the country's autonomy to become compromised by the necessity of a resource for which the nation was beholden to others.

"By declaring our dependence on oil, we can clearly view our history in a way that will allow us to better approach the problem of our energy future," said Black.

According to Black, history tells us that consumers never imagine the next energy source, that the transition from one source of energy to another is unforeseen and sometimes unguided and that in the past, governments have not been involved in these transitions.

"In the 21st century, it may be that governments need to be involved," said Black. "We see some of that in the way President Obama is approaching the nation's plans for future energy."

Regardless of who initiates the change, it is one that must take place if we are going to continue our way of life as it is with no major disturbances. From the beginning, it was known that crude oil was a finite resource and that eventually it would run out. It seems that only now does the American public understand this reality.

Black suggests that our energy transition may begin with a reevaluation of our uses for crude. One of the first things to go in a switch to alternative energy sources would be petroleum-powered transportation, according to Black. Burning derivatives of crude oil would have to stop because the commodity is too valuable for use as a feedstock in chemical processes.

"In the future, I think, people will look back at burning petroleum as a wasteful practice that demonstrated 20th-century Americans' lack of appreciation of petroleum's diverse applications," said Black. "That will likely seem jarring to the energy sensibilities of the 21st century.

"We have no definable way to say what energy transitions will take place or when a culture has to let go of everything that they know," said Black. "My argument is that we are in an era where we will reconsider some of our most basic ways of using and acquiring energy," said Black. "We have a culture now that is more open to these new ideas and concepts than ever before."

Despite lower gasoline prices, Black believes that the country and the world are ready to meet the challenges of a change away from oil. He is optimistic that Americans will take the knowledge they now have of how problematic oil dependency is to the country and make the decisions that will ensure our future security and freedom. By declaring our dependence on petroleum, Black argues that we will help to establish a more independent energy future.

Source: Penn State

Citation: US petroleum dependency factor of history (2009, February 14) retrieved 6 May 2024 from <https://phys.org/news/2009-02-petroleum-factor-history.html>

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