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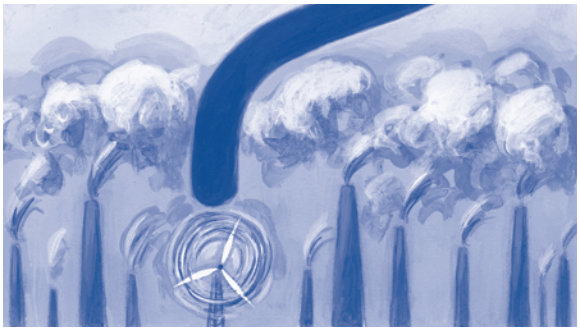

The Energy Challenge—Gone Today, Back Tomorrow:

Maine's Key Role

by William H. Hastings

World energy trends suggest that increased demand for fossil fuels is likely to continue, even as producers are not replacing what is being used. William Hastings argues that in spite of this, Maine is poised to potentially become an energy leader in the near future. He points out that a surprising number of new projects are increasing the diversity of the state's energy supply.

The only thing certain in life is change. Never has that been more true than today. In fact, there is so much technological advancement now that change seems to be upon us very quickly. To illustrate the point, our main concern about energy, which carried so much importance in mid-2008, is being overshadowed, for the time being, by an even more challenging series of financial events.

Some say that these shocks cannot be foreseen. In practice, though, they are part of our economic system, and they are, in the end, what makes the U.S. economy so strong. Another reality is that our energy shortfall was entirely predictable. And, even though we haven't heard much about it lately, the U.S. is still on the proverbial "slippery slope" where world energy supply is unable to keep up with the growth of energy demand.

Our main challenge now is to recognize long-term energy risks and trends and set policy to stay ahead of them. This policy would take into account environmental issues, carbon dioxide (CO_2) emissions, and supply and demand factors. We are at key decision points. What we decide soon and put into practice will influence our course and growth for many generations.

Energy will likely define the new president's administration. It is already playing a role in geopolitics as evidenced by China's oil grab and Russia's political consolidation around its energy reserves. These challenges, if ignored or shoved aside for another day, will come to find us.

Maine is not helpless in all of this. We are, to the contrary, on the verge of a series of "watershed" energy projects that will change the state and its energy mix. There is much good that comes from this, but also risk. Is the state of Maine prepared? Time will tell.

WORLD ENERGY TRENDS

Let's start with the "big picture." As with any commodity, the price of energy is fundamentally affected by how much of it is being bought and how much is being sold. While this axiom is as simple as it gets, Americans have a surprising lapse of memory at times when it comes to energy. The difficult fact at the moment is that the world is demanding more and more energy production while producers are increasingly challenged to meet that demand. On the one hand, China and India are growing rapidly and still have a long way to go. (For example, China's new interstate highway system is only one-third finished, and they continue to build massive new bridges connecting population bases across the Yangtze River.) On the other hand, several oil company CEOs (Shell, Total, and ConocoPhillips to name three) have recently expressed doubts as to whether world energy producers can sustain oil production rates at or above 100 million barrels per day.

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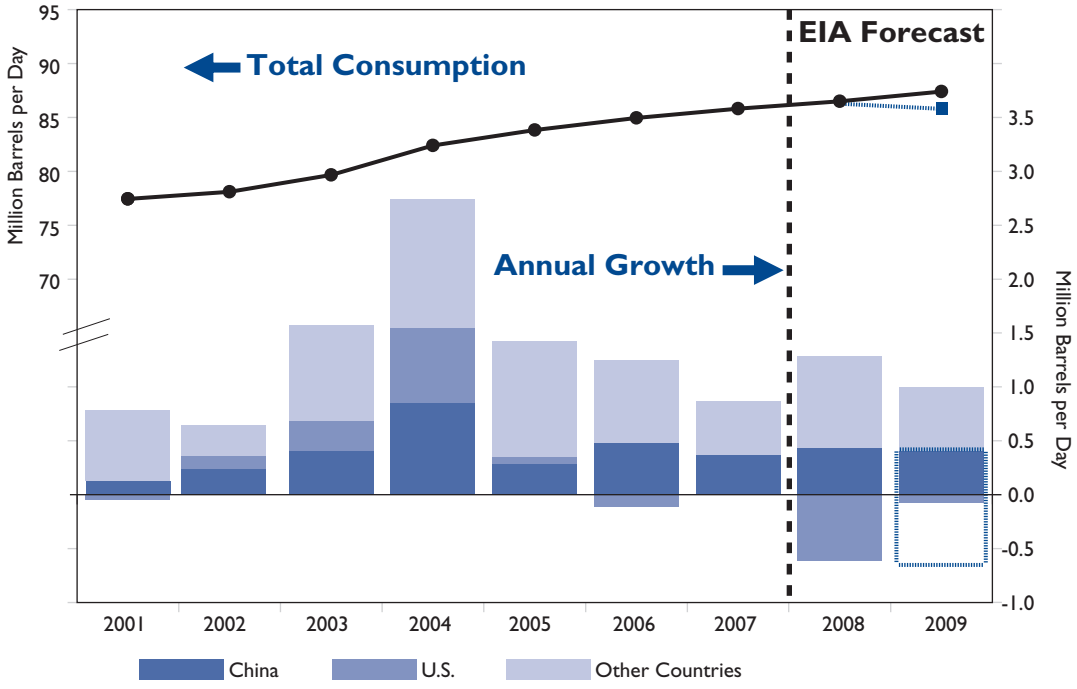
This means that our ability as producers to find new economic energy sources at current prices is not keeping up with the rate at which we deplete them. There are two ways out of this: still higher prices, or moderated demand. In practice, the answer will likely be both. Already we have seen that near-term macroeconomic factors will likely moderate energy demand for 2009. But, after that, the same old supply problem returns to haunt us.

Illustrating the challenge, Figure 1 (page 42) shows that demand trends, although reduced recently, continue to show strength particularly in China and India. At the same time, producers are not replacing what is being used. Price run-up, supply competition, geopolitical developments in Russia, and even relative economic strength and weakness all play a role in the situation. Producers are replacing only 65 percent of the oil we use, while the amount of oil we use grows at an annual rate of about two percent. We focus on demand increases, but even larger supply reductions are apparent and continuing. This is the slippery slope, and we have only started down this slope. Year after year after year, we face the same challenge. As we progress, the process gains momentum. It is only with substantial change that the process is abated. (For further discussion of world energy trends, see Wilson, this issue.)

Today, the key question is whether or not we can have an impact. Can Maine be a factor in solving the problem or is our fate set to twist at the end of this long rope forever? The answer is surprising.

FIGURE 1: **World Oil Consumption: The Big Picture**



Source: Energy Information Administration (EIA) Short-Term Energy Outlook, September 2008.

MAINE'S ROLE

For years now, Maine has thought of itself as being "at the end of the pipeline." Maine has no hydrocarbon production, royalty or tax system, and was truly at the end of the proverbial pipeline when Northern Utilities (now Unitil) dropped off its last therms in Portland. But the reality now is different. In range are two new LNG (liquid natural gas) terminals, a new refinery complex, a proposed oil pipeline conversion, access to hydroelectric power from James Bay, and a large nuclear plant upgrade just 28 miles from Eastport, Maine. We are set to become a leader in a changing energy mix and a significant example on the world stage.

Overstatement? Not at all. Let's look at the projects at hand (Table 1). Compare this list with any state including Texas, New York, or Florida on the energy scene.

These projects are in varied stages of completion. The two natural gas systems are finished, as are the Westbrook and Veazie power plants. The Hydro Quebec trunkline also exists in a north-south corridor roughly from Montreal into Manchester, New Hampshire. The Canaport LNG regasification plant should be finished in late 2008, and the Northeast Gateway LNG import system began operations earlier this year. Projects in the planning stage include the Point Lepreau nuclear plant expansion, the Eider Rock refining complex, and the Portland pipeline oil flow change project.

Point Lepreau, Eider Rock, and to a lesser extent, the Portland pipeline oil flow project will require vast human resources. For the first two projects, it is estimated that there will be a need for up to 6,000 new workers. When related economic development is taken into account, that figure grows. These projects are within short driving distance of Washington County, Maine. So, while economic challenges appear most acute in that county now, projects close by are poised to change that. One common thread among all three projects is that they are "world class." That means that the size of these projects rivals anything else being conceived or built in the world and that the output from the new plants/pipelines will vastly exceed local demand. There will be a need for new infrastructure, everything from highways to transmission lines to pipelines and port facilities to move product to market.

The impact of the new energy projects is seen even better on an "Energy Map of Maine" (Figure 2). The size and extent of the new development makes for a busy and complex map. Who would have thought this 10 years ago?

The new projects will increase Maine's ability to diversify energy supply and to benefit

TABLE 1: **New Energy Projects Accessible to Maine Since 1997**

Project	Type
Maritimes & Northeast Transmission	Natural gas transportation
Portland Gas Transmission	Natural gas transmission
Portland Pipeline Flow Change	Canadian oil delivery to the East Coast
Portland Oil Port	Future exports
Canaport LNG, New Brunswick	1 billion cubic feet per day (BCFD) of new LNG imports
Northeast Gateway, Massachusetts	600 million cubic feet per day (MMCFD) of new LNG imports
Hydro Quebec	Major hydroelectric mainline in N.H.
Point Lepreau Nuclear Station, New Brunswick	Material upgrade being planned
Irving Oil and BP (Eider Rock), New Brunswick	Large, new refining complex
Westbrook Power Complex (Portland)	State-of-the-art combined cycle power
Veazie Power Complex (Bangor)	State-of-the-art combined cycle power

FIGURE 2: **Energy Map of Maine**

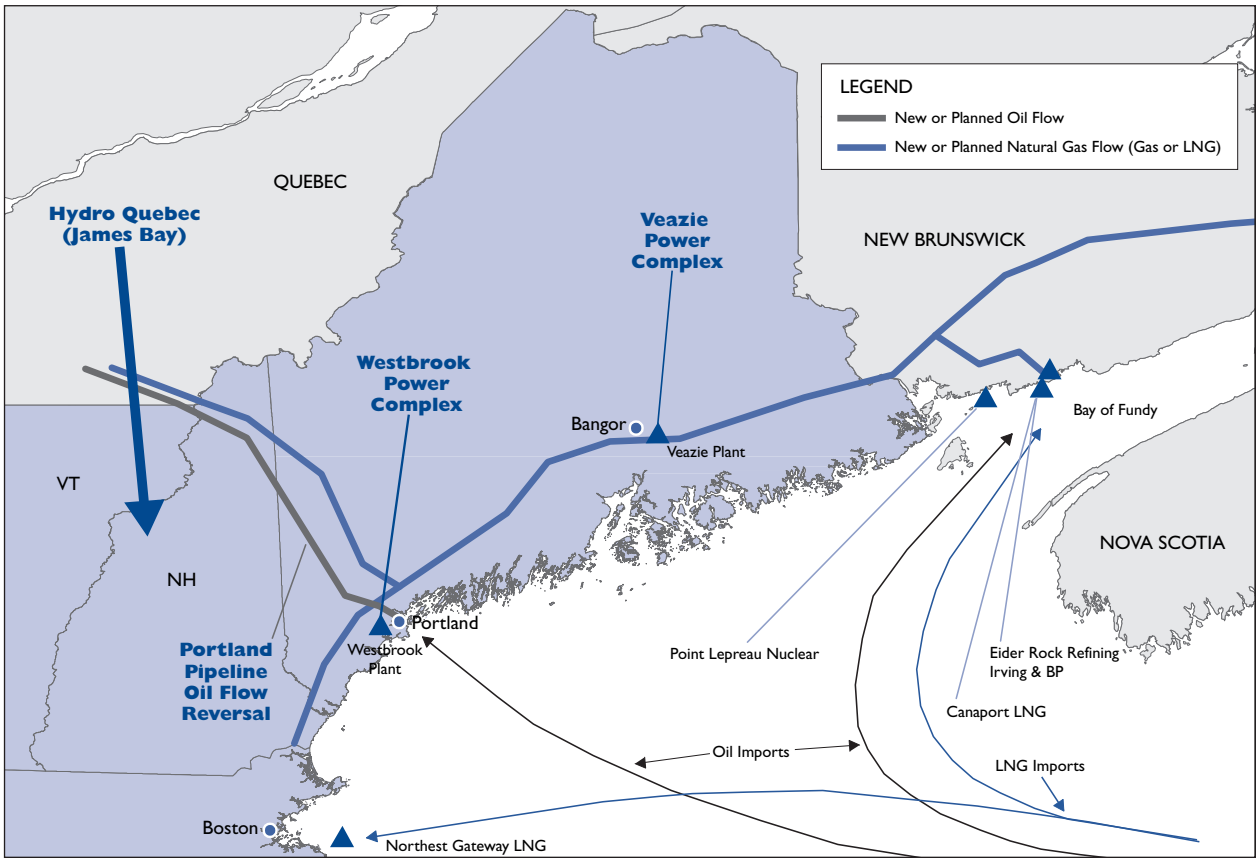
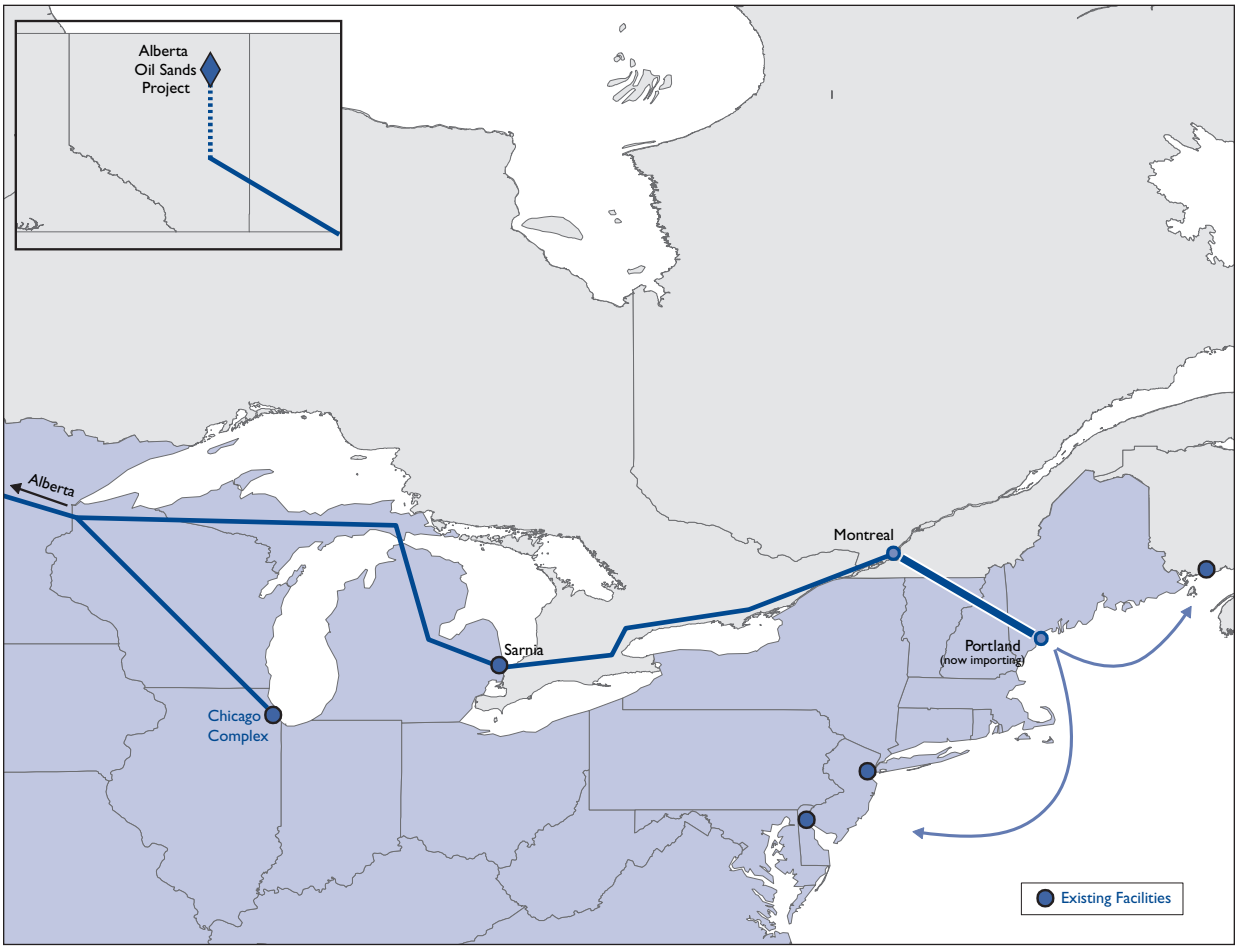


FIGURE 3: **Portland Pipeline Oil Flow Reversal**



through targeted transit fees, associated investment, and other mechanisms. Maine will assume a leadership role as it works to establish precedent and programs to deal with the new supplies transiting the state. We will have options in the battle to reduce our carbon footprint. And, most important, access to so many energy sources will improve the state's economic development potential.

One key element buried in the mass of projects on the Maine energy map is the Portland pipeline–oil flow reversal project. This is a recent development driven by the development of oil sands projects in Alberta. Canada needs to export this new product to the East Coast of the U.S., and Portland is the only oil port on the U.S. East Coast that is linked to an inland pipeline. New York, Philadelphia, Baltimore, Providence, Boston, Miami, Charleston, Norfolk, all lack crude oil access pipelines. Portland's unique position presents an opportunity and a challenge. Over time, the Alberta oil sands producers will seek to expand flow, as it is always cheaper and more efficient to expand existing routes rather than blaze new ones. There are already around 350,000 barrels per day moving through Portland as imports (inflow); the flow reversal will simply mean, at the outset of the project, that the flow will be outbound rather than inbound.

The map (Figure 3) shows the total picture of the Portland pipeline flow reversal. All of the lines (with the exception of the dotted line at the very top of the map) are existing lines. Ownership and operational

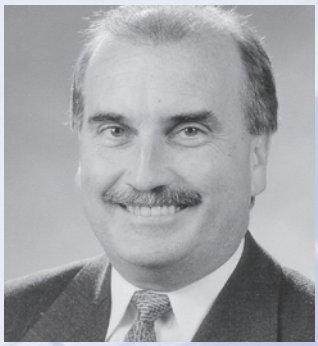
control change along the way, but all of the lines are being expanded in unison to allow delivery of oil sands production from Alberta directly into Portland for onward delivery to east coast refineries.

However, the bigger challenge will be balancing the inevitable future expansions against Portland's position as one of the most beautiful city settings in America. Technology and new lines should allow us to do this. Offshore buoys will eliminate the need for ships to enter the harbor. Lateral pipelines along the new natural gas right-of-ways could also reduce flow through the harbor. As with anything, it will be important to think through all of the options—now.

THE FUTURE

As a nation, we will continue to grapple with energy supply challenges. Fundamental supply and demand relationships suggest that not only will we face continued price pressure, but that the U.S. has only begun the process of resolving the self-sufficiency question. What does that mean? It means we have not yet begun to see where the energy situation is taking us. As noted earlier, China's demand has grown, and it is only one-third of the way through construction of a massive interstate highway system. If their economic growth is causing heartburn now, what does their continued development bode?

Maine, through good fortune, stands to benefit from its geographic position. Maine does and will have access to many different energy supplies. More than most states, it will be able to benefit from the current energy supply challenge. Reducing the carbon footprint will be easier here, economic development opportunity will be more prevalent than in the past, and Maine's economic system should be bolstered by the surprising number of new energy projects. We don't have the planning mechanism in place yet, but that should and will be done.



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REFERENCES

Wilson, Elizabeth. 2008. "Understanding the Global Energy Industry is Key to Meeting Maine's Energy Challenge." Maine Policy Review 17(2): 24–38.