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# Lessons from the Gulf

The consequences of the oill spill in the Gulf of Mexico loomed large at the Newfoundland and Labrador Offshore Industries Association conference last summer. At a panel entitled "The Future of the North American Energy Industry," experts discussed the new normal

**BY ANDREW SAFER**

Jason Grumet is the executive director of the U.S. National Committee on Energy Policy. He has been advising Barack Obama since 2005 and worked with Congress on the Energy Independence and Security Act in 2007. Speaking at the Newfoundland and Labrador Offshore Industries Association (NOIA) Atlantic Canada Petroleum Show, he said, "The Gulf is a smack upside the head, showing that we don't have a coherent long-term imagination for our national energy policy. Now we have a new normal, and what we imagined as improbable or impossible, as much as anything else, can change operations."

Grumet added that the Gulf changed "the traditional battle lines of opposition to the nuclear industry." This, he implied, is good news, since both nuclear power and unconventional gas (including shale gas) figure prominently in the U.S.'s domestic energy system.

David Collyer, the president of the Canadian Association of Petroleum Producers, said the event in the Gulf "has the potential to undermine public confidence in our ability to apply technology to solve challenging problems." He added that the onus is now on Canadian oil and gas operators to demonstrate that they are producing responsible energy.

Addressing alternative energy, consultant Bill Pike flagged solar, wind, and geothermal as "promising," and biofuel, tidal, and nuclear as "questionable." Pike was seconded to the National Energy Technology Laboratory division of the U.S. Department of Energy from NISC, an IBM company. He cited the downsides of biofuel: the need for 50 gallons of water for every mile driven on ethanol; storage and transportation challenges; and raw material. Distance from inland demand, competition with fisheries, and marine ecological issues put tidal power in the "questionable" camp. In Pike's view, the challenges of nuclear energy include substantial cost overruns on major projects, the scarcity of fuel-grade nuclear material in the U.S., and heavy

water usage.

While developments in photovoltaics have made solar "promising," Pike pointed out that it requires both flat land and sufficient hours of sunlight. Wind power is expected to generate 20% of U.S. energy requirements by 2030, despite geographic limitations imposed by required wind speeds. Geothermal boasts a low carbon footprint, but line loss over long distances limits its viability. Pike noted that non-fossil fuel energy is projected to account for 78% of total U.S. energy usage by 2075.

Oil and gas operators tend to overestimate the positive and underestimate the negative, observed DeAnn Craig, an adjunct professor of petroleum engineering at the Colorado School of Mines. "All models will be wrong," she said, adding that models can be useful as long as low-probability events are considered in the planning process. She cited Chernobyl as an example of a low-probability, high-consequence event. Models that fail to take into account costs of improbable "left tail" events leave industry vulnerable. Craig's recommendation is that industry associations should take an active role in ensuring that operators plan for contingencies.

In order to buy time until renewable energy sources become viable, Craig suggested that adjustments be made to shift truck fleets to natural gas, citing a 100-year supply at current usage. Four trillion cubic feet of gas are available in the U.S., noted Pike. Collyer said there is increasing interest from markets in the Far East in exports of Canadian natural gas, but he added that getting the "social license" to build pipelines to the West Coast has become more challenging in the wake of the BP blowout. He said that Canada is the largest supplier of energy to the U.S., and that the Alberta oil sands project is the world's second-largest reserve of oil.

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As the world economy recovers from the recession, Grumet observed that the U.S. is missing out on a $5-trillion global market for renewable energy. "There's a general sense that we are not leading in that exercise," he said, adding that of 30 advanced clean-tech companies, only four are based in the U.S. He said that "big gap" technologies worthy of investment include advanced nuclear and the sequestration of heavy oil and coal emissions.

Referring to the U.S. government's $14-trillion debt, Grumet championed both energy efficiency and conservation, saying it's time to cut waste and do more with less. "It's the obligation of our country to come together with some shared sense of purpose," he said. "Using less oil protects our troops, reduces emissions, and saves our country money. Without that, it's hard to imagine achieving our climate goals."