MARY TOLAN'S ENERGY SCENARIO AND PROPOSAL[53]

Mary Tolan is the chief executive of Accenture's Resources Group. Accenture is a major management consulting and technology services company with more than 75,000 employees in 47 countries. It is headquartered in New York City. Portions of this case are based on her presentation to the 14th annual International Utilities and Energy Conference in 2003.

Tolan challenged the audience to understand the power of political will and its possible impact on restructuring our energy mix. To illustrate how change is possible, she outlined a scenario that could play out in an environment not very distant from the geopolitical situation of today. Tolan listed three factors that would drive this scenario: (1) a weak global economy, (2) oil price inflation with expectation of more inflation that could shave 1 to 2 percent off of the economic growth of major industrialized countries, and (3) geopolitical concerns leading to the view that the current petroleum dependence represents unacceptable risk. Tolan comments: "We have acute conditions developing that can accelerate change. But, we have a wild card, political will." She noted that, at present, the world lacks the political will to change our dependency on petroleum.

To help envision the potential implications of energy restructuring, she asked the audience to focus first on the transportation fleet where 50 to 70 percent of petroleum is consumed; in addition, typical forecasts call for increases in demand. Tolan described how hydrogen could achieve material displacement of petroleum: "It [hydrogen] can be created from many energy sources, and this diversity leads to greater security." She also noted that hydrogen offers a more efficient conversion of energy and results in a lower energy cost than that of conventional gasoline engines.

Assuming that all new vehicles were hydrogen fueled by 2013, transportation consumption of petroleum in the major industrialized countries could decrease by 15 million barrels per day from today. Tolan cautioned that such a scenario would require wholesale infrastructure redevelopment and large investments in commercializing fuel cells. To move to hydrogen, she said government subsidies on the order of $225 billion over a 10-year period would be required. While the dollar amount sounds high, she reminded the audience that many other subsidies and government programs spend this amount every year. "However, let me say, without political will, we should be unenthusiastic about this scenario," Tolan stated. Tolan did stress that such a positive outcome to this scenario requires fuel cell and automobile manufacturers to bring down the total cost of the vehicle. She stated: "The investment made today in preparing for the new hydrogen business environment is a bet on fuel cell technology."

With a $225 billion stimulus investment in the energy and transportation business, Tolan said hydrogen could deliver significant gains in productivity as well as an environmental benefit in emissions control. Reinforcing her view of the art of the possible being achievable, Tolan reminded the audience of historic challenges, in particular the U.S. "Man on the Moon" campaign. "Kennedy did not know what fuels could accomplish this. He didn't know what or who would have to come together to make this happen. He just took a leap of faith. Today, we know the fuel, the who and the what that have to come together. Now what is required is political will."

Under Tolan's scenario, the United States could completely wean itself off imported oil by 2015 by flooding the market with fuel-cell vehicles. Most of the hydrogen needed to power the cars would come from plentiful North American natural gas piped to existing filling stations, then processed into hydrogen. In little more than a decade, half the cars on American highways would run on clean-burning hydrogen costing 40 percent less per mile than gasoline. Tolan agrees that some unusual things would have to happen first: You'd need annual federal subsidies of $10 billion to $20 billion in the early years to make the cars affordable and to scale up production. Oil and gas companies and utilities would have to invest some $280 billion into hydrogen infrastructure in the United States alone. Tolan acknowledges that she's calling for a

radical transformation that could expose energy industries to daunting technological and commercial risks and uncertainties.

Tolan contends that the costs of creating a hydrogen industry, while considerable, are far lower than the $1,000 billion (trillion) espoused by critics: $280 billion in the United States for hydrogen production and infrastructure. Her estimate includes $70 billion to expand the natural gas and ethanol supply, $40 billion to lay new pipelines, $40 billion to transport fuel to filling stations (via pipelines or trucks), and the $130 billion to retrofit filling sites. The scale of investment is in line with what major oil companies already spend on petroleum exploration and production. ExxonMobil, for instance, budgeted $100 billion for that purpose this decade.

At another energy conference in Houston, Tolan presented her scenario to 2,000 industry executives. "She got a lot of pooh-poohs," says Joseph Stanislaw, president of Cambridge Energy Research Associates, the conference sponsor. "But a lot of folks also said they know they've got to start thinking this way. Once you have first movers and quick followers, things can go very fast." He says that none of the big oil companies has committed significant capital to hydrogen, but all are studying its safety, feasibility, and cost.

Questions for Discussion

1. On what assumptions is Tolan's scenario based?
2. What aspects of Tolan's proposal are creative?
3. Would the use of the balanced scorecard model tend to discourage or encourage an energy firm in pursuing Tolan's proposal?