15th Annual FERC Briefing
Conducting Public Utility Business in Uncertain Times
SNL EXNET and Bruder, Gentile & Marcoux, L.L.P.
March 5, 2009

Carmen L. Gentile

National Energy Policy

Introduction: This paper, offered as part of our firm's "15th Annual FERC Briefing," proposes the outline of an overall energy policy to provide context for the theme of the morning program concerning expansion of electric utility industry infrastructure in challenging economic times. The underlying thesis is that the FERC energy sphere does not exist in a vacuum and a comprehensive national energy policy is needed to help delineate the role of the electric utility industry in achieving overall national energy goals. Establishing that policy and identifying that role would facilitate the industry's efforts to meet future energy needs and help alleviate the present economic distress.

As a caveat, there is small likelihood of adoption of an energy policy as advocated here based on integrated resource concepts and comprehensive analysis of costs and benefits. Without analysis of the costs and benefits of different energy choices, it appears that enormous resources will be committed to renewable energy, that nuclear has been relegated to stepchild status, and that the last of the coal-fired power plants may have been (or are being) built unless and until satisfactory carbon recapture techniques are developed. Further, a carbon tax has been proposed in part to subsidize the renewable program and in part as general revenue source for the U.S. Treasury. A needed outright ban on the use of gasoline for passenger automobiles is unlikely to be adopted.

Nevertheless, the integrated resource policy discussion has some value since it provides a frame of reference to evaluate the approach actually taken to energy production and consumption. The paper concludes with a brief comment on the direction the electric utility industry is likely to take in light of the government's planned energy initiatives.

Policy: The national energy debate conducted from inflexible ideological positions leading to pre-conceived "solutions" has so far generated "more heat than light," and seriously risks creation of more cost than benefit. We need a national energy policy that with two major exceptions, gasoline

and carbon emissions, is short on mandates, and emphasizes commitment to certain basic objectives: an adequate energy supply and achievement of national security, economic and environmental (including carbon limitation) goals. These objectives would serve as the underlying benchmark by which to guide industry participants and measure the viability of various energy initiatives.

An effective national energy policy is not a Soviet-style plan that straightjackets future energy development. An ideal policy would establish ground rules and objectives, but not dictate particular energy choices. Instead, except for gasoline consumption and carbon emissions, the policy would provide guidance by creating a framework for informed and rational decision-making. A $150 billion clean-energy expenditure as recently proposed might result from the analysis contemplated by an ideal policy, but such a policy would never dictate that expenditure as a pre-conceived solution and such an expenditure need not and should not come from the Federal Treasury. Also, an ideal energy policy should not abandon the market, which is a powerful mechanism for stimulating ingenuity and creativity and maximizing overall economic efficiency. A policy, as distinguished from an inflexible plan, has the adaptability to modify goals as needed, exploit new opportunities (*e.g.*, technological breakthroughs), and overcome unexpected challenges.

Comparative Analysis: The hallmark of an effective national energy policy is commitment to comprehensive, integrated resource analysis in which different energy strategies are logically and objectively evaluated and compared with each other based on their ability to ensure an adequate, reasonably priced energy supply, their feasibility, and their cost and effectiveness in addressing national security, economic and environmental concerns. The development of scenarios to consider these alternatives coupled with intensive scrutiny of their direct and indirect cost and other consequences is essential to rational development of the energy industry. Within the context of that analysis and subject to restrictions on the use of gasoline and the emission of carbon, no preference should be accorded to any particular energy strategy or source. In fact, piecemeal decision-making favoring or opposing any particular energy mode would be lethal to the national interest.

The analysis must be long-term in nature. The energy industry like a ship on the ocean cannot turn on a dime. The energy sources available in the next few years are locked in. While fine-tuning is possible, the decisions made yesterday are determinative of energy usage today and in the immediate future. However, by the same token, the energy supply needed ten years from now is the product of choices and commitments that we make today that will shape our future, and will bear fruit many years from now.

A full analysis requires price projections for each potential energy scenario. Both direct and indirect costs need to be factored into the analysis. For example, the cost of wind and nuclear should include the cost of the transmission to link the locale where the energy is generated to the place where it is consumed. Wind is an intermittent resource and must incorporate the cost of the complementary generation, chiefly gas turbine, to ramp up or down as the wind picks up or dies down. Nuclear needs to incorporate the full cost of the fuel cycle with and without reprocessing.

Such an analysis would help policy-makers and industry understand the effects and costs of reliance on various energy sources. To implement such an analysis, computer simulations positing various energy-mix scenarios can be run yielding different prices to achieve a given level of carbon limitation and the prices for achieving different levels of carbon limitation could also be determined. Judgments based on the results of those scenarios would indicate the roles to be played by electric power and by different primary energy sources such as renewables of various kinds, gasoline for non-passenger cars, natural gas, coal, and uranium. Once an energy game plan is in place, different sectors of the energy industry, including the electric utility industry, can undertake the task of providing for national energy needs without bankrupting consumers, degrading national security, weakening the economy, or despoiling the environment.

Cold Turkey On Gasoline: Consumption of imported oil is the 800-pound gorilla casting an enormous shadow on the national energy picture. A coherent national energy policy cannot be formulated without first addressing the threshold problem of oil consumption and over time eliminating or reducing to a negligible amount the use of gasoline as fuel for passenger automobiles.

In that regard, a national energy policy must evaluate the threats which energy consumption poses. Global warming thought to be man-made through CO_2 and other emissions is a prominent national concern. Tail pipe emissions from gasoline for passenger automobiles are a major CO_2 source. The debilitating effect on the national economy of enormous payments to foreign oil producers is also of grave concern. Those same payments that weaken the U.S. economy conversely strengthen adversaries and potential adversaries in the Middle East, South America and Eastern Europe, thus compounding economic risk with national security risk.

The current economic crisis and the run-up in the national debt is a further decisive consideration. The United States cannot afford to continue down the path of heavy dependence on foreign sources of oil and the heavy trade imbalances that result from that dependence. Moreover, the inevitable consequence of continued dependence on foreign oil will be increased prices as our economy begins its recovery from the present slump and oil demand increases. Those price increases will drain our resources and choke the economic recovery. Therefore, oil self-sufficiency, defined as exporting as much oil as imported, is essential to the nation's economic prosperity.

U.S. oil self-sufficiency will also contribute to global prosperity. Reducing U.S. demand for oil will help limit the worldwide price of oil so high oil prices will not stunt the economic growth of other countries. Furthermore, fuel-efficient technologies developed for the U.S. automobile market will be available to other countries thus reducing their consumption of oil and acting as a further oil-price curb. By reducing its own imported oil bill, the U.S. will be able to purchase more goods and services (including other energy sources such as hydro and LNG) from foreign countries, and, conversely, the export of U.S. goods and services to foreign countries will be facilitated.

Reducing worldwide oil prices through reductions in demand will also help remedy the drift toward economic protectionism, which like oil consumption is another short-term gratification with devastatingly harmful long-term consequences. It is not hard to imagine a bleak future in which national economies stagnate behind protectionist walls that exclude most imports except for the oil "fix."

We have a national oil addiction with profoundly pernicious effects. The fault for feeding this addiction did not lie with the automobile companies or international oil companies. They did exactly what they should have done which is to tailor their products to consumer preferences to maximize customer satisfaction and their own profit. At least when oil was less than $100 per barrel and before the current economic crisis and particularly outside the densely populated metropolitan areas of the northeast and southwest, building and selling environmentally benign and fuel-efficient cars had the sales appeal of the proverbial lead brick. In such an environment, any executive who pushed his company toward the manufacture of such cars would be out on his ear and rightly so.

The fault lies squarely with the government, which through successive administrations and congresses of both political persuasions has let the American people down. The government has lacked the political will power to subordinate short-term gratification in the form of excessive gasoline use to the pursuit of long-term strategic interests. The current "CAFE" standards contemplate relatively modest limitations on gasoline mileage over the next ten to twenty years. What is more, those standards do not even apply across the board to all passenger vehicles due to the blurred line of distinction between larger passenger vehicles and small trucks. These gasoline consumption standards, in effect if not on purpose, are designed to melt the polar ice cap, empower our adversaries and impoverish our country: they are unacceptable on environmental, national security and economic grounds.

Although it may be likely, increased taxation of gasoline consumption is not the answer. The objective is a more rational energy policy not a more expensive one. Taxation is unsatisfactory on three grounds. Taxation adds to consumer cost just when we should be trying to reduce that cost, does indirectly what can be accomplished more directly through flat prohibitions on gasoline use, and sends a muddled message to the automotive industry, which should focus all its effort on the "oil-less" passenger car.

The cure to our gasoline addiction is the "cold turkey" adoption of draconian consumption standards for passenger cars accompanied by enough lead-time to develop and apply the required technology. There should be no use or at the least a drastic reduction in gasoline use for newly sold automobiles by the end of a foreseeable period, say ten-years.

Suppose that all new passenger automobiles sold in the United States in the year 2020 and thereafter would result in virtually zero CO_2 emissions and virtually zero reliance on gasoline. Gradually, over a period of ten years or so, the pre-2020 passenger cars would deteriorate into obsolescence and wind up in the scrap heap. A ten-year period would afford the opportunity to devise and deploy new automotive technologies and permit a transition that would avoid disruption to industry and consumers alike. Very substantial reductions in CO_2 emissions would be realized beginning in 2020 and those reductions would gradually increase as less fuel-efficient cars are scrapped and new cars take their place.

Although automobile gasoline consumption will not be fully eliminated within the next 10 to 20 years, we will be on the right track and begin to see immediate benefits. The adoption of a credible prohibition on gasoline consumption backed up by concrete implementation steps should diminish the value of oil in the ground, create the incentive to extract as much oil now as possible, and pay immediate dividends by creating stability in oil prices and oil supply.

Once the correct fuel-use criteria are developed, private enterprise will compete to build bigger, faster, but fuel-efficient cars. However, private industry and consumers alike must understand that the alternative to bigger, faster fuel-efficient cars is not fuel inefficiency. The alternative is smaller, slower fuel-efficient cars. Without such a hard and fast, no exception rule, the petroleum addiction will never be cured and all its harmful consequences will continue to sap our strength and undermine the national interest.

A ban on gasoline for automobiles requires not only enhanced battery technologies, but also the electric equivalent of gas stations for recharging or replacing spent batteries. A plug-in electric vehicle may work well for urban commuting but is not a realistic alternative for the family trip to Disneyland or for motorists where "plugging-in" is not a practical alternative. These "Recharge Stations" do not now exist, but without them the objective of ending gasoline use for passenger cars is unattainable.

We face a chicken and egg situation. We cannot end the use of gasoline without improving battery technology and developing Recharge Stations. However, we will not improve battery technology and develop Recharge

Stations unless industry and investors are assured that passenger automobiles will not continue to rely on gasoline. The government must provide the assurance that gasoline will no longer be used for newly sold passenger automobiles within a specific period defined by the availability of the requisite batteries and related facilities.

The Interim Period: The interim period is critical in part due to uncertainty as to whether and when gasoline-free automobiles can be developed. Therefore, current gasoline consumption practices for passenger automobiles cannot be tolerated between now and the "great day" that the last gasoline-powered automobile is sold. CAFE standards must become increasingly stringent improving miles per gallon ("MPG") each new model year within the interim period. The improvements may come from increased use of and enhancements to hybrid technology, changes in design and materials, and smaller size if smaller size is the only means of reducing consumption. If necessary, tax credits could encourage voluntary purchase of high MPG cars and gasoline-free cars which should make their appearance gradually but in increasingly larger numbers during each year of the interim period. Unless the government pursues an aggressive gasoline reduction program during the interim period, the zero MPG objective will not be credible and the loss of credibility will become a self-fulfilling prophesy that will guarantee that the objective will never be achieved.

Economy of Supply: A related chief objective is that a national energy policy cannot institute strategies that bankrupt the American consumer. First, last and always, the objective must be an ample supply of energy at the most reasonable possible cost. Energy is the servant of the people, not a leviathan that imposes an economic servitude. However, reasonable energy prices are no easy trick. The development and construction of energy infrastructure takes lots of time and costs lots of money. Therefore, keeping a close eye on the true cost of various energy options is imperative. An equal imperative is avoidance of needless and costly delay of energy projects through, red tape, regulatory indecisiveness and inconsistency, and the absence of consolidated permitting and licensing procedures.

Adequacy of Supply: Energy policy should recognize that responsible energy consumption, *i.e.*, consumption without waste net of practically achievable conservation and efficiencies, is an economic and social good and

not a social evil. Accordingly, energy policy should be aimed at ensuring that the supply of energy meets the demand for energy, and at increasing supply not decreasing responsible energy consumption. Higher levels of reasonable energy consumption translate to higher levels of economic activity, the creation of wealth in the form of needed and affordable goods and service, and the promotion of the public good, including, better schools, highways, hospitals, and national defense and other public facilities.

This is not to demean conservation and energy efficiency, which represent the cheapest and most environmentally benign methods of satisfying energy needs. Energy is a gift that should not be wasted or abused. Nevertheless, although "responsible consumption" incorporates consumption net of conservation and energy efficiency, growth in energy supply will be needed to meet increased energy demand and to replace existing less desirable energy sources with new more desirable sources.

Therefore, a critical element of a national energy policy is to forecast the future demand for energy both on an overall basis and by sector based on recent experience and projected future needs assuming a robust economy. The amount of energy reasonably attainable through all sources, such as conservation, passive on site or "behind-the-meter," various kinds of renewables, natural gas, LNG, petroleum, propane, and central station electric generation with different scenarios posited for the primary fuel sources for electric generation.

Fuel interchangeability, *i.e.*, the ability to switch from one fuel to another, must also be factored into the forecast. Finally, the economic cost of energy shortages in terms of cost increases, lost productivity and damage to the public convenience and necessity must also be factored into the equation.

Renewables: Renewables such as wind, solar and biomass are attractive energy alternatives and must be aggressively pursued. In the current political environment, renewables are the fuel of first resort.

Unfortunately, all that glitters is not gold. Despite the enthusiasm of its proponents, the amount of wind generation capacity that can be viewed as a practical increment to the national energy supply has yet to be determined. Wind is an intermittent resource producing energy when the wind blows and

none when it doesn't. The consequences are sudden surges and reductions in electric power output, each of which can destabilize and damage the grid and cause service interruptions.

This system instability risk can be mitigated by combining wind and gas turbine generation in system planning so that the gas turbine generation can be turned on and off inversely to the peaks and valleys of wind generation. Relying on multiple wind sources in various locations where different wind condition exist might also mitigate this variability. However, such reliance means that the capacity and energy benefits of the related wind projects must be substantially discounted below the capacity's nameplate level. Battery storage of wind-produced energy may be a solution, but the technology to produce such batteries has yet to be deployed. The high cost of transmission to move power from the wind source to customer loads is yet an additional factor affecting wind production. Thus, both the cost and environmental benefit of wind capacity must be evaluated in light of the complementary quick-start and quick-stop generation, probably gas-fired, and other resources needed to provide stability to the electric supply and the grid.

Bio-fuels are renewable, but have drawbacks. Bio-fuels produce CO_2 emissions. Heavy reliance on bio-fuels either to power electric generation or as a direct fuel source for automobiles could potentially increase food costs. Thus, bio-fuels address the problem of heavy reliance on imported oil, but create other problems of their own.

Geothermal, tidal and solar also constitute promising avenues of energy production. These energy sources belong in the mix to be evaluated based on their feasibility, cost and performance relative to other fuels. If the fuel scenario analysis is properly performed and these energy sources have cost and other advantages in comparison to alternative sources, they should be pursued as part of the solution to the national energy need.

The Nuclear Option: Nuclear power is a panacea to some and an anathema to others. Nuclear energy raises well-known concerns and provides equally well-known benefits.

Expanding the nation's fleet of nuclear plants poses significant challenges. Nuclear plants could take ten or more years to construct.

Therefore, if the nuclear option is an element of a national energy strategy, numerous steps must be taken now to ensure a future timely deployment of new nuclear plants. These steps include an accelerated licensing process; an agreement on a design or designs; a decision about reprocessing which could be essential to nuclear energy's economic and political feasibility; and a decision about storage and the acceptability of on-site storage as a potential long-term if not permanent alternative to Yucca Mountain.

The needed steps go beyond the political. Logistical steps include producing college graduates with the engineering skills needed for nuclear operation and construction, the creation of industrial facilities to construct nuclear plant components in the U.S., and decisions on where the next generation of nuclear plants are to be located. The challenges are daunting even to consider. Even if the construction of new nuclear plants is encouraged and facilitated, the number of new plants that can be placed on line by 2020 may be limited.

The Administration recognizes energy as having a high priority, heavily emphasizes renewables, and rarely if at all discusses nuclear as if were the disreputable family member unmentioned at and not invited to the Christmas dinner. And, to paraphrase the old adage, money speaks louder than words. The Administration has proposed a substantial cut in the funding of the Yucca Mountain repository. While its prospects in the new political environment may be problematic, nuclear does have going for it the fact that it is a proven technology with predictable cost that can, as in France, serve as the backbone of the electric supply without inordinately adding to the trade imbalance and without carbon emissions.

Natural Gas: Natural gas is nearly as versatile a fuel as oil. Natural gas can be used in homes to provide heat and air conditioning, as a transportation fuel for large trucks and busses, and, as fuel to generate electric power at costs which, when the most advanced turbine technology is utilized, are within the range of existing base load fossil power plants. Natural gas does cause carbon emissions, but the emissions are lower than for coal and oil.

Despite its many virtues, natural gas like all other energy sources has its drawbacks. A major risk of extensive use of natural gas is shortages causing major price increases to consumers who rely on gas for home heating and air

conditioning. The answer could lie in extensive drilling for new natural gas in the United States supplemented by increases in LNG imports, which will be economically feasible if oil imports are reduced. But even an extensive program of exploration and development may not be sufficient to limit the price of this invaluable commodity.

Coal: Coal is the current mainstay fuel for electric power plants. Coal has several significant advantages: it is domestically produced, plentiful in supply, and less expensive than other fuel sources. New coal plants are relatively "clean" at least in comparison to their predecessors. CO_2 emissions represent the principal deficiency of coal as an electric power resource. However, that single deficiency may outweigh all coal's advantages. After all, coal is not a cheap expedient if melted polar ice caps result from its use.

Carbon recapture is the hope that would make continued consumption of domestically produced coal compatible with global warming concerns. However, the technology is far from general deployment for new power plants. Even if developed for new plants, the possibility of retrofitting existing plants to incorporate that technology is uncertain.

The issue is how many new coal plants will be constructed within the next 10 years and how many existing plants will be allowed to remain in service. Issues touching upon energy production and the environment tend to be hotly disputed. The judgment not to construct new coal plants and/or to retire a substantial number of existing plants is no exception to that rule.

Integrated resource analysis suggests a way out of the coal impasse and provides a glimpse as to how the analysis might work. Computer programs can model scenarios correlating varying levels of carbon emissions with varying assumptions of coal use, reliance on alternative sources to take up the slack from diminished levels of coal output, and cost. Reduced carbon emissions from reduced use of oil for automobiles would also be modeled into the analysis. The end result would provide regulators with a quantitative basis for determining if coal reliance may be increased, should be maintained at the current level, or reduced. The important consideration is that decision-makers have at their disposal the knowledge to make informed decisions based on acceptable environmental and consumer cost impacts. The definition of acceptability is political, but the decisional process should be

transparent and politicians and their constituents will know the consequences of energy decisions.

Cars and the Smart Grid: An ideal energy policy would eliminate gasoline for passenger automobiles. It would not eliminate automobiles which are an American birthright. Predicting with certainty the technology and the fuels that will be used for new automobiles ten years from now is not possible. However, a safe bet is that electricity supplied by the power grid will play an important role. The safety of that assumption is that a "Smart Grid", i.e., a distribution system with at least the "intelligence" to meter power flows on a "peak" and "off-peak" basis coupled with an on-peak, off-peak energy pricing could induce consumers to power their cars in low demand, relatively low-price off peak periods. This could obviate the need for major investments to construct new power plants to meet this new automobile-related electrical demand. A more sophisticated "Smart Grid," if technologically and economically feasible, might sense if electricity is being used for a car battery and prevent or limit its use for that purpose during on-peak periods. Smart Grid technology could apply within the home and in the Recharge Stations discussed above.

The principal point is that the use of electricity supplied by the grid to power automobiles would not, in and of itself, necessarily create a need for a significant increase in the number of existing power plants. If methods other than the grid are developed for powering automobiles, the investment in "Smart Grid" technology would not be wasted. A Smart Grid would potentially have numerous other uses to ensure efficient electricity consumption.

Busses and Trucks: An ideal energy policy would to the extent practically and economically feasible minimize the use of petroleum as an energy source. However, application of a gasoline prohibition to trucks and busses may not be feasible due to limitations on battery technology and the potential for creating gas shortages through heavy use of natural gas for busses and trucks.

If the natural gas supply is adequate, the gasoline prohibition should be applied at least to urban mass transportation busses if not to long-haul transportation busses and trucks. Many urban bus systems already make extensive use of natural gas and extending that reliance may prove to be

relatively simple. Urban transportation systems are by and large recipients of large government subsidies and the use of those subsidies to complete natural gas conversion would create significant environmental and economic benefits. Therefore, without precluding the use of other non-petroleum sources and subject to the adequacy of supply, a prohibition on urban transportation system's use of gasoline should be adopted and apply over a reasonable transition period which should begin immediately since the use of natural gas for busses and other large vehicles is a proven technology.

Gradually converting long-haul vehicles from gasoline to natural gas presents a more formidable challenge. Such a conversion would further threaten the adequacy of the gas supply. Furthermore, a highway infrastructure for refueling natural gas powered vehicles does not now exist. While such an infrastructure for electrically-powered automobiles can and must be created, creating a similar natural gas infrastructure may produce more cost than benefit. Over a very long-term period (substantially more than ten years) elimination of oil for long-haul busses and trucks may be feasible. However, continued reliance on gasoline for such vehicles is likely to be a necessity for the shorter term.

This is not to say that the continued use of gasoline for long-haul vehicles should be exempt from the comprehensive analysis used to determine the appropriateness of different energy sources. However, such use of gasoline should be exempt from the threshold ban on gasoline that should apply to passenger automobiles and possibly urban mass transportation busses.

Oil and Natural Gas Exploration and Development: Despite restrictions on its use, oil will continue to be a critical element of the national energy supply and critical to industrial usage for the foreseeable future. Therefore, bans on oil exploration should be eliminated or kept to the bear minimum and replaced by strict controls to ensure the risk of environmental damage is kept to the bare minimum. This does not mean that oil exploration will necessarily proliferate to areas such as the north slope of Alaska. If the price of oil is successfully depressed through demand reductions, the market will discourage exploration in sensitive areas where extraction costs would be prohibitively expensive. Low oil prices may deter reliance on other oil

production sources such as shale. However, the price of oil rather than government fiat should determine oil exploration and development.

Natural gas is a different story. Exploration and development of additional sources of natural gas is critically important since natural gas is a preferable alternative to oil and an important means of reducing dependence on both oil and coal. Governmental policy should proactively encourage and facilitate natural gas production.

Carbon Taxes: As noted above, taxation is not an appropriate mechanism to curb gasoline consumption. A generally applicable carbon tax on all carbon emissions to subsidize renewable programs and other governmental activities is equally inappropriate. The tax serves no constructive purpose. Carbon emission goals can easily be achieved without taxation. Non-energy programs should be financed from generally applicable taxation not specialized taxation that applies to a particular taxpayer class. The tax is an exaction on the production of goods and services. Taxation should apply to wealth not the process for creating wealth. Renewable programs should not and need not be financed by such a tax. Such programs should stand on their own feet without subsidization and the cost of such programs should be paid by the energy consumers who utilize such programs.

Carbon Limitations: The level of acceptable carbon limitations is ultimately a political decision which the government must make. Decisions regarding carbon limitations, which are likely to become increasingly stringent over time, must be vested in the people and decided through their elected representatives. These caveats are offered. First, carbon emission decisions should not be made in a vacuum without a comprehensive analysis of the different methods of achieving those limitations and the cost that will be incurred. Second, the carbon saving from eliminating gasoline for passenger automobiles needs to be factored into the analysis along with an understanding of the impacts of various levels of carbon emissions on global warming. Third, the foregoing analysis should result in nationally applicable standards that reflect a comprehensive national energy policy. Piecemeal carbon related energy prohibitions or initiatives by either national or local governments will undermine rather than promote the national interest. Once overall carbon emission goals are established, the U.S. can set about achieving those goals in the most efficient and economic ways possible.

The Actual Policy: The Administration does have a definitive energy policy. The chief features include reliance on renewable energy, the construction of transmission to move the energy to customer load centers, conservation, the reduction of carbon emissions, a carbon tax, electric battery and carbon recapture research, and oil independence. The Administration's renewable emphasis coincides with the renewable energy programs that have been adopted by most states.

In the current environment, conservation and efficiency programs represent the best investment a utility can make, and rightly so. Therefore, every utility should seek to exploit its service area's full potential for conservation and energy efficiency, and should seek appropriate financial compensation for its efforts.

Since renewable energy projects, particularly wind, are heavily favored, those projects and the related transmission policy pose little or no regulatory risk. In fact, regulatory favoritism should insulate utilities from any economic risk associated with such projects and ensure that ratepayers absorb all costs.

As noted above, new gas fired generation can achieve substantial efficiencies. However, gas-fired generation is subject to shortage-driven price spikes and could be subject to a carbon tax if such a tax is adopted and applied to natural gas generation. Nevertheless, from a regulatory perspective, investments in gas-fired power plants may represent the safest non-renewable generation investment a utility may make.

Only the largest utilities are capable of taking on the construction of nuclear power plants. Not every state offers a hospitable environment for nuclear power plants. Several states prohibit their construction. The Bush Administration and the prior Congress favored construction of new nuclear plants. During the campaign, President Obama expressed guarded support for nuclear, provided the spent fuel storage problem could be satisfactorily addressed. However, indications are that his budget would cut appropriations for the Yucca Mountain storage facility and the Senate majority leader is implacably opposed to storing spent fuel at Yucca Mountain. If there is any support for reprocessing, it is yet to be articulated. Nuclear investment must be viewed as subject to substantial politically-related risk.

Coal-fired power plants may represent a bigger financial and regulatory risk than nuclear plants due to the considerable risk of a carbon tax. This risk applies both to existing plants as well as new plants. Two additional unknowns cloud the horizon: (1) the government's willingness at least to permit new capacity to replace old capacity, a trade-off that would preserve current levels of coal-fired electricity production, and (2) the success of carbon recapture technologies for new plants and the ability to retrofit existing plants to the new technology.

Transmission construction for reliability is both desirable and necessary and RTOs often provide for the postage stamp sharing of all or significant portions of reliability investments among all RTO members. The treatment of non-reliability investments is more complex. Utilities have generally operated under the precept that the beneficiaries of non-reliability transmission investment, e.g., the purchasers of the output of a wind plant, should pay for the transmission. However, forcing wind plant purchasers to pay the related transmission cost could affect the marketability of wind generation which the government is seeking to encourage. FERC can resolve such issues in a declaratory order proceeding so that cost allocation uncertainties will not delay needed transmission construction.

In sum, the U.S. has a definitive energy policy chiefly based on renewables and conservation and on the assumption that those and other "soft path" sources represent a least cost and environmentally superior method of satisfying national energy needs. Utility undertakings to implement that policy are likely to be financial successful. Only time will tell if the policy itself is a success.