

Energy Policy: The Dark Night?

Contributed by PT Editors
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Having saved the world from itself over 60 years ago and put a man on the Moon 25 years later, Americans are a proud lot. But, time waits on no one. As the country's vaunted financial infrastructure reports over \$400 billion in write-offs and credit dries up, the transportation infrastructure watches its airlines charge for carrying a suitcase while bridges collapse, and its social security infrastructure sinks slowly into the abyss of insolvency, dare we ask, "what's next"? Try energy. Meeting America's energy needs and moving toward a low carbon future look increasingly distant.

This article could as easily be about the financial or transportation infrastructure as it is about energy. Or education or healthcare or immigration. We're reasonably good at fixing specific problems, considerably less adept at developing policy over broader areas. The reasons are many but one is key: our central government has sought—and failed—to fix and do everything. Blame it on the media, personalities, or simply good intentions gone bad. But, debate, compromise and principled consensus have become ever more difficult in Washington. The end result is the country's real challenges remain unsolved.

THE ENERGY CONUNDRUM

America knows it has an energy problem, but the question is, how do you fix it? The National Conference of State Legislators' recent 2008 Energy Summit offered several ideas. Says Kentucky State Senator Rodky Adkins, "there is no strategy to get from A to Z. And as all of you know, the lead times on these projects are enormous."

The fact is, says, Dr, Howard Gruenspecht, Deputy Administrator, Energy Information Administration, "we didn't build much of anything in the 1990s. What's been happening is that we've been living off the coal and nuclear power we built in the 1980s."

Most (if not all) Americans care about what they pay at the pump. But, there's a lot more: heating homes in the winter, cooling them in the summer; generating enough electricity to turn on light bulbs, run the dishwasher, and power up the computer; and, then there's street lamps, Big Macs, shops on Main Street, and our entire industrial and commercial core.

Over centuries, fossil fuels have fully integrated themselves into the US and world's economies. Says Gruenspecht, "coal dominates the energy mix in the US. Today, it is about 50%; natural gas is 21%, and nuclear accounts for 19%. Renewable energy is about 2.7%." And over the next 25 years, those percentages won't change much, though renewable energy could grow to about 7%. Some say these percentages are skewed, and that the percentage of renewables—solar and wind, for example—could increase to 20%. But, they offer little in the way of proof. And other than being a great investment for venture capitalists, that still leaves the US dependent upon fossil fuels for over 80% of its energy needs.

CLIMATE CHANGE

There is, of course, this problem—meeting the country's energy needs. There is also the issue of, how do we do it? Naysayers abound, but there is a growing consensus that overuse of fossil fuels has endangered the planet's survival. Dr. Michael Maddox, CERA, notes that, "there's a huge conundrum as we try to deal with climate change and energy needs together." Susan Tomasky, President, AEP Transmission, asks, "most basically, when are we going to reduce carbon emissions from the economy?"

If you do something about climate that will dramatically change what you do about energy. Coal, for example, emits more CO₂ than other forms of energy. At higher prices, it takes a lot of natural gas to offset costs of substitution.

Power demand is increasing despite gains in efficiency. Says Gruenspecht, "over time, growth in demand for electricity has slowed down to about 1.1% annually because of market saturation and improved efficiency. But, we still expect it to grow. By 2030, it will be about 25% above today's demand."

The US has lost a lot of energy-intensive businesses to outsourcing. The decline also has to do with structural changes in who's using electricity. For example, statistics show that electricity per individual has gone down. But, per household, it has gone up. Why? We live in bigger homes with smaller families. And, the saturation of other appliances has grown significantly.

CHANGE WE CAN BELIEVE IN?

Says Tomasky, "fundamental changes need to happen over the next several decades: it can be done piecemeal or as a country, but are we going to take an overall look at the issue(s)?" She adds, "we will have to use all sources to meet demand plus a significant component of energy efficiency."

Dr. Brian McLean, US Environmental Protection Agency (EPA), notes that, "changing the path will require transformational efforts. It will require a portfolio of technologies and policy tools."

In terms of electricity, today's grid was largely built in the 1950s and 1960s, mostly by local companies. It is outmoded and almost at capacity. Says Tomasky, "if we are to change the existing grid, we will need a new type of transmission system. We will need a sophisticated Extra High Voltage (EHV) network: one with a lot of off-and on-ramps to add load and generation resources."

She cautions, though, "EHV has to serve a regional purpose. It will not get built if we have to go state-by-state. It also requires a conscious public policy decision—this is a critical part of our solution." And, she notes, we will be making these decisions in the context of increasing commodity and material costs.

Wind represents over 50% of the small percentage of renewable energy in the current mix, but its growth has been largely driven by the production tax credit. The main reason is that the numbers stand right on the cusp of commercial viability. Once that's solved, we will have to move wind-generated power from the southwest to where the customers are. To that end, for example, Texas approved a \$4.93 billion investment to integrate wind into the state's power grid.

Have the resources been mobilized? Says Tomasky "we will have no problem building a transmission system if the path has been identified."

ENERGY EFFICIENCY

Another big issue is energy efficiency. Policy initiatives include codes striving for zero net energy buildings; conservation and demand reductions; using clean energy like solar and wind; and advancing the use of "smart" devices, programmable thermostats and heat pump water heaters for example. All of this will require considerable customer education.

And, then there are the policies that state governments have put in place: system benefit funds, high performance building requirements, energy efficiency resource standards, and appliance and vehicle efficiency standards for example. Then there are financial incentives — tax credits, for example.

PRICING

That leads to what all of this will cost—billions if not trillions. At a macro level, there are the policy questions. On a micro level, we have to make sure that use of an asset reflects its scarcity.

Dr. William Shobe, University of Virginia, says that it's better to use a price signal that allows all users to understand what they get for what they're paying. He thinks that we are currently underpricing electricity. "Why are electricity prices so low? It doesn't reflect the true marginal cost of production," namely the externalities of carbon emission.

Economists have historically advocated two acceptable price signals: charge for the goods directly or cap use and let those who need it trade the resource among themselves.

This has given rise to creating assets in CO2 via a cap. But, this has far reaching consequences: for starters, who "owns" the carbon asset—federal, state or local governments? And, things work against each other: there's more efficiency but more appliances, higher incomes and more technology working against it.

What about fossil fuels? Should we encourage offshore drilling, coal mining, and natural gas exploration? Says Steve Bossart, US Department of Energy, "in the short term, the aim is to use all available resources. In the long term, we have to go to sustainable energy."

What about nuclear energy? The lone plant that is far enough along in the US could be commissioned by 2015—seven years from now. The plutonium waste issue remains unsolved. And, granted that the waste problem exists, the world is currently building 30 nuclear plants: do we as a country want to be part of that debate?

ROLE OF THE STATES

Finally, there is the question of how these issues get solved. There's tremendous variation across the country and between states. Congress has been gridlocked on energy policy, while certain issues are better dealt with at the state level, e.g., building codes and utility regulation. Broad participation will be needed. Action will be needed by federal, state and local governments, by industry and individuals.

So, where does all this leave the US? And, remembering, that energy is just one among many issues clamoring for attention and resources. Hard to say, but Commissioner Gordon might warn, "time to put up the Bat-Signal!"