

Energy and National Security



In the wake of the September 11th attacks, it has become more urgent for the United States to take steps in the energy arena that will increase our national security. We asked some of NESEA's members to participate in a roundtable discussion to explore where our nation should head and to suggest ways for NESEA to address national security issues. The discussion was organized and moderated by NESEA Board Secretary, Michael Tennis. The participants were:

- *Cutler Cleveland* is Professor and Director of the Center for Energy and Environmental Studies at Boston University.
- *Ross Gelbspan* retired from journalism after 31 years with the *Philadelphia Bulletin*, *Washington Post* and *Boston Globe*, and is author of *The Heat Is On* (Perseus Books, 1998).
- *Joel Gordes*, a 1968 graduate of the Air Force Academy, delivered fighter jets to Iran, which began his 30-year interest in renewables and energy security matters
- *Michael Tennis* is an independent consultant with over 20 years of experience identifying and overcoming barriers to renewable energy and energy efficiency deployment.
- *Paul Horowitz* provides consulting services with a focus on energy efficiency and sustainable energy policy and strategies, and serves on NESEA's Board of Directors.
- *Fred Unger* works for Edwards and Kelcey, a large national engineering firm, and serves on NESEA's Board of Directors.

Where do energy, national security, and NESEA's programs intersect?

Gelbspan. The national security aspects are very clear: we have to get off oil. We have to reduce our vulnerability to the political volatility in the Middle East, so that's a strong point in favor of renewable energy. In addition, if we have a renewable energy economy, we will have more stand-alone sources based on fuel cells, solar panels, and so forth which make the electric grid a far less attractive target for terrorism. From a longer perspective, I think there's also the threat of climate change which is a long-term security threat. It requires a 70% reduction in the use of fossil fuels. In terms of economic security, it seems pretty clear that the economy is tanking both domestically and globally, and from my point of view, what works best with a floundering economy, is not tax cuts

and interest-rate reductions, but a public works program. In this case, I would love to see NESEA promote a global program to rewire the globe with clean energy.

If we are bringing in resources from afar, we are beholden in a variety of ways to those who have the resources.--Paul Horowitz

Horowitz. The security threats linked to energy are tied to the resources themselves, especially if the supplier is off-shore. If we are bringing in resources from afar, we are beholden in a variety of ways to those who have the resources. In addition, there are many issues with our infrastructure, whether it's the delivery infrastructure of pipeline, of shipping to the US, of trucking around the country, or of the electric grid itself. Infrastructure facilities—refineries, natural gas farms, nuclear power plants, dams, storage for various fuels around the country—are all vulnerable to terrorism and vandalism. Another cause of breakdowns is natural events, such as weather-related disasters. In addition, breakage, equipment failure, improperly managed equipment, or improperly built facilities, can all cause disruptions in the supplies of energy. Although I certainly agree that NESEA should focus on renewables, I would add energy efficiency, which is cheaper, more available now, and more readily accepted. There are a variety of ways that NESEA can get engaged in promoting efficiency.

Unger. Traditionally, renewables advocates have focused on oil supply concerns and the environmental impacts of the oil economy. Despite a lot of effort, our messages haven't been universally accepted. Perhaps we should approach these issues from a completely different paradigm, one that was presented to us starkly on September 11th. The electric power grid is extremely vulnerable. Terrorist attacks on a nuclear power plant would make the World Trade Center disaster seem miniscule in comparison. National Public Radio recently reported that the terrorists on Flight 93, which crashed in the Pennsylvania woods, were targeted at Three Mile Island. Imagine how different our reality would be today if they had been successful. Potential terrorists were also intercepted carrying maps of the Alaskan pipeline. Energy supplies are the life-blood of our economy. They depend on fragile, vulnerable and often dangerous infrastructures. NESEA has to communicate that distributed power solutions are an urgent national security priority.

Gordes. The whole energy system is susceptible to a number of different strategies for taking it out. If heat and electricity to the Alaska pipeline get disrupted, it freezes and becomes, as Amory Lovins characterizes it, the world's largest chap stick. On October 4th some drunk shot at it and 285,000 gallons of oil gushed out onto the tundra. So energy systems are vulnerable and we Americans should have been thinking about this much earlier. I was very pleased that when I did the Power to Insure report for NESEA about a year ago, there was a section about cyber-war and cyber-terrorism, and I still believe this is one of the soft underbellies of the energy system. Although there was some controversy about including that topic in the report, at least NESEA wasn't afraid to go cutting edge and to include it

Cleveland. My take on all of this, particularly after September 11th, is that "it's the oil,

stupid." And it's not just foreign oil, in fact, that's where the entire debate on energy security has gotten off track. Ever since the Carter administration, but even more so with the Bush administration, one of the fundamental tenets of energy security has been that dependence on imported oil is what is bad and that less dependence on imported oil would reduce the vulnerability of the US economy to oil price shocks. That's fundamentally wrong. The problem is oil, period. Oil is the life-blood of industrial civilization, so when the oil market burps it trickles through everything. Every recession since WWII except one has been preceded by an increase in the price of oil. Even when we were only importing 10% of our oil. If we want to enjoy the security of not having the economy at the mercy of oil price fluctuations, then we have to use less of the stuff. We need to engage the public about their energy consumption habits. Nobody has done this in any real way at the national level since the time of Jimmy Carter.

The more you spread out your electricity generation and have it close to where it will be used, the less vulnerable you become. --Joel Gordes

Which energy-related aspects of today's situation are going to remain high in the public consciousness over the next two years? And how can NESEA connect to these subjects?

Gelbspan. With the economic downturn, the state of the global economy is going to receive considerable attention. There's a very strong argument to be made that the most fertile ground for terrorism comes from poverty. NESEA can make the point that renewable energy technologies are far more labor intensive than fossil fuel technologies. A global energy transition, which is clearly mandated by the threat of climate change, would create huge numbers of jobs in developing countries and would very much undermine the support for the kind of anti-US terrorism that we've seen.

Unger. The war on terrorism is likely to be long and very costly. NESEA should speak to these issues in language that is compelling to America. We have to speak in a nonpartisan voice about issues that we can all agree on. We won't all agree on a massive public works project. Everyone may not agree about global warming. We can agree on solutions to make our nation's energy and economic infrastructure more resilient and less vulnerable. Recently, the conservative Hoover Institution ran a full-page ad explaining the benefits of wind power in the Weekly Standard magazine. On National Public Radio, a Hoover defense analyst described conservation and renewables as critical investments for homeland security. There is a growing consensus that we have to end our dependence on oil. There is general awareness of what ripe terrorist targets nuclear installations are. We environmentalists need to examine our rhetoric. Let's focus on areas where national consensus is achievable and welcome our new allies into the renewables arena.

Horowitz. One thing that's going to come back to the fore is the effort to get the proposed energy plan through Congress. We don't have to be partisan about it but NESEA does stand for a certain set of energy and environmental principles. NESEA ought to become more of a visible advocate for ending reliance on oil.

Cleveland. A big, recurring issue will be oil and our relationship with the Saudis. America has a calculated, cold-blooded relationship with Saudi Arabia, a nation that stands for little that we claim to stand for. As long as the oil revenues continue to pour in, the Saudi monarchy will be able to continue to buy off civil unrest in their country and stay in power, and the US will help them do it. It's ultimately our consumption habits that will help them do that. If we didn't have to import all this oil from the Middle East, the whole situation, the whole calculation would be fundamentally different. I think that America is going to be confronted with an examination of our relationship with the Saudis and with an examination of our consumption habits.

Where are the general public and the business community going to be impacted the most by economic problems?

Gelbspan. You're going to see export industries hit hard. A lot of companies had saturated the domestic market and see all of their future earnings coming from developing countries. These are companies like Boeing, Gillette, Proctor & Gamble, and Coca Cola. You're also going to see the financial sector losing lots of money. In this falling economy, the fact that renewable energy is not regarded as cost-effective will be a real impediment to its development. Renewable energy is not inherently non cost-effective, it's just not cost effective the way our incentives and programs are set up right now. There are specific things we could do to change this.

Gordes. Military and former military folks and are potential allies for us on moving towards a more secure energy system. Just look at some of the people who have been within the renewable energy industry like the father of distributive generation, Carl Weinberg. He was Colonel Carl Weinberg. Carl Rabago was Major Carl Rabago. Michael Davis, who was Assistant Secretary of Energy for Renewables and Conservation under the first President Bush, was Captain Michael Davis. These people have an understanding that our continued dependence on oil has deep, dire energy security implications. General Lee Butler came out with a statement in 1997 in the Wall Street Journal saying that the price of oil should be \$100 barrel. Lee Butler was a principal war planner for Desert Storm. These are the types of people who could be on our side.

If we didn't have to import all this oil from the Middle East, the whole situation and the whole calculation would be fundamentally different. --Cutler Cleveland

Gelbspan. I want to pass on an anecdote. I was working in Cairo last summer and I met with the management of Shell Egypt, mostly Arabian oil managers. We talked about the possibility of them getting the oil companies to help them cover their deserts with salt water pipelines and photovoltaic panels so that they could become hydrogen suppliers to the world. They might not make the same mark-up as with oil, but they wouldn't go down the tubes. They actually became quite excited about this possibility and I have had a lot of correspondence with them.

Gordes. I have been pushing distributed generation sources instead of transmission lines. The money that is currently being spent on transmission lines would be better spent on

distributed resources from an energy security standpoint because it's less vulnerable. The more you spread out your electricity generation and have it close to where it will be used, the less vulnerable you become. In New England, where we are fairly oil dependent, I think you will see a continuing dash to natural gas. People will try to implement distributed generation primarily with natural gas. This would be horrible because we would again be dependent on a single kind of fuel.

Given the changed political and economic situation, how are advertisers and marketers going to try to reach people?

Horowitz. Where the money is going right now is into new SUVs . When we watch TV, we are bombarded with ads telling us to spend money to help the economy as our President is asking and trumpeting 0% financing for cars. My fantasy is to put a bunch of billboards up in the greater Hartford area that say, "If you drive a vehicle that consumes less than x miles per gallon, then you are reducing national security." That is a bold message that NESEA could take to the public.

What could be done at the policy level to move the economy towards a better, more secure energy system?

Gelbspan. The Feds currently spend \$20 billion per year subsidizing coal and oil. Let's take those subsidies away from coal and oil, and put them behind renewables. That allows the oil companies to follow the subsidies and begin to become aggressive developers of fuel cells and wind farms, and so forth. Many people of very different stripes seem to respond to this message. Conservatives as well as liberals are against corporate welfare. I would suggest this as a possible advocacy point for NESEA.

Unger. We should also admit that market manipulations like Carter's tax credits did not create a robust sustainable infrastructure for renewable energy industries to develop. We need new answers, like phasing out taxes on productivity, such as income and capital gains taxes, in favor of a national sales tax on consumption. This would make renewables the most economical energy resources and create a huge boost to conservation, productivity, investment, jobs and entrepreneurial activity. Presented effectively, such a policy would be supported across the political spectrum.

We environmentalists need to examine our rhetoric. Let's focus on areas where national consensus is achievable and welcome our new allies into the renewables arena. --Fred Unger

Cleveland. The current subsidies that the oil and gas industries get are probably not as large as people think. A lot of them are sunk subsidies that have been developed over the years. They helped establish these industries as very powerful industries, but attacking them on narrow financial grounds is not the right approach. Instead, we should use make a more general political point and say, "Subsidies helped create a technology lock-in for the fossil fuel industries. There are lots of environmental and other reasons why we need to jump-start some other industries. Without some subsidies and incentives, the market is not going to move fast enough towards renewables."

Does people's changed consciousness since September 11th create new opportunities for folks to make money from distributed energy? The internet hosting industry is incredibly sensitive to outages, so they have been investing, not very thoughtfully, in distributed generation for high reliability. Who else has a stake in it now?

Gordes. Here's the cost for an average hour of down-time for a few industries: cellular communications, \$41,000/hour; telephone ticket sales, \$72,000/hour, airline reservations, \$90,000/hour; credit card operations, \$2.58 million/hour; brokerage operations, \$6.5 million/hour; a grocery store, \$50,000 to \$80,000/day; and the biggest one of all, an electronic chip fabrication plant where one outage once cost \$62 million of loss.

Unger. Most large facilities have on-site emergency backup generation already. Typically, they are relatively inefficient diesel units. We're getting close to the point where it will be more cost effective to have the grid provide backup for a clean, efficient, quiet on-site generator or fuel cell running continuously. Along with the security benefits, power quality benefits will be huge. The economics already work in several applications, especially with co-generation. The real obstacles are regulations requiring utility customers to pay large ongoing fees just for the privilege of the tie-in. If those policies don't change, we're going to see the most economical solution for large users become redundant onsite solutions and disconnecting from the grid altogether.

Horowitz. The people who make financial calculations for commercial buildings tend to function in a very traditional, analytical financial mode. But when you step back and think a little bit outside of the box, you can find a whole variety of benefits to distributed generation, including direct financial ones that are not difficult to quantify or justify. A time to think about this is when a building is first being built. Banks, other financial institutions, computer chip fabricating companies, and other businesses concerned about higher reliability should tell their architects to make their buildings really reliable. On the other hand, a standard commercial builder is still going to focus on first costs and not factor in some of the long-term benefits, because operating costs are typically passed on to the tenants.

To reach the public, what messages should we present? Can we make a strong enough connection, for example, between the need for national security and people's consumption?

Cleveland. As long as oil is cheap, nothing is going to change. People's attitudes aren't going to change, the laws are not going to change. We need to find a way to engage the American public in a discussion about their energy consumption habits and expose them to the full range of complexities and costs and ramifications that our day-to-day life has on the consumption of energy and in particular, oil.

Horowitz. I too think its oil. Many people are driving with flags on their cars or have flags on their homes, and that's terrific, but the piece that they don't see is that in our day-to-day lives many of our actions, or inactions, related to how we individually use energy contribute to the problem. We need to get the message out that there is a huge link between how we consume fossil fuels of all sorts and national security. I think there are a

lot of ways of doing it, and NESEA can play an important role in this effort.

Gordes. Patriotism is big right now. We should fly the flag but also say, "Hey, it's the oil, Stupid." But we also need to get a bit deeper with the message. I recently heard Assistant Secretary of Energy David Garmon speak in Sacramento at the conference of the Solar Electric Power Association, and I was heartened by his comments. He told the renewable energy advocates there that distributed generation "makes our electricity infrastructure less vulnerable to terrorist attack, both by distributing the generation and diversifying the generation fuels. So if you're engaged in this effort, it is my view that you are also engaged in our national effort to fight terrorism." He also pointed out that "It is clear that our reliance on imported oil—56% of the oil we use—has complicated our response to the terrorist attack." We need to get this point out widely.

September 11th is causing people to rethink a lot of fundamental things and I think it's very possible that people will accept lifestyle changes. --Ross Gelbspan

Unger. September 11th was a turning point in our history. We have an urgent obligation to address the root causes of terrorism worldwide. We have to end our involuntary subsidies and support for repressive regimes that are necessitated by our oil addiction. We have to help spread the benefits and opportunities of freedom, justice, and market economies to people around the world, along with life enhancing sustainable technologies.

Horowitz. I agree with Fred that the events on 9/11 have had a huge impact on how people respond. Suddenly energy security and national security have become big issues in a lot of arenas. We certainly need to be concerned about terrorist-related issues but we also need to keep in mind that we are more likely to have energy availability breakdowns for other reasons. We have constant breakdowns in the electric grid. If there's a message here, it's that national security, energy, and oil displacement are things that we should have been paying attention to even more than we have in the past. Granted we have been doing a lot throughout the Northeast in terms of efficiency, redundancy, and back-up generators, but some of what has been done has been misguided from a climate perspective. This is a good time to meld climate change mitigation, sound economic decision making, and national security by reducing the use of fossil fuel. This is a time when Americans can come together and really move along toward NESEA's original goal of sustainable energy.

Gelbspan. The impact of 9/11 and its traumatic impact is extremely significant. I'm coming at this from a climate perspective, and one of the interesting things about people's attitudes towards the climate crisis is that they haven't been willing to accept that there could really be sort of apocalyptic impact. I think the impact of the attacks on the Trade Towers and the Pentagon have made people emotionally open to the possibility dramatic impacts in the other areas, like the climate, as well. September 11th is also causing people to rethink a lot of fundamental things and I think it's very possible that people will accept lifestyle changes. The costs of our current energy system are

unacceptable. We should make all of the arguments--both terrorism and national security, but also the economy and future stability for our children. And part of the solution is to look at the poverty in developing countries and the widening gulf between the North and the South. We should point out that every dollar invested in energy, and especially clean energy, produces so much more wealth than dollars invested in other sectors. We have the opportunity here to create a much wealthier and more peaceful world. In the long run, that is what's going to give us global security.

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