Drill, Baby, Drill
by Dan Jacoby

Republicans are clamoring for more oil and natural gas drilling; indeed, they campaigned (and lost) partly on that issue. President Obama is calling for greater use of wind and solar power, and sometimes more hydroelectric power as well. Other groups that only seldom appear on the radar of the mass media are pushing for more nuclear power; they occasionally get lip service from an elected official.

What nobody, or almost nobody, is talking about is the immense and varied benefits that would accrue from yet another relatively little known, clean, renewable, and inexpensive energy source – the ground under our feet.

This energy source actually derives from the fact that while the air temperature gets very hot in the summer and just as cold in the winter, just a few feet underground the temperature remains almost constant. As a result, there is often a large difference between the air temperature and the underground temperature. If the heat from the ground can be made to flow into the cold winter air, and the summer heat in the air be made to flow into the cooler ground, that heat flow can be tapped and converted into a usable energy source.

This is known as “geothermal heat exchange.”

Using current technology, a geothermal heat exchange system usually involves a closed loop of plastic or copper pipe through which an antifreeze solution is pumped. In the summer, the antifreeze warms up when it is above ground and cools down when underground; in the winter, the reverse occurs.

The warmed (or cooled) liquid is then pumped into a geothermal unit. In the winter, the heat is compressed and distributed throughout the building, helping to heat it. In the summer, the cooler temperature can be used to pull heat from the house, aiding, or even replacing, conventional air conditioning systems.

The energy derived from this system can also be used to heat water, in place of standard water heating systems. It can also be used to generate electricity for home or business use. A larger installation could also provide sufficient electricity to power electric or plug-in hybrid cars.

The benefits are wide-ranging. They include:

- A clean, renewable energy source for heating and cooling buildings, and for generating electricity;
- Cost savings to home and business owners;
- Reduce demand on the electric grid;
- No new high-voltage transmission lines;
- Decrease – or eliminate – the need for imported oil;
- Create jobs quickly, as homes and businesses add geothermal systems (these are “shovel-ready” projects); and
- Lower carbon emissions, causing less global warming.

Even better, at the times when the demand for heating or cooling systems is at its greatest – the coldest or hottest days – the temperature difference between the air and underground is also at its greatest, meaning geothermal systems can provide the most energy to meet the demand.

Moreover, the jobs that expanded use of this technology provide are the same jobs that have gone away with the mortgage meltdown. Electricians, plumbers – construction workers of many kinds – are currently unemployed, and would be needed to install geothermal heat exchange systems. It's a perfect match.

If this technology is already available, proven with 600,000 installations in the U.S. alone,[1] economically competitive, environmentally friendly, good for national security, and able to provide thousands of "shovel-ready" projects, why is it not a part of the national discussion? Why is there so much emphasis on wind and solar power, but almost no mention of geothermal heat exchange systems? Could it be because Exxon/Mobil, General Electric, and other major multinational corporations won't benefit? Could it be that their high-priced lobbyists are working to keep the benefits of geothermal technology out of the public eye, and are succeeding?

Whether there is a coordinated effort to keep geothermal heat exchange systems out of the national discussion on energy and economic policy, or whether the lack of attention is simply due to the fact that no major business is pushing these systems in the halls of political power, our national leaders need to hear the truth about this potential boon to our national security and our national economy. That means grass roots organizations, and politically active individuals and groups, need to begin a major push to bring geothermal heat exchange systems to the center of the national discussion.

[1] "Geothermal (Ground-Source) Heat Pumps: Market Status, Barriers to Adoption, and Actions to Overcome Barriers" available online at: http://www.geoexchange.org/geothermal/publications/cat_view/85-department-of-energy.html