

Valley has worldwide role on climate

Two events in October will present Jackson Hole with an opportunity to understand and embrace climate change action in a global context. First is the visit on Oct 22 of Mayor Wang Maoshe of Jincheng, China, one of the most environmentally progressive mayors in all of China. Jackson Hole's Energy Sustainability Summit follows on October 23 and 24, bringing to a culmination the first phase of the community's response to the challenge of former World Bank President James D. Wolfensohn to assert its leadership on global climate change.

These two efforts represent opposite but complementary ends of the spectrum of the response to global climate change. Jackson Hole's Energy Sustainability Project seeks to "act locally" while "thinking globally" about climate change. In contrast, Mayor Wang's visit provides an opportunity for Jackson Hole and Wyoming to "act globally" in partnership with a city in China while "thinking locally" about the impact here in Jackson Hole of carbon emissions from that city's and China's reliance on coal.

There can be no doubt about the threat of climate change posed by the mining and use of coal in China. Carbon emissions from these activities include 3.7 billion tons per year of carbon dioxide and almost 0.3 billion tons of coal-mine methane – for a combined total that is double the total coal-related emissions of 2 billion tons in the United States. In China, carbon emissions from coal mining and use constitute well over half of the country's total emissions from all sources of 7.5 billion tons of carbon dioxide equivalent (compared to our 6 billion tons).

The magnitude of these coal-related carbon emissions in China threatens to overwhelm all other efforts to reduce carbon dioxide emissions worldwide. Far from rendering these other efforts irrelevant, however, China's situation adds all the more urgency to them.

The reason is simple: China can expedite change if we help show the way. For the last 15 years, China has been copying the 150-year-old model of industrial development and urbanization from which we in the U.S. are only now beginning to emerge. If the Chinese are to put this model of intensive industrialization behind them, they need to know what a clean energy future looks like.

The sustainable energy economy of the future will look very different from the energy systems of the past. It will be characterized by feedback loops (e.g., smart grid) and flows (recycling of wastes), not the exploitation of fixed stocks. Not only will the bulk of our energy supplies come from renewable sources (biofuels, solar, wind, geothermal), but structures and systems that use energy (e.g., buildings, waste management processes) will themselves also produce it. Jackson Hole's Energy Sustainability Project puts us at the very forefront of these new ideas.

But the other half of the "think locally/act globally" equation is what people in Wyoming can learn from China. Through Mayor Wang's leadership, the city of Jincheng (2.2 million inhabitants) has provided a world-class dem-

onstration of how a city can utilize a waste product from coal to conserve energy and reduce carbon emissions. The waste product is methane, a highly combustible gas that must be released for safety reasons from mines. However, simply vented into the atmosphere, it is a greenhouse gas with more than 20 times the heat-trapping capacity of carbon dioxide.

True to Chinese form, Jincheng has responded to this quandary by treating it as an energy-savings opportunity. The city now drains methane from the mines prior to mining operations and, through its construction of the largest coal-mine methane-fired power plant in the world, uses it to generate electricity. It has also used methane to heat 80,000 households and to fuel a fleet of 2,000 compressed natural gas vehicles.

But why bother with coal at all? Would it not be simpler just to pour all of our resources into investment in new sources of energy?

Perhaps, but does anyone seriously believe that the electric power industry in either the U.S. or China can eliminate its dependence on coal anytime in the near future? Coal has its own infrastructure of mines, mining and loading equipment, rail lines, power plants, and trained personnel, the momentum of which will continue for many years. Here in the U.S., 50 percent of our electric power is generated from coal. In China, coal constitutes 70 percent of the country's total energy supply, and 70 percent of that supply is used to fuel industrial production. These are facilities – blast furnaces, aluminum smelters, heavy industrial boilers, paper mills – that are not easily fueled by solar panels.

In other words, the U.S. and China must play defense – protect ourselves against the negative environmental effects of coal – at the same time as we both need to play offense through the aggressive pursuit of new energy sources. This means retrofitting the existing coal infrastructure with improvements in power-generation facilities (e.g., coal gasification), transportation networks (e.g., carbon dioxide pipelines), and techniques for carbon dioxide disposal (e.g., enhanced oil recovery and carbon sequestration).

By thinking and acting both globally and locally, Jackson Hole and Wyoming have a unique opportunity to respond to both the front end and the tail end of the climate change crisis. As the largest coal-producing state in the U.S., Wyoming can share its emerging experience and expertise in carbon capture and storage with China. This has already begun to happen with several recent exchanges with Shanxi, China's largest coal-producing province. At the same time, we here in Jackson Hole can leverage what we have learned through the Energy Sustainability Project to help China build the sustainable energy economy of the future.

GUEST SHOT

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