

**AROUND THE WORLD WITH SEYMOUR J. MANSFIELD**  
**Legal News with an International Perspective**

*Seymour J. Mansfield, Partner & Co-Founder*

**VOLLMAR ON THE PRC'S "TROUBLED ECONOMIC POWERHOUSE"**  
***China's energy and carbon crises offer a great opportunity for Minnesota businesses.***

With the 2008 elections right around the corner, John McCain and Barack Obama's positions on the United States' energy and environmental crises fill the airwaves everyday. Rising gas prices have spurred contentious debate about opening the drilling of virgin land and off shore preserves, re-jump starting nuclear energy production in the US and/or developing alternative energy sources such as wind, solar, hydro, geothermal and biomass.

With that being said, and as our guest author **Warren Vollmar** explains, the U.S.'s energy and greenhouse gas problems pale in comparison to China's energy and pollution conundrum. China's 1.3 billion people, coupled with its enormous rural-to-urban migration, is creating ever-rising density in old and new mega-metro areas. Its massive economic growth (now the third largest GDP in the world with the highest annual growth in Asia), fueled 70 percent by heavy industry, has brought an explosion in the PRC's use of oil and coal. This, in turn, has led to burgeoning air pollution and carbon emissions impacting not just China, but the entire world. As Warren Vollmar notes, consider:

- Just China's year over year increase in energy consumption "equals that of the entire United Kingdom grid."
- In early 2008, China surpassed the U.S., the world's largest economy, and is now the number one producer of carbon emissions.<sup>1</sup>

As the N.Y. Times recently observed:

In its rush to re-create the industrial revolution that made the West rich, China has absorbed most of the major industries that once made the West dirty. Spurred by strong state support, Chinese companies have become the dominant makers of steel, coke, aluminum, cement, chemicals, leather, paper and other goods that faced high costs, including tougher environmental rules, in other parts of the world. China has become the world's factory, but also its smokestack...This mass shift of polluting industries has blighted China's economic rise.... China's worsening environment has also upended the geopolitics of global warming. It produces and exports so many goods once made in the West that many wealthy countries can boast of declining carbon emissions, even while the world's overall emissions are rising quickly.

All this, as the world turns its collective eyes towards China for the August 2008 Olympic games in the PRC's capital Beijing, one of the world's largest and most polluted cities, where China plans to showcase its progress over the last decade.

With all that in mind, how timely indeed is it to have Warren Vollmar, President of U.S.- China Business Connections (UCBC), as our guest author addressing *China's Power and Energy - A Troubled Economic Powerhouse?* Warren presents the astounding metrics of the PRC's growth, its monumental energy and pollution challenges and its impressive goals for managing those challenges. He concludes that this presents great business opportunities for businesses and entrepreneurs in Minnesota—a state which has already established a better reputation and relationship with China than any of the other 49 states.

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<sup>1</sup> India has the second largest economy in Asia, and it is the third largest contributor (behind China and the US) to world's overall greenhouse gas emissions, which rose last year by 15%. As I have addressed in this column previously, this makes all the more troubling this year's stalemate between China, India and the US (under the Bush administration's leadership) which prevented the 16 UN treaty nations meeting in Bangkok (to replace the Kyoto Protocols) and later at the G8 summit in Japan from committing to the goal of reducing by 50% worldwide carbon emissions by 2050. The US would not make the pledge unless China and India did, and they refuse to adopt the goal until wealthier nations—particularly the US—took more aggressive steps to reduce their own emissions.

UCBC is a non-profit organization which primarily provides educational and networking events for small and mid-sized businesses, collaborative and educational organizations and individual entrepreneurs and investors who recognize the extraordinary opportunities for trade and investment between the US and China. For more information, please visit its website at <http://www.ucbcgroup.org>. Our firm is proud to be an active corporate member of UCBC, with my partner, Jeffrey O'Brien and I serving as our firm's primary representatives. Jeff and I were so impressed with Warren's live presentation on this topic at UCBC's June 26 breakfast meeting that we asked him to write the following condensed version for eWatch readers.

We are also pleased that the UCBC—among several other China focused organizations—will be our co-sponsor at two events featuring our China lawyer members of Lawyers Associated Worldwide and other experts: A Networking Reception, Wednesday, September 24 in the late afternoon, and a Chinese Business & Law Seminar, Thursday, September 25 in the afternoon. Stay tuned for flyers and further information in August.

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## GUEST COLUMN

### **China's Power and Energy – A Troubled Economic Powerhouse?**

*Warren Vollmar, Forest Source, Inc.*

Racing from “less developed” status barely 20 years ago, China is now one of the world's leading economies. In fact, China is poised to replace Germany during 2008 as the third largest economic power. It's the new land of opportunity.

It's been said about business: if you aren't in China or planning to be in China, you won't be in business.

Powering this meteoric rise are the things that many of us take for granted - the ready supply of electric power and heat. Sure, we grumble about cost and are beginning to be concerned about environmental impact, and may even be changing some of our lifestyle and business habits, but there is more than enough supply to meet our energy needs in North America.

#### **China at Crossroads**

That is not true in China. Powering an economic powerhouse presents a giant conundrum. China is facing many choices, every day in every region and locality. Does it fund energy or business development? Expand development? At what price to the environment? Cheap energy production or cleaner environment? Rural development or urban? The cost of energy versus social costs? Food or fuel? Cheap energy or reliable energy? Alternative energy or cheap energy?

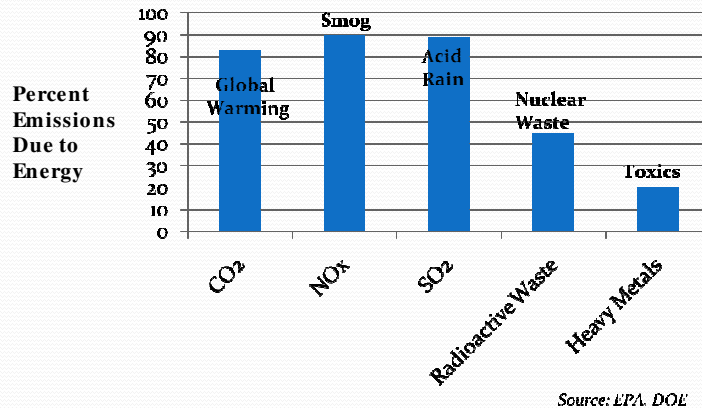
These are tough questions even though China is thought of as a centralized, managed economy despite its 1.3 billion people and 9 percent annual growth rate.

Any business ignoring the importance and the many nuances of energy impact in China does so at great peril. Merely looking at only a few energy facts and figures is not only simplistic, but exceptionally deceptive and potentially disastrous.

Business does not run without energy and neither does a society. However energy production comes at a cost. China is now the number one producer of CO<sup>2</sup>, surpassing the U.S. (the world's largest economy), early this year; two years ahead of what was forecast in 2007. Almost all of that CO<sup>2</sup> is created by plants generating energy.

# The Importance of Energy

- Development Can Not Occur Without Energy
- Environmental Concerns Focus on Energy



## China's Energy Consumption

Now consider where China is today in energy use and where it is headed. In 2006 it had the second highest energy use in the world. Its annual increase in generation equals that of the entire United Kingdom grid. By 2020 the number of motor vehicles in operation will exceed that of the United States. In Beijing alone, 1000 cars are being added to the roadways each day. During 2006, more than 7.4 million barrels of oil per day were being consumed and 46 percent of it was imported; a 15 percent rise from 2000.<sup>2</sup> But by 2020, China is forecast to import 80 percent of its oil needs, and those forecasts seem to grow daily.

Today, 70 percent of China's economic output is from heavy industry. Heavy industry requires the infrastructure and inhabitants of urban areas. With all its teeming cities, China will need more and is planning to build 400 new cities, each with more than 500,000 people, by the year 2040. That will entail moving 600 million people, almost half the country's current population. Most of those cities will be satellites around current cities, requiring more concentrated resources, infrastructure and energy use.

Taking all these things into consideration, the Chinese government anticipates energy growth needs will exceed GDP by a factor of 1.2 to 1.4, a significant shortfall to say the least.

## Coal is King

So what is powering China today? Coal. High sulfur content coal to be exact. Some 70 percent of their primary energy comes from coal, with 80 percent going to electricity production and providing 75 percent of all home heating. In 2005, China added 167 gigawatts of electricity generated from coal, equal to the total electrical capacity of France. Coal is cheap and plentiful; China has a trillion tons in reserve and intends to use it. Their plan calls for 562 new coal-fired plants to be built between 2004 and 2012, the equivalent of half of all coal-fired plants in the world. On the negative side of that growth equation, those plants will raise CO<sup>2</sup> levels worldwide by 14 percent. Many believe China's environmental concerns are of no importance to North America, but they may be surprised to learn that 40 percent of the smog in California is attributed to smog coming from China.

The real downside of all these coal-fired utilities is that up until early this year, the national government had little control over them. Half of all the coal plants built between 2001 and 2005 were small, inefficient plants that are highly pollutant. While the central government often decreed such plants should not be built, regional and local governments, where much of the real power is, simply ignored the dictates. If a city or

<sup>2</sup> WorldWatch, JP Morgan, US Commerce

region wanted to grow they needed power, and they typically took the cheapest, fastest and easiest route to get it.

Several months ago the national government put some teeth into their decrees through incentives and penalties, including enforcement of personal liability. Still today, these plants pose a huge problem. In Shanxi province, 65 of 680 companies producing coke have SEPA (similar to the EPA) permission to operate. Out of those, only three meet China's sulfur dioxide discharge standards.

### **The Social Impact of Pollution**

The social impact of pollution in China is staggering.<sup>3</sup> More than 400,000 premature deaths are blamed on pollution along with 75 million asthma attacks. Sixteen of the top 20 most polluted cities in the world are in China, including number one ranked Linfen. All of China exceeds pollution standards. It is not only electric plants causing pollution, however. In rural Guizhou province, for instance, more than 10 million villagers have rotted teeth, arsenic poisoning or knock-knees because they dry corn and peppers indoors over coal-fired stoves and then proceed to eat it.<sup>4</sup>

### **National Goals**

As large as some of these problems seem, the goals of the national government are just as large:

- Quadruple the GDP attained in 2000 (4 x US\$ 1.8 Trillion).
- Double energy production.
- Increase Per Capita GDP from US\$ 850 (2000) to US\$ 3,000.
- Attain the "Three Transcendences:"
  - Sustainable development.
  - Peaceful rise as a great power.
  - Rule of Law: Harmonious Socialist Society.

While China may be the world's greatest polluter in several respects, it also has what some feel is the world's most aggressive environmental plan. It includes:

- 20 percent reduction in energy intensity by 2010.
- 15 percent of all energy to come from renewables by 2020.
- "Top 1,000 Energy Efficiency Program." (20% reduction by top 1000 companies which currently consume 30% of all energy)
- 36 MPG requirement for passenger vehicles during 2008.
- A national building code. (65% energy savings in cities)
- Close all coal-fired plants producing less than 50,000 MW by 2010.

### **Wind, Sun, Water & Bio**

Renewable energy is already a big player in China, albeit a small percentage of energy produced.

More than 40 companies in China are producing wind turbines or components. There is ample room for foreign companies as exhibited by Gamesa, a Spanish firm which holds 35 percent of the turbine market in China. Foreign technology is the key to expansion of this industry as Chinese firms have not exhibited the capability to develop advances in turbine design. In fact, most of the turbines operating in China today are far less efficient than in other countries. One reason for this inefficiency is due to ignoring a basic tenant: the higher from ground level, the stronger the wind. The majority of China's wind turbines are a third the height of turbines built in other countries.

China is also home for most solar energy product manufacturing. While its solar resources are superior to those in Germany and Japan (top two leaders in solar use), according to the WorldWatch Institute, solar power use in China is still in its infancy. During 2006, an estimated four million households did not have electricity. Half of the solar capacity is applied "off-grid", typically in household systems supplying only 170 watts.

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<sup>3</sup> World Health Organization, JP Morgan, World Bank, China government statistics

<sup>4</sup> Newsweek, January, 2007

In contrast to solar power for energy, China is a global leader in solar hot water, and heating production and use. During 2005 alone, China avoided approximately 14 million tons of CO<sup>2</sup> emissions by using solar thermal systems. Himin Group, located in Shandong province, is the largest solar hot water manufacturer in the world. Beijing has ruled that any new government-related facility of five stories or less must use solar thermal systems. But once again, quality and efficiency of systems leaves much to be desired.

Micro-hydropower is important to rural China for producing power to households or small villages, with large-scale hydropower playing a much bigger role in the future. China plans to double capacity by 2020, requiring a new dam the size of the three gorges project every three years. Large-scale hydro projects are already being developed in Liaoning, Hebei, Shandon and Hunan provinces and six cities in Hunan, Anhul and Guandong provinces.

When it comes to biomass and biofuels, China is not depending on ethanol like the United States. They are very concerned about saving their corn, wheat, rice, sorghum and sugarcane to feed their population. Developing non-food feedstocks like cassava and Jatropha to produce biodiesel, however, is of great interest. Wood, which has been used through the millennia as a standard fuel source, is now being viewed in a different light. China intends to increase the amount of land covered by forests which has led to plantation plantings. Management of existing forests is intended to create more efficient, higher value use of wood, a method of CO<sup>2</sup> sequestration and habitat improvement, among other benefits. Turning wood and agricultural waste into clean-burning, high-energy pellets for use as an alternative fuel follows the model set in Europe as one of the most efficient of alternative energy sources.

## The Promise of Renewables

	2006 Actual	20 10 Target	20 20 Target
Total Hydropower (gigawatts)	130	190	300
Small Hydropower (gigawatts)	47	60	85
Wind (gigawatts)	2.6	5	30
Solar PV (gigawatts)	2.0	5.5	30
Solar Hot Water (million sq. meters)	0.08	0.3	1.8
Biomass Power (gigawatts)	2.0	5.5	30
Biogas and gasification (billion cu. Meters)	8	19	44
Biomass Pellets (million tons)	1	1	50
Biofuel (million tons)	1.05	2.2	12

*Source: WorldWatch*

### Nuclear Energy

China will not soon shy away from the use of nuclear energy to produce electricity. It realizes that nuclear energy is environmentally the cleanest of all energy sources and will use it to clear the thick smog that stretches to California. Today, China is the third-largest producer of nuclear energy in Asia after Japan and South Korea. Nuclear power is the nation's third most important generation method after coal and hydro, and it plans to quadruple capacity to 40 GW by 2020. Already, Guandong province has selected 10 sites for nuclear power stations.

### The Payoff

So what does this all mean for businesses and entrepreneurs in Minnesota?

It means there really is great opportunity. Not to seem trite, the opportunity is almost unlimited. Minnesota already has a better reputation and relationship with China as a trading partner than any other state. The

need for capable professionals to lead and manage business is insatiable. The types of businesses in which we can provide expertise just in energy related industries are hard to phantom. Here is a tiny sample:

- Engineering & Project Management Services
- Pollution Control
- Healthcare Products & Services
- Advanced, Efficient Building Materials
- Rapid Transit Systems
- Household & Commercial Heating Systems
- Inexpensive, Efficient Appliances & Lighting
- Electric & Fuel Efficient Bikes & Vehicles
- Solar Component Engineering & Production
- Cellulosic Biomass Advances

Clearly, the only limitation to the opportunities presented in China is our imagination and willingness to pursue them.

*Warren Vollmar is the President of the U.S.-China Business Connections Group (UCBC), an organization of businesses and entrepreneurs with an interest in doing business in China. In addition to his duties with UCBC, Warren serves as President of Forest Source, LLC, a manufacturer of wood pellets to be used as fuel. He can be reached via email at [wvollmar@hughes.net](mailto:wvollmar@hughes.net).*