KING COAL

(GUEST OPINION)

Greg Graves
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ACHIEVING BALANCE

SUSTAINABILITY REQUIRES COAL

BY GREG GRAVES

Sustainability is now officially a buzzword. Among other things, it has come to mean maximizing energy efficiency, minimizing waste and optimizing use of resources. Sustainability for the energy and utility industry means more than that. It must incorporate a balance of environmental, economic and energy security objectives, all aimed at sustaining the most reliable and efficient power delivery system in the world.

America's electric utilities have helped transform our country's economy into the strongest in the world. However, most analysts believe that environmental regulations aimed at curbing greenhouse gas emissions could translate into additional rate increases of 50 percent or more. This would clearly be a heavy burden on the

economy overall. It would also increase our energy security risk, due to the need to import much greater volumes of liquid natural gas. Clearly, that path is unsustainable. Despite mounting evidence of the environmental impact of greenhouse gas emissions, we should not adopt a cure that is worse than the disease.

As it applies to the power industry, the concept of sustainability may actually revolve around continued, if not increased, reliance on coal until renewable energy, nuclear energy and energy conservation measures can take hold.

Even though coal has been vilified by environmentalists worldwide as one of the primary contributors to global warming, it forms the backbone of our nation's baseload power generating capacity today. We must continue to capitalize on this highly secure source of energy.

Power marketers predict that power demand will grow by at least 2 percent a year for the foreseeable future. Where will this new capacity come from? That is still an open question. Despite renewed optimism in the nuclear power sector, significant new nuclear capacity is not projected to go on-line until sometime after 2018. But this new capacity may only offset a portion of lost capacity from older nuclear facilities whose life extensions are set to expire beginning in 2025. Moreover, the nuclear industry continues to face much uncertainty due to continued lack of progress in opening the Yucca Mountain facility for long-term storage of spent radioactive fuel.

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Wind capacity is adding an estimated 2,500 megawatts per year and is certainly part of the answer. However, the addition of new wind capacity requires construction of additional natural gas-fired capacity that can be dispatched quickly to manage loads when the wind stops blowing.

The obvious answer is that our reliance on coal will continue for many years while the industry focuses on four strategies:

Burns & McDonnell Facts

2006 revenue	$760 million
2007 revenue (estimated)	$900 million
Employees 2006	2,200
New coal-fired power generation under construction	11,680 megawatts.
Retrofit coal-fired projects	10,115 megawatts.
Transmission lines under construction and in design	4,000 miles.

Implement programs that reduce demand by residential and commercial customers. In the residential sector, this includes small-subsidy programs for switching to compact fluorescent bulbs, installing set-back thermostats, insulation, storm doors and caulking windows. For commercial customers, much effort is currently focused on meeting Leadership in Energy and Environmental Design standards. One currently popular step is replacing small, inefficient heating and cooling systems with high-efficiency combined heat and power facilities. Such facilities can achieve heat efficiency rates of 70 percent or greater.

Increase supply-side efficiency. Investments in improving thermal efficiency at existing coal plants, construction of supercritical and integrated gasification combined-cycle coal plants and high-efficiency combined cycle natural gas-fired facilities are among the strategies employed. Advances in steam turbine blade materials and design are creating opportunities to significantly improve coal plant heat rates via retrofit upgrades. But as some utilities have discovered, improving efficiency in this way can trigger new source reviews. This litigation risk has put numerous efficiency projects on hold while utilities await a more clearly defined path, such as a new source review exemption mandated by legislation.

Build more non-emitting sources such as nuclear and renewable energy facilities. These non-emitting sources will be part of the answer but have unique challenges to overcome.

Capture and sequester carbon dioxide. It will take many years to reconcile cost issues and commercialize the technologies to capture CO_2. However, the real risk lies in sequestering the enormous volume of CO_2 emitted by coal facilities. While enhanced oil recovery may provide an opportunity for several smaller demonstration projects, large-scale geological sequestration creates a number of risks that must be overcome. A clearly defined regulatory structure will need to be enacted to establish long-term ownership of the injected CO_2 and define insurance liability.

Probably not since the 1970s have we seen so much discussion of how America produces and uses energy. Concerns about global warming, rising fossil-fuel prices, summer blackouts, and instability in energy-rich regions of the world have led to an intense debate over how America uses energy.

Many businesses are now focused on defining what sustainable business practices mean to them. Sustainability really is more than a buzzword. It will define all our business activities for the foreseeable future.

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