

Beyond Copenhagen

By David Wagman, Chief Editor



Climate change and carbon reduction—both of which ultimately affect electric power generation—are the tip of a much larger iceberg that can be called “human sustainability.”

Last month’s Copenhagen talks focused on climate change and setting global targets that many believe must be met over the coming decades to slow, although probably not reverse, human-induced climate change. Negotiators came up short, but it’s hard to imagine the world’s leaders reaching consensus on anything. At Copenhagen, science went out the window replaced by money squabbles. The climate change camp has a lot of credibility repair work to undertake before talks resume later this year in Mexico.

Largely left out of any discussions was mention of sustainability issues such as population growth and access to food and clean water. The urgency of addressing these topics is perhaps more acute.

Unchecked population growth may be the most pressing problem of all. After all, the ever-growing number of humans on earth is driving demand for food, water and energy. Population growth projections are regularly published by governments and world agencies and accepted as if nothing can or should be done to control this type of growth. Medical breakthroughs are routinely applauded for reducing infant mortality rates or extending life expectancy. But when natural checks on population growth are eliminated pressures mount on food, water and energy resources. Climate change is not the end of the discussion when it comes to sustainability, but only one part of a more insidious problem of human sustainability and survival.

As an industry we can only do so much. The energy part of the sustainability equation can be addressed as rapidly or as slowly as policy makers choose to make the appropriate investments. With existing technology, however, we are able to move simultaneously across three fronts.

We need to invest in energy efficiency measures and locally available renewable energy resources to slow demand growth and maximize local resources. Money that otherwise would be spent on long-haul transmission to bring remote renewable resources to load centers should be diverted to help finance these investments. Only after local renewable energy resources are

fully exploited and energy efficiency measures maximized should investments be made to develop remote resources. Just as locally-grown produce is championed by many consumers as a way to reduce transportation costs and carbon footprints, so too locally produced renewable energy should be favored as a first low-cost strategy. Keeping dollars local heightens the renewable energy investment by reducing transportation costs. Elsewhere in this issue, Ralph Izzo, CEO of Public Service Electric & Gas, makes a similar argument in explaining his company’s investment in solar photovoltaics across the state of New Jersey.

We need to accelerate retiring old, inefficient coal-fired power plants and replacing them with a fleet of super-critical and ultra super-critical units. Efficiencies will improve. Emissions and coal consumption will drop. We should consider a proposal laid out by Bob McIlvaine in this magazine last March in which he suggested that such plants offer a bridge technology until sufficient numbers of baseload, low-carbon-dioxide-producing power plants can be brought on line. Energy efficiency and renewable resources alone will not meet our demand for electricity. But we need the flexibility—currently hampered by environmental opposition—to build new fossil-fired power plants and provide one step in our journey.

We need to commit to massive nuclear power plant investment as our primary baseload source of carbon-free generation. At some point nuclear generation will replace most fossil-fired generation except where those plants are equipped with carbon capture and sequestration technologies. Hundreds of new nuclear power plants will be needed over the coming decades.

Following this course, within a few decades we will have moved to a more sustainable and climate-sensitive power generation mix. At the end of this transformative period, energy efficiency, renewable resources, nuclear power and carbon-neutral fossil sources will make up the generation mix. The investment will be staggering. And admittedly most of what we commit to spend today will benefit only those generations to follow.

But even with these investments humankind still will be threatened by unsustainable practices related to food, water and population. We will not nearly have solved the problem of human sustainability following converting our economy to carbon-neutral energy. One can only wonder how many Copenhagen-like conferences will be required to reach a solution. **pe**

Copyright of Power Engineering is the property of Penn Well Publishing Co. and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.