How does CHP fit into our movement towards carbon reduction?

A vast majority of people agree that the need to reduce our carbon footprint is urgent. Ideally, technologies to address this need should be implemented immediately so as to begin the monumental task of reducing the human race's steadily increasing output of carbon dioxide.

The problem, however, lies in the fact that the best technologies for large-scale carbon output reduction lie several years down the road. There is a need for increased funding and resources toward research and design in the field of sustainability, especially if there are going to be significant results. The good news is that much research is already being done, and the stimulus bill recently passed by Congress and signed into law by President Obama allocates about $11 billion toward the development of large-scale and widespread alternative energy sources (http://domesticfuel.com/2009/02/13/stimulus-bill-has-money-for-renewable-energy/).

So what does all of this have to do with CHP? The need for CO_2 reduction exists now, but the best technologies are still several years away. CHP is one of the best solutions for energy production today. It is far more efficient than coal-fired boilers and more widely trusted (not to mention cheaper) than nuclear power. Campus-type settings with district heating systems are already equipped to handle an on-site cogeneration facility and it can come at a relatively low capital cost, high reliability level, and a great deal of energy savings in the long run. The best part, however, is that the carbon dioxide reduction is immediate. As soon as a CHP plant begins to run, it is cutting CO_2 reductions from the previous power generation system, often drastically.

It is clear that to create a long-term sustainable world, renewable energies such as solar and wind power will need to be harnessed in much greater quantities. However, the technologies needed to make these idealistic energy goals become realities is not feasible on a widespread level at this point, mostly due to cost constraints. In the meantime, CHP is an impressive alternative, thanks to its affordability and efficiency.

Adding to its feasibility is the fact that communities existing on campuses are usually progressive enough to have concerns about carbon reduction yet often face monetary constraints. Thus the idea of an environmentally, in-house power production system that can fit within their budget will appeal to these locations, especially college campuses and government facilities. NIH is a great example. Their CHP plant, shown below, is expected to save the government more than$15 million annually over its lifetime. It reduces pollutant emissions by 600 tons per year, compared with a traditional boiler, and carbon dioxide emissions by some 100,000 tons per year. The plant saves more than 640 million BTUs per year, equivalent to the energy use of about 5,000 homes.
(http://nihrecord.od.nih.gov/newsletters/2005/08_26_2005/story01.htm)

Many college campuses already have cogeneration plants on their campuses, and since it is now clear that CHP is a great choice for them at the present time, this is a great step forward. But the fact that these plants may not be running at their full potential because of poor operating procedures or sub-par equipment is unacceptable. Team Cogeneration aims to increase efficiency in existing plant structures while designing an ideal layout here at the University of Maryland, all while spreading the word about CHP and its benefits to colleges across the United States.