Social Sciences at Cambridge: Working with the sciences

I would like to sincerely thank the Philomathia Foundation for supporting a Forum that analyzed the complex societal topics of public health, food security, energy, and conservation. These remain the grand challenges of our era. Solution-oriented sessions on big data, digital humanities and public policy then stimulated many new ideas. I would also like to thank Professors Martin Daunton, Chris Hill, and the administrative team at Cambridge for their warm welcome and well-organized day.

For me personally it was refreshing to travel from the U.S. and arrive in Europe. Frankly, your day-to-day discussions have now moved beyond the foggy debates on "Is climate change real and did humankind create the change?" to a more assertive "Yes its real and we are now doing something about it." Of course on both sides of the Atlantic there remain a few die-hard 'deniers.' But in general, *The Times* each morning included at least one energy/climate article that addressed mitigation and adaptation in a forward-looking manner. Day-to-day conversations in trains and taxis showed that consumers were thinking about the issue; and concerned enough to urge their elected officials to make positive changes in their neighborhoods.

Despite this growing awareness, the *climate is not getting better but worse*: measured by carbon levels, droughts, storms, and air-quality. In the meeting I showed data emphasizing that the carbon dioxide levels crossed the 400 parts per million last year. And the shape of the curve is rising like a hockey stick. Despite this challenge, in most parts of the world, people and their political leaders are eager for *economic growth as their first priority*. Growth that is most easily obtained by burning coal, gas and oil for basic electricity and transportation.

So what should we do collectively? Speaking as an engineer we need: a) cheaper and better solar power, wind power and biofuels; b) far more efficient energy storage, with batteries and other technologies; c) advanced power grids that can welcome these intermittent energy sources; d) electric vehicles and new transportation fuels that reduce carbon emissions. These are the "tech-push" solutions for the supply side of energy. But we are not moving fast enough. For example, in the U.S., most *new* installations of energy production *do* use renewables or lower polluting natural gas. But overall, only 6% of *total* U.S. production comes from renewable energy.

This is where social scientists can play a major role. In the short term we need creative public policy (subsidies, tax credits etc.) to support the growth of solar, wind, biofuels and other renewables, because today they are more expensive than coal for electricity production. Further, we need stable laws so that opposing interest groups do not undermine such policies. The U.S. Environmental Protection Agency (EPA) has recently launched an initiative to support cleaner production of electricity. Colleagues in our Institute, Professor Steve Weismann and Dr. Danny Cullenward, are studying these new rules, previous rulings at the Federal Energy Regulatory Commission (FERC), and rulings in California to ensure that clean energy policies are put into practice rapidly and not undermined. Social scientists can also

play a main role in promoting energy efficiency in industrial, commercial and residential settings. Often it's a matter of showing consumers how much energy they are wasting and its associated cost. Not only to the carbon-burden of the planet (a longer term vaguer cost to consumers) but to their own wallet!

I look forward to many such meetings between Cambridge and Berkeley. Together we can 'invent the future' of a cleaner planet with enough energy for equitable economic growth for all.

Paul Wright, Director of the Berkeley Energy and Climate Institute
Special Advisor to the Chancellor on Sustainability
The A. Martin Berlin Chair Professor of Mechanical Engineering,
paulwright@berkeley.edu *+1 510 207 6573*