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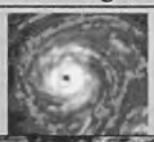
Track A	Track B	Track C	Track D	Track E	Track F	Track G
Clean Air	Mercury	Global Warming	Renewable Energy	Alternate Energy	Climate Change	Environment
						

February 1-4, 2009
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P6.2 Energy Efficiency as a Strategic Resource to Lower Costs and Reduce Carbon Emissions in the Private Sector – *Andre de Fontaine, Pew Center on Global Climate Change*

As concerns about climate change and energy price volatility continue to grow, businesses are increasingly turning their attention to energy efficiency as a key tool to cut costs, balance risks, and improve environmental performance. This presentation will describe the business and environmental case for energy efficiency, and highlight steps taken by leading corporations to improve energy performance across their internal operations, supply chains, and products and services. Information will be drawn from a newly launched Pew Center research project on corporate energy efficiency strategies, which is being supported by a three-year, $1.4 million grant from Toyota. The presentation will also discuss common internal and market barriers to wider adoption of energy efficiency programs and activities, and describe steps taken by leading companies to overcome these barriers. Real-world examples of successful corporate energy efficiency strategies, drawn primarily from the experiences of the 42 mainly Fortune 500 companies in the Pew Center's Business Environmental Leadership Council, will also be discussed.

P6.3 Carbon Sequestration Corporate Initiatives – *Brigitte Bavousett, Arizona State University*

Gas emissions from anthropogenic activities trap heat in the atmosphere and are often called greenhouse gases (GHG). Carbon Dioxide (CO2) is the principal greenhouse gas caused by human activity. The accumulation of carbon dioxide in the Earth's atmosphere is one of the most serious environmental threats of our time and the scientific community has reached a consensus that greenhouse gases like CO2 are causing global climate change. A single forestation project can remove hundreds of thousands of metric tons of CO2 from the atmosphere. In an effort to mitigate negative effects of global climate change, corporations worldwide have begun to develop and implement forestation projects to meet the demands of a greener consumer market, corporate social responsibility, and anticipated environmental legislation. This presentation illustrates a systems thinking analysis of the numerous variables at play in achieving carbon sequestration benefits in a forestation project.

P6.4 The Gulf Coast Geopressured-Geothermal Resource - a Multi-purpose Green Energy Resource Whose Time Has Come – *Chacko John, Brian Harder & Reed Bourgeois, Louisiana Geological Survey*

Geopressured-Geothermal reservoirs are essentially subsurface formations containing brine saturated with dissolved gas (mostly methane) at the temperature, pressure, and salinity of the formation. It contains three forms of energy (1) chemical energy - methane dissolved in brine under pressure; (2) thermal energy-hot brines (200 degrees + F) which could be utilized for direct heating, electric generation, and secondary hydrocarbon recovery; and (3) mechanical energy - high brine flow rates (20,000 + barrels per day) and high well head pressures which could be used for driving turbines to generate electricity. Various researchers have estimated this resource to contain 150-5,000 Tcf of recoverable methane and up to 11,000 quads of thermal energy. The DOE Gulf Coast Geopressured-Geothermal research program which was conducted from 1975 to 1992 involving industry, universities, national and private laboratories proved that this resource could be used to successfully extract gas from brine and using a hybrid power system also generate electricity. During this research program four wells were drilled and tested and another twelve wells donated by industry were also tested. High brine flow rates (20,000-40,000 barrels per day) were achieved and gas/brine ratio averaged 30-34 cubic feet of gas per barrel. Potential environmental hazards like surface land subsidence, fault activation, and freshwater contamination due to brine injection etc. were monitored and investigated but no hazards were recorded. Developing this resource commercially was determined to be uneconomic at that time. However, with the current high energy costs, which are projected to go even higher, and the considerably improved technology for drilling and production at this time coupled with the numerous potential direct and indirect uses of the resource including enhanced oil recovery in depleted fields, electricity generation, greenhouse heating, aquaculture, chemicals extraction from the spent brine etc. the commercial viability of this unconventional alternative resource needs to be again re-examined and if proved viable, and it appears it is, will go a long way in solving the country's energy needs.

POSTER BOARD 7: ENVIRONMENT

P7.1 Extension of Chemical Looping Technologies to Solid Fuels (Biomass, Bitumen and Coals) – *Yan Cao & Wei-Ping Pan, ICSET*

We presented a concept of CLC of solid fuels using a circulating fluidized bed as a reactor and Cu-CuO as the oxygen carrier, which was based on analysis of oxygen transfer capability, reaction enthalpy and chemical equilibrium. Results of the evaluation of the reduction of CuO reduced by solid fuels such as coal and some other "opportunity" solid fuels was reported. Tests on the reduction of CuO by the selected solid fuels were conducted using Simultaneous Differential Scanning Calorimetry and Thermo-gravimetric Analysis (SDT) which simulates a micro-reactor. An attached Mass spectrometer (MS) was used for characterization of evolved gaseous products. The X-Ray Diffraction-meter (XRD) and Scanning Electron Microscope (SEM) were used for the characterization of the solid residues. Results strongly supported the feasibility of CuO reduction by selected solid fuels. CuO can be fully converted into Cu in a reduction process, either in a direct path by solid fuels which were verified by MS analysis under N2 atmosphere, or in an indirect path by pyrolysis and gasification products of solid fuels in the reducer. No Cu2O exists in reducing atmospheres which was characterized by XRD analysis and mass balance calculation. No carbon deposit was found on the surface of the reduced Cu which was characterized by SEM analysis. CuO reduction by solid fuels can start at temperatures as low as approximately 500 oC. Tests indicated that the solid fuels with higher reactivity (higher volatile matter) would be desirable for the development of the Chemical Looping Combustion process of solid fuels such as bitumen subbituminous PRB coal and solid waste and biomass.

P7.3 Life Cycle Water Consumption of Alternative Transportation Fuels – *Christopher Harto, Arizona State University*

The looming challenges of global warming and peak oil have begun to spur the development of alternatives to our current petroleum based transportation system. However, before these alternatives are implemented on a significant scale, it is important to assess these technologies with a broad lens and ensure that they will not introduce more problems than they will solve. A hybrid life cycle assessment was performed to assess the water consumption for a range of proposed options for low carbon transportation energy. The technologies considered were corn and switchgrass based ethanol, soy and algae based biodiesel, and electric or plug-in hybrid vehicles powered by photovoltaics, concentrated solar power or coal power with carbon sequestration technology. The analysis found water consumption from all three electric sources to be significantly less than all biofuels with the exception of switchgrass when grown with no irrigation. Photovoltaic powered electric vehicles have the lowest water consumption at 0.03 gallons per vehicle mile traveled, while both soy and corn based biofuels consume upwards of 100 times more water.

POSTER BOARD 8: OTHER

P8.1 NYU Initiatives on Energy and Environment – Green Action Plan - *Bapanaiah Penugonda, Annette Cutugno & Dinesh Penugonda NYU College of Dentistry*

"In 2007-08 the Task Force divided into seven subcommittees to develop targeted recommendations in a wide range of subject areas. Each subcommittee was composed of students, faculty, and staff, led by two co-chairs. The subcommittees are: Academic Initiatives; Green Building and Campus Planning; Transportation and Recycling; Food and Purchasing; Energy and Water; Data, Communications and Technology; Outreach and Engagement. The first (2006-07) Sustainability Task Force Annual Report included a comprehensive review of progress to date and more than 30 specific, practical recommendations for greening the campus. Nearly all of these recommendations were subsequently adopted by the university leadership in September 2007, when Dr. Alfano announced five major initiatives to advance the goals laid out by the Task Force."

P8.3 Biogas to Energy