Sasanouchi (Toyota- Japan) senior General Manager of CSR Environmental Affairs Division a liaison delegate of WBCSD, the chairperson of the sub-committee on environmental policy of the Environment Committee of Japan Automobile Manufacturers Association, and Working Group on Global Environment Strategy of Nippon Keidanren.

Abstract: Automobile and sustainable energy
WBCSD believes that mobility is an essential human need, and human survival and societal interaction depend in profound ways on the ability to move people and goods. Automobiles play a major role of it. In order to make them sustainable, 3E, 3A and 3C are necessary. 3E stands for energy security, environment and economy, 3A for accessibility, acceptability and affordability, and 3C for convenient, clean and cost. From such a point of view, various fuels such as gasoline, diesel, biofuel, hydrogen and electricity will be discussed.

Alan Brent (CSIR-South Africa) is a chemical engineer by background with a Masters degree in environmental sciences and a PhD in engineering management. He has consulted to a variety of industries in South Africa and other developing countries, on environmental engineering and management, for over ten years. Currently he is tasked to lead research within the Natural Resources and the Environment unit of the South African Council for Scientific and Industrial Research that aims to incorporate sustainable development concepts into technology management practices in the energy sector, and specifically the development and application of appropriate technology assessment methods. To this end he is also appointed as an extraordinary professor of sustainable life cycle management

Abstract: The principles of sustainability science to assess and promote alternative energy technologies
This paper subsequently investigates how the understanding of the principles of sustainability science may lead to the better management of technological systems. More specifically, the objective of the paper is to establish a method to prioritise assessable sustainability indicators for AET (alternative energy technological) systems that can be used upfront, in the technology management cycle, by designers and decision-makers of such technologies. The prioritisation is based on hierarchy theory as it relates to sustainability science.
A model is introduced that integrates the principles of sustainability science, i.e. transdisciplinarity, a focus on the resilience and complexity of systems, and adaptive capacity and management within systems; the model allows the prioritisation of sustainability aspects, as perceived by stakeholders that interact with implemented AET systems, through a learning cycle. A mini-hybrid AET system that was implemented in a traditional community in rural South Africa is used as a case study to investigate and demonstrate the introduced model.

Mithra Moezzi (Helio France) is a member of the board of HELIO International. She has twenty years of experience in the field of energy and environment, specialising in combining quantitative and qualitative approaches. Her Ph.D. is Anthropological Folkloristics and her M.A. is in Statistics, both from University of California Berkeley.

Abstract: Energy Eco-Indicators in Practice

Since 1996, France- based NGO think-tank HELIO International has developed indicators measuring the contribution of energy policies to ecodevelopment. Among these are a set of indicators focusing on assessing the status and progress of national energy policies, another

set designed to assess Clean Development Mechanism projects, and an emerging set of indicators assessing the vulnerability of energy systems to global climate change and their resilience, currently being tested in ten African countries. These indicators have been developed to serve and reflect five pillars of sustainability: society, environment, economics, science and technology, and civic. Over sixty country reports have been produced to date. The paper presents these indicators relative to the five pillars, reviews their historical development and implementation, and analyses them relative to other key indicator systems and trends.

But many sets of sustainability indicators compete in the current "Indicator Zoo",[1] with 840 sustainability indicator initiatives, over 130 of them on energy, identified in the IISD's compendium of initiatives. Beyond a technical discussion of HELIO indicators, this paper traces how these indicators "live", retaining their closeness to policy-makers and policy questions, and supporting qualitative assessments that capture necessary complexity where numbers cannot. HELIO methodology's vitality is provided through a world-wide network of in-country observers and reporters who calculate, critique, deploy, and further develop these indicators. Through this network, the indicators are not static descriptions but tools for those who want to look at the bigger picture and help promote energy policies to be more conducive to ecodevelopment for all. We illustrate this particularly with HELIO's approach to, and definition of, energy security, designed to sustain bottom-up approaches to local resilience.

Katsumi Yoshida (Showa Shell Sekiyu- Japan)
Katsumi joined Showa Shell in 1990 and has been involved in hydrogen energy projects in Showa Shell for these 10 years, including demonstration project of a refueling station in Tokyo. Also he has participated in Shell Hydrogen's business development activities. He has degrees in MEng from Tokyo Institute of Technology and in MSc from Imperial College, London.

Abstract: Shell Energy Scenario and Hydrogen
Last year, Shell developed two future energy scenarios that describe alternative ways it may develop. In the first scenario – called Scramble – policymakers pay little attention to more efficient energy use until supplies are tight. Likewise, greenhouse gas emissions are not seriously addressed until there are major climate shocks. In the second scenario – Blueprints – growing local actions begin to address the challenges of economic development, energy security and environmental pollution. A price is applied to a critical mass of emissions giving a huge stimulus to the development of clean energy technologies, such as carbon dioxide capture and storage, and energy efficiency measures. The result is far lower carbon dioxide emissions. In this speech, the scenarios will be introduced and the role of hydrogen will be discussed.

Fabio Orecchini (CIRPS-Italy)
Professor of Energy Systems. Co-ordinator of GEA - Energy and Environment Group at CIRPS - Interuniversity research centre for sustainable development, Sapienza University of

[1] Pínter, Lászlo, Peter Hardi, and Peter Bartelmus. 2005. "Sustainable development indicators: Proposals for a way ahead." December. Prepared for the United Nations Division of Sustainable Development (UN-DSD). International Institute for Sustainable Development. UNDSD/EGM/ISD/2005/CRP.2

Rome. Scientific co-ordinator of national and international research projects in the field of sustainable energy systems for stationary and mobility uses.
Author of scientific books and publications on the Energy systems, the concept of “Closed cycles of resources” and the importance of Energy vectors.

Abstract: Towards the Era of energy vectors

What’s beyond the era of fossil fuels? Many ask this question, and many have been trying to give answers looking at different primary energy resources, from nuclear, to renewables, to new ways of extracting more and more difficult fossil resources from oil sands, deep seas, arctic fields.
The proposed answer to the “big question” is simple, as well as revolutionary. After the era of primary energy resources (wood, coal, oil, natural gas, nuclear, renewable energies) we are entering “the era of energy vectors”. The capacity to store and transport energy from one point to another, and to swift its usability from the time of availability, to the time of necessity is the key for future new energy systems.
The realisation of Closed cycles of resources can be achieved in the energy sector by exploiting renewable resources and structurally integrating energy vectors. The inclusion of energy vectors (to be produced from several primary resources) in the energy system chain becomes a key concept of the entire human development model.

Eric Martinot
senior research director with the Institute for Sustainable Energy Policies (ISEP). He also serves as senior research fellow with the Worldwatch Institute and as lead author and research director of the widely-used REN21 Renewables Global Status Report, produced annually since 2005.

From 2000 to 2003, Dr. Martinot was a senior energy/environment specialist with the World Bank in Washington DC. He managed the renewable energy program of the Global Environment Facility (GEF) and was responsible for reviewing and recommending approval of GEF grants for renewable energy projects in developing countries. Earlier, he served as consultant to the Environment Department of the World Bank, as senior scientist with the Stockholm Environment Institute--Boston, as convening lead author for the Intergovernmental Panel on Climate Change (IPCC), and as consultant to the United Nations, U.S. National Renewable Energy Laboratory, and International Energy Agency.

Dr. Martinot is author of 65 publications on renewable energy and energy efficiency. He is a member of the editorial board of the interdisciplinary journal Energy Policy, editor of the renewable energy information site martinot.info, and advisor to several international organizations. He received M.A. and Ph.D. degrees in Energy and Resources from the University of California at Berkeley (1991 and 1995) and a B.S. in Electrical Engineering from the Massachusetts Institute of Technology (1984).

Title of presentation
Renewable energy Policy Research; Integrated Perspectives for Urban Planning, Architecture, Transportation and Utility Regulation

Hideaki Horie
Associate Professor, Research into Artifacts, Center for Engineering, The University of Tokyo

Abstract: T**he impact of Advanced Battery Systems and Their Networks into the Future Society**

Advanced rechargeable battery systems have been evolving in the last two decades, initially for applications to electronic gadgets to innovate information technologies and networks dramatically on the globe, and today we might be potentially approaching a decisive point for the next indispensable challenge, i.e. materialization of environmentally-friendly vehicles like electric vehicles and hybrid electric vehicles. For a long time it could not be conceivable to maintain both high energy efficiency and energy reuse. Meanwhile with technical advancements it would be rather reasonable to adopt electrically-driven units to marvelously improve energy efficiency compared with internal combustion engines, and that could rationally lead to accommodate energy reservation and reuse through superbly advanced rechargeable batteries. The materialization of electrical energy reservation system would not remain just within automotive applications in the future, but also could propagate and enhance irreversible impacts to any single industrial sector through 21st century, which could completely change the feature of the next society combining unbounded information and unlimited power indivisibly.

Yvani Myriam Deraniyagala **D**irector, Research and Training, Munasinghe Institute for Development (MIND)

Abstract missing

Vincenzo Naso
Full Professor of Energy Systems at Sapienza University of Rome. Director of the Interuniversity Research Centre for Sustainable Development (CIRPS)- Sapienza University of Rome. Director of 2 Master Courses on “Managemnt of energy and environment” and “Renewable Energy Sources and Energy Efficiency” at the Department of Mechanical and Aeronautical Engineering, Sapienza University of Rome
Director of Master Course on “International Development Co-operation” at CIRPS. Coordinator of the PhD Course on “Energy and Environmental Technologies for Sustainable Development”. Member of several Scientific and Technical national and international Associations. Member of Scientific and Technical Committees and Expert for the European Commission and Parliament on energy and environment issues. Energy Manager of “Policlinico Umberto I” and former Energy Manager of “Sapienza” University and Director of the Servizio di Ateneo per l’Energia (Energy Services Institute) at “Sapienza”. Scientific co-ordinator of national and international research projects in the field of sustainable energy systems for stationary and mobility uses, rational use of energy, renewable energy sources and end uses of energy.
He has co-ordinated several University/SMEs collaborations, aimed at promoting and implementing technological innovation, technologies transfer, training, consulting, design and management activities.

Abstract

Prof. Naso will introduce and chair the session