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# IHA World Congress Bulletin

## A Daily Report of the IHA World Congress 2011

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### IHA WORLD CONGRESS HIGHLIGHTS: WEDNESDAY, 15 JUNE 2011

On Wednesday morning, participants gathered for the opening session of the International Hydropower Association (IHA) World Congress on Advancing Sustainable Hydropower. Throughout the day they heard presentations, panel-led discussions and attended parallel sessions. In the evening, participants shared a full moon dinner at Iguacu Falls.

#### OPENING SESSION: HYDROPOWER PERSPECTIVES

Refaat Abdel-Malek, IHA President, and Jorge Samek, CEO, Itaipu Binacional, welcomed participants to the IHA World Congress. Samek underscored the compatibility of environmental care, economic development and energy provision. Abdel-Malek invited panelists to discuss the themes of sustainable development of hydropower, financing challenges and communication.

Noting the growth of energy demands in Brazil, Flávio David Barra, Andrade Gutierrez, called for regional integration to take advantage of hydropower potential.

José da Costa Carvalho Neto, CEO, Electrobras, expressed concern that the hydropower sector has “lost the war of communication,” explaining that a “small percentage” of people against hydropower speak more loudly than the majority in support of hydropower.

Describing hydropower as a clean and renewable energy source, Antonio Miguel Marques, CEO, Camargo Correa S.A., encouraged discussion and debate to “create a conciliation of interests” where hydropower ventures could be implemented with lower environmental and community impacts.

Henrique Valladares, CEO, Odebrecht Energia, noted that the Hydropower Sustainability Assessment Protocol recognizes that development, sustainability and competitiveness are inseparable, rather than competing goals in energy generation.

Manoel Zaroni Torres, CEO, Tractebel Energia S.A., encouraged participants to reflect on the trade-offs between reducing reservoir size to minimize local impacts and the stored energy gained by increasing reservoir size, and to consider social networking tools for communication.

Stating that hydropower can be a “vector” for both environmental preservation and sustainable regional development, Mauricio Tolmasquim, CEO, Federal Energy Planning Company, Brazil, provided the example of the Belo Monte project that aims to provide social and environmental benefits to the surrounding communities.

Márcio Zimmermann, Deputy Minister of Mines and Energy, Brazil, noted that his country has opted to use hydropower as its main source of energy. He highlighted the implementation of rigorous environmental protection legislation for hydropower projects, and the social benefits of using local labor for construction.

#### PRESS CONFERENCE

Deputy Minister Zimmermann responded to queries by journalists on the future of the Brazilian energy matrix, and the balance between development goals and environmental and social costs of energy production. He highlighted Itaipu as a good example of implementation of sustainability criteria. He

further emphasized that the Belo Monte project in the Amazon will provide jobs and skills to thousands of people in a poverty-stricken region. He described work on energy efficiency policies, and highlighted Brazil’s electric energy procurement through auctions, noting wind-power energy producers are growing and flourishing even under competitive price conditions.

#### WORLD ENERGY COUNCIL PRESENTATION

Norberto Medeiros, President, World Energy Council, Brazil, outlined the 2010 Congress held in Canada, which concluded that sustainable energy growth is a necessity. He stressed the importance of international cooperation as traditional energy sources become scarcer and emphasized constructive dialogue across sectors.

#### INTEGRATING WATER AND ENERGY POLICIES

Moderator Aileen Anderson, Crossflow Consulting, introduced the interactive session chaired by Antonio Cardoso, Itaipu Binacional, who underscored the challenges involved in developing projects that share water and energy.

On competition between energy and water demands, Shahid Hasan, Associate Director, The Energy and Resources Institute (TERI), described trends in India, and called for the development of a framework of policies and regulations and greater civil society input to support integrated energy and water planning.

Mark Smith, Head, Water Programme, IUCN, noted many “natural infrastructure” services are related to water and stressed the role of a “portfolio” of natural and built infrastructure in climate-resilient sustainable development.

Addressing the challenges posed by uncertainty associated with climate change, Friedrich Hetzel, Senior Technical Advisor, German Ministry for Economic Cooperation (BMZ), underscored the need for long-term, flexible and “multi-parameter” planning for energy provision, and called for improved cross-sectoral policy coherence.

Lin Chuxue, Vice President, China Three Gorges Corporation, said that infrastructure with water storage capacity is important as dams can be multi-purpose, noting the Three Gorges Dam is used for flood control, improved irrigation and electricity generation and also contributes to climate change mitigation and adaptation.

Albert Geber de Melo, General Director of the Electric Energy Research Center (CEPEL), explained the stages in the Brazilian legal framework for planning and designing hydropower projects, including new requirements related to integrated environmental assessment for river basins.

Participants and panelists considered priority setting in cases of multi-purpose projects and the added value of the recently approved policy in Brazil for integrated impact assessments for whole basins, rather than for individual projects. An indigenous representative questioned the process for stakeholder consultation in the Xingu river basin. In closing, the panel highlighted the importance of engaging all actors in multi-stakeholder processes.

#### CLIMATE CHANGE: WHAT DOES HYDROPOWER OFFER?

In the afternoon, Reginald Hernaes, Ministry of the Environment, the Netherlands, chaired a panel on “Climate change: what does hydropower offer?” moderated by Lau Saili,

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IHA. Bjørn Lomborg, Director, Copenhagen Consensus Center, argued that climate change is real but said its effects are vastly exaggerated and one-sided, which leads to panic and poor decision-making. With examples including greening cities to reduce heat deaths, he said the most effective solutions might not be emissions reductions but rather adaptation strategies. He encouraged investment in green energy research and development, rather than cutting carbon emissions, as this would lead to a price-driven transition to clean energy sources.

Questions from the audience addressed: the role of economic incentives like carbon pricing for promoting research and development; the need to support the deployment of existing green energy technology; and how to best deal with climate change, whether through mitigation or adaptation.

Joan MacNaughton, Senior Vice President, Power and Environment, Alstom Power, highlighted the necessity of both mitigation and adaptation for natural disasters. She called for: hydropower generation capacity to double by 2050; a consistent regulatory framework; and appropriate incentives for research, development and deployment.

Carlos Tucci, Federal University of Rio Grande do Sul, Brazil, presented data showing that the volume of freshwater is decreasing over time as a result of climate change, and highlighted three key issues: forecasting and planning, having thermal complementary energy in stand-by mode, and improving management and environmental assessment at the national level.

Jacob Irving, President, Canadian Hydropower Association, highlighted Canada's clean energy matrix and potential for hydroelectricity, and called for fully exploring the potential for electric vehicle development.

In ensuing discussions, participants highlighted the recent release of an IPCC Special Report on Renewable Energy Sources and Climate Change Mitigation, and its conclusions on the possibility to achieve an 8% renewable share in the global energy matrix. In closing, Irving called for dramatically increasing research and development in the renewables sector and MacNaughton emphasized that "the later we start the more difficult it is going to be and the more costly it will be."

## PARALLEL SESSIONS

**HYDROPOWER'S GHG FOOTPRINT: WHERE'S THE TRUTH?** A session on hydropower's GHG footprint was moderated by Joel Goldenfum, IHA, who said that for results to be useful they need to measure net emissions for a whole basin, with and without a reservoir. Jorge Damazio, CEPTEL, Brazil, noted Brazil is leading studies on the carbon balance of freshwater reservoirs, and Paul Jacobson, Electric Power Research Institute, US, highlighted the value of the UNESCO/IHA GHG Measurement Guidelines for Freshwater Reservoirs in allowing the interpretation and comparability of data and the development of predictive models.

Panelists discussed why reservoirs generate high levels of emissions during their first decade of operation, and emphasized oxygen levels - not the size of the reservoir - as the key driver for emissions. Participants thus debated the effects on emissions of removing forest and soil prior to impoundment. They also questioned the adequacy of Clean Development Mechanism (CDM) hydropower eligibility criteria, as well as multilateral funding criteria, focusing on the size of reservoirs.

Alain Tremblay, Hydro-Québec, Canada, said studies on GHG emissions in a whole basin did not find a substantive change over 100 years in the scenarios with and without a reservoir. Vincent Chanudet, EDF Hydro, France, noted GHG footprint calculations must consider net emissions pre- and post-impoundment. Marco Aurélio dos Santos, Federal University of Rio de Janeiro (UFRJ), Brazil, noted uncertainties and the need for further research on emission calculations. Participants emphasized the need to develop a robust predictive model to resolve this debate.

**HYDROPOWER DEVELOPMENT AND FRESHWATER CONSERVATION:** Moderator Breno Simonini, FMASE, said that despite advanced environmental

legislation in Brazil, a lack of predictability often counteracts the legislation's objectives. Jeff Opperman, The Nature Conservancy, stressed early coordination to attain hydropower and conservation objectives in river basins or regions.

Nelson Friedrich, Itaipu Binacional, highlighted efforts to conserve the local environment both during and post-construction of the Itaipu Dam, stressing the involvement of communities at the micro-basin level. Jian-hua Meng, World Wide Fund for Nature, called for going beyond a "project-by-project" approach for conservation and environment goals, highlighting the plethora of tools and knowledge available for planning and conservation.

Valter Cardeal de Souza, Electrobras, noted that Electrobras uses an approach that is socially just and environmentally sound for implementing hydropower projects, basing actions on robust science. Yuan Xianghua, HydroLancang, underscored the multi-stakeholder process, saying this can identify information gaps and allow the public and other stakeholders to gain a better understanding of the project, which leads to greater project certainty.

Terry Moss, ESKOM, on the Palmiet Water Transfer Project, said that extensive local consultations and subsequent actions were undertaken to address the environmental concerns of the local community, including invasive species and topsoil conservation.

## DOES HYDROPOWER CONSUME WATER?

Moderator Roy Adair, CEO, Hydro Tasmania, described the panel session on whether hydropower consumes water as "the nexus of hydropower production and water resource management." Christopher Eaglin, Pegasys, outlined research into the consumptive use of water in hydropower production, noting the paucity of data on the issue and stressing the need for a conceptual framework with common definitions and methodologies.

Heather Cooley, Pacific Institute, said that hydropower consumes water by increasing evaporation, but explained that there is variation across reservoirs and limited data, and that dam and reservoir design can mitigate and minimize losses. Presenting on the experiences of Manitoba Hydro with reservoir evaporation, Ken Adams, Manitoba Hydro, underscored the need to allocate losses across the multiple uses of reservoirs. Miroslav Marenc, UNESCO-IHE, discussed evaporation, reservoir seepage and water diversions, and challenged participants to ask the converse question of "whether hydropower conserves water." Describing governmental policies and management for water and energy in Brazil, Vicente Andreu, ANA, Brazil, stressed that it is important to consider the scale of river basins, and noted that impacts are often felt and measured locally.

## ELECTROBRAS BELO MONTE PRESENTATION

Valter Cardeal de Souza outlined the different aspects of the Belo Monte project, including amendments to lessen negative social and environmental impacts, and described a multi-stakeholder participatory process undertaken, highlighting compensation being provided to communities, including through relocation, improved infrastructure, health and sanitation, and food provision.

Sheyla Machado da Silva, Associação do Povo Indígena Juruna do Xingu do km 17, said that many indigenous groups have language barriers preventing participation. She bemoaned that four community meetings were not sufficient to address concerns, calling for development, not dams.

Patxon Metuktire, Instituto Raoni, Brazil, expressed dismay that there is little dialogue between communities and the government and companies. He invited everyone to "be attentive" because there might be conflict at the Belo Monte site and urged Electrobras to have further meetings with indigenous communities, to better explain the project and avoid possible conflict.

Cardeal de Souza noted that the main leaders and chiefs are in favor of the project and said Electrobras remains open to listening to communities.