4th Canadian Solar Buildings Conference:

Review

The fourth Canadian Solar Buildings Conference was held in Toronto from June 25 to 27, 2009. It was attended by about 200 engineers, architects, researchers and professionals from the three levels of government: municipal, provincial and federal. It was preceded by a number of workshops that addressed the needs of the industry, as well as those of students doing research in the area of solar energy utilization in buildings.

Workshops

Of particular interest to the industry were the workshops on RETscreen and Building Integrated Photovoltaic/Thermal design, while the workshops on TRNSYS and ESP-r, specifically addressed to Network students, provided a combination of introductory and advanced content that will be critical in the research they are undertaking and in the outputs of the Network related to all Themes, but particularly for Theme 4 that deals directly with modeling and simulation.

Two non technical workshops one on Public Speaking and a second one on Patents and IP protection, were very much appreciated by both students and professors of the Network. The two workshops, given by specialists in the respective fields, provided concrete information to the participants in two fields that do not form part of their traditional training. These were funded through the SNEI funding made available to the Network by NSERC, specifically to enhance the training and capacity of Network members.

Conference

The participation at the workshops reflected the participation to the conference itself: a mixture of architects, engineers, researchers and students as well as professionals from the municipal, provincial and federal governments.

The conference itself was a big success in that it not only attracted a broad industrial participation in terms of attendance, but more importantly, this year it attracted significant industrial participation in its content.

In particular we had presentations, by the Canadian Solar Industries Association, the Canadian Home Builders Association, the Canadian Gas Association, the Ontario Power Authority, municipalities, individual builders and application engineers, giving a strong flavor of how research is taken up by the industry and applied in real projects, thereby contributing to the advancement of the industrial know-how and ultimately the competitiveness of the Canadian construction and solar industries.

The conference was opened by the President of Ryerson University Dr. Sheldon Levy, followed by the Dean of Engineering at University of Toronto, Dr. Cristina Amon. Both stressed the fact that their respective universities strongly support the work undertaken by the SBRN researchers and underlined the importance of research in the area for the future of Canadian competitiveness in the global marketplace.

Their opening remarks were followed by welcoming comments by Dr. Terry Hollands, Chairman of the Board of Directors of the Solar Buildings Research Network and by the co-chairs of the conference: Dr. Ted Kesik and Dr. Alan Fung. Dr. Andreas Athienitis, Scientific Director of SBRN then provided a report on the successes of the network over the last year, including the completion of the Equilibrium houses and the combined pv/t installation at Concordia's John Molson School of Business building. Dr. Athienitis went on to mention the international activities the network and its researchers are involved in paying particular attention to the role of the Network in the launching of SHC Task 40 on Solar Net Zero Buildings.

Ms. J. Butler, VP, Electricity Resources of the Ontario Power Authority (OPA) followed with an overview of the activities of the OP A in the area of renewable energies and expressed her support for the activities of the SBRN.

Ms. Elizabeth McDonald, Executive Director of CanSIA provided an overview of the successes of the solar industry in Canada, and its rising importance following the Clean Energy Act in Ontario. Ms. McDonald also stressed the importance of continued support for innovation and the need for training and education of the stakeholders in the building industry.

Finally, two speakers provided two different perspectives of what is to come. Dr. Kleiman presented activities on the development of photovoltaic materials covering the work that he and other researchers

are be undertaking to push the capabilities of photovoltaics to new levels of efficiency, while Ms. Gauthier presented one of the Equilibrium houses, the Now house and how old, existing housing stock can be turned into a high efficient, net zero houses with existing technologies.

The opening ceremonies set the tone for the subsequent technical sessions and panel discussions. A broad spectrum of subjects was covered in the technical sessions: PV/T systems, Fenestration, Solar Thermal, Zero energy housing, Modeling and simulation, just to name a few. However the panel discussions were overwhelmingly related to one subject: Community systems and how solar energy could contribute in the development of energy systems that are highly efficient and environmentally sound.

A significant level of discussion was generated by the panel on the reconfiguration of urban energy systems and the role of solar energy. Mr. Louis Marmen of CGA presented the vision of QUEST: community systems that work seamlessly to minimize the energy requirements of communities. Mr. Chuck Farmer of OPA provided the view of his organization for the role of solar in community systems, while Ralph Williams of Hydro One, Brampton gave a presentation on the experiences of his organization in distributed electricity generation. Danielle Murray of the City of Toronto provided the view from a municipal level and covered the activities of her municipality in the area of distributed generation, while Jonathan Westeinde presented the vision of windmill construction, including the highly acclaimed Dockside Green development in Victoria BC.

The specific issue of how best to integrate solar electricity in the urban environment was addressed by a panel chaired by E. McDonald and composed of J. Gray of Sunedison, F. Ruffalo of Arise technologies Rob McMonagle from the city of Toronto and Mike Brigham, an independent consultant with strong roots in the community, who is working towards the seamless integration of solar energy at the community level.

The conference closed with a panel discussion on the challenges to building NetZero houses, chaired by Dr. Athienitis with participation from the Canadian Home Builders Association (D. Foster), Canada Mortgage and Housing Corporation (R. Charron), as well as from an award winning builder (Doug Tarry) and a researcher involved in the design and construction of net zero houses (Alan Fung). Of particular interest was the presentation from Mr. Foster who outlined the challenges and barriers faced by builders who are trying to build cutting edge energy efficient homes: Lack of disciplined risk assessment and robust business cases; Ignoring affordability and the marketplace; Failure to address the “innovation adoption train-wreck” and lack of “system within a system” thinking.

The closing panel discussion left the participants with a sense of where efforts need to be put, both in terms of research to develop low cost effective solutions for net zero houses, and in policy and training efforts from the different levels of the government: municipal, provincial and federal.