

### **3. In developed countries existing systems and infrastructure creates resistance to adoption of renewables.**

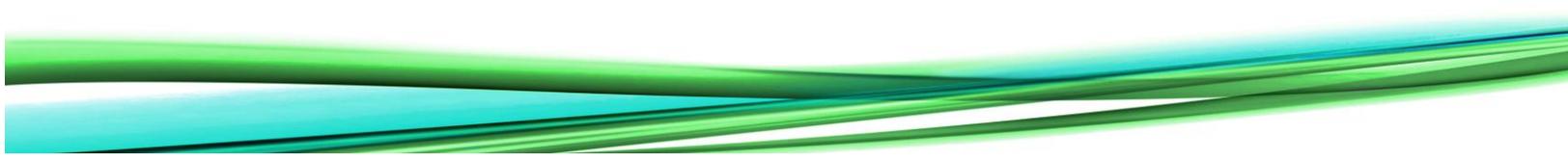
By: Iris Ferguson

The developed world faces a unique challenge in the movement to implement sustainability initiatives. Unlike much of the developing world, existing infrastructure must be taken into account. This existing infrastructure, be it physical buildings and electric grids, legal frameworks, or traditional business models, creates a myriad of difficulties for change to take place.

Upgrades to this infrastructure for improved efficiency require solving a completely separate set of issues than simply building a new LEED certified building. Adding renewables to the grid involves complex technological upgrades to make transmission and distribution feasible. Policies must be altered to encourage less use, and to promote proper pricing of energy. Additionally, moving towards a more sustainable future requires businesses to identify revenue sources that arise from efficiency rather than abundant use.

The University of British Columbia in Vancouver provides a great example of how communities can use existing infrastructure to generate increased efficiencies. Jonathan Rhone, CEO of Nexterra Systems Corporation, talked about UBC's various initiatives to create a more sustainable campus. He mentioned how the University saves at least 30% of the cost by retrofitting existing building structures instead of demolishing and rebuilding completely. Speaker Timo Mechler, highlighted his business's efforts to add efficiency to existing data centers. Additionally one of the business students at UBC is in the process of creating a partnership that will allow a team of student engineers to eliminate vampire energy waste within individual electric sockets on campus. By replacing the sockets, they can generate approximately \$80 in savings per socket, per year.

The session titled Smarter Grids for Smarter Communities highlighted some of the reforms necessary to upgrade the electric grid. Dr. Hassan Farhangi spoke of the Canadian Smart



Power Microgrid, which is enabling current electric utilities to partner with technology providers and researchers to develop new system architectures and protocols. Additionally, large commercial buildings are utilizing demand response to shift energy use to hours of non-peak demand. Not only do stakeholders need to adopt new forms of technology, existing business models must also transform. One student spoke of her work with electric utilities in the U.S. This group of utilities agreed to use monetary incentives that encourage reduction in usage if demand rises above a certain threshold. Because increased rates would eventually be passed onto the consumer, there is additional incentive to improve efficiencies within the system.

Janice Larson, Director of Renewable Energy Development within the BC Ministry of Energy demonstrated the unique role for government to play in the transformation of existing infrastructures. The government can encourage shifts in industry practice by providing tax incentives, while the academic and research sector can be stimulated with funding assistance and grants. For the innovation of existing systems, she stressed the importance of creating a functioning, collaborative framework in which all players work as a team.