

CONVERSATION ZONE:

Solar energy

From laboratory to marketplace

Andreas Athienitis, a professor of building engineering at Concordia University, and Suzanne Fortier, president of the Natural Sciences and Engineering Research Council of Canada, discuss why collaboration between universities, government and industry is needed to make the dream of energy-self-sufficient buildings a reality

Q: NSERC is sponsoring a national network, based at Concordia, in support of buildings that produce as much energy as they use. What makes this network unique?

Athienitis: It investigates the integration of solar and energy efficiency technologies, to reach this net-zero energy target in an efficient way.

Q: What is the future of solar energy in Canada?

Athienitis: Solar energy integrated in buildings is going to be necessary to design net-zero energy buildings. It is something essential. It is becoming like energy efficiency. You need to integrate it with the buildings so it will be cost-effective.

Q: What is the biggest challenge ahead?

Athienitis: There is a lack of knowledge in the engineering and architectural communities – the building designers. They still are used to doing it with the old technologies. They are not used to designing buildings that are optimized as integrated energy systems. So there is an education challenge to change our engineering and architectural programs to train building designers in the new technologies, and to design for energy efficiency and energy generation at the same time.

Q: How will this network contribute to that education process?

Athienitis: Through technology transfer. Through the architectural and engineering associations; through our partners in the Canada Mortgage and Housing Corp., and Natural Resources Canada. It will also be through developing design methodologies that simultaneously optimize buildings from an energy efficiency and generation aspect.

Andreas Athienitis is a Concordia University Research Chair, Tier I in Integration of Solar Energy Systems into Buildings, and the Scientific Director of the NSERC Smart Net-zero Energy Buildings Strategic Research Network.



Q: Why is a critical mass of activity important, not just within the academic community, but with other key business partners?

Fortier: In R&D, we need to create a two-way partnership. When research is done for a purpose – and the purpose here is clear, to get to net-zero energy buildings – the capacity to interact closely with those who will make use of the research is absolutely essential. They're feeding into the research, too, with their own expertise.

Q: Please describe the process an idea goes through to be adapted for commercial use.

Fortier: The process very much depends on the sector. There are essential elements, though, across the sectors, such as thorough assessment of the science/technology; proof of concept/scaling up/testing in real world environment; market assessment; building of a high-performing team with both business and scientific expertise; and business plan development.

Q: Why is solar energy such a focus for NSERC?

Fortier: As we look to the future, the planet will require us to use many different energy sources. The days when you can rely on one or two are probably gone. We need to go beyond that for sustainability reasons.

Q: How does your investment in Concordia's lab and the research network based at the university contribute to the development of a solar energy industry in Canada?

Fortier: It allows for a high-performing team to come together. You need to bring together a full array of expertise, otherwise you just delay potential commercial application.

Suzanne Fortier earned her PhD in crystallography and was an award-winning researcher before becoming president of NSERC in January, 2006.

