

## Séminaire

Le mardi 22 octobre 2019, 14h45  
Des rafraîchissements seront servis dès 14h15  
Complexe de recherche avancée, pièce 233  
Université d'Ottawa, 25, rue Templeton  
\*Le séminaire se déroulera en anglais.\*

## Seminar

Tuesday, October 22, 2019, 2:45 p.m.  
Refreshments to be served starting at 2:15 p.m.  
Advanced Research Complex, room 233  
University of Ottawa, 25 Templeton Street

### Optimizing the Profitability of Solar Power

David Wright, University of Ottawa

**Abstract:** After a brief review of energy yield models for PV and CPV, and optimal module orientation, this seminar focuses on the dollar value of that energy in distributed generation. In grid-connected, behind-the-meter applications, the value of solar electricity is equal to the reduced cost of purchasing from the grid, which varies with time of day/year according to the electricity tariff. We therefore include batteries in the analysis so as to be able to schedule the times at which solar electricity is used, and the schedule is dollar-optimized using linear programming. A discounted cash flow analysis over the life of the solar modules gives the optimal battery size and Internal Rate of Return (IRR) for examples in Ontario, Prairies and SW USA. In off-grid applications, batteries become even more important, and a different economic measure, Lifetime Cost of Electricity (LCoE) is appropriate. However the economically optimal system may generate excess electricity that cannot be used, examples of which are given from Saudi Arabia.

**Bio:** Professor David Wright combines an Engineering PhD from Cambridge University with his current position as Full Professor at the University of Ottawa's Telfer School of Management to provide a business perspective on the Cleantech Industry, currently focusing on solar power. His present work evaluates capital cost trends for photovoltaics and identifies situations in which solar technologies can be economically viable without government incentives. Dr. Wright has experience in academia, industry and government in three continents. His current university research is conducted in collaboration with industrial partners in the Cleantech sector. His previous research involved working with telecommunications equipment vendors and network operators on market analysis, network evolution, service requirements, distance education and the strategic impact of new technology on business. Earlier, in government, he developed systems dynamics models to evaluate the impact on industrial society of natural resource depletion, population growth and the ability of the environment to absorb pollution. Dr. Wright is cited in *Who's Who in the World*; *Who's Who in Canadian Business*; and, *Who's Who in Science and Engineering*.

**TOP-SET** est un programme de formation FONCER du CRSNG en puissance optoélectronique ayant pour but de façonner une cohorte de personnel hautement qualifié détenant des connaissances approfondies en systèmes optoélectroniques pour rejoindre les rangs d'équipes de recherche et développement.

NSERC CREATE Training in Optoelectronics for Power: from Science and Engineering to Technology (**TOP-SET**) is a training program that aims to form a cohort of highly qualified personnel with comprehensive understanding of optoelectronic systems, capable of joining advanced R&D teams.

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