הטכניון - מכון טכנולוגי לישראל

TECHNION - ISRAEL INSTITUTE OF TECHNOLOGY

הפקולטה להנדסה כימית
ע"ש וולפסון
The Wolfson Department of Chemical Engineering

Wolfson Department of Chemical Engineering Special Seminar

Lecture Hall 6, Wolfson Department of Chemical Engineering,

Wednesday 18.1.2017 at 13:30

Memorial lecture in honor of Prof. Eli Rubin

Dr. Tal Goldrath

A combined sustainability Index for Energy Efficiency Measures in the Israeli Electricity Market

The National electricity market in Israel includes various issues and implications, with a tight interface. The electricity production and the consumption side have an interface often disregarded. The optimal management of the whole system has different goals: economic optimization, reduction of environmental pollution, technological improvements and social and political considerations.

In order to make the optimal decisions regarding the management policy, decision makers must take into account the wide range of considerations representing the various interests, and the different aspects of system efficiency. The attitude developed in the presented research includes the complex scope of considerations in order to advice on a balanced decision.

A combined sustainability index was developed and used for electricity production technologies examination (Coal, Natural gas, PV, Nuclear), using the relevant indices to the Israeli electricity market, and examining various scenarios possible in the coming decades. A parllel index was defined for selected energy efficiency measures, representing the main consuming sectors: residential, industrial, commercial, municipal and water.

A Nulti Criteria analyses was used to determine the preferable energy efficiency measure for a specific electricity production fuel mix. Findings show that in all feasible scenarios in the Israeli electricity market, the preferable measure is outdoor lighting systems replacement. Sensitivity tests show that other measures might be preferred if the fuel mix opens to a 40% share of renewable (PV) or nuclear technology.

Refreshments will be served at 13:15