IEA ECBCS ANNEX 54 "*Integration of Micro-generation and other Related Energy Technologies in Buildings*" *(2010-2013)*

by
Dr. E. Entchev

NIST MG Workshop
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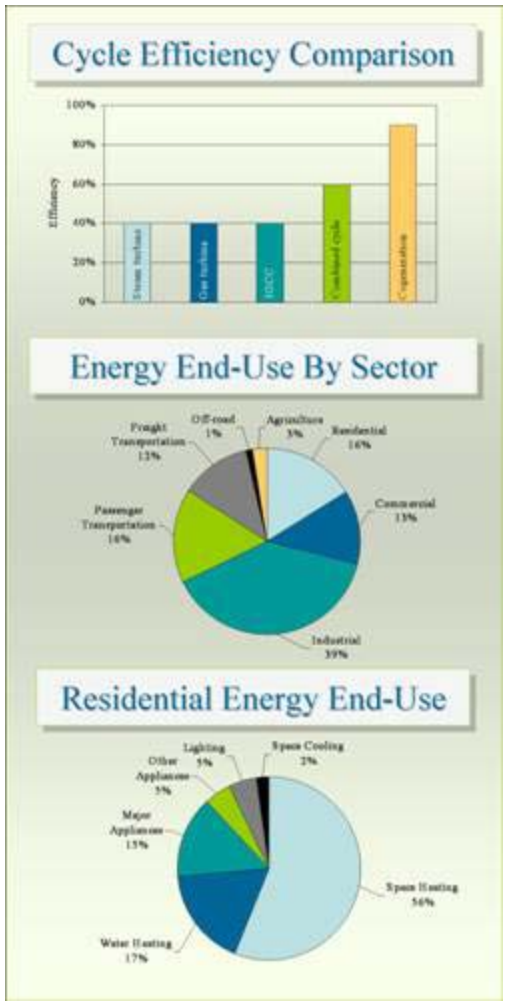
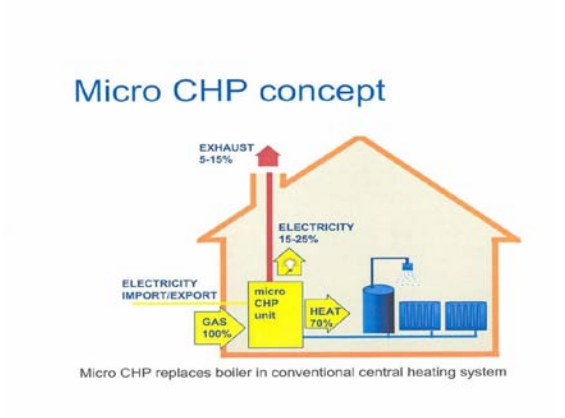
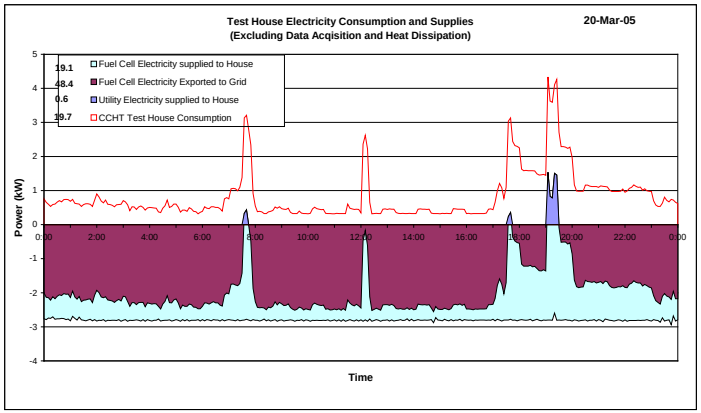
Annex 54 - Objectives



To further develop models of single poly-generation and/or hybrid type micro-generation systems, to assess different applications of these systems, to identify the impact on energy use and GHG emissions, and to investigate the competitiveness of these micro-generation systems to other technologies"





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ANNEX 54 Participation : 10 countries; 29 organizations

Belgium	Cogen Vlaanderen
Canada	Natural Resources Canada National Research Council DRDC HYteon IBC
Denmark	Dantherm Power A/S
Finland	Technical Research Centre of Finland (VTT)
Germany	FfE Technical University Munich
Italy	National Agency for New Technologies, Energy and Environment (ENEA) University of Sannio University of Naples
Japan	Tokyo University of Agriculture and Technology Tokyo University Osaka university Nagoya University Tokyo Gas Osaka Gas Toho Gas Saibu Gas Mitsubishi Heavy Industry Ltd Yanmar Energy Systems Ltd
The Netherlands	University of Eindhoven
UK	University of Strathclyde, Scotland Imperial College, England University of Bath, England
US	National Institute for Standards and Technology (NIST)

Annex 54 - Subtasks

A) Technical Development

This subtask contains a range of activities related to model and load profiles development, data collection and micro-generation systems controls and optimization

B) Performance Assessment

This subtask will use simulations to develop an extensive library of performance studies and synthesis techniques to identify generic trends

C) Technically Robust Mechanisms for Diffusion

The subtask contains work related to the interaction between technical performance, economic instruments and commercialization strategies and provision of this information to the relevant decision makers

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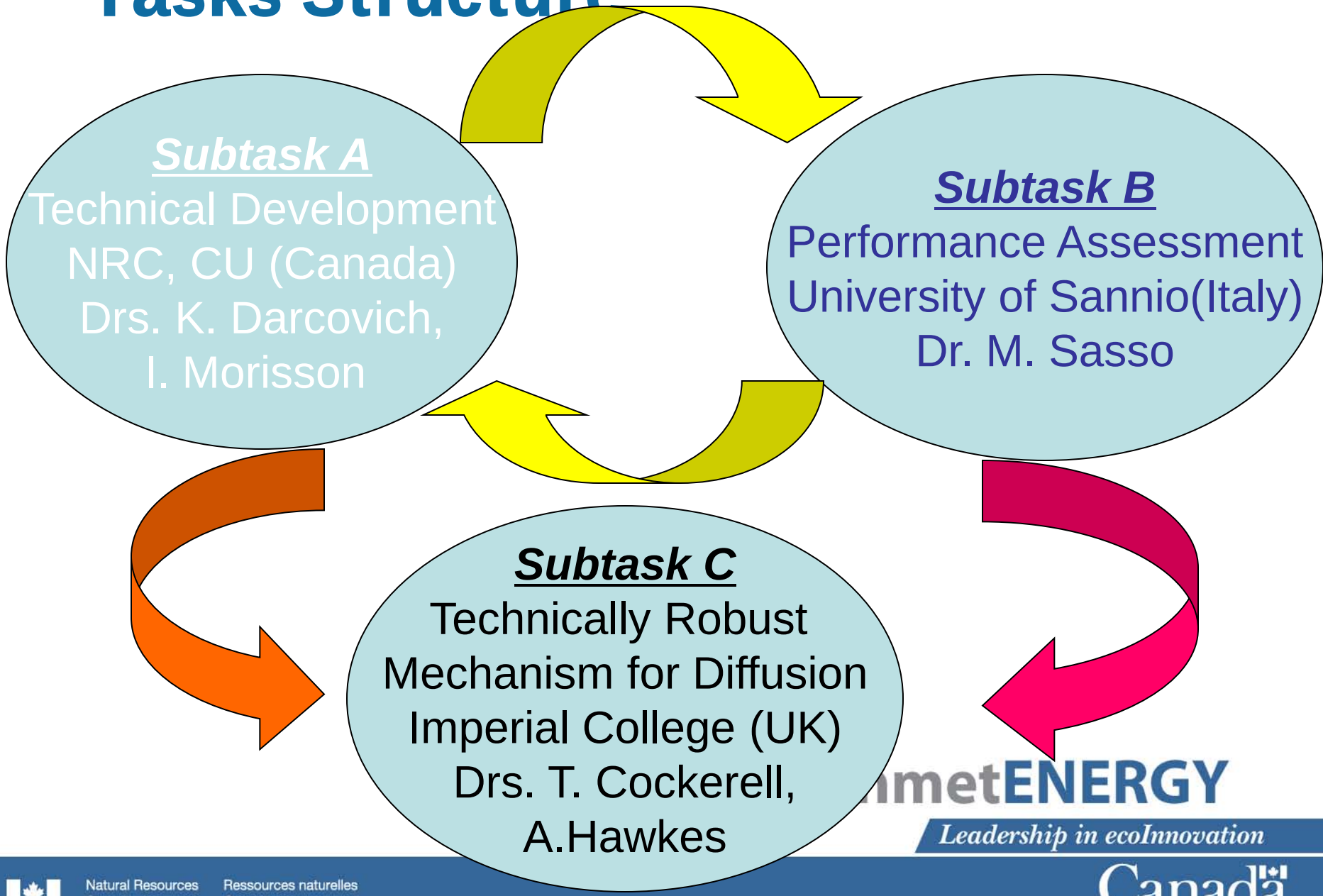
Annex 54 Subtasks

- **Subtask A – Technical Development (Canada)**
  (Dr. K. Darcovich, prof I. Morrisson, NRC, CU)
  - Enhanced model development,
  - Extensive laboratory and field testing,
  - Control algorithms and optimization,

- **Subtask B – Performance Assessment (Italy)**
  (prof M. Sasso, University of Sannio)
  - Expand the methodology to encompass poly-generation and hybrid systems'
  - Define harmonized set of model characteristics (buildings, systems)
  - Analyze performance of different microgen configuration

- **Subtask C – Techcnically Robust Mechanism for Diffusion (UK)**
  (prof T. Cockerill, Dr. A. Hawkes, Imperial College)
  - Develop regulatory and consumer oriented approaches to support microgen deployment,
  - Identify key drivers for speedy deployment,
  - Case studies and business models.

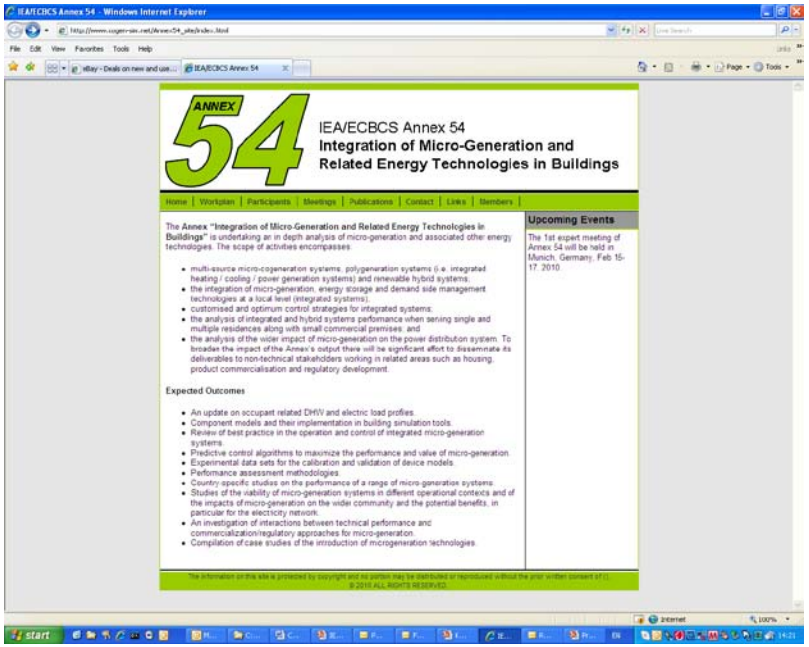
Tasks Structure



Annex 54 website

- Launched January 2010
- Web address:

http://iea-annex54.org/



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IEA/ECBCS Annex 54
Integration of Micro-Generation and Related Energy Technologies in Buildings

The **Annex "Integration of Micro-Generation and Related Energy Technologies in Buildings"** is undertaking an in depth analysis of micro-generation and associated other energy technologies. The scope of activities encompasses:

- multi-source micro-cogeneration systems, polygeneration systems (i.e. integrated heating / cooling / power generation systems) and renewable hybrid systems;
- the integration of micro-generation, energy storage and demand side management technologies at a local level (integrated systems);
- customised and optimum control strategies for integrated systems;
- the analysis of integrated and hybrid systems performance when serving single and multiple residences along with small commercial premises; and
- the analysis of the wider impact of micro-generation on the power distribution system. To broaden the impact of the Annex's output there will be significant effort to disseminate its deliverables to non-technical stakeholders working in related areas such as housing, product commercialisation and regulatory development.

Expected Outcomes

- An update on occupant related DHW and electric load profiles.
- Component models and their implementation in building simulation tools.
- Review of best practice in the operation and control of integrated micro-generation systems.
- Predictive control algorithms to maximize the performance and value of micro-generation.
- Experimental data sets for the calibration and validation of device models.
- Performance assessment methodologies.
- Country-specific studies on the performance of a range of micro-generation systems.
- Studies of the viability of micro-generation systems in different operational contexts and of the impacts of micro-generation on the wider community and the potential benefits, in particular for the electricity network.
- An investigation of interactions between technical performance and commercialization/regulatory approaches for micro-generation.
- Compilation of case studies of the introduction of microgeneration technologies.

Annex 54 builds upon the results of Annex 42 "The Simulation of Building-Integrated Fuel Cell and Other Cogeneration Systems". The publications of Annex 42 can be found here.

Upcoming Events

The 2nd expert meeting for annex 54 will be held at the National Institute of Standards and Technology (NIST), in Gaithersburg, MD, USA, Oct 25-27, 2010.

MICRoGEN'II 2011

2nd International Conference and Workshop on Microgeneration Systems and Applications

April 4-6, 2011

Glasgow, Scotland

Conferences

- 2nd International conference on Microgeneration
- ~ 120 participants
- Conference organizing and scientific cmt
- Call for Abstracts issued
- Website:

www.supergen-hidef.org/microgenII

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THANK YOU!