

COST Action no.TD1207

2013 | 2017

Mathematical Optimization in the Decision Support Systems for Efficient and Robust Energy Networks

Objectives

- The aim of the Action is to coordinate the ongoing efforts of experts of different fields, from academia and industry, in developing innovative tools for quantitative decision making, and applying them to energy production and distribution (EP&D).
- The development of DDS and their use in the energy production and distribution context aims at improving the economical, environmental and social impact of energy management in Europe.
- On the application side, more accurate models, validated and applied to the operating problems, will reduce costs/emissions, and improve the efficiency and robustness of the networks.
- On the scientific side, the interaction will foster methodological innovation and produce leading-edge scientific research, which will likely find use in other applied domains.

Working Groups

The Action proposes a matrix approach with an organization into four WGs providing a methodological subdivision of the activities and subjects to three Transversal Topics (TTs), touching all WGs.

- WG1 provides a database of all applications of DSS to EP&D, with extensive cross-link
- WG2 complements and contributes to the “wiki” of WG1 regarding the methodological advances that are relevant to make novel EP&D problems addressable.
- WG3 complements and contributes to the “wiki” of WG1 on the area of the technical validity of the mathematical models currently used in EP&D applications.
- WG4 “substantiates” the methodological results of WG2 with actually usable software, ready to exploit data provided by WG3.
- TT1 relates to problems requiring decisions that affect a time span variable from the minutes to the days/weeks/few months range.
- TT2 concerns EP&D problems on time spans ranging from one week to one (or a few) year.
- TT3 deals with long-term evolution of EP&D over the course of several years due to the combined effect of several different factors

Main Achievements

- Overcome the state of fragmentation and lack of communication among the different communities of experts interested in EP&D, including both AD and DSS experts
- Close collaboration with top DSS experts will lead to more accurate models, which when validated and applied to the operating problems of the industrial partners will reduce costs/emissions, will improve the efficiency and robustness of the networks, with an overall significant economic, political and regulatory impact.
- The interaction will foster methodological innovation especially in the emerging area of applied mathematics that simultaneously considers discrete decisions and nonlinear modeling.

Gender Balance and Early Stage Researchers

- Women are nearly 40% of the unit leaders, two thirds of the unit leaders are less than 45.

Dissemination

- Seminars, General Conferences, Industry driven workshops, Publications in scientific journals and presentations at Action Conferences.

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Information and
Communication
Technologies
(ICT)



Participating countries: 26

AT, BE, CH, CY, CZ, DE, DK, EE, EL, ES, FR, HU, IE, IL, IR, IT, LT, NL, NO, PT, RS, SI, SK, SE, TR, UK

Internat. Collaboration:

US, CN, JP, BR, SG

Contact details

Chair of the Action

Prof. Andrea Lodi
andrea.lodi@unibo.it

Domain Committee Rapporteur

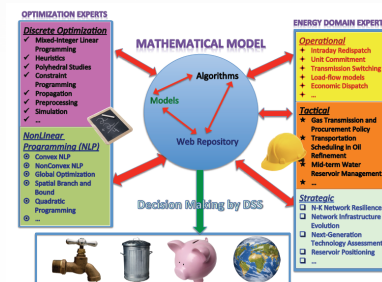
Prof. P. Takis Mathiopoulos
mathio@space.noa.gr

Science Officer (COST Office)

Dr Giuseppe Lugano
giuseppe.lugano@cost.eu

Website

www.cost.eu



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