

# EC E1 Future Internet Cluster Meeting “Green and Energy-efficient Networking” Workshop

## Workshop organisers

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## Workshop description

This workshop on “Green and Energy-efficient Networking” is jointly organized by the FP7 projects TREND [1] and EConet [2], together with the GreenTouch Consortium [3]. This workshop is organized in the context of the FI Cluster and is also open to the relevant experts and researchers of projects usually participating in the RAS and CaON Clusters. It includes presentations, panels and interactive (live) discussions between the participants.

## Agenda

<b>10:00 - 13:00</b>	<b>Morning Session</b>
10:00 - 10:15	<b>EC Officers and Future Internet Cluster Chairs Welcome / Introduction</b> Ruediger Martin (European Commission), Aiko Pras (University of Twente), Thomas Bohnert (University of Zurich)
10:15 - 10:45	<b>Workshop Introduction and Objectives</b> Marco Ajmone Marsan (Politecnico di Torino), Raffaele Bolla (University of Genoa), Didier Bourse (Alcatel-Lucent)
10:45 - 13:00	<b>Energy Efficiency Modelling and Metrics</b> Session including presentations and interaction with participants 1) Energy Consumption of ICT Networks Bart Lanoo (iMinds) 2) Approaches for EE in Core Networks Ward Van Heddeghem (Ghent University) 3) Approaches for EE in Wireless Access Networks Michela Meo (Politecnico di Torino) 4) GreenTouch Green Meter and Wireless Network Modelling Oliver Blume (Alcatel-Lucent) 5) GreenTouch Green Meter and Core Network Modelling Jaafar Elmirghani (University of Leeds) 6) Lowering the Energy Consumption of Wired Network Devices: The EConet Approach and Experiences Raffaele Bolla (University of Genoa)
13:00 - 14:00	<b>Lunch</b>
<b>14:00 - 17:30</b>	<b>Afternoon Session</b>
14:00 - 15:30	<b>Project Perspectives and Research Challenges - Interaction with Workshop Participants</b> Chaired by Marco Ajmone Marsan (Politecnico di Torino), Raffaele Bolla (University of Genoa), Didier Bourse (Alcatel-Lucent) Possibility for projects to briefly present their focus, key outcomes, next steps in green networking (Presentations planned from UniverSelf, FLAMINGO, CONCERTO, MobileCloud, GEYSERS, eBalance, et al.)
15:30 - 16:00	<b>Coffee Break</b>
16:00 - 17:00	<b>Panel Discussion and Interactions with Workshop Participants</b> Morning presenters on panel. Q/As and discussion with participants
17:00 - 17:20	<b>Workshop Wrap-up, Key Take Away and Next Steps</b> Marco Ajmone Marsan (Politecnico di Torino), Raffaele Bolla (University of Genoa), Didier Bourse (Alcatel-Lucent)
17:20 - 17:30	<b>Closing by EC Officers and Future Internet Cluster Chairs / Next meeting</b> Ruediger Martin (European Commission), Aiko Pras (University of Twente), Thomas Bohnert (University of Zurich)

## Supporting Material

A specific survey has been conducted as input to the Workshop, in order to capture the EC FP7 E1 running projects perspectives on Green and Energy-efficient Networking. Questions addressed the projects interests (low, medium or high) on (1) The energy footprint of telecommunication networks, (2) Energy efficiency in wireless access networks, (3) Energy efficiency in wired access networks, (4) Energy efficiency in photonic transport networks, (5) Green data centers , (6) Energy efficiency in applications and (7) Other topics. The conclusions will be presented during the Workshop introduction session.

The GreenTouch methodology and the Green Meter are detailed in [4] and [5].

The TREND big picture of green core networks and green wireless access networks is presented in [6] and [7].

## References

- [1] EC FP7 TREND project <http://www.fp7-trend.eu/>
- [2] EC FP7 ECONet project <http://www.econet-project.eu/>
- [3] GreenTouch Initiative <http://www.greentouch.org/index.php?page=home>
- [4] GreenTouch Roadmap: Strategic Research Areas and Project Portfolio [http://www.greentouch.org/index.php?page=strategic\\_research\\_areas\\_and\\_initial\\_research\\_portfolio](http://www.greentouch.org/index.php?page=strategic_research_areas_and_initial_research_portfolio)
- [5] GreenTouch Green Meter <http://www.greentouch.org/index.php?page=green-meter-research>
- [6] Esther Le Rouzic et al., "TREND Big Picture on Energy-Efficient Backbone Networks," The 24th Tyrrhenian International Workshop on Digital Communications (TIWDC 2013), "Green ICT", Sept. 23 - 25, 2013, Genoa, Italy
- [7] Yi Zhang et al, "An Overview of Energy-efficient Base Station Management Techniques," The 24th Tyrrhenian International Workshop on Digital Communications (TIWDC 2013), "Green ICT", Sept. 23 - 25, 2013, Genoa, Italy