

# Exploring Beyond the Frontiers to Build a Smarter Grid (EBF2BSG)

Coventry University, Coventry-United Kingdom.

19<sup>th</sup>-20<sup>th</sup> March 2013

## 1. Motivation

Looking beyond 2030, the challenges for electricity networks are likely to increase. There exists general consensus that the challenges of climate change and system security, in particular the ability to accommodate significant volumes of decentralised and renewable generation, requires that the network infrastructure must be upgraded to enable smart operation. The major changes to the way we supply and use energy; building a smarter grid lies at the heart of these changes.

The large increases in electricity generation from intermittent/highly variable renewable resource, the increase of stressing/narrowly conditions on transmission system, a massive decoupling between generation/load caused by dc system and several other features expected into the future electricity networks will negatively affect the system security.

The reliable and sophisticated solutions to the foreseen issues of the future networks are creating dynamically-intelligent application/solutions to be deployed during the incremental process of building the smarter grid.

The future electricity networks and its potential issues require looking beyond the existing research frontiers irrespective of the disciplinary boundaries. For this reason, the discussion of the future development on sophisticated/intelligent applications/solutions is the key research point to provide the critical importance to economic and social welfare into future smarter networks.

## 2. Expected Outcomes:

This meeting is expected to be an environment for brainstorming looking beyond the frontier of future electricity networks.

Potential independent and common areas for research are expected to be defined, with a special emphasis toward the multi-disciplinary research areas.

The issues and challenges to the research on Smart Grid will be identified.

Preliminary discussion regarding agreements and inter-institutional framework.

Identifying the potential founding resources to guarantee the sustainability of the joint research venture between the UK and India.

The meeting is expected to result in the initiation of research collaborations between the researchers from the UK and India.

The research is expected to lead into significant technology development and research publications in reputed international journals.

### 3. Duration:

This seminar is designed for duration of 2 days.

### 4. Location:

Coventry University, Coventry-United Kingdom.

### 5. Top Scientific-Experts Attending:

#### *Participants from India*

**Name and title:** Dr. Saikat Chakrabarti

**Position:** Assistant Professor, Indian Institute of Technology, Kanpur (UP)

<http://home.iitk.ac.in/~saikatc/index.html>

**Name and title:** Professor. Sri Niwas Singh

**Position:** Professor, Indian Institute of Technology, Kanpur (UP)

<http://www.iitk.ac.in/ee/faculty/snsingh.shtml>

**Name and title:** Dr. Bharat Singh Rajpurohit

**Position:** Lecturer, Indian Institute of Technology, Mandi

<http://www.iitmandi.ac.in/institute/facultyhomepages/bSrajpurohit.html>

**Name and title:** Prof Parthasarathi Sensarma

**Position:** Associate Professor, Indian Institute of Technology, Kanpur (UP)

<http://www.iitk.ac.in/ee/faculty/sensarma.shtml>

#### *Participants from UK*

**Name and title:** Dr Francisco M. Gonzalez-Longatt

**Position:** Lecturer in Electrical Engineering, Coventry University

<http://www.fglongatt.org>

**Name and title:** Prof Vladimir Terzija

**Position:** EPSRC Chair Professor in Power System Engineering, University of Manchester

<http://www.manchester.ac.uk/research/Vladimir.terzija/personaldetails>

**Name and title:** Prof Xiao-Ping Zhang

**Position:** EPSRC Professor of Electrical Power Systems

Director of Institute for Energy Research and Policy, University of Birmingham

<http://www.birmingham.ac.uk/staff/profiles/ecece/zhang-xiao-ping.aspx>

**Name and title:** Prof Keith Burnham

**Position:** Professor, Associate Head of Maths, Statistics and Engineering Science and Director of Control Theory and Applications Applied Research Group, Coventry University

<http://wwwm.coventry.ac.uk/engineeringandcomputing/backgroundandus/staff/Pages/KeithBurnham.aspx>

**Name and title:** Dr Campbell Booth

**Position:** Senior Lecturer at the University of Strathclyde, Director of Dynamic Knowledge Corporation

**Field of experience:** Protection of future networks, Smart grids, PMU

<https://pure.strath.ac.uk/portal/en/persons/campbell-booth%288928524b-e866-4980-9706-74c6dd6e8097%29.html>

**Name and title:** Shadi Khaleghi Kerahroudi

**Position:** Research Engineer at National Grid, National Grid Plc

**Name and title:** Dr. Mark Osborne

**Position:** Future Strategy Team, Head of Energy Infrastructure & End Use National Grid Plc.

**Name and title:** Dr Zhengyu Lin

**Position:** Lecturer in Electrical Engineering at Coventry University

## 6. Agenda

Time (Hours)		Day	Day
From	To	1	2
08:30	09:00		
09:00	09:30	Registration	Dr. Mark Osborne Future Strategy Team, Head of Energy Infrastructure & End Use National Grid, UK
09:30	10:00	Opening and Welcome	
10:00	10:30	Prof. Keith Burnham Associate Head of Maths, Statistics and Engineering Science and Director of Control Theory and Applications Applied Research Group, Coventry University, UK	
10:30	11:00	Presentation of Exploring beyond the frontiers to build a smarter grid (EBF2BSG): Academic Focus Group Dr. Francisco M. Gonzalez-Longatt, Coventry University, UK	Dr Campbell Booth Senior Lecturer at the University of Strathclyde, Director of Dynamic Knowledge Corporation
11:00	11:30	Prof. Vladimir Terzija, EPSRC Chair Professor in Power System Engineering, University of Manchester, UK	
11:30	12:00		Dr. Saikat Chakrabarti, Assistant Professor, Indian Institute of Technology, Kanpur (UP), India
12:00	12:30	Prof. Xiao-Ping Zhang, Director of Institute for Energy Research and Policy, University of Birmingham	
12:30	13:00		Dr. Francisco M. Gonzalez-Longatt, Coventry University, UK
13:00	13:30		
13:30	14:00		
14:00	14:30	Dr. Bharat Singh Rajpurohit Lecturer, Indian Institute of Technology, Mandi, India	Dr. Parthasarathi Sensarma Associate Professor, Indian Institute of Technology, Kanpur (UP), India
14:30	15:00		
15:00	15:30	Professor. Sri Niwas Singh Indian Institute of Technology, Kanpur (UP), India	Panel Discussion: Definition of Working Groups, Definition of future activities, Definition of strategies to achieve a sustainable and secure progress.
15:30	16:00	Panel Session	
16:00	16:30	Closure First Day	Seminar Closure and Remarks
16:30	17:00		
17:00	17:30		
17:30	18:00		
18:00	18:30		