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#### **WORKSHOP FEES**

Lectures, CD, Workshop notes, tea/coffee breaks, lunches and Thursday night gala dinner are included in the workshop fee.

University attendee: 400 € Industry attendee: 500 €

**REGISTRATION DEADLINE: March 20, 2009.** 

Registration Form available on: http://www.hro-cigre.hr

Please, complete and return Registration Form to ATLAS Travel Agency; Attn. Mrs Nina Dumančić E-mail: nina.dumancic@atlas.hr

The ATLAS Travel Agency will send an invoice to each registered participant, after the confirmation of the workshop fee payment.

Thursday night dinner fee for accompanying person is 50 €. Optional excursion: Plitvice Lakes, Croatia – additional fee 80 € (Minimum 25 persons) www.np-plitvicka-jezera.hr

#### **ACCOMMODATION**

Special Prices have been arranged at 100 € bed/breakfast for single occupancy. Please book rooms directly with the *Hotel International* (200 m from workshop location) as soon as possible to guarantee a room.

Address: Miramarska 24,

HR-10000 ZAGREB, CROATIA

**Phone:** +385 1 6108 800 **Fax:** +385 1 6108 700

**E-mail:** reservations@hotel-international.hr

**Web:** www.hotel-international.hr

Room reservations must be made by **March 20, 2009**. Please quote "**WAMPAC WORKSHOP**". Reservation requests after that date will be based on space and rate of availability.

#### WORKSHOP LOCATION AND INFORMATION

**Location:** Faculty of Electrical Engineering and

Computing

Unska 3, HR-10000 ZAGREB, CROATIA

GREY CONFERENCE ROOM

(SIVA VIJEĆNICA)

Workshop Secretariat: Croatian National Committee of CIGRÉ

E-mail: central@hro-cigre.hr
Phone: +385 1 487 25 07
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Workshop Coordinator: Irena Tomiša E-mail: itomisa@hro-cigre.hr

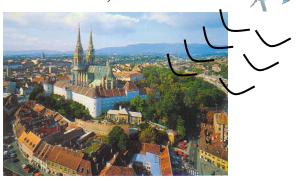
Web: http://www.hro-cigre.hr

International Workshop on

# Wampac – Guardian of power system

April 23-24, 2009

ZAGREB, CROATIA



## Organized by



The National Foundation for science, high education and technological development of the Republic of Croatia



Hrvatska elektroprivreda, Croatia



Croatian National Committee of CIGRÉ



Faculty of Electrical Engineering and Computing, Zagreb, Croatia



Faculty of Engineering, Rijeka, Croatia



IEEE - Croatian Section

### **OBJECTIVES**

Synchronized Measurement Technologies (SMT), such as Phasor Measurement Units (PMUs) have resulted in the design and application of various wide area monitoring, protection and control (WAMPAC) schemes. Most provide significant reliability and financial benefits in the planning, operation and maintenance of power networks at both the distribution and transmission level. This workshop is a result of 3 years work on the project focused on WAM implementation in Croatia founded by Croatian Ministry of Science and Croatian Electricity Company - HEP. The workshop offers transmission engineering and operating personnel, that have some knowledge about synchronized measurement in power system, practical knowledge of all aspects of deploying synchronized measurement technology for WAMPAC applications. The workshop is structured so that the first half focuses on technical and implementation issues (first day), while the second half addresses applications and benefits (second day).

Main topics are:

- Experiences of using WAM system worldwide
- Real-time monitoring applications,
- Future protection schemes based on synchronized phasor measurements
- Applications based on synchronized phasor measurements,
- Improved state estimation
- Phasor Mesurement Unit Testing standards
- System Integrity Protection Scheme (SIPS)

## **INTENDED AUDIENCE**

This workshop is intended for professionals from academia, transmission system operators, distribution system operators, regulators, generation companies, customers (industrial facilities), consultants and post-graduate students.

## **WORKSHOP DURATION**

This is a two day course, lasting from Thursday the 23rd to Friday the 24th of April, 2009.

#### **TIMETABLE**

THURSDAY April 23 <sup>rd</sup> (first day)
Registration and Information
Welcome and Introduction
Skok, Ivankovic, Stojsavljevic: WAM
Scientific Project Activities and Results 2006-
2009.
Coffee break
Phadke: Recent Developments in State
Estimation with Phasor Measurements
Panel discussion
Lunch
Terzija: WAMPAC System Building Blocks
and the Related Standards; SMT Based
Real-time State Estimation
Coffee break
Gabrijel: WAMS from Development to
Routine
ABB
SEL
Workshop gala dinner
2 - 2 - 4 - 3 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2
FRIDAY April 24 <sup>th</sup> (second day)
Registration and Information
Novosel: System Integrity Protection
Scheme (SIPS)
Guzman: System Integrity Protection
Scheme (SIPS) for Generation Shedding at
CFE-Mexico; Real-time Modal Analysis for
SIPS.
Coffee break
Giannuzzi: Defence System and Real-time
Applications/Algortithms
Panel discussion
Lunch
Sattinger. Analysis of System-wide
Disturbances
Coffee break
Karlsson: Power IT Applications,
Experiences and Research Trends in the
Nordic Countries - Focused on Phasor
Measurements; Voltage Stability - Modelling
and System Protection Scheme
Coffee break
Moraes: Challenges to Deploy a Large
Synchrophasor System; VLPGO (Very Large
Power Grid Operators) – Synchrophasors
Applications Working Group 2009 Activities.
Coffee break
Panel discussion
SATURDAY April 25 <sup>th</sup>
Excursion (Optional) – PLITVICE LAKES
(*,****)

### **ORGANIZING COMMITTEE**

Chairman: Srđan Skok

Co-Chairman: Igor Ivanković

Members:
Neven Baranović
Zdeslav Čerina
Božidar Filipović-Grčić
Igor Kuzle
Alemka Markotić
Ante Marušić

#### **INSTRUCTORS**

Prof. Arun Phadke Virginia Tech, USA

**Dr. Damir Novosel**Quanta Technology, USA

**Dr. Walter Sattinger** Swissgrid, SWITZERLAND

**Dr. Daniel Karlsson**Gothia Power. SWEDEN

Dr. Rui Moraes

ONS - Operador Nacional do Sistema Eletrico, BRASIL

Prof. Vladimir Terzija

The University of Manchester, Manchester, UK

Dr. Uroš Gabrijel ELES, SLOVENIA

**Dr. Giorgio Giannuzzi** Terna. ITALY

**Dr. Armando Guzman** SEL, USA

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