



# Program

**May 26 - 28, 2009**  
**Barcelona, Spain**



[www.pcic-europe.eu](http://www.pcic-europe.eu)



### **Conference Site**

Catalonia Barcelona Plaza Hotel  
Plaza España, 6-8  
08014 BARCELONA, ESPAÑA

Phone: +34 93 426 2600

Fax: +34 93 426 0400

[www.cataloniabarcelonaplaza.com](http://www.cataloniabarcelonaplaza.com)

### **Executive and Technical Program Committee**

Patrick Leroux, TOTAL (F), Chair  
Jean-Charles Guilhem, ABB (F), Vice Chair  
Terence Hazel, Schneider Electric (F), Secretary  
Anjou Appelt, Bartec (D)  
Reinhold H. Bietzker, Endress+Hauser (CH)  
Ben Johnson, IEEE-PCIC (USA)  
Heribert Oberhem, Bayer Industry Services (D)  
Jacques Tastet, Technip (F)

### **Organisation Committee**

Terence Hazel, Schneider Electric (F)  
Jean-Charles Guilhem, ABB (F)

### **Local Committee**

María-Elena Bonfill, ABB (SP)  
Nathalie Bruno-Chavanne, ABB (F)  
Miguel-Antonio Hostench, Schneider (SP)

### **Contacts**

Patrick Leroux, TOTAL (F)  
Terence Hazel, Schneider Electric, (F)  
Nathalie Bruno-Chavanne, ABB (F)

[patrick.leroux@pcic-europe.eu](mailto:patrick.leroux@pcic-europe.eu)  
[terence.hazel@pcic-europe.eu](mailto:terence.hazel@pcic-europe.eu)  
[nathalie.bruno-chavanne@pcic-europe.eu](mailto:nathalie.bruno-chavanne@pcic-europe.eu)

# PCIC

**EUROPE**  
PETROLEUM & CHEMICAL INDUSTRY COMMITTEE

## 6<sup>th</sup> Annual PCIC Europe conference 2009 in Barcelona



The PCIC Europe (Petroleum & Chemical Industry Committee), conference is organizing its 6<sup>th</sup> annual conference in Barcelona, Spain, in May 2009.

After Switzerland, The Netherlands, France and Germany, it comes to Spain in 2009 in order to enlarge the PCIC audience of best practices and expertise to the South of Europe and other Mediterranean countries.

Barcelona, capital of Catalonia, has a long trading tradition. It is a dynamic, welcoming city and one of the major economic and business centers of Mediterranean Europe, actively engaged in the European community market and Latin America. Around 4.5 million inhabitants live in its metropolitan area.

Thanks to both its privileged position on the shores of the Mediterranean Sea and its economic, social and cultural dynamism, Barcelona's influence extends over a wide area in southern Europe.

The Catalan capital has turned innovation, technological development, design and top quality service into basic elements of its identity.

Barcelona is a modern cosmopolitan city, which has managed to preserve an important cultural, architectural and monumental historic legacy.

Major events, such as the World's Fair of 1888, the International Exhibition of 1929, the 1992 Olympic Games and the 2004 Forum of Cultures have contributed to the development and modernization of the city and its wide range of influence.

Come and enjoy a spring time stroll down "Las Ramblas", the most famous thoroughfare with its shops, cafés and frenetic night life, with a balmy temperature of 25 °C (77°F).

¡¡¡Bienvenidos a Barcelona!!!

PCIC 2009 Local Committee  
María-Elena Bonfill  
Miguel Hostench

## Welcome to Barcelona



I am very pleased to welcome you to Barcelona Spain for the 6<sup>th</sup> PCIC Europe conference. The Petroleum & Chemical Industry Committee Europe conference (PCIC Europe) is the premier forum for the exchange of experience in the practical application of electricity and instrumentation in the petroleum, chemical and pharmaceutical industries. Experts from users, engineering companies, manufacturers, regulators, certifying bodies and international standardization organizations will present papers with the intention of informing the attendees about their experience and recent progress. The subjects selected for the conference cover safety issues, new standards and regulations, engineering, equipment, operation and maintenance aspects, and feedback from end-users.

However the world has been evolving for a few years with the issue of global warming and the world of Electricity must take into consideration this new situation. This is the reason why PCIC Europe has decided to include in its future conferences more and more papers dedicated to improvement of energy efficiency for which power and instrumentation (control) have a key role to play. Energy efficiency and renewable energies are said to be the “twin pillars” of sustainable development and PCIC Europe intends to contribute to the development of necessary means to implement this new policy of the 21<sup>st</sup> century. Authors are encouraged to propose papers dealing with energy efficiency and renewable energies in the petroleum industry for the PCIC conference in 2010.

During the conference a Hospitality Area will be provided in the conference hotel to allow fruitful discussions among all attendees, exchange experiences, and create efficient and friendly networking. This Hospitality Area has had a great success in previous PCIC Europe conferences and I invite you to make full use of it.

The first 2 PCIC Europe conferences were held in 2004 and 2005 in Basle Switzerland, then Amsterdam The Netherlands in 2006, Paris France in 2007 and Weimar Germany in 2008. About 200 attendees from 20 countries attended the last PCIC Europe conferences. Also it has been noted that more and more end users are present, this showing the importance of the discussions.

The 2009 PCIC Europe conference will take place from 26<sup>th</sup> to 28<sup>th</sup> May in Barcelona Spain. Every year the conference will be held in a different European country in order to foster exchanges among people having different practices and perspectives for the mutual benefit of everyone.

I am looking forward to seeing you in Barcelona

Patrick Leroux

Chair PCIC Europe

## The 2009 technical program



The continued success of the PCIC Europe conference demonstrates that it truly does provide the international forum needed by those involved in the Oil & Gas Exploration, Production, Refining, Chemical and Pharmaceutical Industries. The presentation of high quality technical papers and the discussions during and after the conference make it very interesting for all attendees. The 2008 PCIC Europe introduced a tutorial session which was very well attended, and we will have similar sessions at the 2009 conference. The PCIC Europe conference is a rare opportunity for end-users, engineering companies, manufacturers and regulatory bodies to be able to meet and discuss matters of vital importance to the industry.

The PCIC Europe Committee will renew the technical co-sponsorship with the Industrial Applications Society of IEEE. In addition to the possibility offered to authors to have selected papers published in the Industrial Applications Transactions and Magazine, all papers presented in the 2009 PCIC Europe conference will be digitally archived on IEEE Xplore thus being available to readers throughout the world via the IEEE Xplore website. Papers from the 2008 Weimar PCIC Europe conference are available through IEEE Xplore.

The main topics of the PCIC Europe conference are:

1. Energy efficiency & sustainable development
2. Safety in the Workplace
3. Experiences from Users with Regulations and Standards
4. Electrical and Instrumentation (E&I) Engineering Practices
5. Equipment, Systems and Components
6. Operation, Maintenance, Repair, Asset Management and Qualification of Personnel

Attending the PCIC Europe conference is one of the best ways of getting the information needed to be able to adapt quickly in our ever-changing industry. Presenting a paper at a PCIC Europe conference is way to control the evolution of our industry.

I am looking forward to seeing you in Barcelona.  
Terence Hazel



### **PCIC Mission**

To provide an international forum for the exchange of electrical applications technology relating to the petroleum and chemical industry, to sponsor appropriate standards activity for that industry, and to provide opportunity for professional development.

### **PCIC Strategies**

1. The PCIC Annual Technical Conference will be held in locations of industry strength, and its location will be rotated annually in an effort to attract national and international participation.
2. The PCIC will proactively promote participation by a broad base of PCIC representatives, with an emphasis on both younger and retired engineers.
3. Attendees will be encouraged to participate in technical activities including authorship of papers and standards development.
4. The quality of the PCIC paper offerings is essential for the PCIC mission to succeed and will be given highest priority. **Preference will be given to application-oriented papers.**
5. The PCIC will actively seek opportunities for rewarding members for contributions to the PCIC and the profession.
6. Technical Subcommittee will be continuously evaluated and updated to reflect the evolving needs of the industry.
7. User, manufacturer, consultant, and contractor participation will be encouraged in the activities of the PCIC to strengthen the conference technical base.
8. The PCIC will offer tutorials directed towards enhancing the technical, communication, and interpersonal skills of petroleum and chemical industry engineers.

## Schedule at a glance

---

### Tuesday, 26. May 2009

13.30 - 18.00	Tutorials
19.00	Welcome reception (Cocktail)

### Wednesday, 27. May 2009

09.00 - 17.30	Conferences
18.45	Guests Program

### Thursday, 28. May 2009

08.30 - 17.30	Conferences
---------------	-------------

**Conference registration and hotel booking  
available from 2009 February 16th.**

**Twenty-eight of the papers listed hereafter will be presented at the 2009 PCIC Europe Barcelona conference:**

Ref.	Title	Lead Author
BA-02	<p><b>Secondary Voltage Control</b></p> <p>Power system voltage profile is enhanced by the proper management of automatic voltage regulators, on-load tap changers and synchronous capacitors. This allows equipment to function at maximum efficiencies.</p>	AL-MAJED, Salah I.
BA-04	<p><b>Torsional Analysis of Electric Machine Coupled to Reciprocating Equipment</b></p> <p>For variable speed reciprocating machine trains, complex issues of torsional response due to torque pulsation shall be addressed. Shaft failures on large trains due to shaft torsional oscillations can be catastrophic.</p>	ALMASI, Amin
BA-05	<p><b>Analysis &amp; Recommendation for Reliability of Local Control Panel Mounted on Rotating Machine Skid</b></p> <p>Reliability of machine package local control panel electronic devices is challenging. Analysis of dynamic loading shows resonance can occur resulting in damage. Lessons learned from various skid projects will be presented.</p>	ALMASI, Amin
BA-06	<p><b>Motor Controls for Ex Motors in Hazardous Areas: An Application Guide</b></p> <p>This presentation will answer the questions: "Which type of protection is required and what is the necessary protection device?" and "How to adjust the protection device and is an overall certification required?".</p>	NELEMAN, Karel
BA-08	<p><b>Large Adjustable Speed and Soft-Started Drives with Long Cable Lengths</b></p> <p>Typical adjustable-speed applications with long cables are outlined. An overview is given on how cable length challenges associated with Voltage Source Inverters (VSIs) can be overcome. Test results are presented.</p>	ENDREJAT, Frieder
BA-09	<p><b>A Joint Approach Between International Manufacturers and Operators According to ATEX Directives</b></p> <p>The presentation highlights the major tasks and relevant links between manufacturer and operator from regulatory and practical points of view. Practical examples of implementing the directives will be presented.</p>	BUHN, Johannes

Ref.	Title	Lead Author
BA-10	<p>Requirements and Experiences in Building up a Power System for a Chemical Plant in China</p> <p>The design of the electrical power transmission and distribution system from the 220 kV down to 24V DC power in China is presented. The lessons learned in achieving on-time production startup are explained.</p>	KECHTER, Ralf
BA-11	<p>Use of Remote Seals to Increase Safety and Reliability of Pressure, Flow &amp; Level Measurements</p> <p>Most pressure, flow and level measurements done on dangerous fluids at high pressure and temperature are not reliable due to the process conditions. Remote seals are interfaces between process connections and transmitters improving safety and reliability.</p>	DAYER, Marie-Paule
BA-12	<p>Light Emission Diodes Applicable to Explosion Proof Equipment</p> <p>Using solid-state lighting reduces maintenance and sometimes eliminates it. Studies show that plant operating costs and higher safety levels can be achieved by using this technology.</p>	SCABURRI, Antonello
BA-13	<p>IEC60079 Part 0 one Year Later, IEC EN 61241 parts 0 &amp; 1 turn to IEC60079 Parts 0 &amp; 31</p> <p>The new version of the IEC60079 standards Parts 0 and 31 will affect ATEX marking. There is concern that this will compromise understanding among manufacturers, clients and end users.</p>	SCABURRI, Antonello
BA-14	<p>Enhancing the Reliability of a Petrochemical Complex using a Modern De-Coupling System</p> <p>Gas turbines are sensitive to disturbances in the national grid. Automatic decoupling can be implemented to island the plant to prevent loss of gas turbines due to external system disturbance. A specific example will be discussed.</p>	AL-MULLA, Ameer

Ref.	Title	Lead Author
BA-15	<p><b>Assessing and Mitigating Personnel Exposure to Arc Flash Hazards</b></p> <p>This paper describes experience in assessing and mitigating personnel exposure to arc flash hazards associated with IEC equipment. It describes assessing arc flash hazards and risk reduction by equipment design, and engineering and work practices.</p>	IRWIN, Catherine
BA-16	<p><b>Cable Trays Offshore: A Choice of Materials</b></p> <p>The choice of material for cable trays on offshore platforms is discussed. With the overcoming of suspicion about using aluminum alloys, the economic aspect of price and weight which should encourage the extended use of aluminum alloys.</p>	DESMOULIERE, Luc
BA-17	<p><b>Existing Oil &amp; Gas Field Extension/Redevelopment - Challenges from Conceptual Study to Startup</b></p> <p>Extension of some existing offshore and onshore facilities required additional generation far exceeding the original power system capabilities. This paper discusses the main challenges due to limitations of existing equipment and shutdown time.</p>	LEFORGEAIS, Bruno
BA-24	<p><b>Importance of Instruction Manuals for Use with Hazardous Area Equipment</b></p> <p>ATEX Directive 94/9/EC requires instruction manuals but these are too often neglected. The importance of instruction manuals will be illustrated using the example of heat-trace systems whose elements are mostly supplied in bulk.</p>	JAN SIJRIER, Hendrik
BA-26	<p><b>It There any Value to Deploy IEC61850 for Oil &amp; Gas Electrical Power Distribution Substation Automation?</b></p> <p>This paper provides end-users with practical recommendation about implementing the new IEC61850 standards. The importance for all parties to share the same interest in open communication protocol for interoperability and competition will be presented.</p>	MONTIGNIES, Patrick

Ref.	Title	Lead Author
BA-27	<p><b>IMCS Versus Conventional MCC - The Benefits of Smart Motor Control Centers</b></p> <p>Is “smart” the modern trend to use or should MCCs be based on traditional designs? Guidelines &amp; selection criteria allowing end-users to choose the right type of MCC for their application will be presented together with financial details.</p>	MEULENBROEK, Hans
BA-28	<p><b>A Renewed Product Standard for LV Power Distribution Assemblies</b></p> <p>This paper gives a qualitative overview of improvements in IEC 61439 and IEC/TR 61641. The 61439 series will be extended with a specifiers’ guide to enable the user to better specify the switch he requires.</p>	BOUMAN, Bas
BA-30	<p><b>Plant Redundancy - What Equipment Needs to be Double and When to Stop</b></p> <p>Looking for availability results in using a redundant system having dual equipment. Is there however a common point failure? This paper helps to make the right decision regarding which equipment needs doubling and when to stop.</p>	IMMING, Martijn
BA-31	<p><b>Buying the Lowest Total Cost of Ownership (TCO)</b></p> <p>This paper presents a business case of a product development that increases the CAPEX while reducing TCO. A purchase model will be presented that will not find the lowest CAPEX, but the lowest TCO = CAPEX + OPEX.</p>	VAN DEN AKKER, Wouter
BA-33	<p><b>The Evolution of a "Hybrid" System by Integrating the Best Concepts from NEC, CEC and IED</b></p> <p>This paper discusses developing a hybrid approach for global technology equipment designs and wiring practices enabling the Petrochemical industry to capitalize on production efficiencies &amp; control the reliability and safety of its electrical systems.</p>	COLE, Marty

Ref.	Title	Lead Author
BA-35	<p><b>Do You Speak "System"?</b></p> <p>Design and commissioning large electrical network control systems is a very tough part of a contract. This article presents an overview of recent standards &amp; technologies evolution and lessons learnt from recent experience with large electrical networks.</p>	ANGAYS, Philippe
BA-36	<p><b>Safety &amp; Safety Factors: The Impact on Heat Tracing System Designs</b></p> <p>This paper will demonstrate the impact of insufficient consideration to electrical heat tracing design safety factors as well as the value of properly addressing all aspects when designing an electrical heat tracing system.</p>	JOHNSON, Ben
BA-37	<p><b>Challenges in Using Waste Heat Recovery to Reduce CO<sub>2</sub>, NO<sub>x</sub> and SO<sub>x</sub> Emissions</b></p> <p>The drive to improve overall efficiency and reduce emissions for gas turbine generators presents its own challenges. This paper examines the need for balancing a safe and reliable source of power with emission reductions.</p>	PECK, Graeme
BA-39	<p><b>Stator Insulation Problems Caused by Variable Speed Drives</b></p> <p>This paper describes processes involved in random &amp; form wound stator insulation degradation. IEC 60034-18-41 and 60034-18-42 allowing motor manufacturers to qualify low and medium voltage insulation systems intended for variable speed applications.</p>	LLOYD, Blake
BA-40	<p><b>Basic Rules for the Design &amp; Installation of Electrical Equipment in FPSOs</b></p> <p>Floating, Production, Storage and off-loading facilities are key players in the recovery of Oil or Gas from deep sea wells. This paper reviews design rules from lessons learnt on the biggest FPSO's recently launched in West Africa.</p>	TASTET, Jacques
BA-41	<p><b>Subsea Compact Gas Compression with High-Speed VSDs and Very Long Step-Out Cables</b></p> <p>The paper outlines the design phase and the challenges being met to supply a 8 MW VSD via a 47km long step-out power system. Measurement results of recent high-speed VSDs will be presented.</p>	SCHEUER, Gerald

Ref.	Title	Lead Author
BA-42	<p><b>Selecting Reliable Cost Effective Power Systems for Oil &amp; Gas Facilities</b></p> <p>This paper illustrates the importance of power systems configurations and the applied technology on reliability and the Life Cycle Cost of the industrial power systems. The importance of customer's subjective preferences is discussed.</p>	FOY, Robert
BA-44	<p><b>Prefabricated Arctic Substations for Changing Needs</b></p> <p>Erection time at site is minimized with prefabrication and factory testing. This limits the total cost for installation as well as giving a higher quality and reliability. Changing needs in networks can be addressed by moving the units.</p>	OLOVSSON, Hans-Eirk
BA-45	<p><b>You are now out of the Dark - Are you using your data?</b></p> <p>This paper discusses power management and load shedding systems for production facilities based on recent projects in Angola and Nigeria. System modeling and Asset Management aspects will be highlighted based on lessons learnt.</p>	CONCIENNE, Kurt
BA-46	<p><b>Proposed Revision of IEC 60079-15: How has Harmonization Affected Ex n Motors?</b></p> <p>This paper presents the proposed changes in the IEC 60079-15 standard resulting from harmonization activity. It is important to know and understand these changes due to the number of motors are operating in these areas.</p>	MISTRY, Bharat
BA-47	<p><b>Hazardous Location Power Distribution and Motor Control</b></p> <p>Requirements for power distribution and motor control differ including what is considered safe. This paper examines the different design, certification, and installation requirements for hazardous location power distribution and motor control.</p>	KEANE, Brian

## How to reach Barcelona ?



### By air

**Barcelona International Airport**, also known as **El Prat**, is the main airport serving Barcelona, Catalonia, Spain. It is located only 10 km away from the centre of Barcelona, in El Prat de Llobregat. It mainly serves domestic, European and North African destinations. Singapore airlines offer destinations to Asia, American & Delta airlines serve to North America, Aerolineas Argentinas and Avianca also offer non-stop destinations to Central & South America.

## There are different ways to travel from the Airport to downtown:

### Bus

A special bus called Aerobús leaves the airport every twelve minutes from 6.00 to 24.00 on working days. From 6.30 to 24.00 on Saturdays or Bank Holidays. You can buy the ticket on board (final stop Plaça Catalunya).

### Taxi

Taxis are black and yellow coloured. You can book a taxi beforehand or “call” it on the street. Taxis allow no more than four passengers. A little green light on top of the car, together with a sign inside reading LLIURE or LIBRE (FREE), mean that the taxi is free and available. The run from the airport to Sants station is about 19 €, and 21 € to downtown Barcelona.

### Railway Renfe

The Renfe commuter train leaves the airport every 30 minutes from 6.13 a.m. to 11.40 p.m. Average journey time to downtown Barcelona is approximately 20 minutes (train stops in Sants and Plaça Catalunya).

# PCIC

EUROPE  
PETROLEUM & CHEMICAL INDUSTRY COMMITTEE



[www.pcic-europe.eu](http://www.pcic-europe.eu)