

# EPPSA Annual Report 2014



European Power Plant Suppliers Association

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EPPSA wishes to thank Jerzy Buzek, Member of the European Parliament, as well as the President of EPPSA, Emmanouil Kakaras and all its members for their time and effort in making this publication possible.

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# Introductory Statement

The European Power Plant Suppliers Association (EPPSA) is the voice, at European level, of companies supplying power plants, components and services. EPPSA members, located throughout Europe, represent a leading sector of technology with more than 100 000 employees.

EPPSA actively promotes awareness of the **importance of flexible and efficient, state-of-the-art thermal power generation** and its crucial contribution to ensuring a **clean, secure, and affordable energy supply**.

EPPSA believes **increased investment in Research, Development and Demonstration** is a key factor in driving EU competitiveness as well as ensuring an affordable low emission power supply.

Virtually all thermal power plants in the EU are built by members of EPPSA or equipped with their components, and provide around 50% of Europe's electricity. EPPSA members provide the most advanced thermal power technologies in the world.

Technological improvements

can contribute greatly to the goals of our

energy policy

but also to our

overall industrial  
competitiveness

and our potential of

technological leadership

Jerzy Buzek,  
Chair of the Conference of Committee Chairs  
Chair of the ITRE Committee

# Foreword by MEP Jerzy Buzek

Jerzy Buzek  
Member of Parliament  
Chair of the Conference of Committee Chairs  
Chair of the ITRE Committee



The reality of 2014 has reminded us with full strength that secure, affordable and sustainable energy supply is a crucial precondition for Europe's long-term prosperity. The success of all our great projects – from reindustrialization to the creation of the Digital Single Market or European Research Area – will depend on the success of a well-balanced energy policy. The policy shall be based on a triangle which consists of: guaranteeing access to energy at reasonable prices, maintaining industrial competitiveness and promoting sustainable development with ambitious yet realistic climate policy. While many small pieces of the triangle can be built on local and national levels, they must be supported by concerted action and a synergy of resources and policies on the EU level.

In the field of energy the “cost of non-Europe” would be particularly painful. In May 2010 this realization led me and Jacques Delors to propose the establishment of the European Energy Community, meant as a framework to enable the implementation of a truly European, common energy policy. In 2014

this project was upgraded into the Energy Union based on the same principles: common internal energy market built on Europe-wide networks that will enable a level playing field to all players and resources, common research on new energy and energy-efficiency technologies, and common EU voice in relations with our external energy suppliers.

Integration of energy policy on the EU level does not endanger the freedom of Member States, enshrined in the Treaty, to build their energy mixes on all their indigenous sources of energy. All of the latter, be it renewables, nuclear or fossil fuels, bring along numerous opportunities, and none of them is free of challenges. While pursuing the fully justified target on renewables, the EU shall not – especially now, in the transition period – discriminate against other energy sources nor promote their abrupt removal from the energy system thus endangering its stability. In other words: we shall strive to eliminate the challenges related to energy production, not sources of energy themselves. Our duty is to ensure, through research on new and innovative energy

technologies, that sources chosen by EU countries are used in the most efficient and least harmful way.

The same applies to methods of power generation. According to all available scenarios, thermal power will remain an important part of the EU's electricity system, with its share not decreasing below 1/3 of the generation mix by 2030. Joint efforts are therefore needed to enable thermal power plants to respond well to the requirements of the market – especially in terms of efficiency, flexibility and providing back-up capacity. Technological improvements developed and introduced in this sector can contribute greatly to the goals of our energy policy but also to our overall industrial competitiveness and our potential of technological leadership. Allow me to wish EPPSA every success in its efforts to promote efficient energy technologies and to foster deeper understanding between industry and policymakers.

Jerzy Buzek





Guaranteeing  
**security of supply**  
through the  
correct application of  
**thermal power generation**

Emmanouil Kakaras,  
EPPSA President

# Message from the President

Emmanouil Kakaras,  
EPPSA President



By all accounts, 2014 was a busy year.

We made some structural changes in the association and some new members joined the EPPSA ranks: In order to better represent the different actors in the field of thermal power plant suppliers, we introduced two new divisions, one dealing with the components and the other with cooling systems. This restructuring immediately led to an increased interest in the association and its activities.

Secondly, a lot happened on the European level. There were the elections of both the European Parliament and the European Commission. For the Parliament, this brought in several new MEPs, which – in combination with the existing, experienced MEPs – will translate itself in a renewed enthusiasm and vigour of the Parliament. With regards to the European Commission, we saw the election of Jean-Claude Juncker, who – as one of his five political priorities – promised to reform and reorganise Europe's Energy Policy in a New European Energy Union. The new "streamlined structure" introduces the function of Vice-President – creating 6 new "super commissioners", one of which is in charge of the Energy Union. We can expect much from this bolstered European body and eagerly look forward to their much needed reforms of the internal energy market, managing to combine the integration of renewables while guaranteeing security of supply through

the correct application of thermal power generation.

2014 also saw the publication of a new EU Energy Security Communication and the European Council conclusions on the 2030 Energy and Climate Targets. On top of that, there was the EU Investment Plan and the launch of the Horizon 2020, the biggest EU Research and Innovation programme ever, with nearly €80 billion of funding available over 7 years [2014 to 2020]. EPPSA is looking forward to jointly develop the necessary means for thermal power generation to continue its technological development across the EU.

There has also been an increased interest in energy efficiency, as shown by the energy efficiency directive revision and by the conclusions of the 2030 framework; though there is still no significant progress on the supply side, despite the clear efficiency potential.

Outside of the European Union there were also some serious changes, with, for example, both the United States and China making new commitments on CO<sub>2</sub> emissions.

Though some of these changes are far-reaching, EPPSA and its members encourage such developments and will continue to improve their technological expertise in order to remain at the forefront, increasing the efficiency and

flexibility of our plants and in order to continue our work as the backbone of the energy system.

The association and its members have made tremendous efforts to highlight the importance of thermal power generation to the achievement of climate goals worldwide. We are continuously striving through international organizations like the OECD and the WTO to secure the recognition that clean and efficient power plants deserve their place among the environmental friendly energy technologies.

Our hope..., no, our expectation is that all these changes will herald a new view on the relevance of thermal power generation and the quintessential role it can and has to play in this changing world and energy system; a role which – like the energy mix – is getting increasingly diversified, with a rising importance of flexibility and back-up, rather than baseload capacity; a role which requires more investment in RD&D, rather than less, if Europe wants to maintain its technological leadership and does not want to see its climate efforts wasted; a role which EPPSA and its members have fulfilled in the past, as they do today and as they will tomorrow.

Emmanouil Kakaras

A handwritten signature in blue ink, appearing to read 'E. KAKARAS', with a stylized flourish above it.

The Energy System  
is evolving  
and so is the role  
of thermal power  
generation.

Patrick Clerens,  
EPPSA Secretary General





## EPPSA believes in a balanced energy mix in Europe's technological excellence in affordable electricity for consumer and industry

09

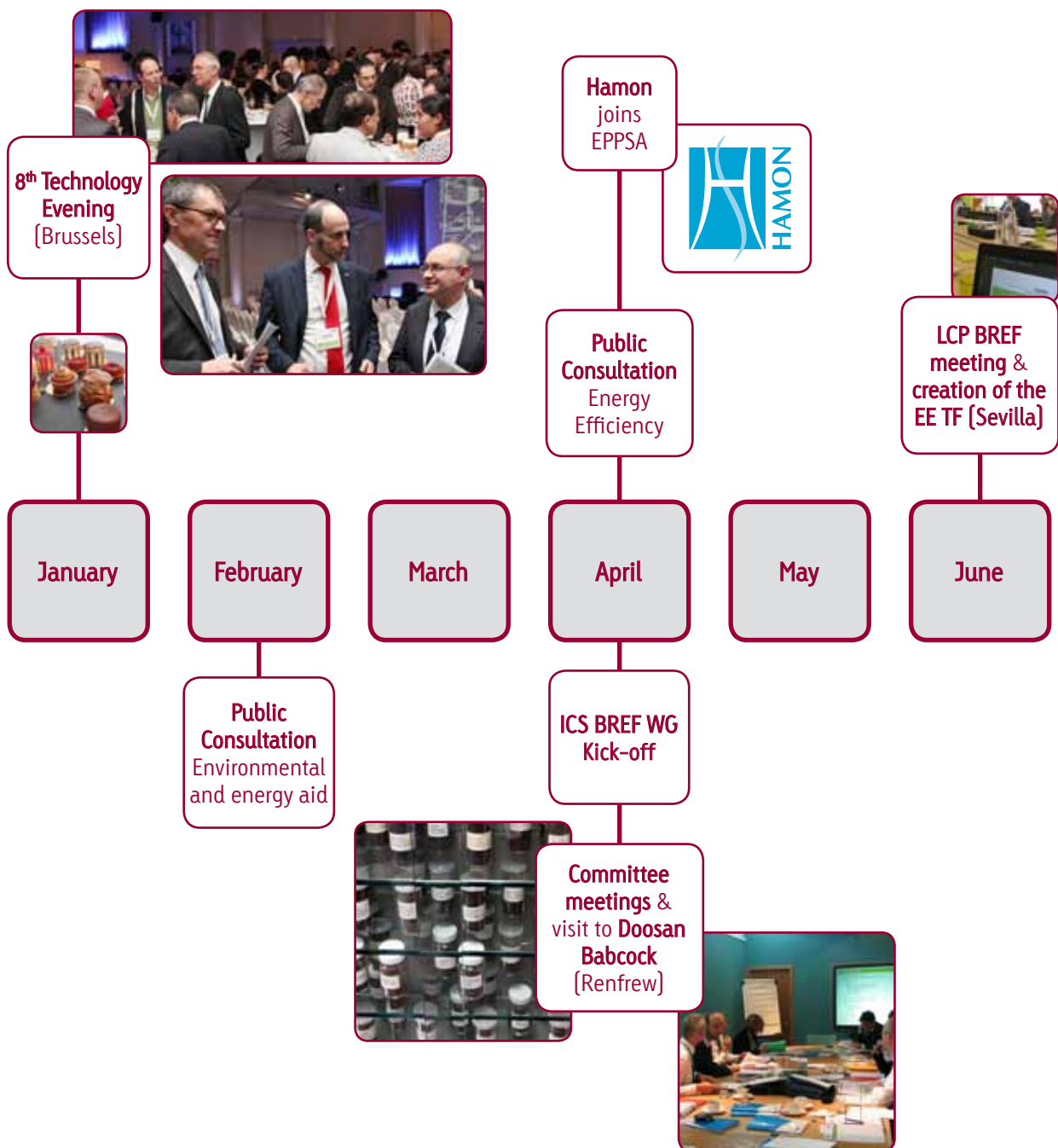
To meet the tremendous growth in demand for electricity and ensure the security of supply, all available sources are needed. There is not one, ideal energy source.

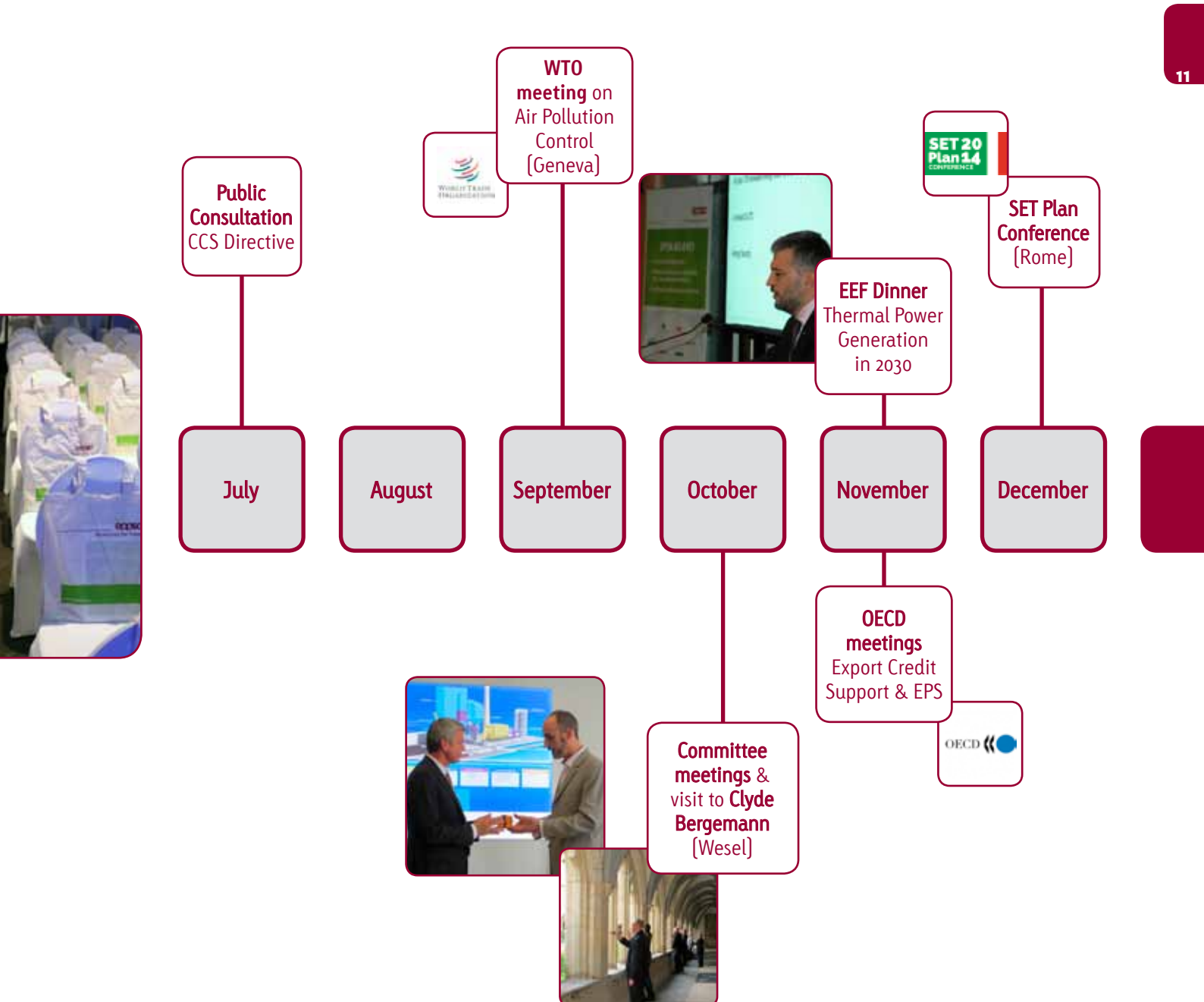
Increased investment in Research, Development & Demonstration (R,D&D) in more environmentally friendly technologies, inter-alia, Carbon Capture and Storage (CCS) technologies, is vital.

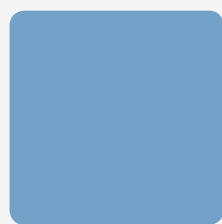
Improved flexible, efficient and clean fossil fuel power plants need rapid implementation to preserve scarce natural resources and achieve CO<sub>2</sub> reduction targets. Funding, a comprehensive legal framework and public support are needed to make demonstration plants happen and keep Europe a global leading knowledge-based economy through centres of R,D&D excellence creating skills and jobs.

Electricity in the EU must be affordable for consumers and industries to remain at the forefront of competitiveness in a global dimension.

# High lights 2014







Communications

# Activities



## Technology Evening 2014

The 8<sup>th</sup> edition of EPPSA Technology Evening centred on the theme “Thermal Power – the Backbone of EU Energy”. It gathered relevant stakeholders from the EU institutions and the European energy scene. Prior to the official publication by the European Commission of the 2030 Framework for climate and energy policies, the surprising yet ambitious announcement of the European power plant suppliers to support a greenhouse gas (GHG) emissions reduction target of at least 40% below the 1990 level was one of the main messages of this event.

EPPSA's President, Prof Emmanouil Kakaras presented the current challenges faced by the thermal power sector in the energy-only market. The energy-only market is not delivering the necessary revenue for the plants rendering essential services to

ensure the stabilisation of the grid: “We should discuss the possibility that all the services that power plant render to the system are adequately and individually remunerated”.

Prof Dr Guenter Scheffknecht (University of Stuttgart) stressed that thermal power is the main source of stable, dispatchable energy to deliver the grid stability services



Prof Dr G. Scheffknecht  
at EPPSA Technology Evening 2014

required. Thermal power plants are essential to, inter-alia, ensure secured generation capacity, secure system operation and black-start capacity.

EPPSA's Secretary General, Mr Patrick Clerens, gave a sneak preview of the 2030 Framework for climate and energy policies targets to be published by the Commission.



Discussion and Belgian chocolates  
at the EPPSA Booth, Power-Gen Europe 2014

## Power-Gen Europe 2014

By now a fixed feature at the Power-Gen Europe conference, EPPSA was present at this year's conference in Cologne. The EPPSA secretary-general was specifically requested to chair a session in track 3 on a responsive grid, and Dr Kakaras, EPPSA President, took part in the joint plenary discussion titled “Navigating the Power Transition”, which dealt with the changing energy mix and what both policy and industry could and should do to not only survive, but thrive.

Next to this, EPPSA was also present with a booth, where it welcomed both current and future members for information and discussion.



EPPSA's 8<sup>th</sup> Technology Evening





EPPSA Secretary General P. Clerens at the VGB Congress 2014



EPPSA President Prof E. Kakaras at Powergen 2014

### ■ VGB Congress 2014

This year's VGB Congress was held in Hamburg under the title "Technical Leadership to Overcome Economic Challenges".

Mr Clerens gave a presentation on "Power Plants Supporting the Future Energy System", in which he briefly discussed the EU 2030 Targets and the – upcoming – changes in the European Commission and the European Parliament. He also allowed the participants a brief glimpse into the EPPSA study on Thermal Power in 2030 (to be published in January 2015). The secretariat attended as well, and provided all attendants with information on the association in the EPPSA booth.

### ■ EPPSA Power Plant Basics – "How does it work?"

In 2007, the lack of understanding of the basic working of thermal power generation was brought to EPPSA's attention. To remediate this, the association undertook the task to organise, on a regular basis, sector-specific workshops to increase awareness of all issues – and solutions – of the world of thermal power.

This year, EPPSA was requested by the involved sectors to organise specific workshops for the media on the one hand and the Brussels-based representatives of industry on the other.

### ■ European Energy Forum Dinner Debate

EPPSA, as an associate member of the European Energy Forum, had the opportunity to host a dinner debate with as theme "Thermal Power Generation in 2030 – Added Value for EU Energy Policy". EPPSA President, Dr Kakaras, Mr Buzek, Chair of the Conference of Committee Chairs and chair of the ITRE committee of the European Parliament, and Mr Borchardt, Director for Internal Energy Market at DG Energy, all presented on what we could and should expect for thermal power in the near future, with a specific focus on the EU and its policies and regulation. Both speakers agreed upon the continuing role of thermal power as a necessary part of the increasingly diversified energy mix.

### ■ World Trade Organisation

Dr Harald Reissner, chairman of the Flue Gas Cleaning Working Group of EPPSA, gave a presentation on Air Pollution Control, Technology & Applications at a WTO meeting on Air Pollution Control in Geneva in the scope of the Green Goods Initiative.

A rapt audience at the European Energy Forum Dinner Debate



### ■ Other Events

EPPSA also attended numerous other events and gave presentations at the following ones:

- 2014.03.11-12: ABB Schwetzingen Dialog
- 2014.03.26: VDI Mercury Emissions Conference
- 2014.12.02: VDI Control System in Power plants Conference

### ■ EPPSA Publications

This year, EPPSA invested a lot of time and energy in the preparation of three documents to be published in 2015:

- Thermal Power in 2030 – Added Value For EU Energy Policy *to be published in January 2015*
- White Paper on Mercury Removal *to be published in Q2 2015*
- Flue Gas Cleaning Refurbishment Paper *to be published in Q2 2015*

All EPPSA publications, presentations and information are available on the website, [www.eppsa.eu](http://www.eppsa.eu).



Policy

# Activities



## ■ Large Combustion Plants (LCP) and Industrial Cooling Systems (ICS) BREF Review Processes

The Best Available Techniques Reference (BREF) Document for LCP, part of the Industrial Emissions, has a major impact on permits given to power plants as it will become a binding legal document for local authorities responsible for the permitting of large power plants in the European Union.

A major stakeholder in the process since the beginning, EPPSA has increased its activities in the responsible Technical Working Group within the European Integrated Pollution Prevention and Control Bureau (EIPPCB). The association has been passing along accurate information on the Best Available Technologies; participated in various meetings with the EIPPCB and the European Commission; and co-chaired – together with EURELECTRIC – the Energy Efficiency Task Force with recommendations to both the EIPPCB and the Technical Working group in design-efficiencies.



Committee meetings in Wesel, Germany

The EPPSA Working Group on the ICS BREF Document was kicked-off on the 29<sup>th</sup> of April and followed by two other meetings in 2014. The Working Group's main task is to prepare the upcoming revision of the ICS BREF, which is expected for 2015/2016.

The EPPSA members will help crafting a forward-looking Cooling BREF that will be easily implementable, given that the document's requirements will become legally-binding in Europe and will also be used in many other locations worldwide.

## ■ Strategic Energy Technology Plan

Established in 2007, the SET-Plan develops an energy technology policy for Europe. It's a strategic plan to accelerate the development and deployment of cost-effective low carbon technologies. The Plan supports the Horizon 2020 Framework Programme for Research (2014-2020).



Control Room, ABB

EPPSA has been actively involved in drafting the Integrated Roadmap. This roadmap will, together with the action plan, put forward key research and innovation actions to be undertaken in the next 6 years. Amongst others, EPPSA's main contribution focused on the Challenge "Flexible/Back-up Energy Generation" to address increased flexibility required from power plants to provide stable, economical and clean back up power for renewable energy sources.

Assembly line, Alstom







Header Welding, Andaldo Caldaie



Keljonlathi Plant, Foster Wheeler

## ■ International Coal Dialogues

The International Coal Dialogues were established by the European Commission as bilateral working groups with several major coal producing/consuming countries. These groups aim to bring together all relevant stakeholders to discuss policies, best practices and technologies which enable more efficient usage of coal and which minimise its environmental impact. As a European association, EPPSA has been ideally positioned between the European Commission and its members to provide information to each about both technological and policy & regulatory developments. June 2014 saw the 10<sup>th</sup> EC-EURACOAL Coal Dialogue, which the secretariat attended.

## ■ CCS Directive Review

The CCS Directive – establishing a legal framework for the environmentally safe geological storage of CO<sub>2</sub> to contribute to mitigating climate change – entered into force in 2009. Article 38 requires the European Commission to review the implementation of this Directive. In April 2014, the Commission, together with an external team of experts, started a thorough review of the CCS Directive, and EPPSA contributed to public and stakeholder consultations and meetings throughout the process.

## ■ Organisation of Economic Co-operation and Development (OECD)

In 2014, EPPSA has been actively working on the issue of Export Credit Support – raised by the national Export Credit Agencies within the OECD's Export Credit Group – and will keep doing so in 2015. Next to this, we have submitted several papers describing the best eligibility criteria – proposing the steam parameters and temperature versus the emission of CO<sub>2</sub> and Emissions Performance Standards (EPS). Both points were raised by the secretariat in the OECD meetings in the 2<sup>nd</sup> half of 2014.

EPPSA has endeavoured to involve other associations – both EU and national – in all dealings with the OECD to increase the impact of the European Industry.

## ■ Horizon 2020

The Horizon 2020, the biggest EU Research and Innovation programme ever, with nearly €80 billion of funding available over 7 years (2014 to 2020) was launched in 2014. In combination with the SET-Plan Integrated Roadmap, EPPSA is particularly pleased about the recognition of the need for more flexible and efficient fossil fuel power plants (LCE 17) and commends the EU Institutions to keep up the good work in future work programmes.

## ■ Public Consultations

One of the roles of EPPSA is to respond, when relevant and expedient, to public consultations, as launched by the European Institutions. In 2014, EPPSA responded to the following:

14.02.2014 – Public Consultation Paper on Guidelines on Environmental and Energy Aid for 2014-2020

28.04.2014 – Public Consultation on the Review of Progress towards the 2020 Energy Efficiency Objective and a 2030 Energy Efficiency Policy Framework

29.07.2014 – Public Consultation on the CCS Directive Review

All EPPSA publications, responses and information are available on the website, [www.eppsa.eu](http://www.eppsa.eu)

Installing filter systems, MHPSE



# Organisation Chart

Vice President  
Rainer Redinger



President  
Emmanouil Kakaras



Vice-President  
Michele Passini



Technical Chair  
Klaus-Dieter Tigges



Treasurer  
Pierre Melin



Public Relations Chair  
Annette Titzmann

# General Assembly

## Members



**Massimo Danieli**  
ABB Group



**Leif Timmermann**  
Alstom Boiler Deutschland



**Kari Niemela**  
Amec Foster Wheeler



**Martin Pogoreutz**  
Andritz



**Massimo Penato**  
Ansaldo Caldaie



**Georg Gasteiger**  
Bilfinger Power Systems



**Carlo Trifone**  
BWE



**Stéphane Crèvecoeur**  
Carmeuse



**Franz Bartels**  
Clyde Bergemann



**Pierre Melin**  
CMI Energy



**Jill Duggan**  
Doosan Power Systems



**Mervyn Sambles**  
Fluor



**Eric Binard**  
Hamon



**Bob McCabe**  
Howden Group



**Paolo Magaldi**  
Magaldi Power



**Emmanouil Kakaras**  
Mitsubishi Hitachi Power  
Systems Europe



**Stefano Consolandi**  
Nooter/Eriksen



**Michele Passini**  
STF



**Marco Derksen**  
Stork Thermeq



**Rainer Redinger**  
TLT-Turbo



# Internal Structure

## The Technical Committee

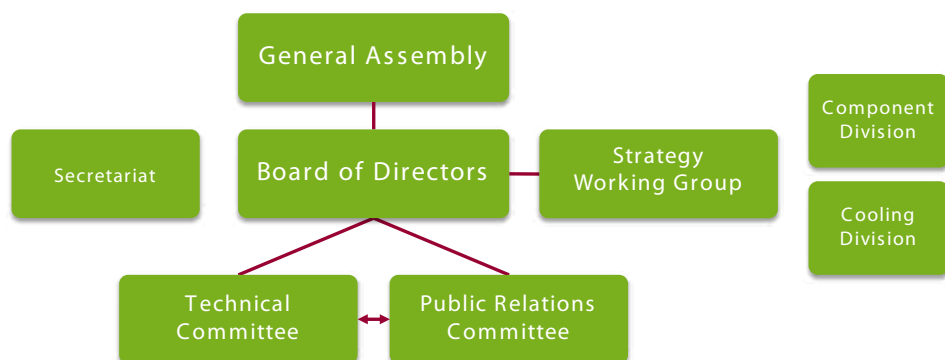
Chaired by Dr Klaus Dieter Tigges of Bilfinger Power Systems, the Technical Committee brings together the industry's experts on thermal power plant engineering. This committee is responsible – roughly speaking – for the “content” of the association's position papers, studies and brochures. To better channel the expertise of the members, this committee has several working groups, each devoted to a topic of interest to the sector.



Committee meetings in Wesel

The Working Group on the Industrial Cooling Systems Best Available Technology Reference Document – in short, the WG on ICS BREF – had its first meeting on the 29th of April 2014. It is charged with the preparation for the revision of the ICS BREF, scheduled in 2015/2016.

The Electrical Systems & Markets Working Group – WG on ESM – looks at the developments in grid infrastructure and their impact on power plants in the EU. A specific topic that the working group has been dealing with is the ENTSO-E Network Codes development, though it has been equally involved with grid connection standards, market mechanisms and power plant control and optimisation rules.



The Working Group in the Large Combustion Plant Best Available Technology Reference Document – in short, the WG on LCP BREF – has been working for the last two years on the ongoing revision of the LCP BREF.



ICS BREF Meeting

The Flue Gas Cleaning Working Group – WG on FGC – deals with classical emissions to air [e.g. sulphur, nitrogen and dust] but also looks at mercury and carbon dioxide capture-related issues. A specific task of this working group in 2014 was the preparation of the Mercury Removal Paper, to be published in 2015.



Site visits at Clyde Bergemann [up] and Doosan Babcock [down]





### ■ The Public Relations Committee

Chaired by Ms Annette Titzmann of Alstom, the Public Relations Committee's main task is to communicate the content produced by the Technical Committee. The committee is composed of a mixture of PR, Marketing and Engineering specialists, which allows it to fully understand the content and make decisions on the way this message would best be communicated to which target audience through which channel.

The channels at its disposal are various:

- events – both organised by EPPSA and by others;
- brochures & leaflets – both introducing general topics and dealing with specific ones;
- workshops – both as an introduction to the general principals of thermal power generation and as a further deepening of technology specific knowledge;
- papers – both in response to public consultations and as elaborations of EPPSA messages;
- and the website – on which all of the above messages are grouped.

Whereas the working group decides on the general lines and on where the association



Communications Task Force

should be heading, it is the Communication Task Force which deals with the more specific topics.

### ■ The Strategy Working Group

Separate from – but closely interlinked with – the two committees is the Strategy Working Group. Chaired by Mr Gerhard Brandt of ABB, it is in charge of the overall strategy and future direction of the association and it strives to come up with a clear vision of a united industry – as based upon the individual expertise of the EPPSA membership.

EPPSA Members in Renfrew



### ■ The Restructuring

In the course of 2014, it was decided to add two additional bodies to the existing structure, in order to better be able to deal with the existing and upcoming issues and to better accommodate the needs and wishes of the members. Both the Component and the Cooling Division are targeted towards those members who – due to their respective specialisation – were less represented in the existing structure. It is the wish of the secretariat that this further deepening of EPPSA's involvement will translate itself into a better representation of the sector as a whole.



Modeling, BWE

# What about 2015?

For 2015, EPPSA and its members have a lot to look forward to, with a few events and publications standing out...

## ■ Publications

On the 19<sup>th</sup> of January 2015, during the 9<sup>th</sup> Technology Evening, the EPPSA study on Thermal Power in 2030 – Added Value for EU Energy Policy will be presented. This study is to be seen in the context of the current discussions on energy security and strategy, as we feel it is more important now than ever to emphasise the added value of efficient and flexible thermal power generation in Europe's energy system.

For this report, EPPSA examined and compared 24 scenarios from 7 studies with regards to electricity generation (MWh) and installed capacity (GW). In addition, they were specifically examined and compared with regards to the additional capacity of thermal power needed by 2030 to account for decommissioning of existing plants. The report demonstrates the continuing and central importance of thermal power generation but also highlights the growing challenges and risks due to declining economic viability.

Blue Water, Magaldi



Construction, STF

Another product of the Flue Gas Cleaning (FGC) Working Group is the FGC Refurbishment Paper. This paper will outline the need to have a structured vision while retrofitting coal fired power plant in order to comply with regulations on sulphur, nitrogen and dust emissions in the European Union.

2015 will also see the publication of the white Paper on Mercury Removal. The aim of this paper is to outline technologically and economically feasible solutions for coal fired power plants in order to comply with regulations on mercury emissions in the European Union.

Unloading, Carmeuse





# Events



# Publications



Uppsala, AE&E

## ■ EPPSA Events

On the 19<sup>th</sup> of January 2015, EPPSA will be organising its 9<sup>th</sup> Technology Evening, which will have as a theme 'Thermal Power – A Bridge to the Future'. During the evening, the EPPSA Study on Thermal Power in 2030 – Added Value for EU Energy Policy will be officially launched by its author, Mr Mike Farley. As usual, there will be good content, good food, good beer and – last but definitely not least – good company.

The event will take place from 18:00 in the Albert Hall Complex, Avenue Eudore Pirmez 9, 1040 Brussels, Belgium. We look forward to welcoming you!

Welding, Howden



Inspired by and in the context of the study, EPPSA will also be organising an exhibition in the European Parliament in the first half of 2015. This exhibition – hosted by MEP Jerzy Buzek – will showcase the future of thermal power, with a clear focus on flexibility, the integration of Renewable Energy Sources and the technological excellence of the EU in the production of thermal power plants and their components. With the recent elections in both the European Parliament and the European Commission, EPPSA would like to highlight to the newly elected members of both the crucial contribution of thermal power plants today in Europe and worldwide. We feel it is paramount to showcase the technological excellence of the power plant suppliers to the newly elected MEPs to make the European parliament aware of all the facts and able to make informed decisions on these vital matters.

On the site of the exhibition, EPPSA will also be giving a clear fact-based introduction to thermal power plants and to the – then published – EPPSA study.

All in all, it is obvious that 2015 will be another busy year for EPPSA, and we have the highest hopes that it will be as successful as 2014 has proven to be.



Maasvlakte Power Plant





TLT-Turbo GmbH

ABB



ALSTOM



ANDRITZ

**NE** NOOTER/ERIKSEN S.r.l.

**ANSALDO**  
CALDAIE S.p.A.



**BWE**

**Howden**

  
**CARMEUSE**



**FLUOR**



amec  
foster  
wheeler

# EPPSA Secretariat

EPPSA's Secretariat is the bridge between the member companies and the EU institutions. It consists of on the one hand the Secretary General and on the other hand the Policy Officer. Together, they monitor EU legislation concerning energy and funding opportunities. The secretariat promotes the awareness of the positive implications of technologies in conventional power generation.

Patrick Clerens has been the **Secretary General** of EPPSA since its establishment in Brussels in January 2005. Building upon his prior experience as EPPSA's Brussels Representative since 2003, he liaises between member companies and the EU institutions on issues related to energy and clean fuel technology. Mr Clerens studied law at the University of Saarbrücken and the University of Mainz. Since 1991, he has worked as a consultant for a private company specialising in European Affairs in Brussels.

Secretary General  
Patrick Clerens



Policy Officer  
Nicolas Kraus

Nicolas Kraus joined EPPSA in September 2011 where, as **Policy Officer**, he is in charge of coordinating the legislative, lobbying, communications and public relations activities of the association. Prior to joining EPPSA, Mr Kraus worked in the banking and the pharmaceutical industry. He completed his studies of Business Management Administration and Business Policies at the Henley Business School (UK).



ABB Power Generation provides integrated power and automation solutions for conventional and renewable-based power generation plants and water applications like pumping stations and distribution plants.

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Boiler technologies; large-scale steam generators with sub- and super-critical steam parameters; circulating fluidised-bed combustion systems; combustion systems for solid, liquid, and gaseous fuels; coal-pulverising systems; upgrade and rebuild steam-generation plants.

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Bilfinger Power Systems is a subgroup of the engineering and services company Bilfinger SE. The subgroup's core business concentrates on the power generation sector.

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