

EPPSA Annual Report 2016



THERMAL POWER
LOW-CARBON
AFFORDABLE
SECURE

**ENERGY FOR EUROPEAN
CITIZENS AND BUSINESSES**

European Power Plant Suppliers Association

CONTENT



EPPSA - Who we are	03
--------------------------	----

Foreword by Dominique Ristori, Director-General for Energy, European Commission	04
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Message from the President	05
----------------------------------	----

Thermal Power: Electricity, Heating and Cooling for European Citizens and Businesses	06
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In Brief: EPPSA 2016 Achievements	07
---	----

Tackling the challenges of the energy transition	08
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Thermal Power: Key to Meet the Energy Union Objectives	10
---	----

Boosting Research and Innovation for a Cost-effective Energy Transition	13
--	----

Enabling the Integration of Renewable Energy Sources	15
---	----

Concentrated Solar Power: Making Dispatchable Solar Power a Reality	16
--	----

EPPSA new Strategy and Organisation ...	17
--	-----------

EPPSA Revised Strategy	21
------------------------------	----

2016 in Review: Key Milestones	22
--------------------------------------	----

Benefits of EPPSA Membership	24
------------------------------------	----

EPPSA General Assembly	25
------------------------------	----

EPPSA

Who we are

The voice of European Power Plant Manufacturers in Europe

EPPSA - The European Power Plant Suppliers Association - is the voice at European level of companies supplying the most advanced power plants, their components and related services for energy providers and industrial applications of all sizes. EPPSA members, located throughout Europe, represent a leading sector of technology employing more than 100 000 highly skilled employees.

EPPSA members provide the most advanced and innovative thermal power technologies in the world. 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 OBJECTIVES

Promoting state-of-the-art, flexible and efficient thermal power (heat and electricity) generation technologies as part of the solution to enable the transition to a low-carbon, secure, and affordable energy supply in Europe, in line with the Energy Union objectives.

Striving to increase investments in research, development and demonstration (RD&D) as a key factor for driving EU competitiveness as well as for ensuring clean and affordable low emissions power supply.

Ensuring that the crucial role of thermal power generation is recognised in a fair, proportionate, harmonised, predictable and workable EU legislative framework.

Foreword by

Dominique Ristori,

Director-General for Energy, European Commission



Over the last years, global energy markets have undergone a profound transformation. In the EU, renewable energies are thriving and have surpassed coal in terms of installed power capacity.

The transition towards a clean and sustainable energy system will be key for the implementation of the Paris Agreement; after all, energy is responsible for two-thirds of our greenhouse gas emissions. Yet a transformation of this magnitude will not happen overnight. It will require a performant and stable regulatory framework that is flexible enough to adapt to the challenges ahead. And it will require an active use of technologies and innovation to support this process and trigger investments, accelerate growth and create new jobs.

This is precisely what the European Commission is doing with the Clean Energy for All Europeans package: we are creating a regulatory and an enabling framework for investments in research and innovation (R&I) in low-carbon energy technologies to stay globally ahead in the clean energy transition, turn the Paris Agreement into concrete action, and make sure our energy system is fit to meet our ambitious 2030 energy and climate goals.

“The implementation of the Paris agreement will require active use of technologies and innovation”

R&I occupies a central place in the package: it is critical to increase Europe’s global competitiveness and ensure affordable energy prices in the fast-growing low-carbon economy. European manufacturers have an important role to play in this respect. Through the Strategic Energy Technology (SET) Plan and the implementation of its 10 actions, key European stakeholders have actively contributed to identify concrete cost-reduction and performance objectives

for low carbon technologies. We now need to intensify our efforts regarding R&I to decarbonise our energy system in a cost-effective way.

“Thermal power technologies will be increasingly important to allow further penetration of variable renewables into the energy system”

In this regard, thermal power technologies will be increasingly important to allow further penetration of variable renewables into the energy system and to exploit Europe’s strong industrial base and advanced ‘knowhow’ in these technologies. Through efforts like the ones undergoing in SET Plan Action 4 on “Smart Energy Systems”, we have set targets to develop new and improve existing technologies that will increase the flexibility of thermal power plants and enable a further decarbonisation of the EU electricity mix. We have already supported R&I projects with a European added value in this area through our funding instruments such as Horizon 2020. Now we want to leverage the impact of funds and streamline R&I actions by mobilising stakeholders and Member States to further support innovative and low carbon solutions for the benefit of all Europeans.

I would like to thank EPPSA for their active involvement in the SET Plan process and highlight their contribution to ensuring a clean, secure, and affordable energy supply in Europe. I am sure that EPPSA will remain committed in promoting research and innovation in order to increase the flexibility and efficiency of power plant technologies, as this will be the crucial enabler to maintain our industrial competitiveness in the global context.



Message from the President



"New technologies", "Digital revolution", "Increasing decentralised power production", "Highest temperature and pollution records". These were some of the buzz words of 2016 that have contributed to furthering the fundamental transformation of the energy system. These also raise unprecedented challenges, which will require close collaboration between governments, business leaders, investors and society.

"Set a regulatory framework that fosters cost-effective solutions, investments and boosts EU's competitiveness"

Europe took an active role to tackle these challenges in 2016. For example, by ensuring a proper follow up to the Paris Agreement at the COP22 and by revising the EU Emission Trading System. More recently, the European Commission published its "Clean Energy for All Europeans" package, containing the largest set of legislative proposals to date to achieve the Energy Union objectives.

These developments, to name a few, constitute a key opportunity to create the right enabling EU framework that fosters cost-effective solutions, encourages public and private investments, boosts EU's competitiveness and technological leadership worldwide, while mitigating the societal impact of the energy transition.

In order to address these changing EU regulatory framework and market conditions, EPPSA conducted a thorough revision of its strategy in 2016. The outcome is clear: while thermal power generation supplies an important part of the energy in Europe today, and will continue to do so in the future, it needs to diversify, become more flexible and adapt to the low-carbon environment.

"Innovation needs market uptake"

Supporting research, development and demonstration is key to deliver this vision. 2016 saw the launch of the European Technology and Innovation Platform Smart Networks for Energy Transition and the endorsement of its ten-year Research & Innovation (R&I) roadmap to speed up Europe's energy transition. EPPSA took an active role to support the development of this roadmap, which recognises the importance of flexible thermal power generation to ensure the stability of the system. Most of all, innovation needs market uptake. EPPSA is proud to have been nominated chair of the ETIP SNET working group five that now will work on 'innovation implementation in the business environment' to ensure the best market uptake of innovative technologies.

More than ever, a strong and unified voice in Europe for thermal power generation is needed. Leveraging its revised strategy, EPPSA is committed to delivering maximum value to society, its members and to supporting EU policy-makers in setting up a fair and balanced EU regulatory framework: a framework recognising the benefits of flexible and efficient state-of-the-art thermal power generation as part of the solution to enable the energy transition towards a low-carbon, affordable and secure energy system.

I wish you a good read and EPPSA looks forward to further working with you in 2017!

Prof. Dr. Emmanouil Kakaras
EPPSA President
Vice-President, R&D,
Mitsubishi Hitachi Power Systems Europe GmbH

A handwritten signature in blue ink, reading "E. KAKARAS". The signature is stylized and cursive.

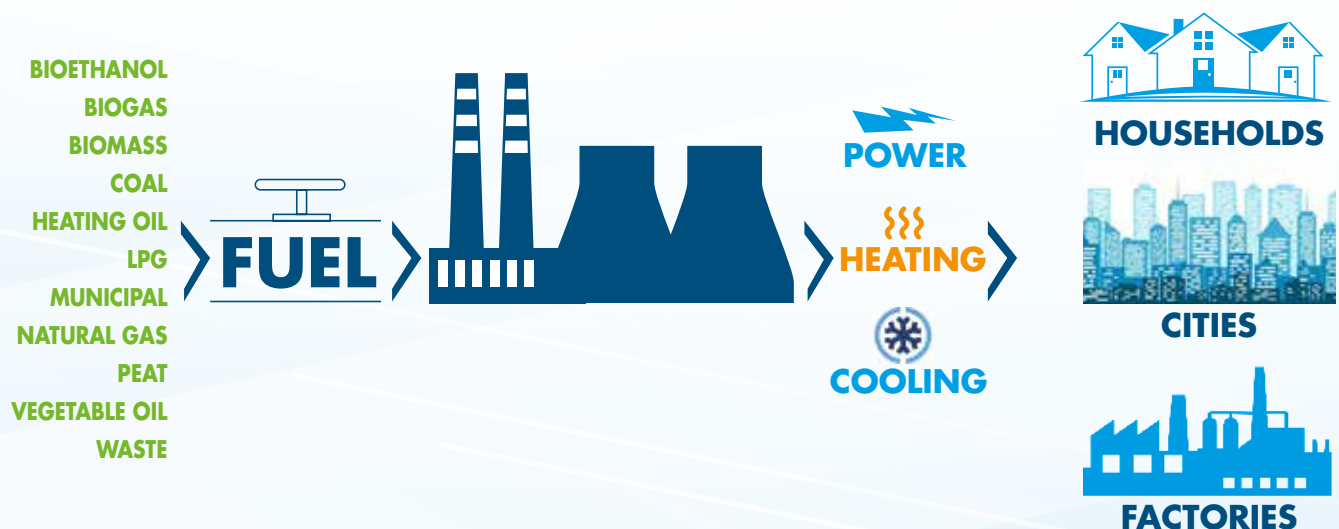
Thermal Power:

Electricity, Heating and Cooling for European Citizens and Businesses

Thermal power generation is the production of electricity, heating and cooling, which find uses at all levels of our society, from individual households, cities, municipalities to factories and businesses in the European economy.

LOW-CARBON, AFFORDABLE AND SECURE ENERGY FOR EUROPE

Various technologies can be used to generate thermal power (e.g. steam and gas turbines, concentrated solar power) from a multitude of energy sources, including both conventional (e.g. coal, lignite, gas) and renewable energy sources (such as biomass), whether in solid, gaseous or liquid form.



In Brief:

EPPSA 2016 Achievements

EPPSA: a revised strategy maximising value for its members

To address the challenges of the energy transition, EPPSA underwent a comprehensive revision of its strategy and objectives in 2016. Re-focusing EPPSA activities on its members' core business interests, strengthening EPPSA advocacy in Brussels and reinforcing cooperation with other EU stakeholders will be among the expected deliverables, with a view to maximise benefits to its members, policy makers and society in transitioning the energy system.

Better environmental performances with the revision of the Large Combustion Plants BREF

Started in 2011, the revision of the LCP BREF¹ and its BAT Conclusions entered its latest stage in 2016. Upon adoption, the revised LCP BREF will set legally binding performance standards for existing and newly built power plants. During this process, EPPSA submitted a large number of recommendations, with a final contribution at the Article 13 Forum meeting in October 2016, giving its opinion on the proposed final draft BAT Conclusions. Among its key achievements, EPPSA obtained the integration of minimum efficiency requirements for the retrofit of oldest power plants, leading to important benefits for the environment and society. The revised LCP BREF and BAT conclusions are planned for adoption in 2017 and entry into force in 2021.

EU's Research and Innovation agenda: state-of-the-art thermal power generation technologies to enable the energy transition

Further research & innovation (R&I) in state-of-the-art thermal power generation is key to enabling a cost-

effective energy transition. That is why, throughout 2016, EPPSA and its members bolstered their efforts to support ongoing R&I activities at EU level. In particular, EPPSA took a driving role in the SET² Plan and the new European Technology and Innovation Platform Smart Networks for Energy Transition (ETIP SNET), resulting in key achievements for our sector, e.g.:

- > The support for future R&I activities to improve the flexibility of centralised and decentralised thermal power generation, to develop multi-fuel thermal power plants based on renewable energy sources (e.g. bioenergy) etc.
- > A fair representation in the ETIP SNET Governing Board, to ensure that R&I activities for thermal power generation are dedicated to meet the future energy system needs.
- > EPPSA president's nomination to chair the ETIP SNET working group 5 on 'innovation implementation in the business environment' and ensure the best market uptake of innovative technologies.

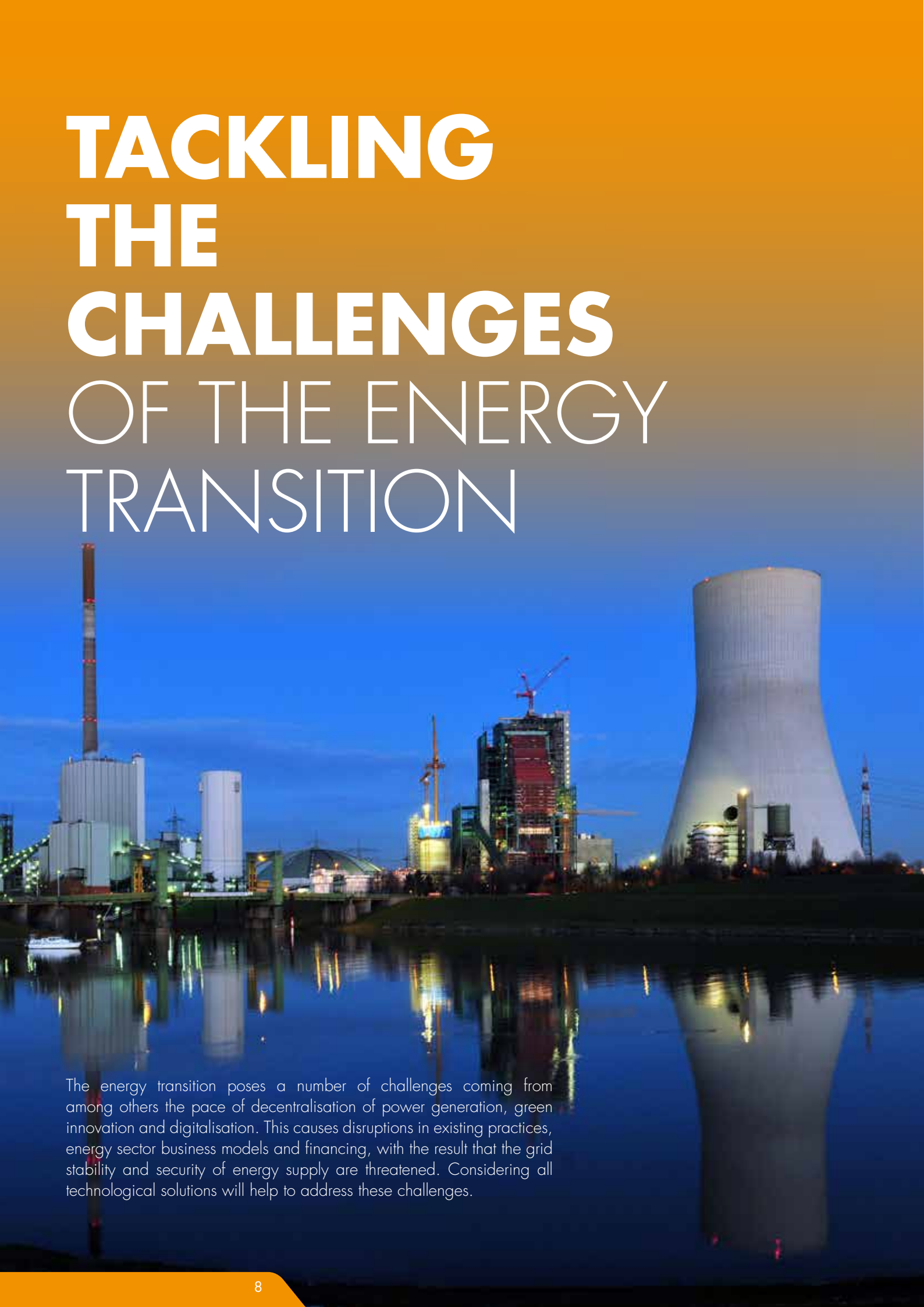
EPPSA contributions to important EU policy developments

EPPSA contributed to several important EU legislative developments, e.g. the preparation of the Renewable Energy Directive and bioenergy policy for the period after 2020 as well as the sector inquiry on Capacity Mechanisms. All these developments informed the preparation of the Clean Energy for All Europeans Package released by the European Commission at the end of 2016.

See page 24 for more information on the added value of an EPPSA membership

¹ Best Available Techniques (BAT) Reference Document for Large Combustion Plants
² Strategic Energy Technology

TACKLING THE CHALLENGES OF THE ENERGY TRANSITION



The energy transition poses a number of challenges coming from among others the pace of decentralisation of power generation, green innovation and digitalisation. This causes disruptions in existing practices, energy sector business models and financing, with the result that the grid stability and security of energy supply are threatened. Considering all technological solutions will help to address these challenges.



THERMAL POWER

plays a **KEY ENABLING ROLE FOR
THE ENERGY TRANSITION**

by allowing a greater

**INTEGRATION OF VARIABLE
RENEWABLES** *while ensuring*

the **STABILITY OF THE SYSTEM,**
supporting the competitiveness of European industry with

AFFORDABLE ENERGY,

and contributing to **EU'S SECURITY
OF ENERGY SUPPLY**



Pierre Melin

EPPSA treasurer

General Director of CMI Energy

Thermal Power:

Key to Meet the Energy Union Objectives

Adopted in February 2015, the EU's Energy Union strategy aims at establishing a secure, sustainable, competitive and affordable energy transition in Europe. State-of-the-art thermal power generation makes a key contribution to ensure a cost-effective energy transition and achieve these objectives.

Thermal power generation supplies an important part of the energy (heat and electricity) in Europe today, and it will continue to do so in the future. According to all decarbonisation scenarios considered³, thermal power sources in 2030 should continue to provide between 34% and 44% of electricity in Europe.

How are flexible and efficient state-of-the-art thermal power generation technologies contributing?

Secure energy supply

Meeting the enormous growth foreseen in electricity demand (e.g. electrification of heating for households, transport sector etc.) while ensuring the security of supply will require huge power generation capacity. Unlike generation from variable renewable energy sources (vRES, such as wind and photovoltaic), thermal power generation

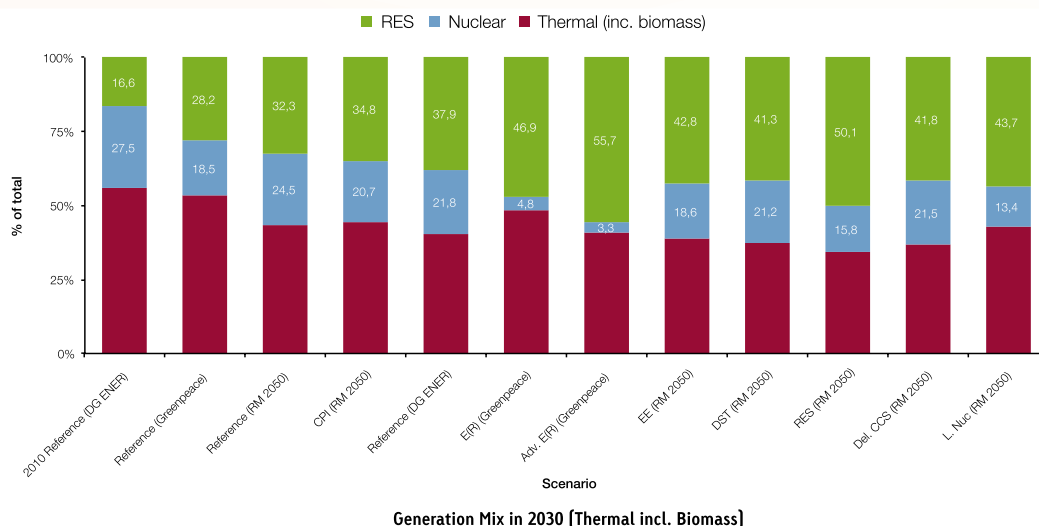
is fully dispatchable and can ensure the stability of the grid at all times.

Thermal power can be generated from many different fuels (in full or co-combustion), from conventional to renewable energy sources, some of them being indigenous resources which reduce Europe's dependence on imported energy sources.

Potential for maximising energy efficiency

The optimisation of combustion systems and operations allows for increasing the efficiency of thermal plants, providing not only greater output but also saving valuable fuels for the benefit of society and the environment.

The energy efficiency of a plant can also be maximised through cogeneration or Combined Heat and Power (CHP), where waste heat generated during electricity production is recovered for instance for industrial purposes in factories or serving a town via district heating. This maximises the use of the energy content in a given energy source, which can reach an energy efficiency of 90% or more.



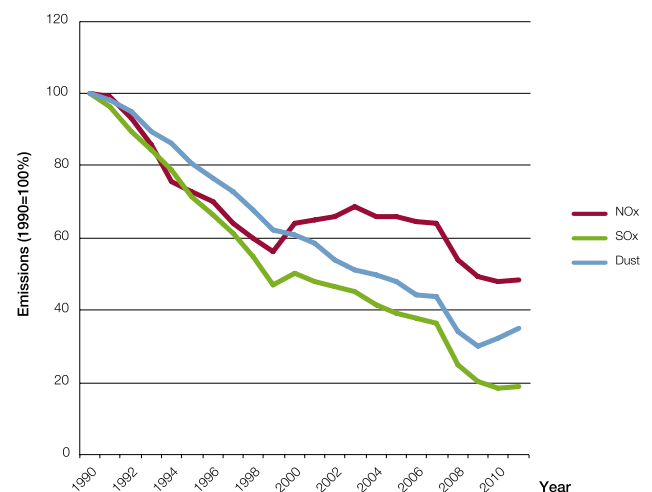
³ See EPPSA's comparative study of various energy mix scenarios in 2030 – Added-value for EU Energy policy (2015). Available here: http://www.eppsa.eu/tl_files/eppsa-files/3.%20Publications/Technical%20Brochures/Thermal%20Power%20in%202030_LowRes.pdf

Supplying this energy produced in an efficient way to other energy-intensive sectors (e.g. to meet the increasing electrification of the transport sector or for industrial applications) can greatly contribute to making them more efficient and helps Europe remain on track to achieve its energy efficiency and decarbonisation targets.

Drastic environmental improvements

Over the last two decades, emissions of pollutants per kWh of electricity produced have been significantly reduced. This is due to overall efficiency improvements and constant technological progress in combustion systems optimisation and operation

Reduction of emissions of NO_x, SO_x and dust 1990 to 2012



Pollutant	Technological Solution
NO _x	Low NO _x burners, Selective Catalytic Reduction (SCR), Selective Non-Catalytic Reduction (SNCR), in-furnace optimisation
SO _x	Flue gas desulphurisation (wet, dry, semi-dry)
Dust	Fabric filters, electrostatic precipitators
Heavy metals (Hg, etc.)	Activated carbon filtration and others

Pollution Control

as well as in air quality control systems (See chart⁴ and table⁵ above), mainly driven by stricter regulation. Using this electricity in other energy-intensive industries contributes to improving their own environmental footprint (e.g. electric cars do not emit dust or fine particles).

Retrofitting - Unleash the potential of existing assets

Retrofitting existing (and sometimes ageing) plants with state-of-the-art technologies based on Best Available Techniques (BAT) will allow them to use multiple types of fuels (including CO₂ neutral biomass), improve their efficiency and flexibility and minimise their emissions. According to the IEA⁶, 60% of all coal power plants newly built over the last decade use the least efficient commercially available technologies. Allocating EU and national funds to supporting the application of BAT⁷ for existing (e.g. in the Balkans) and newly built plants would allow avoiding significant amount of emissions.

Examples of best in class

The latest highly efficient steam power plants are running with a net efficiency of > 47 % (compared to the global average coal-fired fleet with net efficiencies in the range of 37 %), and are expected to reduce CO₂ emissions by 40% while saving 275,000 tons of coal per year.

Modern combined-cycle power plants can reach above 60% efficiency, with CO₂ emissions reduced by 55% compared to standard plants.

Boosting EU's competitiveness, growth and jobs

Energy costs are at the heart of European industry's competitiveness and growth. Thermal power plants supply affordable energy to European citizens and industry, contributing to enhancing EU's competitiveness at a time of increasing global competition. European manufacturers of thermal power generation technologies are leading their sector by developing the most advanced technologies worldwide, creating highly-skilled and well remunerated jobs generating tax revenues for governments in Europe.

⁴ Data on National emissions reported to the Convention on Long-range Transboundary Air Pollution (LRTAP Convention), European Environment Agency.

⁵ See EPPSA's comparative study of various energy mix scenarios in 2030 – Added-value for EU Energy policy (2015).

⁶ International Energy Agency: Energy Technology Perspectives 2014.

⁷ As available for example in the LCP BREF, i.e. EU's Best Reference (BREF) document for large combustion plants (LCP)

***// Efficient energy systems
start with
optimal components.***

***To achieve this, Research &
Innovation are key*** ***//***



Rainer Redinger,
EPPSA Vice-President
Managing Director at TLT-Turbo

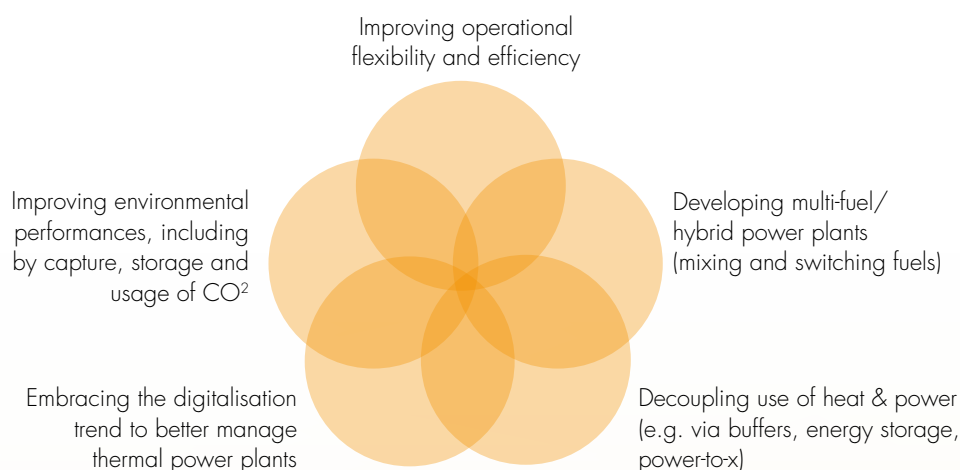
Boosting Research and Innovation

for a Cost-Effective Energy Transition

The increasing share of variable renewable energy sources (vRES) poses key challenges to achieve a stable and secure energy system in line with the Energy Union objectives. This also impacts thermal power generation plants, which are moving from mostly “baseload” to more flexible operations to balance the growing variability of the system.

This results in increasing operations at partial load, affecting overall plant efficiency and necessitating greater operational flexibility. Research and Innovation (R&I) has become key to address these challenges in order to meet the demands of the future energy system.

Priority areas for additional research and innovation in thermal power plants



Focus:

Operational flexibility and efficiency – key for tomorrow’s energy system

Improving the operational flexibility of thermal power plants (without decreasing efficiency and environmental performance) is needed to ensure grid stability and security of energy supply. This can be achieved for example by reducing the plant start-up/shut-down time, further increasing the rate at which a plant can modulate its output to follow the variability of the system (load following capability), further reducing the minimum load at which it

can reliably operate, improving its efficiency and environmental performance at partial loads and improving plants’ robustness and operability and decreasing the outages due to fast cycling.

Developing multi-fuel power plants

Making thermal power plants able to mix and switch from different energy sources will help increase the operational flexibility of thermal power generation, while allowing plants to choose the most economic fuel portfolio based on individual fuel availability and price. This will support both grid stability and security of energy supply.



Boosting research and innovation for highly efficient and flexible thermal power generation

Decarbonising Europe with Carbon Capture Utilisation & Storage (CCU&S)

Benefiting from renewed interest with the Paris Agreement, CCU&S has been recognised by the European Commission⁸ as a strategic technology to reach EU decarbonisation targets. Applied to generation and industry sectors, CCU&S can pave the way for a clean and sustainable EU energy system.

CO₂ arising in industrial and power plants activities can be used to produce synthetic fuels (e.g. gas, methanol, petrol), using excess electricity from variable renewable energy sources (e.g. wind and photovoltaic). Called 'Power to fuel' (PtF), this process allows solving two crucial problems at once: removing significant amounts of carbon from the atmosphere from various energy-intensive industries (power generation, steel mills, chemical plants, refineries, cement factories) and effectively storing for long periods excess electricity produced from renewable sources. PtF offers a practical alternative to the geological storage of CO₂.

Now more needs to be done to ensure adequate financing to demonstrate the potential of these technologies in large scale and flexible-load conditions as well as to facilitate their market uptake.

The role of digitalisation to better manage power plants

The digitalisation trend will help develop adapted and new management tools to control and optimise power plant performance and lifetime. Greater operational flexibility is expected from better management of ramping up and down, optimisation of part-load operations, dispatchability and scalability. Better

control and monitoring of equipment stresses to optimise plant lifetime and reduce equipment fatigue are also expected. Overall, this will lead to better reliability, availability and maintainability of plants. In addition, digitalisation is expected to drive significant improvements in decentralised thermal power generation, for example the creation of "virtual power plants", which are very flexible in their operations.

Making thermal power plants more flexible will be part of the Research & Innovation (R&I) activities of the European Technology and Innovation Platform Smart Networks for Energy Transition (ETIP SNET), launched in 2016. In December 2016, the platform endorsed a ten-year R&I roadmap to accelerate Europe's energy transition. EPPSA took an active role to support the development of this roadmap, which recognises the importance of flexible thermal power generation to ensure the stability of the system.

Implementation plans will now be developed to deliver the ETIP SNET roadmap objectives. Moving forward, EPPSA will continue to play a driving role in the platform to support R&I activities that enhance thermal power generation technologies to meet the flexibility needs of the system. Most of all, innovation requires market uptake. In this connection, EPPSA was nominated to lead the ETIP SNET working group five that will work on 'Innovation implementation in the business environment' and ensure the best market uptake of innovative technologies.

EPPSA is also active in other European platforms such as the European Technology Platform for Zero Emission Fossil Fuel Power Plants (ZEP). Founded in 2005, ZEP is a unique coalition of stakeholders united to advise the European Commission on the research, demonstration and deployment of CO₂ Capture and Storage (CCS) as a key technology for combating climate change.

⁸ Among others in its Energy Union Package adopted in February 2015.

Enabling the integration of renewable energy sources

Bioenergy such as biomass (whether in solid, liquid or gaseous form) is increasingly used in thermal power plants and offers significant potential to produce electricity and heat.

Biomass is CO₂-neutral. Any primary fuel replaced by biomass reduces CO₂ emissions/kWh produced by a plant. As a renewable energy source (RES), biomass is also dispatchable, a key advantage compared to variable RES such as wind and photovoltaic. Existing plants, which already present relatively low operational costs, also require little to no modification to switch to biomass. This solution is therefore cost-effective.

Fostering the use of biomass in thermal power generation can

- Help integrate a higher share of RES in the energy system, contributing to meeting the EU decarbonisation and RES integration objectives.
- Increase the flexibility of power generation and security of energy supply (no backup needed) to meet Europe's daily needs for energy.
- Reduce Europe's dependence on fossil fuel imports, giving access to indigenous resources where available while maintaining affordable energy supply.
- Support EU efforts in creating jobs, growth and well-being in Europe.

Biomass should be treated on an equal footing with other RES, such as wind and solar energy, regardless of its end-use or physical form

Removing existing legal and market barriers to using sustainably produced bioenergy should be part of the focus in the revised EU regulatory framework for bioenergy and RES after 2020. Once a technology has matured, support schemes should be gradually reduced to ensure a level playing field and not distort the market. Balancing responsibilities for all energy generators should be set as soon as a technology has achieved maturity.

Facilitate the use of biomass for all thermal power generation solutions

Bioenergy production and use is in a phase of strong development and innovative technologies are being developed all around Europe (e.g. pyrolysis oil production, thermal gasification, biogasification, etc.). These innovations have significant growth and technology export potential, which can contribute to maintaining Europe's leadership in renewables and support its reindustrialisation, in line with EU objectives.

Concentrated Solar Power:

Making Dispatchable Solar Power a Reality


Another promising thermal power generation technology to allow the integration of more renewable energy in the system is Concentrated Solar Power (CSP). CSP brings the dispatchability that is currently lacking with photovoltaic technologies (PV).

Significant developments in thermal storage capacity have boosted the dispatchability of solar-based thermal power generation, allowing to dissociate steam production from solar energy absorption and to supply power at night in the absence of sunlight. This dispatchability is a key advantage over photovoltaic plants or wind

turbines, for which electricity cannot be stored cost-efficiently in batteries at industrial scale based on existing technologies.

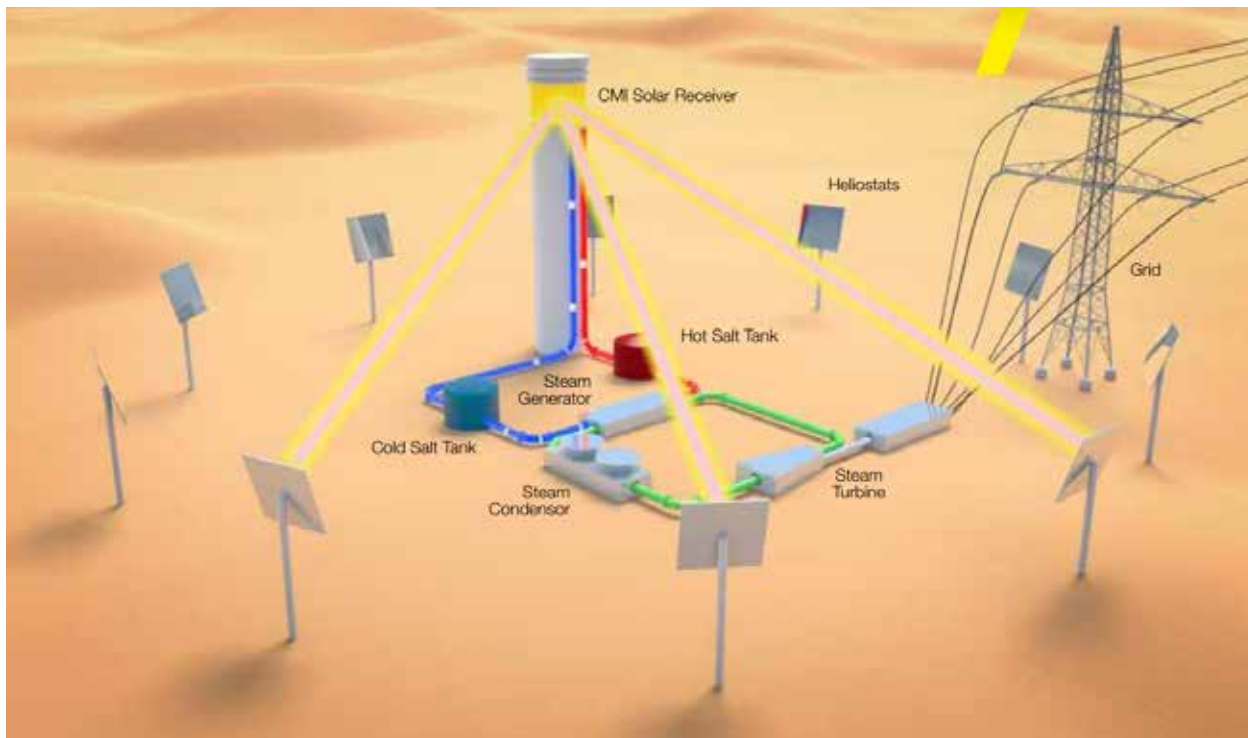
Requiring a high ratio of sun throughout the year, the south of Europe offers potential for CSP. Spain is one of the leading European countries with several CSP plants, e.g. the Solnova Solar Power Station (150 MW) or the Andasol solar power station (150 MW). The largest CSP plants are found outside Europe, e.g. in California, USA, including the Ivanpah Solar Power Facility (377 MW) and the SEGS installation (354 MW), in the Mojave Desert. Other regions include the remote Atacama



A large solar tower (CSP) stands prominently in a desert landscape. The tower is a tall, white, cylindrical structure with a hexagonal top section that is brightly illuminated by the sun. In the foreground, numerous rows of solar collectors are visible, arranged in a grid-like pattern on the reddish-brown sand. The sky is a clear, deep blue, and the horizon is flat and distant.

desert in the north of Chile or the Kalahari Desert in South Africa.

Europe's ambition is to become number one in RES. This also implies becoming number one in RES technologies. European manufacturers of CSP technology can help achieve this objective, supporting the reindustrialisation of Europe and creating highly-skilled employment. Preserving the European technological leadership in CSP technologies globally is crucial. Fostering market uptake and further research and innovation activities to overcome existing challenges faced by CSP technologies (e.g. material robustness to high temperatures and corrosion risks, cost reduction) will help make this happen.



CSP concentrates sun rays towards a solar receiver to generate superheated steam (e.g. via heated fluids such as water or oil, fluidised sand, molten salt). From this point, the mechanism and components are identical to the ones used in conventional thermal power plants, with the steam feeding a steam turbine to produce electricity and heat.

Combining solar-based thermal power generation and thermal energy storage for zero emission power

EPPSA

NEW STRATEGY AND ORGANISATION



EPPSA The voice of European Power Plant Manufacturers towards the EU institutions



Established in 2001, EPPSA is recognised by EU institutions and stakeholders as a supportive organisation in the EU policy making process that conveys valued expert information and policy solutions, based on the expertise and consensus of its membership.

Based in Brussels, the EPPSA Secretariat is the bridge between our expert member companies and the EU institutions.

Our Secretariat, composed of a Secretary-General assisted by a policy and communication

team, is responsible for monitoring and informing EPPSA members on EU policy and legislative developments with a potential impact on the thermal power generation business in Europe. This in turn helps members' positioning to define a common EPPSA position on these files. The EPPSA Secretariat also takes an active role in representing its members towards the EU institutions by promoting the benefits of state-of-the-art thermal power generation technologies as part of the solution for a clean, affordable and secure energy transition.

Bringing value to members

EPPSA

Revised Strategy

In order to address the rapidly changing EU regulatory framework and market conditions, EPPSA conducted a thorough revision of its strategy in 2016.

The strategy review aimed at ensuring that the association remains best fitted and equipped to:

- Continue representing its members' core common interests timely and effectively towards EU institutions
- Shape adequately future EU policies and legislations applying to the thermal power business in Europe.

With a view to deliver maximum value to its members and policy makers, the expected key outcomes are:

- Refocused EPPSA activities on members' core common interests in thermal power generation (heat and electricity) technologies for energy providers and industrial applications of all sizes
- Strengthened advocacy in Brussels,
- Increased cooperation and dialogue with EU partners and stakeholders



2016 in Review:

Key Milestones

JANUARY

EPPSA's 10th Technology Evening welcomed 120 representatives from industry, NGOs, national, EU and International institutions to discuss the role of thermal power in enabling the energy transition.

FEBRUARY

EPPSA responded to the European Commission public consultation to prepare the Renewable Energy Directive for the period after 2020.

APRIL

EPPSA's President, Dr Emmanouil Kakaras, gave a presentation on requirements for thermal plant in the future energy system at the AVL Large Engine TechDays.

MAY

- EPPSA contributed to the European Commission public consultation to develop a sustainable bioenergy policy for the period after 2020.
- EPPSA Secretary General, Patrick Clerens, gave a presentation on measurement technologies to meet the new BATAELs at the VGB Workshop on Flue Gas Cleaning.

JUNE

- EPPSA had a booth and visited members' booths at Power-Gen Europe in Milan
- François Paquet, EPPSA's Policy Officer, spoke at the EEF MEP Assistants Briefing meeting on technologies to ensure EU's security of electricity supply, including thermal power generation.

JULY

EPPSA published its recommendations on the EC interim report of the Sector Inquiry on Capacity Mechanisms.

SEPTEMBER

The Chair of the EPPSA Technical Committee, Dr. Klaus-Dieter Tigges, gave a presentation on the implications of the new LCP-BREF/BAT conclusions.

OCTOBER

As one of the latest stages before their adoption in 2017, EPPSA participated in the Article 13 Forum meeting, giving its opinion on the proposed BAT conclusions (Large Combustion Plants BREF).

NOVEMBER

The European Commission published its 'Clean Energy for All Europeans' Package, a key opportunity to create the enabling framework to foster cost-effective solutions, encourage public and private investments and boost EU industrial competitiveness and technological leadership worldwide. EPPSA contributed to several related public consultations (e.g. on the renewables energy directive, Bioenergy policy etc.)

DECEMBER

Adoption of ETIP SNET's ten-year Research and Innovation Roadmap to support Europe's energy transition, to which EPPSA contributed. EPPSA takes up the lead of the Working Group five on 'Innovation implementation in the business environment' and will play an active role in the implementation of the roadmap.



EPPSA

Membership Benefits

- **Accessing detailed, timely and tailor-made information and analysis on latest EU policy and legislative developments**, helping your company adapt in advance and maintain a competitive and informational edge.
- **Contributing to make EU policies and legislation an enabling framework for your business operations in Europe.**
- **Being informed on existing and future EU funds, supported in accessing them and drive the EU funding agenda to support your technologies.**
- **Benefitting from an experienced and well-connected secretariat**, being your intelligence in Brussels and helping your different business units navigate the complexity of the EU.
- **Integrating a respected pan-European organisation recognised by EU institutions and stakeholders to lead your sector.**
- **Promoting your technological excellence.** EPPSA plays a key role in developing and promoting the sector's best practices. E.g. EPPSA Guidelines for Assessment and Design Recommendations for Flue Gas Cleaning Retrofit and Mercury Removal (2015).
- **Joining an exchange and networking platform**
 - > Exchange strategic information about business and technology with other experts from your sector.
 - > Meet key EU policy makers shaping the EU policy and legislative framework applying to your thermal power generation business.
- **Accessing a dedicated area for members only on the EPPSA website**, including internal meeting documents, EU updates, and much more.

EPPSA is open to all companies involved in the design, development, production, maintenance, refurbishment or repair and assembly of equipment and/or components for thermal power plants of all sizes irrespective of the fuel used. This includes also sub-suppliers of thermal power plant manufacturers. Visit our website www.eppsa.eu or contact the EPPSA secretariat at info@eppsa.eu.

General Assembly

Members



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