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## **Editorial**

The first half of this year has produced a continuous stream of initiatives by the European Commission with respect to its climate and energy policies. In particular, these were focused on the detailing and implementation of the various requirements for an effective EU Energy Union, which could support the climate objectives of 40% CO<sub>2</sub> emissions reduction in 2030. The Committee of the European Parliament on Environment recently set out its own ambitions for the Paris agreement by calling for a 50% reduction. Scientists have warned time and again that major steps are needed to keep global temperatures within a limit of two degrees increase and are backed by the IPCC: in its assessment of 2013 exceedance of the limit is considered very likely, unless the CO<sub>2</sub>-concentration will start to sink from the middle of this century, in combination with decreasing levels of F-gases, methane and nitrous oxide.

While European politicians take responsibility for a positive outcome of the Paris negotiations, the basis for success at the end of this year is not that strong yet. It is true that attitudes have changed around the world. However, the 46 pledges for emissions reductions sent by the middle of July (of a total of 195 parties to the UNFCCC) do not guarantee that the required major change worldwide will be made.

With respect to air quality, the new Commission had announced last year that it intended to withdraw the pending proposal for a revised National Emissions Ceilings Directive, which had been part of the Clean Air Policy Package of the former Commission. In spite of this the new Environment Committee of the Parliament recently concluded its first reading and adopted an amended proposal. Most important changes proposed include a call for more stringent targets and the introduction of national ceilings for mercury in the Directive. In spite of the many good reasons for action on heavy metals, introduction of mercury in the Directive proposal at a late stage bears a risk of considerable delay. That would be unfortunate as the basis for this legislation was laid as long ago as 2012 when the revised Gothenburg Protocol was adopted.

# Developments in EU policy

## World Energy Outlook 2015 and Climate

Anticipating at its publication of the World Energy Outlook 2015 in the fall of this year the International Energy Agency (IEA) recently published a Special Report on Energy and Climate. While the publication was primarily meant to provide input for the process towards the COP21 Climate Agreement in Paris this year it happened to be made public on 15 June during the Sustainable Energy Week in Brussels. It offered a welcome opportunity to Commissioner *Arias Cañete* to relate its conclusions with the present EU's performance and long-term policy intentions with respect to energy.

The IEA does not have to compromise anymore with the long-held views that economic growth requires additional energy production: economic growth worldwide last year was 3% while energy-related emissions stayed flat. Growth in the EU, though no more than 1.3% still, went with a drop in emissions of more than 6%. Since 1990 emissions have now declined by 19% against a 45% growth of the EU's GDP.

Also in other aspects IEA and EU are on one line. The Outlook considers three elements in particular: emissions trading, energy efficiency and innovation to reduce costs of sustainable energy.

The crucial instrument of emissions trading for gradual reform of carbon markets is presently making its way all over the world. Though an encouraging development, its unsatisfactory functioning, in particular the EU's ETS, is problematic. The blueprint to increase its effectiveness is ready, however (see below for details).

Increasing energy efficiency - reducing demand in the first place - stands out as the second element. This view, though extremely logical, only recently received the recognition it deserved, also in the EU. As a position held by IEA it can be seen as a milestone.

With respect to renewable energy the recommendation is to invest in research and

innovation to reduce sustainable energy costs. Renewables are increasingly seen as a stable, low-risk investment and in the last 5 years costs reductions up to 60% have been reported. The EU has increased its funding opportunities in this area and intends to support the introduction of new technologies in the market.

In the IEA report more de-carbonation options are dealt with, one of them being Carbon Capture and Storage (CCS). It is presently the most expensive technology, and still has to conquer its place on the market. While acknowledging the problem of public acceptance IEA expects, however, that CCS could play a role from 2030 and can be competitive in 2040. Commissioner Cañete did not refer to the option in his speech.

More information:

<http://www.iea.org/publications/freepublications/publication/WEO2015SpecialReportonEnergyandClimateChange.pdf> ;

[http://europa.eu/rapid/press-release\\_SPEECH-15-5203\\_en.htm](http://europa.eu/rapid/press-release_SPEECH-15-5203_en.htm)

## Emissions Trading Scheme

While more carbon markets are emerging around the world the EU's Emissions Trading Scheme (ETS) is still the world's largest carbon market. The ETS, however, suffers from a massive surplus of allowances that depresses the carbon price and no longer provides incentives for low carbon investments. Steps for overcoming this problem that have already been taken are the postponement of auctioning of 900 million allowances. More permanently, agreement on a Market Stability Reserve was reached to make the supply side of the system more flexible and resilient.

In his speech at the Sustainable Energy Week Commissioner *Cañete* revealed that further proposals are being developed and will be published in the coming months. The reformed ETS will include continued free allocation to industry without reducing the share of allowances to be auctioned. Also, in certain Member States free allocation of allowances to the power sector will remain optional. In addition, within the ETS a

modernisation and an innovation fund will be created. The funds will play a similar role as the present NER-300 programme for low-carbon demonstration projects which was monetised by auctioning new allowances at the market.

ETS statistics have revealed that verified emissions of the 11,000 power plants and manufacturing installation covered by the ETS were 4.5% lower last year than in 2013. The increase in renewable energy permitted closure of old installations exceeded and respective allowances were back-loaded; this reduced the present surplus in the market by 400 million allowances (1.5% of total surplus).

More information: [http://europa.eu/rapid/press-release\\_SPEECH-15-5203\\_en.htm](http://europa.eu/rapid/press-release_SPEECH-15-5203_en.htm)  
[http://europa.eu/rapid/press-release\\_IP-15-4987\\_en.htm](http://europa.eu/rapid/press-release_IP-15-4987_en.htm)

## Major cities and capitals in the EU

On 26 March this year mayors of capitals and big cities in the EU held their summit in Paris. In a speech at that occasion Commissioner *Cañete* stressed the important role of cities in implementing the EU's policy on Climate Action. In this respect he welcomed the Declaration which committed the mayors to a 40% reduction in emissions by 2030 and a 27% share in renewable energy signed that day. The commitments are similar to those with the EU will table in Paris later this year at the COP-meeting.

Mr Cañete referred to the present progress which was supported by the existing Covenant between Cities and Commission which had made cities eligible for European funding of their initiatives. He announced the launch of a new Covenant for 2030 by the Commission in October this year. While inviting his audience in Brussels on that occasion he suggested that mayors of Europe's major cities should become the Energy Union's ambassadors and so export the European model to other regions.

More information: [http://europa.eu/rapid/press-release\\_SPEECH-15-4707\\_en.htm](http://europa.eu/rapid/press-release_SPEECH-15-4707_en.htm)

## Road Transport

On 18 June the Commission organised a conference for stakeholders in the transport sector on the challenges for "Driving road decarbonisation forwards". In a Keynote speech Commissioner Cañete explained the intentions for a European road transport. He pointed to the fact that the limit targets for cars and vans set for 2015 and 2017, respectively, were met well in advance. He announced that there will be new post-2020 standards to be met.

Within the target to reduce EU greenhouse gas emissions by at least 40% in 2030 non-ETS sectors, in particular transport, agriculture and the building sector will have to reduce their emissions by 30% compared to 2005.

In order to get there he announced the start of a process starting with carefully determining the contribution non-ETS sectors can provide and at which costs, while considering the benefits it will bring. He also announced that the Commission will present a Communication on Decarbonisation of Transport which will set out a strategy, to be followed, later on, by specific legislation. He pointed to the need for continued efforts on research and development in order to anticipate on transport systems of the future; in this respect he referred to new high-tech materials, smarter, possibly autonomous cars and intelligent transport systems.

The importance of innovation is anyway high at the Commission agenda as became clear at a Round table on 2 June. Apart from major programmes like Horizon 2020 and several dedicated funding initiatives to bring new green technologies to the market Commissioner Cañete explained how trade policies which create the conditions for successfully exporting European technology complete the efforts of the Commission to make EU industries more successful while furthering the roll-out of cleaner and more energy-efficient technology worldwide.

More information: [http://europa.eu/rapid/press-release\\_SPEECH-15-5222\\_en.htm](http://europa.eu/rapid/press-release_SPEECH-15-5222_en.htm)  
[http://europa.eu/rapid/press-release\\_SPEECH-15-5111\\_en.htm](http://europa.eu/rapid/press-release_SPEECH-15-5111_en.htm)

## Sustainable development

On 6 July Commissioner for Environment, Karmenu Vella, made a speech at a meeting of the UN High Level Political Forum on Sustainable Development (HLPF). In September this year global leaders have to consider the progress with reaching the Sustainable Development Goals on diminishing poverty and hunger and secure education for children worldwide and decide on further steps. After Addis Ababa (on financing for development) this is the second high level meeting where Heads of State have to show their responsibility for the future of the world and its population. The third this year on a new climate agreement in Paris may seem to place the other two in the shadow; to be really successful, however, the other two should not fail.

The concept of sustainable development is based on three pillars: environment, economy and social justice, such as the right to education. In his speech Commissioner Vella stressed the importance of their interconnection, though admitting the enormous challenges it is presenting, also for the EU. Apart from the EU's own sustainable agenda, its trade policy is a key for progress for progress in reaching the Sustainable Developments Goals.

More information: [http://europa.eu/rapid/press-release\\_SPEECH-15-5313\\_en.htm](http://europa.eu/rapid/press-release_SPEECH-15-5313_en.htm)

## European Parliament at work

In July the EP's Committee on Environment, Health and Food Safety is to vote on two proposed Directives which form part of the Clean Air Package of December 2013. The Committee's amendments to the proposal for the "*Directive on Limitation of emissions of certain pollutants into the air from medium combustion plants*" had been negotiated in the Inter-institutional Committee (COREPER). The EP's Committee voted in favour of its outcome and informally reached an agreement with the Luxemburg president of the Council which will decide later.

The proposal for a revised *National Emissions Ceilings (NEC) Directive* had so far not left the EP Committee. Rapporteur Judie Girling and her team

had received 615 amendments, including 94 from two other EP Committees. A set of 24 compromise amendments has been negotiated. On 15 July Committee members voted in favour of the resulting draft report of the Rapporteur and concluded the first phase of the parliamentary procedure. While the new Commission announced in November last year to withdraw the proposal because of expected controversies between Parliament and Council the new EP Environment Committee preferred to prepare a compromise position as first step in the parliamentary procedure.

The Committee agreed with the proposed ceilings in the proposal of the Commission. It stressed, however, that more ambitious caps have to be set in order to reach the 2030 goals. It further added a binding intermediate target for all pollutants except methane, to be reached in 2025 in order to check progress. It also proposes to add a cap for mercury emissions. The off-sets for shipping emissions in the proposal were removed because it would exclude land-locked countries and would be extremely difficult to apply. The report was approved by 38 to 28 votes with 2 abstentions and will be voted on in the plenary EP session in October.

More information:

<http://www.europarl.europa.eu/sides/getDoc.do?pubRef=-%2f%2fEP%2f%2fTEXT%2bIM-PRESS%2b20150713IPR80655%2b0%2bDOC%2bXML%2bV0%2f%2fEN&language=EN>

## Renewable energy – progress report

The EU is well on track with meeting its target for renewable energy: in 2014 15.3% of its target in 2020 had been met. Individual Member States have varying targets; 25 of them are expected to meet their target in 2020.

The report shows that the renewable energy Directive is working; it avoided 326 Mton CO<sub>2</sub>-emissions in 2012 and 388 Mton in 2013. Almost half of Member States reduced their inland consumption of natural gas by 7% or more.

With respect to the much debated biofuels it is less certain that the target of 10% of total fuel will be met in 202: the projected share in 2014 is 5.7%.

More information: [http://europa.eu/rapid/press-release\\_MEMO-15-5181\\_en.htm](http://europa.eu/rapid/press-release_MEMO-15-5181_en.htm)



## EEA Reports

### EU Emissions inventory report 1990-2013

Under the Gothenburg Protocol of the UN-ECE Convention on Long-range Transboundary Air Pollution the EEA regularly reports on Member States emissions. Emissions have been gradually decreasing since 1990 and in 2013 the reduction by component amounted to:

SO<sub>2</sub>: -87%; CO: -66%; NMVOCs: -59%; NO<sub>x</sub>: -54%; NH<sub>3</sub>: -27%.

Emissions of primary PM<sub>10</sub> and PM<sub>2.5</sub> decreased by around 20% since 2000. Two third of 19 Member States reported reduction of BC since 1990.

Emissions of lead, cadmium, mercury, dioxins and furans, hexachlorobenzene and polychlorinated biphenyls dropped by 70% or more since 1990.

The EU-15 met its limits for emissions of the four pollutants of the Gothenburg Protocol. Several individual Member States, however, exceeded one or two ceilings; exceedances which were reported in particular were NO<sub>x</sub>, NH<sub>3</sub> and NMVOCs. For NO<sub>x</sub> emissions road transport is primarily responsible. The higher growth of the fleet and a shift two diesel traction explain part of this; the difference between 'on the road' emissions and emissions in the test cycle for type approval is a second reason.

### CO<sub>2</sub>-emissions from road traffic

As part of the Climate and Energy Package, adopted in 2009, new cars are bound to have reduced CO<sub>2</sub> emissions. The target of 130 g CO<sub>2</sub>/km is defined as an average of all new models which are brought to the market; from 2015 the complete fleet has to comply. The EEA monitors the progress and recently shared its preliminary results for 2014 in a Press release. The target was already met in 2013; last year the average emission of a new car amounted to 123.4 g CO<sub>2</sub>/km; this means a reduction of 12% since the target was set.

A similar development now becomes visible for new vans (vehicles not exceeding a weight of 2610 kg). The respective regulation was agreed in 2011 to be phased in from 2014. In that year the average emission of a new van amounted to 169.2

g CO<sub>2</sub>/km, 4 g less than in 2013 and already 6 g below the target for 2017.

## CLRTAP Reports

### Air pollution alters nutrient balance in ecosystems

Using a vast pool of data and the scientific models developed under the Convention's Cooperative Programme for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe (EMEP) to document nutrient loads in Europe, a new study finds that the last two decades have seen a decrease in the deposition of atmospheric nitrogen, with the most pronounced reductions in Eastern Europe. While the 1980s were a tipping point for nitrogen deposition, mitigation efforts of Parties to the Air Convention and its protocols, most notably the 1988 Protocol concerning the Control of Emissions of Nitrogen Oxides or their Transboundary Fluxes (Nitrogen Protocol) and the 1999 Protocol to Abate Acidification, Eutrophication and Ground-level Ozone (Gothenburg Protocol), resulting in a 40 per cent reduction of nitrogen emissions, have helped to alleviate nitrogen pollution of soils in Europe.

However, nitrogen oxide and ammonia emissions still impact the soil environment with adverse effects on vegetation, including forests, and biodiversity. Further emission reduction efforts are thus needed in order for soils to fully recover. To this effect, Parties amended the Gothenburg Protocol in 2012 to set new ceilings for 2020 and beyond. Recently, UNECE also joined efforts with other international stakeholders on nitrogen flows in the environment and their impacts. The project will provide guidelines to improve the nitrogen management at the global and regional levels contributing to the establishment of an [International Nitrogen Management System](http://www.unece.org/info/media/news/environment/2015/air-pollution-alters-nutrient-balance-in-ecosystems/air-pollution-alters-nutrient-balance-in-ecosystems.html).

Press release 15 July 2015:

<http://www.unece.org/info/media/news/environment/2015/air-pollution-alters-nutrient-balance-in-ecosystems/air-pollution-alters-nutrient-balance-in-ecosystems.html>

# Ultrafine Particles: Air Quality and Climate

4-5 May 2015, Brussels – Conference Report

## UFP-5: focus on fractions of PM

*EFCA's 5<sup>th</sup> symposium on Ultrafine Particles in May of this year demonstrated that the scientific community has shifted its interest further towards the fractions of particulate matter. Several presentations on assessments of air quality included data on black carbon as well as particle number concentrations and discussed the statistical correlation between them and with particle mass data. Presentations in Brussels also showed that more institutes across Europe placed the fraction of organic aerosols on the research agenda. This reflects the increasing concern that in particular secondary organic aerosols are primarily responsible for the toxicity of PM. Four Keynote speakers reviewed the progress in the field and present understanding of its fundamentals, while a Panel discussed present gaps in our knowledge.*

In a keynote on “Health effects of ultrafine particles” professor Annette Peters (*Helmholtz Zentrum München*) summarised new evidence from epidemiological studies on short-term effects and mortality which has become available since the assessment of the Health Effects Institute (*HEI Perspectives 3, 2013*). In that study it was stated that current evidence does not support a conclusion that exposure to UFPs alone can account in substantial ways for the adverse effects of PM<sub>2.5</sub> found.

Results from the *UFIREG* study (associations of UFP and PM<sub>2.5</sub> levels with health effects in four cities in Central Europe and one in Eastern Europe) included a 6% change in respiratory mortality for an additional 2750 UFP/cm<sup>3</sup>. The results for respiratory hospital admissions, however, do not seem to be consistent with this outcome: 2.6% change for 2750 UFP/cm<sup>3</sup> versus 6.3% change for 12.4 µg PM<sub>2.5</sub>/m<sup>3</sup>.

New evidence from the 2008 Beijing Olympics data came from a study which considered size fractions of UFP within the range of 3-100 nm. The fractions 10-30 nm and 50-100 nm have the higher particle number concentrations (roughly twice that of 3-10 nm and 30-50 nm). The association with cardiovascular mortality, however, is highest for the fraction of 30-50 nm.

Mrs Peters concluded that the consistency of the new results is still insufficient. She pointed to the need to close the several gaps in knowledge, among which she included:

- Measurements of ultrafine particles
- Chemical composition of ultrafine particles
- Modelling of residential exposures

- Studies on short-term health effects, based on network monitoring and on personal exposure, also considering microclimate data
- Studies assessing all criteria pollutants and black carbon jointly with ultrafine particles
- Studies on long-term health effects of ultrafine particles



Professor Markku Kulmala (*University of Helsinki*) presented a keynote on “Nucleation of ultrafine particles in the atmosphere”. He placed the topic in the context of the great global challenges, including climate change and air quality and convincingly showed that addressing these requires that the scientific community succeeds to understand the fundamentals of processes involved. Nucleation is a natural process which may produce huge numbers of particles. Its study, to which Kulmala’s group made major contributions since the end of last century, requires advanced instrumentation: processes play at the size level <3nm and concentrations are between 0.01 and 0.1 ppt.

In his presentation he focussed on the conversion of volatile organic gases from gas to particle through reactions with oxidants like O<sub>3</sub>, OH, NO<sub>3</sub>

and other. It is a global, natural process which is responsible for the formation of biogenic secondary organic aerosols (SOA). These aerosols are a factor in cloud formation, though details of this process are not well understood.

Nucleation is not a continuous phenomenon: atmospheric conditions control the number of nucleation events. In the longest dataset on new particle formation events collected in Hyytiälä, Finland, the number of nucleation days/year varies between 60 and 120. For molecules with extremely low volatility clustering precedes condensational growth; low-volatile products may initiate growth by reacting with other precursors. The improved understanding of these mechanisms is also relevant for SOA formation from anthropogenic emissions from organic components.

*Professor Roy Harrison (University of Liverpool, UK)* presented recent developments in his keynote “Ultrafine particles in the urban atmosphere”. He showed results of a first inventory of particle numbers emissions in the UN-ECE area (*Denier van der Gon, TNO*). Transport is responsible for 75% of these emissions.

Measurements of ultrafine particles (UFP), which he defined as the fraction  $<100\text{nm}$  or  $\text{PM}_{0.1}$ , provide more information when split into size fractions. He explained his methodology for clustering similar size distribution patterns which is helpful in source apportionment studies.

Results on average concentration of fractions in  $\text{PM}_{0.1}$  (*Kudo et al, 2011*), revealed that organic carbon can make up to 50% total mass. Fractions of BC (measured as EC),  $\text{NH}_4^+$ ,  $\text{NO}_3^-$ ,  $\text{SO}_4^{2-}$  and Cl<sup>-</sup> make up for the remaining mass; metals were not considered in this study. The OC-share may even be higher in summer, though it may be lower during the night. This pattern is roughly equal for roadside and background stations. He also showed a typical result for trace elements and metals in UFP (*Ntziachristos et al, 2011*). Fe is dominating with about 20% of mass, both in  $\text{PM}_{10}$  and  $\text{PM}_{0.1}$ . Elements like Zn and V, and also Ni and Cr are overrepresented in the UFP-fraction, while elements associated with natural sources (sea-spray and soil) prevail in the  $\text{PM}_{10}$ -fraction.

Referring to the work of *Querol* (see below), he also paid attention to new particle formation. He pointed to the fact that, with lower mass emissions in coming years, nucleation will become a more

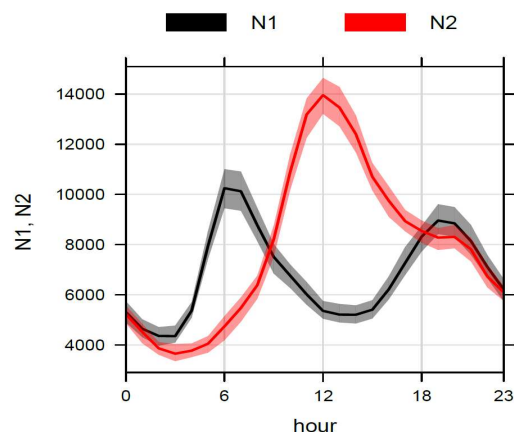
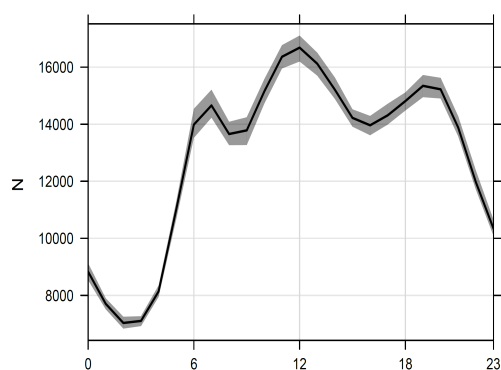
prevailing source of UFP, in particular in Southern Europe. The share of sulphate as fraction of UFPs will sink considerably due to new legislation on S-content of shipping fuel in the period until 2030.

*Professor Jos Lelieveld (Max Planck Inst. for Chemistry, Mainz; The Cyprus Institute, Nicosia)* presented an overview of an international study which assessed the contribution of air pollution (ozone and  $\text{PM}_{2.5}$ ) to the Global Burden of Disease (GBD) in several parts of the world. The project was a cooperation with the Harvard School of Public Health and universities on Cyprus and in Saudi-Arabia. In areas where exposure data were not available estimates were made by a combination of source category data and an atmospheric chemistry – general circulation model applied at high resolution.

While traffic, industry and power generation are commonly considered as dominant sources the largest category worldwide appears to be domestic energy use (e.g. heating and cooking), due to its prevalence in China and India. It is also found that in the Eastern USA, Europe, Russia and East Asia agricultural emissions make the largest contribution to  $\text{PM}_{2.5}$ . For a Business as Usual scenario the estimate of  $3.29 \times 10^6$  premature death/year worldwide in 2010 due to  $\text{PM}_{2.5}$  could roughly double around 2050. Projected population growth causes that the higher increase will occur in Asia, especially India.

In the scenario for the urban environment, the GBD approach also predicts a doubling of premature deaths in 2050. Worldwide an increase from the present  $2.0 \times 10^6/\text{year}$  to  $4.3 \times 10^6/\text{year}$  was found; for London the figure was  $2.8 \times 10^3/\text{year}$ ; for Beijing  $13.7 \times 10^3/\text{year}$  was calculated. In a sensitivity computation a five times higher toxicity for SOA was assumed in comparison to  $\text{PM}_{2.5}$ , reflecting the present perception that the share of the organic fraction of PM will increase and is likely to be the major cause of its health risks. In this respect *Lelieveld* mentioned that the EU left its limit value for ambient  $\text{PM}_{2.5}$  at  $25 \mu\text{g}/\text{m}^3$ ; in the USA this value is  $12 \mu\text{g}/\text{m}^3$ .

*Xavier Querol (IDAEA, Spain)* reported on an analysis of particulate pollution in cities with high insolation. The objective of the study was to learn more on the contribution of nucleation events. Data from Scanning Mobility Particle Sizer measurements were analysed by K-means



Typical pattern for a day with a strong nucleation event in Barcelona (a). The composing fractions are presented in (b): N1 refers to primary UFP and N2 to new particle formation (Querol, 2015).

statistical clustering and resulted in an ensemble of 4-7 representative clusters in each city. It was found that in the three cities of the study (Barcelona, Madrid and Brisbane) nucleation was the prevailing source of PN during 16% of the time.

Nucleation events were typically observed around noon and could last up to 6 hours; in 55% of time they lasted for more than 2 hours. In Rome, characterised by strong background levels from other sources, nucleation prevailed only 6% of time; in Los Angeles, however, it was dominant during 33% of time.

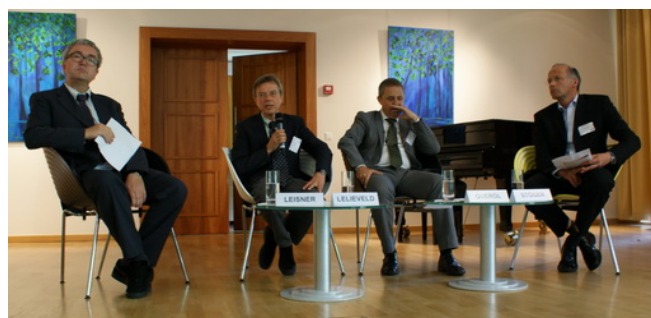
In conclusion the study showed that, in addition to rural nucleation, nucleation events are also common within urban environments with high insolation and essential to understand patterns in PN concentrations during the day.

*Menno Keuken*, (TNO, Netherlands) presented results on the impact of aviation on air quality. A study situated around Schiphol airport, The Netherlands, revealed that planes during take-off are a strong source of particles in the size range 10-20nm. Continuous measurements showed that particle number concentrations at 7 km off-wind from Schiphol increased by a factor three on average; at 40 km distance the increase still amounted to about 20%. For BC such strong increases were not found. A modelling study showed that more than 100,000 addresses in the area around Schiphol suffer short-term exposure to additional PNC-levels between 5,000 to 15,000/cm<sup>3</sup>.

#### Panel discussion: Knowledge gaps on Organic Aerosols

The symposium was concluded with a Round Table: Panel members *Jos Lelieveld*, *Xavier Querol* and *Tobias Stöger* (Helmholtz Zentrum München) discussed present knowledge on atmospheric Organic Aerosols and suggested topics which deserve a place at the European research agenda. Conference chairman *Thomas Leisner* (KIT) lead the discussion.

- A major gap is the absence of a monitoring technique which is suitable for a monitoring network. That Panel members did not suggest a research direction which could fill this gap shows the difficulties in this area.



- Panel members agreed on the need for improved, more complete emission inventories for organic aerosols and their precursors. In particular, uncertainties on the origin of organic carbon in the atmosphere calls for more research on source apportionment in urban areas and other environments. This research should include the effects of atmospheric chemistry
- With respect to toxicity of organic aerosols insight in the mechanism of attack is far from complete and studies on particle-cell interactions can help unravel the details. It is



important to work under realistic conditions, e.g. carrying out experiments in alveolar fluid as the medium. It is also of interest to choose conditions which make such experiments more atmospherically relevant.

- An important requirement for health effects studies on particulate matter in general is that physicochemical properties of the particles used in studies are known in as much detail as

possible; obviously this is a challenge with organic aerosols

- The Panel further considered that mutual co-benefits are likely to be generated upon interactions with health risk research on engineered nanoparticles
- Finally, attention was asked for indoor-outdoor interactions because these could be different for organic aerosols because of their specific dynamics.



The UFP-series is a joint activity with our German member GUS e.V., the Confederation of European Environmental Engineering Societies (CEEES), and the Karlsruhe Institute of Technology KIT. A CD-ROM with the presentations is presently being prepared at KIT and is expected to be available from early August. A copy can be ordered by sending a mail to [klara.langer@kit.edu](mailto:klara.langer@kit.edu).

## Current EFCA activities

### Air Protection 2015



EFCA's Member CAPPa received a good response at its Call for Papers for the 9<sup>th</sup> Croatian scientific and professional conference with international participation "Air Protection 2015". The conference will be in Poreč (Istria), 8-12 September 2015.

Topics for the conference include:

- Managing air quality – inspection and control
- Atmospheric emissions of pollutants
- Monitoring ambient air pollution
- Developing and testing measuring methods
- Estimating exposure and impact on health and the environment
- Asbestos in the air
- EFCA session on particulate matter – sources, levels, content, policies

The EFCA session will have 8 contributions; EFCA vice-president John Murlis will introduce the session with a summary of EFCA's recent observations and initiatives in this field.



The Programme is expected to become available soon. It will be uploaded to EFCA's website where the First Announcement and Call for Papers can still be found at: <http://www.efca.net/efca2/index.php?page=upcoming-efca-events>.

## VDI Expert Forum on Atmospheric Chemistry – Tropospheric Aerosols

The Commission on Air Pollution Prevention VDI and DIN (Kommission Reinhaltung der Luft) is preparing its second Expert Forum on Atmospheric Chemistry which is to take place on 25 and 26 November 2015 in Berlin. The Forum will consider tropospheric aerosols this time; last year gaseous pollutants were addressed. The event is meant to produce a state-of-the-art on atmospheric processes of particle formation and their behaviour and consider their potential relevance for measurement methodology.

Four sessions are being planned:

- Thermodynamics and new particle formation
- Process studies on surface and bulk particle chemistry
- State of the art in modelling the formation of secondary organic aerosol
- Particle emission inventories

EFCA president, Thomas Reichert, will present EFCA's recent initiatives with respect to organic aerosols.



## EFCA Presentation in Zürich

EFCA made use of the opportunity to contribute again in the programme of the ETH Conference on Combustion Generated Nanoparticles, which had its 19<sup>th</sup> delivery from 29 June – 1 July this year. Under the title “Policies on particulate matter miss adequate tools: organic aerosols”, the need for a fraction-by-fraction approach for PM was discussed, with particular attention to the knowledge gaps with respect to its organic fraction. The contribution was a co-presentation by Joop van Ham (EFCA) and Claudia Mohr (KIT).

## News from EFCA and its Members

### EFCA Assembly meeting

At its recent meeting in Brussels the Assembly discussed and approved a new membership system. It will substitute the original system in which Founding Members took responsibility for a basic annual income for EFCA. In the new system all Members will share this responsibility, in proportion to their size and budget. The details of the new system are presently being agreed on the basis of an electronic ballot procedure, in order to have all Members involved in the decision.

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### PIGE resumes representing EFCA in Geneva

In 2005 *Dr Andrzej Jagusiewicz* contacted EFCA on Polish participation. In the same year the Assembly approved the membership of the Polish Chamber of Commerce for Sustainable Development and welcomed Andrzej as its delegate. Soon afterwards his offer to represent EFCA with the Convention on Long-Range Transboundary Air Pollution was welcomed where EFCA had just obtained an Observer status. In EFCA's first Newsletter in 2007 he contributed with an in depth analysis of the cooperation on European air quality policies between Convention and European Commission.

Soon after that, however, the new Polish Government of president Tusk called Andrzej for the high office of Environment Inspector. Obviously, he had to discontinue representing EFCA in Geneva as this was incompatible with his new position.

Very recently, Andrzej left the Polish administration and informed EFCA that he was available again to represent EFCA in Geneva. There is no doubt that the Assembly will welcome his offer.

## Environmental Protection Scotland

*Dr Iain McLellan*, the first Policy and Development Officer of EPS and International Liaison in EFCA recently left its position in connection with his taking up new responsibilities. EFCA would like to thank Iain for the constructive cooperation since EPS joined EFCA.

*Dr Geeta Puri* has been appointed as new International Liaison of EPS in EFCA. EFCA welcomes Geeta as new delegate and looks forward to continuing the good cooperation with EP Scotland.

## IUAPPA joins forces with Clean Air Asia

Some years ago KOSAE, the Korean IUAPPA Member, was commissioned to host IUAPPA's next World Clean Air Congress in 2016. The proposed timing, however, implied its near coinciding with the 9<sup>th</sup> Better Air Quality Conference, a major event under the umbrella of Clean Air Asia. The Korean organizers recently made public that they have managed to agree with Clean Air Asia on a joint activity. As a result the 17<sup>th</sup> IUAPPA World Clean Air Congress and the 9<sup>th</sup> Better Air Quality Conference are expected to become a landmark event for Air Pollution Science and Policy in the region.

The first announcement lists 6 major themes:

- Cities and Megacities
- Linking Air Pollution and Climate
- Delivering Cleaner Air at Urban Scale
- International Action on Air Pollution
- Climate and Air Pollution: SLCP reduction
- Sustainable Transport Solutions for Cities



*Aerial view of Busan, Korea*

The Congress, with the theme “Clean Air for Cities – Perspectives and Solutions” is to be conducted in Busan, South Korea; the dates have been changed and are now 29 August – 2 September 2016.

## Calendar

*CfP = Deadline Call for Papers*

27<sup>th</sup> Conference of the International Society for Environmental Epidemiology  
30 August - 3 September 2015, Sao Paulo, Brazil.  
<http://www.isee2015.org/>

EAC 2015 – European Aerosol Conference  
6-11 September 2015, Milan, Italy.  
<http://www.eac2015.it/>

**Air Protection 2015 - 9<sup>th</sup> Croatian scientific and professional conference**  
**8-12 September 2015, Poreč (Istria).** [www.huzz.hr](http://www.huzz.hr)

22<sup>nd</sup> International Clean Air & Environment Conference  
20-23 September 2015, Melbourne, Australia.  
[www.casanz2015.com](http://www.casanz2015.com)

5<sup>th</sup> International Workshop and Conference, Particulate Matter: Research and Management (WeBIOPATR) - (CfP 15-08-2015)  
14-16 October 2015, Belgrade, Serbia.  
<http://www.vin.bg.ac.rs/webiopat/#Workshop>

13<sup>th</sup> International Conference on Atmospheric Sciences and Applications  
11-13 November 2015, Kobe, Japan.  
[www.igacproject.org/node/235](http://www.igacproject.org/node/235)

VDI Expert Forum on Atmospheric Chemistry – Tropospheric Aerosols  
25-26 November 2015, Berlin, Germany

10<sup>th</sup> International Conference on Air Quality – Science and Application

14-28 March 2016, Milan, Italy.

<http://www.airqualityconference.org/> (CfP 12-10-2015)

14<sup>th</sup> International Conference on Indoor Air Quality and Climate

3-8 July 2016, Ghent, Belgium.

<http://www.indoorair2016.org>

**17<sup>th</sup> IUAPPA World Clean Air Congress and 9<sup>th</sup> Better Air Quality Conference – Clean Air for Cities – Perspectives and Solutions**

**29 August -2 September 2016, Busan, South Korea.**

[www.wcac2016.org](http://www.wcac2016.org)

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## **EFCA**

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**Vice-president**

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## **Newsletter**

**Editor**

Joop van Ham, VVM-CLAN

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European Federation of Clean Air and Environmental Protection Associations

Burg. Scholtenstraat 1, NL-2645 NL DELFGAUW

E-mail: [info@efca.net](mailto:info@efca.net)

Fax: +31-15-261 3186

Website: [www.efca.net](http://www.efca.net)