21st European Forum on Eco-innovation

Eco-innovation for air quality

5–6 February 2018
Sofia, Bulgaria

Environment

Welcome to the 21st European Forum on Eco-innovation

Eco-innovation for air quality

Karmenu Vella
European Commissioner for Environment, Maritime Affairs and Fisheries

Dear Participants,

It is my great pleasure to welcome you to the 21st European Forum on Eco-innovation jointly organised by the European Commission and the Ministry of Environment and Water of the Republic of Bulgaria, under the auspices of the Bulgarian Presidency of the Council of the European Union.

The Forum will help to mobilise business, the public sector and non-governmental organisations for developing and deploying new innovative solutions to improve air quality in Europe.

The European Commission's responsibility is to the Europeans who have to deal with poor quality; the millions for whom there is a daily negative impact. The air we breathe in Europe today is much cleaner than it has been for decades. However, while there are still 400000 premature deaths a year due to air pollution, we cannot be satisfied. And this issue also has a strong economic impact: air pollution costs EUR4 billion in healthcare and EUR16 billion in lost workdays across the EU.

For all these reasons, there is a clear urgency to act.

The EU already has a comprehensive toolbox to help us in addressing the challenge before us: low-emission mobility, energy union, reform of the Common Agricultural Policy, new national emission ceilings, industrial emissions best available technologies reference documents. It also dedicates substantial EU funding to projects to reduce air pollution.

The EU has adopted and regularly updated legislation on ambient air quality aimed at protecting both the environment and human health. We do this by establishing binding standards and objectives for a number of air pollutants. As a result, up-to-date information on ambient air quality is routinely made available to the public. Excessive air pollution levels are being tackled through air quality plans that set out practical measures.

Innovation can make our clean air policies more effective and cost efficient, while at the same time creating business opportunities and jobs. Over the course of the two days, participants will present some of the most dynamic and exciting new technologies, products, and business models. They will unveil the most promising initiatives and policy approaches that are already available and deployed in fighting air pollution in Europe. We hope that by being presented at this event these approaches and projects will receive a boost; and they will be further deployed and multiplied across Europe.

Beyond showcasing examples, the event will also provide for discussion, debate and interaction on the policy approaches taken on the European, national and local level to pursue eco-innovation and clean air policies.

This is the way forward. EU citizens expect improvements and we cannot take only a legal approach to the issue. Together — political, economic and social actors — we can act and exchange views and ideas on how we can further enhance innovation to provide cleaner air for all.

Karmenu Vella

Photo: © Shutterstock.com

Dear Ladies and Gentlemen,

It is my pleasure, and a privilege, to welcome you to the 21st European Eco-innovation Forum, jointly organised by the European Commission and the Ministry of Environment and Water (MOEW) of the Republic of Bulgaria.

The topic of the forum refers to air pollution, a serious and complex problem — ecological but also social — the solution to which requires a long-term and integrated approach from different sectors of governance and wide public support for profound changes in policies, practices, lifestyle and mindset.

Eco-innovations are important in overcoming air quality problems. They provide cleaner technologies, and new business and management models based on more scientific knowledge and effective monitoring. We must take into account the potential socio-economic benefits of eco-innovation. Managed in a smart way, eco-innovations lead to a better use of resources, the optimisation of production processes and supply chains, and the development of new materials, goods and services, all of which lead to a more competitive and high-tech economy, new market opportunities and a higher employment rate.

Primarily, eco-innovation for air quality is important for human health and the quality of life of citizens, which should be at the centre of each policy. Due to its direct effect on human health the issue of air quality is defined as the major theme in the MOEW policy, as well as one of the priorities of the Bulgarian Presidency in the field of the environment.

We place special emphasis on air pollution from household heating with solid fuels. Studies have shown that it is the main pollutant that affects human health, and the measures to deal with it are the most difficult because they require the responsible attitude of every citizen.

We have no right to compromise on issues directly affecting human health. We need to set ambitious targets governed by rationality and supported by serious scientific arguments. For air quality policies to be successful, we must build public confidence behind them and find the balance between the measures and their social cost. People need to be convinced that policies are for their immediate benefit — for their health, and as opportunities for economic development.

Bulgaria is honored to host this forum, which has become prominent over the years as an important platform for sharing knowledge and good practices in the field of modern achievements and trends in eco-innovation, but also as a real generator of new ideas that boost eco-innovation.

Welcome to Sofia!

Neno Dimov

Neno Dimov
Minister for Environment and Water, Bulgaria

Day 1
Monday, 5 February 2018

Moderator: Peter Woodward

10:00 Cultural Tour: "St. Alexander Nevski" Cathedral Temple and Saint Sofia Church

12:30 Registration and light lunch

Session 1

13:30
Framing the Forum (plenary) en/bg

Part I — Welcome message and opening remarks

1) **Videomessage from Karmenu Vella**, *European Commissioner for Environment*, Maritime Affairs and Fisheries
2) **Neno Dimov**, *Minister for Environment and Water*, Bulgaria
3) **Daniel Calleja Crespo**[1], *Director General*, Directorate-General for the Environment, European Commission
4) **Ivelina Vassileva**[2], *Chairperson,* Environment and Water Committee, *Chair,* Committee on Regional Development, National Assembly of the Republic of Bulgaria
5) **Iskra Mihaylova**[3], *Member of the European Parliament*

Part II — Air quality — key research, policy and issue areas

Presentations will frame the Forum, providing an overview of the air quality challenge facing Europe, the policy response from governments on the European, national and local level, and the innovation landscape.

An introduction to the key energy, transport and agricultural issues that will be discussed in detail later during the Forum will also be given.

Speakers:

1) **Air quality - the way forward:**
Yoanna Hristova[4], *Deputy Mayor for "Green System, Ecology and Land Reform"*, Sofia Municipality
2) **European Air Quality Index:**
Paul McAleavey[5], *Head of Air and Climate Change (ACC)*, European Environment Agency
3) **The need for private and public sector partnership in environmental policy and beyond:**
Iravan Hira[6], *Chairman*, Bulgarian Business Leaders Forum, *Managing Director*, Hewlett Packard Bulgaria and Hewlett Packard Global Delivery Bulgaria Center
4) **Improving welfare through accelerated deployment of renewables:**
Elizabeth Press[7], *Director*, Planning and Programme Support, International Renewable Energy Agency (IRENA)
5) **AIRLAB, an innovation accelerator dedicated to air quality:**
Pierre Pernot[8], *Head, Partnerships and Digital team*, AIRPARIF

Part III — Introduction to the 'ConverStations' process

15:30 Coffee break

Session 2

16:00
Energy and air quality ConverStations This session will not be interpreted.

An interactive session **showcasing companies, municipalities, and public and private sector initiatives that have succeeded in developing and deploying effective new technologies, or innovative business and governance models, for the reduction of air pollution originating from energy use.**

The session will offer a wide range of case studies (presented simultaneously), and participants will be able to choose three presentations and group discussions to attend. Participants can choose three out of 18 case studies (30 minutes each).

Case studies:

1) **Wood burning impact on air quality in Lombardy — Analysis and perspectives:**
Guido Lanzani[9], *Head of Air Quality Unit*, Environmental Monitoring Area, ARPA Lombardia, Italy
2) **Improving air quality through smart solutions — The GrowSmarter project:**
Gustaf Landahl[10], *Head of Department, Environment and Health Administration/ Planning and environment department,* City of Stockholm, Sweden
3) **Smart Clean Air City project — l'Aquila:**
Paolo Tripodi[11], *Board of Directors, Chief Innovation & Technology Officer*, IS CLEAN AIR, Italy
4) **The LIFE-IP PREPAIR project — Po regions engaged with air policy:**
Katia Raffaelli[12], *Project Manager LIFE IP PREPAIR*, Emilia-Romagna Region, General Directorate for Territorial and Environmental Care
5) **Helsinki Air Quality Testbed — New groundbreaking concepts for air quality monitoring and citizen services:**
Hannamari Jaakkola[13], *Business Development Manager*, Vaisala Oyj, Finland
6) **Residential wood burning and the smart cities approach in mitigating its impacts:**
Evangelos Gerasopoulos[14], *Research Director, Institute for Environmental Research and Sustainable Development,* National Observatory of Athens (NOA), Greece
7) **CleanOx for Cleaner Air:**
Tunç Görüney[15], *Corporate Energy and Environmental Manager,* Şişecam, Turkey
8) **CLEAN HEAT project — Pollution from residential burning; impact and solutions:**
Jens Hürdler[16], *Project Manager Transport and Air Quality,* Environmental Action Germany (DUH)
9) **iSCAPE — Improving the Smart Control of Air Pollution in Europe:**
Dr Salem Gharbia[17], *Post-doctoral Research Fellow*, University College Dublin
10) **EU H2020 programme:**
Vincenzo Gente[18], *Project Officer,* Executive Agency for Small and Medium-sized Enterprises (EASME)
11) **Activities of Ecomanagers within the LIFE IP MALOPOLSKA:**
Joanna Kiersnowska[19], *LIFE Project Specialist,* Air Quality Unit in Environmental Department Marshal Office, Malopolska Region, Poland
12) **Sustainable Lead Production at KCM AD:**
Yavor Kehaiov[20], *Director "Occupational Health and Safety, Environment & Management Systems",* KCM AD, Plovdiv, Bulgaria
13) **Advanced flue gas treatment technology:**
Pierluigi Cassaghi[21], *SOLVAir Regulation and Business Development Manager,* Solvay S.A, France
14) **EXERON — Sustainable green power supply on seven continents:**
Elena Gatcheva[22], *VP Strategic Partnerships at International Power Supply AD,* Exeron, Bulgaria
15) **Rocket Heater Gamera — Highly efficient wood stoves:**
Zhivko Stefanov[23], *Executive Director,* AGNON LTD, Bulgaria
16) **Ingersoll Rand Climate Commitment — Investment in new technologies for a sustainable today and tomorrow:**
Dermott Crombie[24], *Vice President,* Strategic Initiatives, Ingersoll Rand
17) **20 years track of environment projects in Aurubis Bulgaria:**
Krum Neykov[25], *Gas Cleaning Installation Manager,* Aurubis Bulgaria
18) **Plastics, an innovative enabler of energy efficiency and climate protection:**
Giuseppe Riva[26], *Director Mediterranean Region,* PlasticsEurope

17:30
Bulgarian solution swap (plenary) en/bg

The issue of air pollution from low quality domestic heating, which is key air quality issue facing Bulgaria, will be highlighted, and Forum participants will be invited to provide creative solutions.

Introduction made by Prof. Nikolay Kozarev[27], *Head of Department,* Department of Environmental Engineering, University of Chemical Technology and Metallurgy, Bulgaria

18:15
Drawing together key strands from the first day and previewing the second day of the event (plenary) en/bg

18:30 End of Day 1

18:30 Cocktail reception

Day 2
Tuesday, 6 February 2018

09:00 Welcome coffee

Session 3

09:15
Focus on issues (plenary) 🎧 en/bg

Part I — Agriculture and air quality

Plenary presentations will address the key issues, and the potential for innovative solutions on how to reduce air pollution originating from the agricultural sector.

Speakers:

1) **Reduction of ammonia emissions under the Rural Development Programmes:**
Angelo Innamorati[28], *Policy Officer,* DG Agriculture and Rural Development, European Commission
2) **Contribution of mineral fertilisers to better air quality in Europe:**
Tiffanie Stéphani[29], *Agriculture and Environment Manager,* Fertilizers Europe
3) **Mitigating emissions from animal houses in Flanders (Belgium):**
Peter Demeyer[30], *Advisor,* Institute for Agricultural and Fisheries Research (ILVO), Government of Flanders
4) **ATMOSYS, a web-based system to assess the local impact of agro-industrial sources:**
Stijn Janssen[31], *Program Manager — Environmental Modelling,* VITO
5) **Cutting air pollution from agriculture:**
Margherita Tolotto[32], *Air and Noise Policy Officer,* European Environmental Bureau
6) **Protecting the environment through reduction of Ammonia emissions from Slurry:**
Quentin Kelly-Edwards[33], *JH Agro Regional Manager for United Kingdom & Republic of Ireland,* JH Agro A/S and **Kurt West**[34], *Technical Salesman*, JH Agro A/S

Part II — Introduction to the 'ConverStations' process

10:30 Coffee break

Session 4

11:00
Transport and air quality ConverStations This session will not be interpreted.

An interactive session **showcasing companies, municipalities, and public and private sector initiatives that have succeeded in developing and deploying effective new technologies, or innovative business and governance models for reducing air pollution originating from transport.**

The session will offer a wide range of case studies (presented simultaneously), and participants will be able to choose three presentations and group discussions to attend. Participants can choose three out of 19 case studies (30 minutes each).

Case studies:

1) **Brenner Lower Emission Corridor (LIFE project):**
Laura Pretto[35], *Technical civil servant*, Environmental Protection Agency (APPA), Autonomous Province of Trento, Italy
2) **SIGEIF Mobilités — Developing a broad network of natural gas vehicle (NGV) refuelling stations in the Paris region:**
Christophe Poillion[36], *Vice President in charge of European Affairs,* GRTgaz
3) **Global system for sustainable traffic emissions management with RSD Technology:**
Dolores Hidalgo[37], *R&D Projects Scientific Manager,* Fundación CARTIF
4) **How we eliminated the NO_x problem from Copenhagen buses:**
Annika Isaksson[38], *CEO,* Amminex Emissions Technology, Sweden
5) **SME Instrument:**
Marco Rubinato[39], *Project Officer,* EASME, Executive Agency for SMEs - European Commission
6) **LIFE FOR SILVER COAST — Integrated mobility solutions:**
Antonino Tripodi[40], *CEO, UNeed.IT/Technical manager,* LIFE_SC project, Italy
7) **Putting organisational travel planning into practice — Sustainable commuting and its upscaling to municipal level:**
Csaba Mezei[41], *Project manager, Expert (Smart Cities and Mobility),* Regional Environmental Center for Central and Eastern Europe (REC)

8) **IMPROVE LIFE project is testing measures that can reduce PM concentrations in platforms and inside trains:**
Teresa Moreno[42], *Senior Researcher,* Spanish National Research Council (CSIC)
9) **Innovative PV 2 DC grid solutions in the Public Transport Grid:**
Krasen Mateev[43], *Chief Operations Officer,* SolarPro Holding AD, Bulgaria
10) **The future of urban mobility:**
Galin Bonev[44], *Founder and CEO,* Eljoy Bikes, Bulgaria
11) **Sofia Urban Challenge — The first open innovation initiative on clean air in Bulgaria:**
Mariyana Hamanova[45], *Founder and Managing Partner,* Cleantech Bulgaria
12) **Electric vehicle car sharing and charging stations infrastructure:**
Stefan Spassov[46], *CEO,* eMobility International (Eldrive); Ride Share Bulgaria (SPARK)
13) **Speedy electric vehicle fleet for city deliveries:**
Danail Danailov[47], *Member of the Board (responsible for strategy and business development),* Speedy JSC, Bulgaria
14) **Innovative method for solid particle filter cleaner and catalysts:**
Angel Stanev[48], *Marketing Manager, Innovation,* DPF Cleaning Machine, Bulgaria
15) **Shell — Helping to reduce air quality impacts from transport:**
Kamelia Slaveykova[49], *Country Chair,* Shell Bulgaria & Greece
16) **LIFE 'N Grab HY!: Hydrogen electric hybrid refuse collection vehicles to enhance air quality and reduce noise:**
Stefan Neis[50], *Project Manager*, WaterstofNet VZW
17) **Improving air quality through better, cleaner and more efficient fuels:**
Ewa Abramiuk-Lété[51], *Secretary General,* European Fuel Oxygenates Association (EFOA)
18) **Assessment of public health co-benefits from traffic related emission policies in Thessaloniki (ICARUS project):**
Prof. Dimosthenis A. Sarigiannis[52], *Director,* Environmental Engineering Laboratory, Chemical Engineering Department, Aristotle University of Thessaloniki, School of Engineering, *ICARUS Coordinator,* Greece
19) **Remote sensing — Measuring emissions from cars as they pass by:**
Herbert Woopen[53], *Lawyer, EU Representative,* OPUS, Germany

12:30 Lunch

Session 5

13:30
Financial support measures (plenary) en/bg

Presentations will introduce major financing mechanisms and outline the opportunities that exist on the European level to drive early transformation to a clean air economy.

1) **EU H2020 programme:**
Vincenzo Gente[54], *Senior Project Adviser,* EASME, Executive Agency for SMEs — European Commission
2) **SME Instrument (including the Innovation Council):**
Marco Rubinato[39], *Project Officer*, EASME, Executive Agency for SMEs — European Commission
3) **LIFE Programme:**
Santiago Urquijo Zamora[55], *Policy Officer,* LIFE Programme Unit, Directorate-General for the Environment, European Commission
4) **European Funds for Competitiveness:**
Kalin Marinov[56], *Deputy Director General,* Directorate General, European Funds for Competitiveness, Ministry of Economy, Republic of Bulgaria

14:30 Coffee break

Session 6

14:45
Forum messages (plenary) en/bg

A high-level panel will discuss key messages from the Forum (introduced by the rapporteur) and identify recommendations and messages for key stakeholder groups, e.g. the European Commission, Member States, and cities.

Panellists:

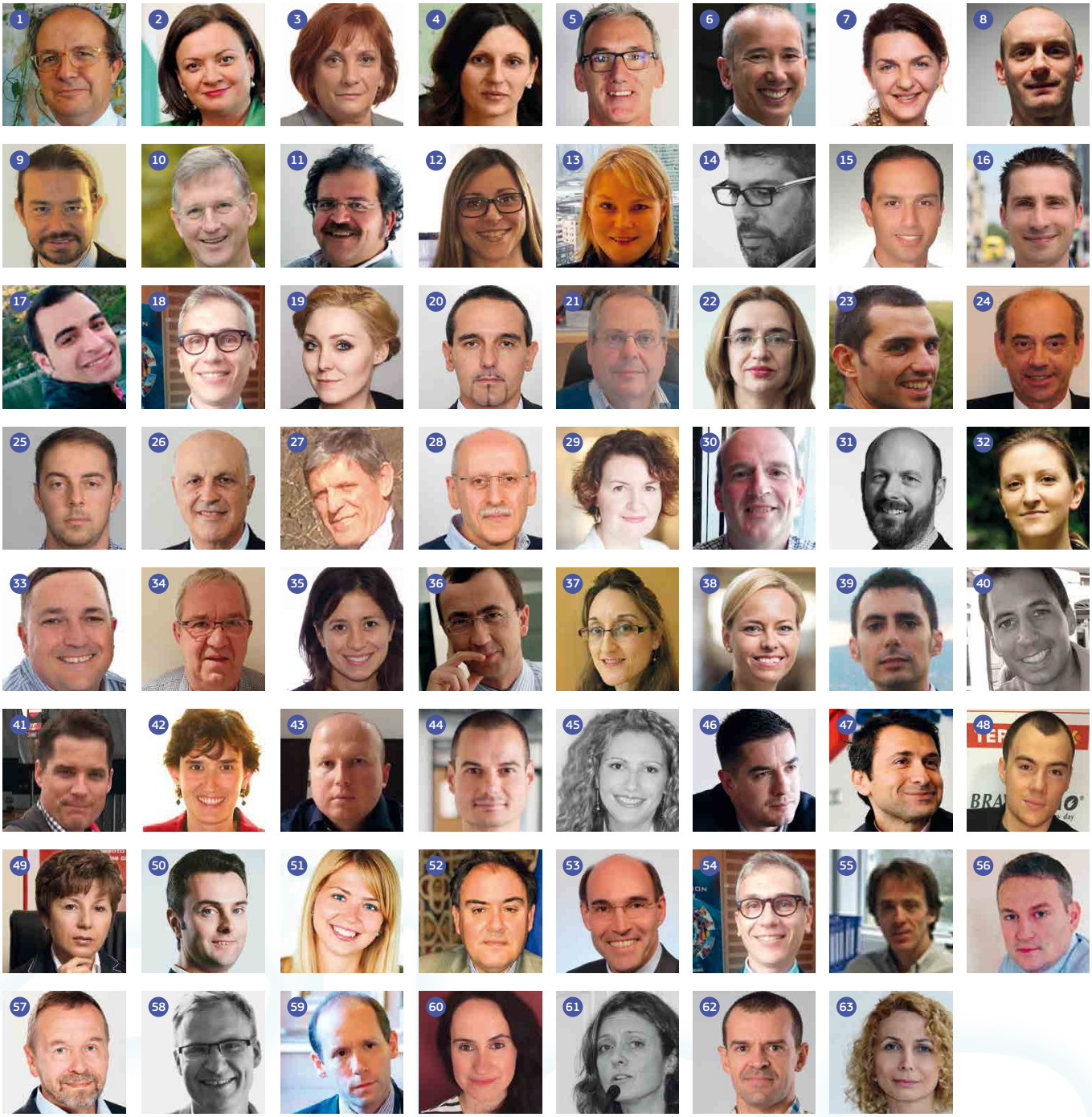
1) **Timo Mäkelä**[57], *Senior Advisor,* Sitra, Finnish Innovation Fund
2) **Andrzej Gula**[58], *Co-founder and Leader,* Polish Smog Alert and *President,* Institute of Environmental Economics
3) **François Wakenhut**[59], *Head of the Clear Air Unit,* Directorate-General for the Environment, European Commission
4) **Joana Cruz**[60], *Policy Advisor for environmental affairs,* EUROCITIES
5) **Anna Engleryd**[61], *Chair,* UNECE Air Convention (CLRTAP)
6) **Boyan Rashev**[62], *Partner Manager,* Denkstatt Bulgaria

15:45 Closing remarks

1) **François Wakenhut**[59], *Head of the Clear Air Unit,* Directorate-General for the Environment, European Commission
2) **Atanaska Nikolova**[63], *Deputy Minister of Environment and Water of Bulgaria*

16:00 Close

Speakers



Daniel Calleja Crespo[1], Ivelina Vassileva[2], Iskra Mihaylova[3],Yoanna Hristova[4], Paul McAleavey[5], Iravan Hira[6], Elizabeth Press[7], Pierre Pernot[8], Guido Lanzani[9], Gustaf Landahl[10], Paolo Tripodi[11], Katia Raffaelli[12], Hannamari Jaakkola[13], Evangelos Gerasopoulos[14], Tunç Görüney[15], Jens Hürdler[16], Dr Salem Gharbia[17], Vincenzo Gente[18], Joanna Kiersnowska[19], Yavor Kehaiov[20], Pierluigi Cassaghi[21], Elena Gatcheva[22], Zhivko Stefanov[23], Dermott Crombie[24], Krum Neykov[25], Giuseppe Riva[26], Prof. Nikolay Kozarev[27], Angelo Innamorati[28], Tiffanie Stéphani[29], Peter Demeyer[30], Stijn Janssen[31], Margherita Tolotto[32], Quentin Kelly-Edwards[33], Kurt West[34], Laura Pretto[35], Christophe Poillion[36], Dolores Hidalgo[37], Annika Isaksson[38], Marco Rubinato[39], Antonino Tripodi[40], Csaba Mezei[41], Teresa Moreno[42], Krasen Mateev[43], Galin Bonev[44], Mariyana Hamanova[45], Stefan Spassov[46], Danail Danailov[47], Angel Stanev[48], Kamelia Slaveykova[49], Stefan Neis[50], Ewa Abramiuk-Létê[51], Prof. Dimosthenis A. Sarigiannis[52], Herbert Woopen[53], Vincenzo Gente[54], Santiago Urquijo Zamora[55], Kalin Marinov[56], Timo Mäkelä[57], Andrzej Gula[58], François Wakenhut[59], Joana Cruz[60], Anna Engleryd[61], Boyan Rashev[62], Atanaska Nikolova[63]

Exhibitors
during the Forum

European Commission
EASME
UNECE

Display of European commission initiatives, programmes and instruments documents (including UNECE documents on Air quality issues).

LIFE Programme

At the LIFE stand, an expert from the LIFE communications team will provide information about the funding opportunities of LIFE as well as the contribution of the programme to air quality.

Project PREPAIR and on their Air Quality Plan

Presentation of the LIFE-IP PREPAIR "Po Regions Engaged to Policies of Air" project, co-financed by the EC and started at the beginning of 2017.

AID
Air pollution Intelligent Defense

An intelligent multi-agent monitoring network for real time air quality assessment and decision making and action implementation support for public health protection. The pilot case of the City of Thessaloniki.

AGNON Ltd
Wood stoves build on the principle of the rocket mass heater

Wood stoves — product demonstration and video presentation.

Eljoy Bikes

Electric bicycles, made in Bulgaria.

IPS
EXERON - the most advanced OFF-GRID System

Photo exhibition of IPS reference projects. Telling the story of electrifying off-grid/ remote locations with the innovative technology EXERON in an environmentally sustainable way.

Experts Ltd
Innovation DPF Cleaning Machine

The Innovation DPF Cleaning Machine aims at being an affordable and sustainable way to recycle DPF/FAP filters for diesel powered machines and catalysts for gas powered machines. The presentation will be in two parts: visual presentation and demonstration of the cleaning process.

SOLVair solutions

Flue gas cleaning technologies can be implemented quickly with low capex, and highly efficient in treating acid gas produces by combustion and industrial processes. These technologies can be associated with other ones to improve the performances reaching the new limits.

Shell

Shell Eco-marathon cars of the students from Bulgarian high schools and universities and the 10 framed drawings from student's (finalists) competition "Green transport of the future".

Elprom EMZ
Charging stations for electric vehicles

Charging station for electric vehicles
Demonstration and real product exposure

Vaisala Oyj

A new ground-breaking Air Quality Testbed in the city of Helsinki will be presented. The Testbed puts together new high-end air quality sensors, high resolution air quality modelling and various research activities. As a result of the Testbed Helsinki citizens are going to enjoy of several improved services related to air quality forecasting, traffic planning and city design activities.

KCM

KCM 2000 Group owns the biggest lead and zinc smelter in South East Europe – KCM AD. In 2014 the old lead smelting facility was replaced by a state-of-the-art installation. This milestone environmentally-orientated investment project resulted in 35% reduction in electricity consumption; increase in the share of the processed secondary lead bearing feed materials; reduced and warranted sulphur dioxide emissions at the stack, as well as lead and cadmium emission levels; and, last but not least, 50% decrease in the greenhouse gases emitted into the atmosphere.

NanoBoost Ltd

NanoBoost has a patented solution in the form of innovative Nano Structured Fuel Additive that can drastically reduce motor vehicle emissions. We are going to bring some experiment results and sample products to exhibit.

Case Studies from Session 2:
Energy and air quality ConverStations

An interactive session **showcasing companies, municipalities, and public and private sector initiatives that have succeeded in developing and deploying effective new technologies, or innovative business and governance models, for the reduction of air pollution originating from energy use.**

The session will offer a wide range of case studies (presented simultaneously), and participants will be able to choose three presentations and group discussions to attend. Participants can choose three out of 18 case studies (30 minutes each).

Case study 1:
Wood burning impact on air quality in Lombardy — Analysis and perspectives

Speaker
Guido Lanzani

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IT-20124 Milano
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General description:

The project aims at analysing the impact of wood burning on air quality in Lombardy and the strategy adopted to mitigate it.

In Lombardy, wood burning for domestic heating is responsible for 44% of primary PM_{10} emissions, and 70% of BaP. Source apportionment studies confirm the importance of this source for air pollution.

A path towards a reduction of the impact of wood burning has been implemented, with stove classification, a progressive ban on the use of the worst ones, and gradually more ambitious requirements for new installations, not only in terms of energy efficiency but above all in terms of pollutant emissions. Communication campaigns towards the correct use and maintenance of the appliances have also been realised.

Partner: Region of Lombardy

ARPA LOMBARDIA
Agenzia Regionale per la Protezione dell'Ambiente

Case study 2:
Improving air quality through smart solutions — The GrowSmarter project

Speaker
Gustaf Landahl

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Gustaf Landahl
City of Stockholm
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Email:
Gustaf.landahl@stockholm.se

General description:

GrowSmarter brings together cities and industry to integrate and demonstrate '12 smart city solutions' in energy, infrastructure, and transport, to provide other cities with valuable insights on how they work in practice and opportunities for replication.

The idea is to create a ready market for these smart solutions to support growth and the transition to a smart, sustainable Europe.

GrowSmarter kicked off on 1 January 2015 and will run until 31 December 2020. This project has received EUR25 million in funding from the European Union's Horizon 2020 research and innovation programme.

Partners: Cologne and Barcelona

Website:
www.grow-smarter.eu

Stockholms stad

Case study 3:

Smart Clean Air City project — l'Aquila

Speaker
Paolo Tripodi

Contact
Paolo Tripodi
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(Progetto Manifattura)
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M: +39 3891489235
Email:
ptripodi@iscleanair.com

General description:

Exposure to atmospheric pollution is a major concern for urban populations. Currently, no effective strategy has been adopted to tackle the problem. The present work deals with a network of innovative filterless Air Pollution Abatement (APA) scrubbers at ground level, used to remove particulate matter and other pollutants from the air. APA scrubbers were placed in different urban areas, creating a network of air pollution absorbers. In particular, the results obtained by a network of three APA devices positioned along a 100m section of a pavement in central Rome, on a street characterised by high traffic density, have shown a particulate matter reduction of 18–99% for the PM's size range (from 0.50–10.00μm over a test period of three years). In another test, we found that a one month operation of a scrubber near an air quality monitoring station, located in a urban square of Bolzano (Italy), reduced the level of nitric dioxide (NO_2) and nitric oxide (NO) by 10% and 15%, respectively.

Theoretical assessments, performed by Computational Fluid Dynamics (CFD) codes, have demonstrated the effects of the wet scrubber operation on air pollutants under different environmental conditions and in several urban usage patterns, particularly in deep street canyons. Motivated by these preliminary results, an extended experiment, performed by 20 APA devices, is currently ongoing along 600m of a busy road in L'Aquila (Italy). This unique pilot project represents a special laboratory designed to realise an air remediation test in an urban environment on a large scale, providing, at the same time, punctual information on pollutant diffusion inside a street canyon.

Partners: Italian Ministry of Economic Development, ISTECH, SPIn, University of L'Aquila, L'Aquila City Hall

Website:
www.iscleanair.com

ISCLEANAIR
BREATHE YOUR LIFE

Case study 4:

The LIFE-IP PREPAIR project — Po regions engaged with air policy

Speaker
Katia Raffaelli

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emilia-romagna.it

General description:

Po Regions Engaged to Policies of AIR (PREPAIR) aims at implementing the measures foreseen in the regional plans and in the Po Valley agreement at a larger scale, to strengthen the sustainability and durability of results. The IP covers the Po Valley, including the regions and cities that mainly influence air quality in the basin. The Po Valley covers the northern Italian regions and several urban agglomerates such as Milan, Turin, Venice and Bologna. It is densely populated and heavily industrialised. It aims at implementing Air Quality Plans through concrete actions in the fields of agriculture, biomass, transport, energy, emissions and air quality evaluation. The IP actions are also extended to Slovenia in order to assess and reduce the transportation of pollutants across the Adriatic sea.

The project will last for seven years (from 1 February 2017 to 31 January 2024).

The beneficiary coordinator of the project is the Emilia-Romagna Region, Directorate General for Territorial and Environmental Care, and it involves 17 associated beneficiaries.

Partners: Regions — Emilia-Romagna, Piemont, Lombardy, Veneto, Friuli-Venezia Giulia, Autonomous Province of Trento; Regional Environmental Protection Agencies of Emilia-Romagna, Lombardy, Veneto, and Valle d'Aosta; Environmental Agency of Slovenia; Municipalities of Bologna, Turin, and Milan; ERVE; Lombardy Foundation for the Environment.

Website:
www.lifeprepair.eu

RegioneEmiliaRomagna

YOU'VE GOT AIR! Together for the Policies of air quality prepAIR

Case study 5:

Helsinki Air Quality Testbed — New groundbreaking concepts for air quality monitoring and citizen services

Speaker
Hannamari Jaakkola

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vaisala.com

General description:

Poor air quality is the most severe environmental hazard to people globally. To improve the accuracy of urban air quality predictions, dense air quality measurement networks are needed. The Helsinki metropolitan Air Quality Testbed (HAQT) project demonstrates an end-to-end approach to meet this demand by adding cost efficient air quality instruments to the current reference network in the Helsinki metropolitan area. Using the data gained as an input for an ENFUSER model, it will significantly improve air quality forecasts. By the project's end, it will have implemented a few demonstration services for data dissemination.

The project is due to start in August 2017 and will last for two years.

Partners: Helsinki Metropolitan Smart & Clean Foundation, Helsinki Region Environmental Services Authority, HSY, Helsinki University, Department of Atmospheric Sciences, Finnish Meteorology Institute

Supporting document:
https://www.linkedin.com/pulse/worlds-best-experts-build-unique-air-quality-iot-system-eetu-helminen/?trk=v-feed&lipi=urn%3Ali%3Apage%3Ad_flagship3_detail_base%3BoZJ3XLMpxCU5vYsNPG6v6A%3D%3D

Website:
http://fmispace.fmi.fi/index.php?id=haqt

VAISALA

Case study 6:

Residential wood burning and the smart cities approach in mitigating its impacts

Speaker
Evangelos Gerasopoulos

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National Observatory of Athens
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General description:

This project aims at promoting and coordinating **the "smart city" concept** in a European network of cities, serving the need for a common approach to enhance **environmental and societal resilience** to urban pressures. SMURBS — SMart URban Solutions for air quality, disasters and city growth (ERA-PLANET/H2020).

SMURBS sets the stage for the integration of our still fragmented, multi-scale and multi-temporal earth observation (EO) resources into information and decision-making tools for individuals and local governments, under the 'smart city' concept. It addresses urban pollution, natural/manmade disasters and uncontrolled city growth. With respect to air quality it will unfold the full range of technologically available methods for the next generation of urban monitoring capacities, tracking pollutants of emerging importance, and allowing for near real-time source apportionment and high resolution city-scale modeling, adjusted to modern AQ management needs.

The project started on 1 September 2017 and will run until 31 August 2020.

Partners: National Observatory of Athens (NOA) — Coordinator; National Observatory of Athens; Aristotle University of Thessaloniki; National Research Council of Italy; French National Centre for Scientific Research; Centre for Ecological Research and Forestry Applications (CREAF); Helmholtz-Zentrum Geesthacht Centre for Materials and Coastal Research; Italian National Institute for Environmental Protection and Research; Swedish Environmental Research Institute; Jožef Stefan Institute; Masaryk University; National Centre of Scientific Research 'Demokritos'; Paul Scherrer Institute (PSI); Romanian Space Agency (ROSA); the Space Research Institute of the National Academy of Sciences of Ukraine and the National Space Agency of Ukraine; Stockholm University; Leibniz Institute for Tropospheric Research e.V.; University of Helsinki; University of Calabria

Website:
www.smurbs.eu

Case study 7:

CleanOx for Cleaner Air

Speaker
Tunç Görüney

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General description:

Increasingly stringent environmental regulation targets are among the key factors that urge glass manufacturers to invest in innovative technologies that help reduce energy consumption and harmful emissions. Recent trends show the leveraging of external partnerships and public co-funding to be instrumental in the implementation of such integrated enabling technologies in the melting process in glass furnaces — the ultimate goal is to validate these technologies on an industrial scale. One such example is the European Commission LIFE Programme's co-funded implementation of CleanOx technology in Şişecam's tableware furnace in Bulgaria. Şişecam is demonstrating a continuous commitment to investing in innovative technologies that add value to, and reduce the environmental footprint of, glass manufacturing.

Partner: Air Liquide

Website:
www.pasabahce.com/en

Case study 8:

CLEAN HEAT project — Pollution from residential burning; impact and solutions

Speaker
Jens Hürdler

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General description:

Clean Heat aims at reducing particles from residential burning using technical and political solutions, and by providing comprehensive consumer information.

In Europe, residential burning is the main source of fine particles and black carbon. These emissions have a substantial effect on human health. In addition, black carbon also has a negative impact on the climate. Deutsche Umwelthilfe, a non-profit organisation that works for the protection of nature, the environment and consumer rights, will provide examples of legislation on residential burning from other Member States in this session. Alongside this, the results of awareness-raising activities (background information, media work and professional events) will be presented, and the results of its own particle measurements (indoor/outdoor) will be shown.

Clean Heat is co-financed by the European Commission's LIFE Programme. The project started in autumn 2015 and will run until January 2019.

Partner: Danish Ecological Council (DEC)

Supporting document:
www.clean-heat.eu/en/actions/info-material

Website:
www.clean-heat.eu

Case study 9:

iSCAPE — Improving the smart control of air pollution in Europe (LIFE project)

Speaker
Dr Salem Gharbia

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General description:

iSCAPE is a three-year research and innovation project that has brought together an interdisciplinary team of renowned and experienced researchers, public authorities, business professionals, committed NGO members and citizens. The overall objective is to develop an integrated strategy for air pollution control in European cities that is grounded in evidence-based analysis. The iSCAPE project aims at reducing urban air pollution and the negative impacts of climate change by leveraging sustainable passive control systems, behavioural change initiatives and a living lab approach. These interventions will be monitored and evaluated in terms of their environmental, social and economic implications.

Partners: University College Dublin, University of Bologna, University of Surrey, Finnish Meteorological Institute, Hasselt University, Technical University Dortmund, Joint Research Centre's (JRC's) Institute for Environment & Sustainability — European Commission, Institute for Advanced Architecture of Catalonia — FabLab Barcelona, T6 Ecosystems S.r.l., NanoAir Solutions S.r.l., Future Cities Catapult Ltd, Dublin City Council, Regional Agency for Prevention, Environment and Energy of Emilia-Romagna, European Network of Living Labs, and Trinity College Dublin

Supporting documents:
https://www.iscapeproject.eu/wp-content/uploads/2017/07/FacSheet_iSCAPE_v5.0.pdf,
https://www.iscapeproject.eu/wp-content/uploads/2017/11/iSCAPE_leaflet.pdf,
https://www.youtube.com/watch?v=WGFUpuYHakY

Website:
www.iscapeproject.eu

Case study 10:

EU H2020 programme

Speaker
Vincenzo Gente

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General description:

During the ConverStation the Executive Agency for Small and Medium-sized Enterprises (EASME), and its role in the managing Horizon 2020 Work Programmes, will be presented. In particular, the presentation will give an overview of the life cycle of Horizon 2020 projects, from evaluation to reporting, where to find calls for proposals in the Participant Portal, and how to search for projects in the EASME Data Hubs. Examples of ongoing Horizon 2020 projects in the area of eco-innovation and air quality will be demonstrated.

Supporting document:
https://ec.europa.eu/easme/en/easme-data-hubs

Website:
www.ec.europa.eu/easme/en

Case study 11:

Activities of Eco-managers within the LIFE-IP MALOPOLSKA

Speaker
Joanna Kiersnowska

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Joanna.kiersnowska@umwm.pl

General description:

Southern Poland is one of the most polluted regions in the EU. The region of Małopolskaie struggles with very poor air quality, the major source of air pollution being low-stack emissions. This source is responsible for 55% of PM10, and over 70% of BaP concentrations. The LIFE-IP MALOPOLSKA project aims at facilitating the effective use of the available financial resources and legal instruments to achieve a real air quality improvement in Małopolskaie. The project is a response to the needs of local governments, who require well educated people to help in achieving the goals outlined in the Air Quality Plan for Małopolskaie. These people — eco-managers — have been hired in 55 municipalities in Małopolskaie to undertake numerous activities (mostly educational) that help residents to implement pro-ecological attitudes, behaviors and choices.

The project started on 1 October 2015 and will run until 31 December 2023.

Partners: 55 Municipalities in Małopolskaie, Region of Śląskie, Kraków Smog Alert Association, National Energy Conservation Agency, Flemish Institute for Technological Research, Slovak Hydrometeorological Institute, Ministry of the Environment of the Czech Republic, Regional Fund of Environmental Protection and Water Management in Kraków

Website:
www.powietrze.malopolska.pl/eng

MAŁOPOLSKA
IN A HEALTHY ATMOSPHERE

Case study 12:

Sustainable Lead Production at KCM AD

Speaker
Yavor Kehaiov

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General description:

KCM 2000 Group owns the biggest lead and zinc smelter in Southeast Europe — KCM AD. In 2014 the old lead smelting facility was replaced by a state-of-the-art installation, one meeting the best available technique requirements in the sector. This landmark, environmentally orientated investment project resulted in a 35% reduction in electricity consumption, an increase in the share of processed secondary lead-bearing feed materials, a reduction in sulphur dioxide, lead and cadmium emission levels, a warrant for sulphur dioxide emissions and, last but not least, a 50% decrease in the greenhouse gases emitted into the atmosphere.

The objective is:

- To complete the technical and technological renovation of the lead producing installation;
- To resolve the environmental problems caused by the high emissions of diffused dust and SO_2 in off gas from the old metallurgical equipment;
- To enable the new lead plant to operate in full conformity with Bulgarian emission regulations and standards, which are based on the European Environmental Standards.

Duration: 2005–14

Website:
www.kcm2000.bg

Case study 13:

Advanced flue gas treatment technology

Speaker
Pierluigi Cassaghi

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General description:

SOLVAir® Solutions encompasses a wide range of products, services, technologies and systems based on sodium bicarbonate for processing and controlling air emissions.

Our customers are involved in industrial activities such as incinerators (WtE plants), power generators, industrial boilers, cement production, glass manufacturing, etc. Currently, over 300 customers (only in Europe) use SOLVAir® Solutions to eliminate acid pollutants (SO_x, HCl, HF) using the strictest standards. Our processes are fully compatible with the most efficient nitrogen- and sulphur oxide (NO_x & SO_x)-neutralising technologies. We have already amassed over 30 years of experience.

SOLVAir® Solutions was launched by Solvay, a market leader in sodium products.

Website:
www.solvairsolutions.com

Case study 14:

EXERON — Sustainable green power supply on seven continents

Speaker
Elena Gatcheva

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General description:

IPS is a developer and manufacturer of power supply systems with 28 years of experience. IPS' top innovative patent pending and military approved technology, EXERON, won the Intersolar 2014 world innovation award for EES in Munich, Germany (from among 1800 competing companies). The technology can combine power from different energy sources, such as solar panels, wind turbines, diesel generators and the grid, store unused energy in a battery and offer a consistent power supply and energy independence for areas with limited or no grid. It significantly reduces the DG work, and in turn, air pollution for sites running only on diesel. IPS has projects in 58 countries worldwide.

Partners: PostScriptum Ventures, BlackPeak Capital and Mytilineos

Supporting documents:
https://exeron.com/attachments/Support/1/main/X-the-Off-Grid-Beast-eV.pdf,
https://exeron.com/attachments/Support/1/main/Exeron-General-Brochure.pdf

Website:
www.exeron.com

Case study 15:

Rocket Heater Gamera — Highly efficient wood stoves

Speaker
Zhivko Stefanov

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General description:

AGNON Ltd is developing and manufacturing wood stoves built on the principle of the rocket mass heater. Rocket stoves consume 2–3 times less wood than present day stoves and generate around 100 times less air pollution. They also have the ability to generate their own draught, allowing the heat to be stored as a thermal mass in custom-built forms — a cob bench for example — to decrease the consumption of wood several more times. They can work with scrap wood/ branches instead of solid wood, reducing the fuel price even more.

Partners: ELEVEN VC and Cleantech

Website:
www.gamera.eu

Case study 16:

Ingersoll Rand Climate Commitment — Investment in new technologies for a sustainable today and tomorrow

Speaker
Dermott Crombie

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General description:

SLXi Hybrid is an innovative refrigeration system for semi-trailer applications, allowing the refrigeration unit to operate on full electric power with the diesel engine turned off. This ensures minimum impact on city environments during delivery operations, allowing for the distribution of fresh products in densely populated urban areas where access is limited to low-noise, low-emission vehicles.

CryoTech technology also offers a zero emission, whisper-quiet solution. The presentation will demonstrate case studies, showing that the carbon footprint of a CryoTech system is 75% less than a conventional diesel system, and 68% less than a nitrogen cryogenic system.

Supporting documents:
www.europe.thermoking.com/slxi/,
www.europe.thermoking.com/cryotech/

Website:
www.company.ingersollrand.com

Case study 17:

20 years of environment projects in Aurubis Bulgaria

Speaker
Krum Neykov

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General description:

Since 1997 Aurubis have achieved outstanding success in environmental protection and emission reduction. Today, they are one of the most environmentally friendly copper producers worldwide. A big investment programme was implemented in the period 2011–14; as part of it an additional Secondary Gas Cleaning System was installed. The Sulfacid technology has been proven over a long time in other chemical industries, but this is the first time it has been introduced for the off-gas treatment process in copper smelting.

Advantages:
- Waste-free technology,
- No consumables,
- Useful and valuable product (< 15% H^2SO^4).

Disadvantages:
- Significant investment,
- Requires space.

Website:
www.aurubis.com

Case study 18:

Plastics, an innovative enabler of energy efficiency and climate protection

Speaker
Giuseppe Riva

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Italy
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giuseppe.riva@plastics
europe.org

General description:

Plastics are the materials best able to respond to the challenges of our society; these materials have the unique characteristics of being lightweight, hygienic, safe, and affordable and, at the same time, have the lowest environmental impact. Our society has to learn to properly manage the end-of-life of plastic goods in order to avoid the dispersion of plastic waste in the environment. To have adequate waste management, every country has to build their own infrastructures and develop the necessary 'culture' among their citizens.

Website:
www.plasticseurope.org

PlasticsEurope
Association of Plastics Manufacturers

Case Studies from Session 4:
Transport and air quality ConverStations

An interactive session **showcasing companies, municipalities, and public and private sector initiatives that have succeeded in developing and deploying effective new technologies, or innovative business and governance models for reducing air pollution originating from transport.**

The session will offer a wide range of case studies (presented simultaneously), and participants will be able to choose three presentations and group discussions to attend. Participants can choose three out of 19 case studies (30 minutes each).

Case study 1:
Brenner Lower Emission Corridor (LIFE project)

Speaker
Laura Pretto

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General description:

BrennerLEC aims at creating a holistic Lower Emission Corridor (LEC) concept for the A22 motorway (Italy). It tests a set of dynamic policies, such as road capacity management, reducing speed limits in correspondence with intense traffic flows, and temporarily introducing an additional third lane during nearly saturated traffic conditions; speed limits management, applied to light vehicles as a function of the current and predicted air quality conditions; and integrated traffic management, in correspondence with urban areas, to guide road users on recommended routes. The impacts are assessed through monitoring environment, transport and social acceptance of the measures.

The project was approved by the European Commission on 3 March 2016, started in September 2016, and will end in April 2021. The overall project budget amounts to EUR4 million and is co-financed by the EU funds of the LIFE Programme (Environment) for a total amount of EUR1.9 million.

Partners: Autostrada del Brennero (Project Leader); Regional Environmental Protection Agency, Province of Bolzano; Regional Environmental Protection Agency, Province of Trento; University of Trento; IDM South Tyrol; CISMA S.r.l

Website:
www.brennerlec.life

Case study 2:
SIGEIF Mobilités — Developing a broad network of natural gas vehicle (NGV) refuelling stations in the Paris region

Speaker
Christophe Poillion

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GRTgaz
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General description:

SIGEIF Mobilités is a French project created in 2016 that aims at developing a broad network of natural gas vehicle (NGV) refuelling stations in the Paris region by 2020.

By choosing to take part in the project, GRTgaz (the public service company is one of the European leaders of natural gas transmission and a world expert of gas transmission networks and systems) is showing their deep conviction that a fuel alternative, such as NGVs, can help to reduce CO_2 emissions in the transport sector, namely in urban environments.

Partners: Le Syndicat intercommunal pour le gaz et l'electricité en Île-de-France (Sigeif), Caisse des Dépôts, Syctom (household waste agency) and SIAAP

Supporting document:
http://www.gaz-mobilite.fr/actus/sigeif-mobilites-sem-deploiement-stations-gnv-biogaz-ile-de-france-1432.html

Website:
www.grtgaz.com

Case study 3:

Global system for sustainable traffic emissions management with RSD technology (LIFE GySTRA)

Speaker
Dolores Hidalgo

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General description:

This project aims at establishing a real and effective policy for sustainable mobility, both for city traffic and for private transport fleets, based on the remote sensing technology RSD+. The goal is to put real actions into place to ensure compensation from vehicles that are polluting beyond defined thresholds.

It is expected that the actions included in the LIFE GySTRA project will contribute significantly to compliance with the European environmental objectives related to 'urban environment' as they provide a sustainable alternative for the monitoring, management and reduction of the emissions from traffic in cities.

The project started on 1 September 2017 and will run until 30 November 2020.

Partners: OPUS RSE, Spanish Directorate General of Traffic, Spanish Research Centre for Energy, Environment and Technology and City of Graz

Supporting documents:
http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=search.dspPage&n_proj_id=6278
http://airuse.eu/wp-content/uploads/2017/11/27-Presentation-LIFE-GySTRA.pdf

Website:
www.lifegystra.eu

Case study 4:

How we eliminated the NO_x problem from Copenhagen buses

Speaker
Annika Isaksson

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Email: info@amminex.com

General description:

Three hundred city buses in Copenhagen have been upgraded to remove toxic NO_x emissions from the diesel engines. Amminex was chosen as the sole supplier for the ambitious Clean Air Package due to the superior efficiency of their innovative ASDS™ technology, and due to real-time measurements and documentation of the NO_x removal. ASDS stores ammonia safely in a salt and releases the reactive gas to the catalyst, where it eliminates NO_x. By using a gas, the catalyst is activated even in slow, urban driving conditions — where the other solutions using liquid urea find it challenging. ASDS effectively removes 92–99% of NO_x under all driving conditions.

The actual NO_x reduction is measured by sensors and sent to a database every minute, and the free NO_x Tracker app provides total transparency in terms of efficiency and value for money for the authorities, the bus operators and the public. To date, ASDS has removed more than 450 tonnes of NO_x from the streets of Copenhagen.

The ASDS solution ensures the buses meet the strictest Euro VI standards in both lab-testing and in real-world driving, improving air quality where it is needed the most — in densely populated areas.

The project started in 2015, and will run until 2020.

Partner: Movia, Denmark's largest public transport agency

Supporting document:
Company and technology presentation video https://www.youtube.com/watch?v=P9h36dWa2ZM&feature=youtu.be (English)

Website:
www.amminex.com

Case study 5:

SME Instrument

Speaker
Marco Rubinato

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General description:

The SME Instrument provides full-cycle business innovation support. It has three phases, including a coaching and mentoring service. There are no set topics. It is designed only for for-profit SMEs, including young companies and start-ups, from any sector. You must be established in an EU Member State or an associated country. Selected companies receive funding, are offered business coaching to scale up their innovation ideas, and are helped to network with other companies of all sizes and with potential co-investors and follow-up investors. Competition is tough and the speaker will provide some hints for a successful application.

Website:
www.ec.europa.eu/easme/en/sme-instrument

Case study 6:

LIFE FOR SILVER COAST — Integrated mobility solutions (LIFE S_C)

Speaker
Antonino Tripodi

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General description:

Funded by the EC's LIFE Programme, LIFE_SC will implement a set of integrated mobility solutions in three Italian cities popular with tourists (Isola del Giglio, Monte Argentario and Orbetello). Electric vehicles will be used to increase the accessibility of areas not currently served by public transport for both citizens and tourists, aiming at decreasing the use of means of transport that pollute.

Electric boats will connect Orbetello to the beaches, as well as the coasts of Argentario and Giglio. An e-bus service will go back and forth between the railway station and the city centre. Shared electric cars, scooters and bikes will be available for road users at strategic points in the three cities. The bikes will be made available through a prototype innovative bike sharing station.

The mobility services will be integrated through an info-mobility platform, providing managers and road users with information, allowing for the purchase of tickets, and giving users the opportunity to leave comments.

Partners: Florence University, Municipality of Orbetello, Municipality of Monte Argentario, Municipality of Isola del Giglio, ENEL S.p.A, Newave Italia S.r.l., Primordial S.r.l., Green Action S.r.l. and UNeed.IT

Website:
www.lifeforsilvercoast.eu/index.php/en/

Case study 7:

Putting organisational travel planning into practice — Sustainable commuting and its upscaling to municipal level

Speaker
Csaba Mezei

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General description:

Since late 2014, the REC has been developing and piloting an on-site tool (https://tmt.rec.org) to monitor, and help reduce, CO_2 and other pollutant emissions, and to improve the energy efficiency of its employees' commuting. The data it gathers (including fuel costs, savings and calories burned) feed into a daily ride-sharing platform and a website that also offers other information on public transport services, bike-to-work options and mobility planning.

The REC would like to bring the philosophy of smart, sustainable commuting forward, and to advocate and assist in its uptake in any workplace. Interest in the REC's sustainable commuting toolkit has been shown, and its uptake is currently being realised in a new EU-financed project called Smart Alliance for Sustainable Mobility (SASMob).

Partners: Municipality of Szeged (Hungary)

Website:
wwwtmt.rec.org

REGIONAL ENVIRONMENTAL CENTER

Case study 8:

The IMPROVE-LIFE project is testing measures that can reduce PM concentrations in platforms and inside trains

Speaker
Teresa Moreno

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General description:

The overall objective of IMPROVE (Implementing Methodologies and Practices to Reduce air pollution Of the subway enVironmEnt) is to provide a benchmark study that will lead to a real improvement in subway air quality. Within the IMPROVE-LIFE project we are testing measures that can reduce PM concentrations in platforms and inside trains, taking into account variations in all the key factors, such as station depth, date of construction, station design, type of ventilation, types of brakes used on the trains, train frequency and the presence or absence of platform screen door systems. It also comprises indoor carriage air quality.

The project started on 1 October 2014 and will run until 31 March 2018.

Partners: Spanish Council for Scientific Research (CSIC) and Transports Metropolitans de Barcelona (TMB)

Website:
www.improve-life.eu

Co-Funded by European Commission LIFE+Environment Policy and Governance Programme LIFE13 ENV/ES/000283

Case study 9:

Innovative PV 2 DC grid solutions in the public transport grid

Speaker
Krasen Mateev

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Bulgaria
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General description:

The project aims at implementing the direct use of green energy in public transport.

The PV systems generate DC voltage and current and are suitable for the DC grids of the public transportation system. The energy produced from the PV systems saves more conventional energy than it replaces from the public grid.

Instead of using conventional energy sources for public transport, the energy generated from the PV modules is injected into the DC grid. The PV systems and conventional power supply systems work in parallel. The difference between the energy used by the vehicles and the energy produced from the PV systems is consumed by the electrical distribution network. This process is automatic, without interruptions, has the ability to switch between sources, and processes the additional energy efficiently.

Website:
www.solarpro.bg

Case study 10:

The future of urban mobility

Speaker
Galin Bonev

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General description:

With ongoing urbanisation, and an increased population density in cities, solutions for sustainable transport are needed. The only way to solve the problems of urban transport is by increasing the modal share of bicycles and especially electric bicycles. E-bikes are the most sustainable and energy efficient mode of city transport. They help people travel faster and further with less effort, even when climbing steep hills.

To make e-bikes easily available to people living in cities Eljoy bikes developed the Smart Sharing E-bike System for public use. In cooperation with local authorities and public–private partnerships, we extend public transport systems and make them a real alternative to cars for commuting. At the same time we provide anonymous data collected from the bikes to municipalities for analysis and infrastructure development and optimization.

New e-bike-sharing systems are implemented each year across Europe, but they all face the same challenges: high implementation and maintenance costs. Eljoy bikes solve these problems by focusing on in-house technology innovations and local manufacturing of e-bikes to provide feasible and sustainable sharing systems.

Website:
www.EljoyBikes.com

Case study 11:

Sofia Urban Challenge — The first open innovation initiative on clean air in Bulgaria

Speaker
Mariyana Hamanova

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General description:

In 2017 the Municipality of Sofia and Cleantech Bulgaria, with the support of Climate-KIC, the biggest EU public–private partnership supporting innovation towards tackling climate change, organised the first open innovation pitch event. Their objective was to attract the start-ups in the EU best able to improve the air quality in Bulgaria's capital. Six teams presented their solutions, and three were selected as suitable for application within the city-specific context. Currently we are working on Phase II of the project, which, in 2018, might result in a pilot-testing of the solution that won first place at the open innovation event — installing a public e-bike rental system in Sofia (developed by a young Bulgarian company).

This scouting procedure, and pilot-test, is to achieve a solution that can provide clean air for Sofia's citizens. The duration is six months for Phase I and 12 months for Phase II.

Partners: Municipality of Sofia, Climate-KIC and Eljoy Bikes

Supporting documents:
http://cleantech.bg/running-campaigns/sofia-city-urban-challenge-2017/

http://www.capital.bg/biznes/startup/2017/10/21/3062526_koi_kompanii_specheliha_purviia_konkurs_za_inovacii_za/

Website:
www.cleantech.bg

Case study 12:

Electric vehicle car sharing and charging stations infrastructure

Speaker
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General description:

Ever-growing urbanisation is facing increasing problems caused by harmful emissions and heavy traffic. Electric vehicles and free-flow electric vehicle sharing are particularly effective at addressing these problems. The demand for electric vehicles and shared mobility services has grown rapidly over the past few years, and is expected to continue to do so in the foreseeable future.

SPARK Bulgaria (a JV between SPARK Lithuania and Eldrive) is the first car sharing service company to enter the Bulgarian market. SPARK initiated operations in Sofia at the end of October 2017 and is growing rapidly. Together, Eldrive and SPARK strive to promote EV mobility by expanding the charging stations' infrastructure and allowing for contemporary and zero-emission urban mobility to fit the needs of modern society.

Websites:
www.spark.bg
www.eldrive.eu

Case study 13:

Speedy electric vehicle fleet for city deliveries

Speaker
Danail Danailov

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General description:

In 2013, Speedy bought 20 electric Renault Kangoo Zero Emission (ZE) vehicles to operate in the municipality of Sofia and in other big cities in the country. The purchase of electric vehicles was a forward-looking decision and made the biggest Bulgarian courier company one of the first in Europe to undertake such an innovative investment at such a scale. For the first four years the project proved to be financially sustainable despite the lack of any government incentives or support for such green initiatives.

The project started in 2013, and will run until 2023.

Website:
www.speedygoesgreen.bg

Case study 14:

An innovative method for solid particle filter cleaners and catalysts

Speaker
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General description:

The project aims at delivering quick and sustainable solutions for improving the quality of air by recycling the solid particle filters on diesel-powered machines with DPFs and catalysts for gas powered machines. The innovative recycling DPF-cleaning machines are made in Plovdiv in Bulgaria, and aim at being an affordable and versatile solution for consumers who cannot afford to replace their original filters.

The project creates an affordable and sustainable method to reduce the air pollution caused by petrol- and diesel-powered machines.

Website:
www.dpfcleaning.eu

Case study 15:

Shell — Helping to reduce the impacts on air quality made by transport

Speaker
Kamelia Slaveykova

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General description:

Shell has been part of the transport sector for well over a century and we want to continue being part of it in the future. The importance of transporting the world's growing number of people and goods must be balanced with efforts to reduce CO_2 and to improve local air quality. To play an active role in this transition, today Shell continues to improve the efficiency of conventional fuels, while also investing in lower carbon fuels and diversifying the range of energy choices we provide to our customers. These include biofuels, LNG, GTL, power for electric vehicles and hydrogen.

During the presentation, Kamelia Slaveykova will highlight Shell's role and good practices in reducing the impacts on air quality made by transport.

Website:
www.shell.bg

Case study 16:

LIFE 'N Grab HY! — Hydrogen electric hybrid refuse collection vehicles to enhance air quality and reduce noise

Speaker
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General description:

Traditional heavy duty vehicles, such as waste collection vehicles run on diesel. The oxidation of diesel in internal combustion engines produces about one quarter of the CO_2 emissions from all road transport, corresponding to 5% of the EU's total GHG emissions. Moreover, a significant part of the particulate matter found in the air is generated by diesel engines. Very small particle air pollution can have serious acute and chronic health effects, which are exacerbated by NOx and CO_2 emissions as well as the combustion output of diesel engines. Heavy duty vehicles, especially refuse trucks, tend to produce high noise levels, which are disturbing in densely populated areas. Hydrogen, as an energy vector in mobile applications, may provide a suitable response to these issues. When used in a fuel cell, electricity is generated to power a clean and quiet powertrain/driveline.

The overall objective is to demonstrate two hydrogen-electric hybrid refuse trucks as a zero-emission and low-noise alternative for waste collection at 10 different sites. The project will create public awareness of hydrogen energy as a sustainable energy carrier. The duration of the project is four years (including three years of demonstrations).

Partners: WaterstofNet vzw, E-Trucks Europe, Cure Afvalbeheer, Baetsen-Groep, and Hydrogenics

Supporting document:
The Life 'N Grab Hy! activities have received funding from the European Union's LIFE Programme under Grant Agreement LIFE14 ENV/BE/000415 —

www.ec.europa.eu/environment/life/

Website:
www.lifeandgrabhy.eu

Life 'N Grab Hy
clean cities, clean air with hydrogen

Case study 17:

Improving air quality through better, cleaner and more efficient fuels

Speaker
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General description:

Ambitious targets require full cooperation between value-chain stakeholders. From refiners to fuel component producers to car manufacturers, the whole value chain can be part of the solution. Our role as technology providers is to help create solutions that enable all technologies to yield their maximum benefits. Making the right choices on energy density and the emission reduction potential of fuels on the market requires acknowledging the actual energy contribution of each fuel blending component. Higher octane fuels can help Europe achieve its transport objectives on pollutant and CO_2 reduction, as well as energy efficiency. As the most efficient component to increase octane, fuel ethers are key to enhancing ICE environmental, and energy, performance.

Fuel ethers, including bio-MTBE, bio-ETBE, bio-TAME, and bio-TAEE are key components for the production of high octane fuels. They are the clean replacement for compounds that pose a proven risk to health and the environment. Whether manufactured from traditional hydrocarbons or renewable biomass, fuel ethers are more energy dense than alcohols. They therefore increase petrol's performance, while reducing the emissions of air pollutants and CO_2 across their life-cycles.

Supporting document:
http://www.efoa.eu/en/document/higher-octane-fuels-powering-a-sustainable-future.aspx

Websites
www.efoa.eu
www.petrochemistry.eu

EFOA
The European Fuel Oxygenates Association

Case study 18:

Assessment of public health co-benefits from traffic related emission policies in Thessaloniki (ICARUS project)

Speaker
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General description:

The effects of feasible traffic policies for Thessaloniki (Greece) for 2020 are presented. Two measures are investigated, including the operation of an underground rail service in the city centre and changes in fleet composition. Their effects on air quality levels, and human health (exposure to emissions) are computed using state-of-the-art modelling tools and concentration response functions for PM_x, NO_2 and C_6H_6. The results are compared with a business-as-usual scenario. Air quality levels are presented on a high-resolution grid with the corresponding street-level health impacts, allowing for an in-detail assessment of the benefits associated with different sub-areas of the urban agglomeration.

'Integrated Climate forcing and Air pollution Reduction in Urban Systems' (ICARUS) aims at developing innovative tools for urban impact assessments to support air quality and climate change governance in the EU. This will lead to the design and implementation of win–win strategies to improve the air quality in, and reduce the carbon footprint of, European cities. The ICARUS methodology and toolkit will be applied in nine EU cities of different sizes, socio-economic conditions and histories. Technological and non-technological measures, and policy options, will be analysed, and proposals regarding air pollution and/or climate change at a city level will be made to the authorities responsible.

The project started on 1 May 2016 and will run until 30 April 2020.

Partners: University of Stuttgart, University of Bristol, University of Exeter, Istituto de Salud Carlos III, City of Stuttgart, Athens Development and Destination Management Agency, Josef Stefan Institute, ENVIROS s. r. o., EUCENTRE, UPCOM, KARTERIS APOSTOLOS KARTERIS MARIN OE, Mediterranean Scientific Association for Environmental Protection, Masaryk University, Swiss Tropical and Public Health Institute, National Centre for Scientific Research Demokritos, Euro-Mediterranean Centre on Climate Change E-Artemis.gr

Website:
http://icarus2020.eu/

Case study 19:

Remote sensing — Measuring emissions from cars as they pass by

Speaker
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General description:

Remote sensing technology has been used in the US for more than 25 years; it is still surprisingly little known in Europe. Remote sensing has the potential to ensure the proper enforcement of emission standards under all practical circumstances. It allows large scale field measurements to be broken down to individual car types, and takes account of the variable kinetic and meteorological circumstances, thereby increasing the transparency of the real on-road behavior of the various types of engines and exhaust cleaning systems on the market. Remote sensing means the end of cheat measures, both those originally implemented by manufacturers and those added later by others (such as AdBlue killers, diesel particulate filter removal and chip tuning). It also provides valuable information about durability and the performance of critical components. This will facilitate comprehensive compliance checks — if, and as soon as, civil society and the authorities responsible seriously engage. The key is there, the lock is waiting: stop guessing, start knowing, engage with remote sensing!

Supporting documents:
28.09.2017, Brussels, two-page remote sensing OPUS PDF

http://www.opus.se/en/story/european-parliament-supports-pollution-cameras/#more-8378

Websites:
http://opusinspection.com/remote-sensing-device-technology/remote-sensing-programs/
www.opusrse.com

European Forum on Eco-innovation

Launched in 2006, the annual European Forum on Eco-innovation brings together experts from the worlds of business, finance, technology development, academia and civil society, as well as other relevant stakeholders actively involved in eco-innovation and resource efficiency.

The main goals of the European Forum on Eco-innovation are to:

- Disseminate innovative eco-friendly ideas
- Give leading and emerging eco-innovators the opportunity to learn about policy, finance and technolRaise awareness of recent research and policy developments
- Encourage innovation through communication between disciplines and sectors
- Identify key issues requiring action by national governments and the EU
- Help mobilise relevant actors with common objectives
- Develop concrete strategies for future action.

Under the Eco-innovation Action Plan (EcoAP), these objectives are reaffirmed with a greater focus on business stakeholders (especially SMEs), and with the aim of delivering key messages for the shaping of eco-innovation policies at European, national and regional levels.

The Forum is held over two days and presents the latest developments in the field of eco-innovation. Discussions are around a central theme which is proposed by the EcoAP High Level Working Group, the European Commission, or the host country. Each Forum event focuses on a particular issue and features a number of relevant panel sessions.

During each Forum, recommendations are made for future action by the business and finance communities, as well as national and European policymakers. A report is published shortly after the forum based on the presentations, discussions and recommendations and is made available to download.

Eco-innovation Action Plan

The Eco-innovation Action Plan (EcoAP) aims to boost innovations that result in, or aim at, reducing pressures on the environment, and on bridging the gap between innovation and the market.

Useful Links

European Commission
DG Environment
http://ec.europa.eu/environment

Eco-innovation Action Plan
http://ec.europa.eu/environment/ecoap/index_en.htm

Eco-innovation
http://ec.europa.eu/environment/eco-innovation/

Circular economy
http://ec.europa.eu/environment/circular-economy/index_en.htm

Executive Agency for SMEs (EASME)
https://ec.europa.eu/easme/

Entreprise Europe Network
http://een.ec.europa.eu/

Bulgarian Ministry of Environment and Water (MOEW)
www.moew.government.bg

Contact information

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www.ec.europa.eu/environment/ecoap/index.htm

For further information

Visit the official Eco-innovation Action Plan (EcoAP) website for the latest information on:

- Policies and actions,
- Innovative technologies,
- Funding resources,
- Links and forthcoming events,
- EcoAP news (newsletters and platform) and other communication tools.

#EcoApForum

The forum is co-organised by:

European Commission

Ministry of Environment and Water of the Republic of Bulgaria

eu2018bg.bg