



### **Generating value for Communities**





# Waste-to-Energy & the City Conference

On 16 May 2023, policymakers and experts from the European Union and beyond came together in Brussels for the **Conference "Waste-to-Energy & the City: generating value for communities**".



The hybrid event organised by **ESWET – The European Suppliers of Waste-to-Energy Technology**, and co-hosted by the **European Committee of the Regions**, discussed the role of waste-to-energy (WtE) in countering the challenges of the EU green transition by fostering the circular economy and energy security in a city landscape.

### Look at the insights

This brochure summarises the insights shared during the event in order to promote the discussions on how WtE can contribute to a more sustainable, circular, and resilient Europe.

During the event, participants engaged in dynamic discussions about regional WtE practices, relevant EU policies, stakeholder engagement and accountability, innovative WtE technologies, and successful initiatives from across the EU, promoting both circular economy and energy security.

For any further information, please contact <u>info@eswet.eu</u> or visit <u>www.eswet.eu/waste-to-energy-the-city-generating-value-for-communities</u>

# Panel A - Policymakers



#### Ms Kata Tüttő Deputy Mayor of Budapest and First Vice-President of ENVE Commission at the European Committee of the Regions

Ms Tüttő commented that: "Building new waste incineration capacities is a dilemma for cities. **The energy crisis has changed the way we approach waste, as it is now seen as a potential source of energy more than ever**. Last winter, there was uncertainty about whether there would be enough gas to heat homes, so local energy production was prioritised over many other climate goals. There is still a great deal of uncertainty about the future, with goals including reducing dependence on Russian gas, increasing energy security through higher rates of local energy production, and reaching the target of less than 10% waste sent to landfills.

Some municipalities have been able to make the leap from high landfill percentages to recycling over 65% without incineration, while other cities face different legal and financial frameworks that make this a more difficult reality. It's important to note that there is no one-size-fits-all solution in waste management."



### **Mr Andries Gryffroy** Member of the Flemish Parliament and Second Vice-President of ENVE Commission at the Committee of the Regions

emphasised that: "Enhancing high level material recycling is essential in the transition toward a circular economy. Waste-to-energy is a key component to facilitating this transition as it is compatible and complementary with recycling in the circular economy. It is the preferred treatment option for waste that cannot be recycled in the present context and is the equivalent of decontamination. Not only can it generate energy with high efficiency, Waste-to-energy keeps material cycles, and thus the environment and humans free from toxic substances. Ultimately, as long as contaminated material streams are present in our society, waste-to-energy remains a necessary part of the circular economy."



#### **Mr Eero Ailio** Adviser to the Director on Global Covenant of Mayors and Energy Climate Initiative, DG Energy, European Commission

offered a presentation on the state-of-play of energy systems in European cities and municipalities, which a particular focus on energy from waste. He highlighted that "There's no more time to waste when cities transition to secure, clean and integrated energy systems."





### Panel B - Industry



#### Mr Alexander Kirchner Division Manager Asset Operations, Wien Energie

Mr Kirchner presented the successful case of powering Vienna's sustainable future, offering a closer look at Wien Energie's Waste-to-Energy Plant Spittelau and the benefits of efficiency and sustainability. He stressed that: "Waste-to-energy is the best solution for all non-recyclable waste: it keeps the city clean, reduces CO2 emissions from waste management, and provides partially renewable energy for district heating and cooling. As a result, it is already making a significant contribution to the ongoing energy transition in the city of Vienna.

In the future, waste-to-energy will continue to be an integral part of the evolving circular economy and play an important role in closing the gap. Waste will be turned back into products, material and energy cycles will be consistently closed and ultimately the goal of climate neutrality will be achieved. In this way, Vienna will remain the most liveable city in the world and make its contribution to the green and sustainable transformation!"



#### **Dr Ella Stengler** Managing Director, CEWEP - The Confederation of European Wasteto-Energy Plants

Dr Stengler underlined that: "Europe still landfills 100 million tonnes of waste each year. Can we afford not to use the materials and energy embedded in the waste? This is a lost opportunity considering that we need materials and energy in our cities and regions. At the same time, many progressive cities and regions are committed to become climate neutral by 2050 or earlier. Waste-to-Energy can be part of the solution by providing electricity to the grid and heat to the district heating networks. With carbon capture and utilisation/storage, the sector can even achieve carbon negative emissions. But this can only happen with policy support."



### Ms Vanessa Fakra Member of ESWET and Senior Project Manager Strategy and Public Affairs, Hitachi Zosen Inova

Ms Fakra noted that: "As the **latest IPCC report** recognises, when WtE technologies are equipped with appropriate air pollution abatement facilities, they can contribute to clean electricity generation and greenhouse gas emission reductions.

More than 500 installations are in place in Europe and already supply 43 billion KWh of electricity and 99 billion KWh of heat, which represents about 10% of the EU's district heating energy, energy which is recognised as partially renewable. The industry has worked hard in recent years to prepare the next generation of infrastructure incorporating innovative technologies, such as ash resource recovery (metals, minerals, and salt), carbon capture solutions, hydrogen or derived fuel production, also allowing frequency control services. These technologies provide the foundations for repurposing WtE into integrated resource recovery facilities that are essential for treating non-recyclable waste and avoiding landfilling in order to meet Europe's energy and waste management challenges."





# Panel C - Citizens-First



#### Dr Thanos Bourtsalas Earth Engineering Center Acting Director, Columbia University

Dr Bourtsalas emphasised the role of waste-to-energy facilities in transitioning towards a circular economy through Public-Private Partnerships (PPPs) for the Sustainable Development Goals. He underlined that the "key principles include: (i) processing non-recyclable waste only, reducing landfill reliance and environmental impact; (ii) integrating state-of-the-art technologies, ensuring compliance with stringent pollution standards; and (iii) adopting the five outcomes of PPPs for the SDGs, promoting better governance practices and stakeholder engagement. By prioritising these principles, we can align WtE projects with circular economy goals, achieving value for people and the planet. Let's work collectively to promote the success of this transition for a sustainable future."



#### Ms Ana Šerdoner Senior Manager Industry & Energy Systems, BELLONA

Ms Šerdoner gave a presentation on decarbonisation solutions for WtE designed for local and regional needs stressing that "Focusing on waste reduction and recycling is key to optimising waste management and reducing its environmental and climate impact. **Along with waste reduction and other measures, CCS is an important climate change mitigation tool needed for the decarbonisation of the sector**." Her presentation focused also on the need to tackle emissions from the waste incineration sector, highlighting that Carbon Capture and Storage technologies should be the driver and a pre-requisite for the reduction of these emissions.



#### Ms Inger Anette Søndergaard Head of Department Waste-to-Energy at Ramboll Engineering

Ms Søndergaard presented the case of Amager Bakke – a plant for the citizens. In her speech, she underlined that: "The waste-to-energy plant Amager Bakke in Copenhagen is a showcase for a sustainable solution for treatment of residual waste within the city. With significant high energy efficiency and environmental performance, it ensures the value of the residual waste from citizens and local companies is returned in terms of green, secure, and cheap district heating and electricity. In addition, **materials are recovered e.g. metals, materials for road construction and large amounts of clean water, which potentially can be used for green hydrogen production**. On top of this, Amager Bakke is a beacon for the city offering unique recreational facilities on the rooftop attracting both many locals and international visitors. Today, the plant is an important support to Copenhagen's roadmap for carbon neutrality. All in all, a gift to the city!"







#### Ms Aurélie Beauvais Managing Director, Euroheat & Power

Ms Beauvais moderated the third panel on citizens-first and stated that "this event was a great occasion to shed light on "state of the art" waste-to-energy projects, which must become a common standard for Europe. It demonstrated **the importance to involve local communities from day one, and to create sustainable ecosystem benefitting citizens**, for instance through the connection to a district heating and cooling network, implementation of carbon capture and storage facilities, or the collaboration with local artists and architects optimising the urban integration of these infrastructures."

### **Remarks from ESWET President**



Dr Siegfried Scholz President of ESWET and Managing Director at Standardkessel Baumgarte

Dr Scholz opened the event by acknowledging that "we are facing complex and interconnected challenges when it comes to waste management and energy security and so we need to work together to find sustainable and equitable solutions."

In his view, there are still huge differences even within the European Union regarding the production and treatment of waste. While in some areas the number of available WtE plants is close to saturation, in others, there is none. In the latter case, dumps or industrial landfills are practiced. Clearly, WtE is and will remain the preferred option, in line with the waste management hierarchy. What is more, **WtE also provides reliable heat and power to communities and industries**, a fact which has become all the more important at times of war, and has a strong potential for CO2 emissions avoidance by reutilising metals and salts from bottom and fly ashes.







# Main takeaways

Waste-to-energy technologies contribute to both circular economy and energy security.

 Waste-to-energy technologies can play a significant role in recovering energy and materials from waste while reducing landfill usage and greenhouse gas emissions, thus promoting a circular economy. At the same time, WtE contributes to the diversification of energy sources, reducing dependence on fossil fuels and supporting the transition to a low-carbon economy. However, it's important to ensure that waste-to-energy for non-recyclable waste is part of an integrated waste management strategy that prioritises waste reduction, recycling, and reuse, and not a standalone solution.

# 2. Waste-to-Energy plays an important role in enhancing energy security within the European Union.

By generating electricity and heat locally from residual waste materials, WtE facilities reduce dependence on traditional fossil fuels, enhance renewable energy generation, and diversify the energy mix. This increases the **EU's energy self-sufficiency and resilience**, particularly in the face of potential supply disruptions. Moreover, WtE plants provide a reliable and continuous source of baseload power, complementary to intermittent renewable energy sources, contributing to a stable energy supply and supporting the overall energy security objectives of the EU.

#### Waste-to-Energy plants have the potential to support cities' climate neutrality goals.

• First of all, by diverting waste from landfills and recovering materials (metals, minerals, aggregates), **WtE is already saving significant GHG emissions**. In addition, WtE plants contribute to renewable energy generation by converting waste into heat, electricity, and fuels. This displaces the need for energy production from fossil fuels, further reducing carbon emissions associated with traditional energy generation methods. Yet, when combined with Carbon Capture, Utilisation, and Storage (CCUS), WtE plants can even achieve **negative emissions**. Such technologies would make WtE a valuable tool in climate mitigation efforts while enhancing the promotion of circular economy.

#### Emphasis should be given on stakeholder engagement and accountability.

Meaningful engagement with citizens, policymakers, and local communities is vital for ensuring transparency, accountability, and successful Waste-to-Energy projects. Collaboration and partnerships are key to address concerns and incorporate diverse perspectives.

#### Where do we go from here?

One thing has been made clear through this Conference: Waste-to-Energy can generate great values for cities and regions. However, there is still room for improvement in engaging with the local communities. From conception to design, construction, and operation, Waste-to-Energy plants should always consider how to best meet the needs of the citizens. With the proper policy framework and support, WtE can increase its positive impact for cities and regions towards sustainability and resilience.



