



## Summary

### 8<sup>th</sup> CEWEP Congress - 16<sup>th</sup> June 2016 in Rotterdam

#### **EU policy: Circular Economy meets Energy Union**

##### **Welcome address, Ferdinand Kleppmann (CEWEP President)**

CEWEP's President happily welcomed about 170 participants from 22 countries to the 8<sup>th</sup> CEWEP Congress. It is an important year for our sector: the Circular Economy and the Energy Union are in the pipeline and the Commission will deliver a Waste-to-Energy communication paper at the end of this year.

This address was followed by the recent CEWEP video [Why waste your energy?](#)

##### **Circular Economy and Energy Union from CEWEP's perspective, Ella Stengler (CEWEP Managing Director) – [Link to the presentation](#)**

Ella Stengler presented data for residual non-recyclable municipal waste showing that the Waste-to-Energy (WtE) sector is far away from overcapacity on the European level. She also reminded the audience that WtE's input is also residual commercial and industrial waste.

On energy policy, she stated that synergies with existing and further exploitation of District Heating/Cooling systems and steam delivery to industry are low hanging fruits.

She presented CEWEP's common statement with recycling industries on metal recycling from bottom ash. Recycling these metals help saving 3.2 million tonnes of GHG emissions.

##### **Fulvia Raffaelli, European Commission, DG GROW**

Fulvia Raffaelli highlighted that energy recovery from waste will contribute to greenhouse gas emission savings. For her, the key drivers of transformation in terms of resource efficiency are:

- innovation (new technologies, public authorities' implementation);
- investment in order to make things move;
- clarity and predictability of the legislative framework.

She emphasized that *“WtE will and must play an important role in closing the loop of circular economy. This is the most efficient way to deal with residual waste”*.

##### **Jorge Diaz del Castillo, European Commission, DG ENVI – [Link to the presentation](#)**

Jorge Diaz del Castillo highlighted WtE as the link between Circular Economy and Energy Union and reminded the audience that there is a strong need to reroute non-recyclable waste towards efficient WtE processes, thus replacing a share of the EU energy imports by partially renewable and local energy.

He pointed out to the Communication on WtE to be adopted by the Commission by the end of this year as the vehicle to convey the relevant messages to society:

- Curbing landfilling of waste in the EU;
- Extracting more energy from less waste;
- Utilizing WtE capacities in the EU; and
- Addressing social acceptability of some energy recovery processes.



## Quality Recycling

**Thomas Astrup, DTU Copenhagen** [Link to the presentation](#)  
**Mario Grosso, Politecnico di Milano**

They presented some key ideas from their research, focused on quality criteria for recycling

- We know only a part of the information on which materials are present in waste. All chemical elements can be found: in paper only, potentially 10,000 substances can be used.
- We are able to recycle in a very good way, but the materials do not have the same quality once collected in the waste.
- It is possible to estimate the environmental credit of recycling certain materials, by calculating a substitution ratio between recycled and virgin materials. Also the amount of recycled materials in the substituted mix needs to be considered.

In general, there is a need to know more about the material, how to recycle it, how dangerous it is. We have to keep in mind that there is always a trade-off between the properties of packaging materials to serve their purpose and the potential negative effects on their recycling: some of the dangerous materials are probably there because of their specific properties.

**Kerstin Kuchta, TH Hamburg** – [Link to the presentation](#)

She presented a study on metal recovery from Bottom Ash. The study focused on how and when to extract metal from waste, as well as on the quality of the recovered metal. Currently, 2% of German household waste is metal. It is metals that are mixed with other compounds and therefore impossible to extract prior to incineration. The metal recovery rate of Bottom Ash in Germany is 82% in average. 1 tonne of metals recycled from Bottom Ash saves more than 2000 kg of CO<sub>2</sub> equivalent emissions.

The best timeframe to extract the metals is in the weeks following the incineration, before corrosion sets in.

**Rogier van de Weijer, AEB Amsterdam/Inashco** – [Link to the presentation](#)

Metal is the key driver for technological innovation. As for the mineral part, it is important to look at the hydro geological conditions in order to use bottom ash.

**Peter Quicker, RWTH Aachen** – [Link to the presentation](#)

The project he reported on focused on landfill mining for resource recovery and Waste-to-Energy. It showed that the waste contains only a small amount of valuables, the quality is not good enough for direct combustion as a mono-fraction. The only economic benefits from landfill mining are linked with freeing the space, not as using the waste as fuel.

Results showed that

- In RDF or Waste-to-Energy-plants, incineration of the untreated landfill material with a ratio of 1:10 with normal residual waste is not a problem.
- By preprocessing and optionally drying a RDF-similar material can be produced (in very low yields) that is principally suitable for mono-combustion, but a 1:1 mixture with fresh waste is recommended. There would be an increase in HCl production.
- In cement kilns: there are troubles in conveying (tendency to agglomeration), high HCl concentration, and high heavy metal content. It is not applicable.

In conclusion, landfill mining just for energy recovery is not economically feasible.



## **Public perception of Waste-to-Energy**

**Liesbeth Siesling, Eneco**  
**Martien van Paassen, Municipality of Vlaaringen** [Link to the presentation](#)

The decommissioning of a gas fired power plant led to an Energy from Waste partnership.

They implemented a strategic stakeholder management:

- Identifying stakeholders (who, where, demographic data)
- Proactive dialogue: the earlier, the better (social media, responsive)
- Making the environment predictable and controllable
- Create mutual gains
- Long term partnership
- transparent, reliable

Key elements: preparation, be proactive, listen (to both fear, and interests), have a good project administration. In the end, listening made the most difference.

**Jackie Keaney, CEWEP Ireland** – [Link to the presentation](#)

She presented the public perception around the past and current Waste-to-Energy projects in Ireland. Depending on who leads the project and on local and national politics, the perception changes. The first project took the longest to get acceptance.

In general, she advises to be open, transparent, and to bring stakeholders to facilities. Every project has its own challenge. It depends on politics, location, history, and people. Setting a community fund is helpful.

Compliance is very important: when the project is successful and the plant is built, it is important to behave and to keep being transparent. Building the trust is not enough: it is easy to lose.

The biggest “Not in my Backyard” are the politicians. If they visit, they understand but they still don’t want the plant in their constituency because it impacts their constituents and therefore their plans for reelection.

**Esben Norrbom, Danish Waste Management Association** – [Link to the presentation](#)

The first challenge to overcome for the sector is that it faces a small, very negative and very loud opposition compared to mass of neutral/positive that stay silent. The second challenge is that Waste-to-Energy is a “low-involving brand”: high thinking, low involvement.

Plant operators have to show who they are, with more feelings and high involvement taking the context, beliefs, and values of the stakeholder into account, less technical.

It is possible to use the plants as platforms, to redesign them as showcases, to take into account many kinds of visitors. Operators have to embrace criticism and look for opportunities for dialogue. They should set goals for communication, and be ambitious on it.

Your aim should not be to convince everybody. As an operator, you try to be in constant dialogue both at local and national level. When facing criticism, you invite people to the plant. You will never convince 100% but if you don’t show the benefits, you will never succeed.



## **Technical session**

### **Lighea Speciale, CEWEP – [Link to the presentation](#)**

Lighea Speciale presented the state of play of the Review of BREF Waste Incineration (WI) and the sector's point of view on the main issues:

- how the revised Associated Emission Levels (BAT-AELs) will be used to set Emission Limit Values in permits in the future
- how the relative uncertainty, which becomes more important when the measurements are close to 0, becomes an issue and requires caution, since the future BAT-AELs will be used to set legally binding Emission Limit Values.
- the fallouts of having two different regimes of compliances in the Industrial Emissions Directive (Effective Operating Time as a special regime for WI)

9 people represent CEWEP in the Technical Working Group in charge of the Review, from the secretariat and the members (ITAD, BW2E, Utilitalia, SVDU, Avfall Sverige).

### **Pawel Jan Baran, RWTH Aachen – [Link to the presentation](#)**

enlightened the audience about fate and behaviour of nanomaterials in incineration processes.

### **Amalia Cerda, TIRME – [Link to the presentation](#)**

Starting with a quick overview of the Integrated Waste Management System implemented in Mallorca, Amalia Cerdà explained the process developed in an on-site bottom ash treatment plant for the separation, recycling and recovery of both metallic (ferrous and non-ferrous) and mineral fractions of the raw bottom ash coming out from a WtE Plant. She showed illustrations of local applications of the mineral fraction as secondary aggregate in the building and construction sector such as subbase and base layers of roads, cement production, roller compacted concrete, precast concrete, filler material, noise barriers, etc.

After giving details on the research developed, environmental monitoring and quality control testing according to the intended uses together with the CE conformity marking of the products, she highlighted the importance of looking for and exploiting local market possibilities, involving all stakeholders (national and regional governments, municipalities, industry organizations, customers of by-products, citizens, suppliers, universities, technological and research institutes, etc.) and taking into account the importance of social acceptance of this kind of projects.

The island-specific case study demonstrates the possibility of reaching high levels of recycling and recovery rates and to achieve “zero landfilling” in a challenging environment, as it is an insular territory demanding for self-sufficiency, with scarce natural resources, limited land area and high seasonality linked to tourism and climate.

### **Johnny Stuen, Waste-to-Energy Agency Oslo – [Link to the presentation](#)**

presented carbon negative Waste-to-Energy in Oslo to the audience.



## **Energising waste**

**Yves Luca, AVR CEO** – [Video](#) – [Link to the presentation](#)

AVR is an energy from waste operator in the port of Rotterdam and a huge contributor in the renewable energy but also in the CO<sub>2</sub> reduction in the Netherlands.

Yves Luca spoke about his own experience in the recycling industry and the path that he took before ending up as CEO of AVR. He presented the history of AVR and the last take-over of AVR by CKI from Hong Kong more than 2 years ago. Since then, AVR is a stand-alone energy from waste operator and therefore focused on investing in energy and resource efficiency of different types of residual waste. Their mission? A clean world in which nothing is wasted. A zero waste strategy, not only for energy or bottom ash, but also for fly ashes. Additionally, AVR strives to be carbon neutral.

**Maya van der Steenhoven, Governmental Office for Heating and Cooling** – [Link to the presentation](#)

Debates focusing on renewables usually discuss wind, solar power, and biomass. There is no space in the Netherlands to do it all. Now, the country is getting away from gas by building a network to provide heat. It would be local heat coming from various sources: waste, geothermal, residual heat, and solar.

We have to create interaction between different sources, and flexibility.

We will see a growing demand, but the market will change and might ask for long-term contract for heat, especially for industries.

**Jan Eland, Emerald Kalama Chemical B.V.** – [Link to the presentation](#)

Emerald Kalama needed to replace old gas boilers. Instead, they turned to AVR. It helped reduce CO<sub>2</sub> footprint and was also the best choice on the economic side. Potentially, they could incinerate their leftover waste in the AVR plant.