

Speech by Boris Lesjean to the MEP Water Group Public Session on the United Nations World Water Development Report 2017 'Wastewater: The Untapped Resource', 6 June 2017

Dear Ladies and Gentlemen,

First of all I would like to thank the MEP Water Group for the organization, and especially Esther de Lange and WssTP. I am speaking on behalf of EUREAU, the European federation of water and wastewater utilities, and POWERSTEP, the European project demonstrating energy positive wastewater treatment plant. In POWERSTEP, we believe that we don't need much for converting traditional sewage treatment plants into energy producing facilities, and therefore our motto is „Your flush, our energy“. You may wonder how this can be possible, so please let me tell you in the next 5 minutes the story of the last untapped source of renewable energy, which is also the one nobody want to think about! It is a fact that wastewater is not sexy at first sight... we believe it is!

Here is the dusty picture of a conventional wastewater treatment plant.

In our western countries, this facility does a tremendous job treating our wastewater and thereof protecting our health and our environment. And to do so it uses much energy. But is wastewater really a waste to treat? Shall we rather apply the circular economy principle to wastewater treatment plants and consider wastewater as a resource to exploit? Our old wastewater treatment technologies need to integrate innovation and tackle today's challenges!

As recognized by the United Nation World Water Development report 2017, wastewater is an untapped local resource. Beyond its value as alternative water resource, wastewater contains other valuable resources like phosphorus and nitrogen, as we have heard today. I would like to focus my talk on the value of the energy contained in the wastewater as organic matter. As such wastewater can indeed be considered as a liquid biomass, an unlimited source of renewable energy flowing below our feet.

In Europe, our WWTPs consume about 16,000 GWh per year. This means that more than 2 large power plants are required to fuel our sanitation sector. This costs about 2 billion of Euro per year to the society, and is often the highest energy bill of our cities, before public lighting, schools or hospitals.

However, we can estimate the total energy potential contained in our wastewater to be 87,500 GWh per year, this is as much as the yearly production of 12 large power plants. This energy potential is today largely untapped at European level, as only a few percent



of this local energy resource is recovered.

The question is therefore: how can we unlock this potential?

There are three steps to unlock this potential.

The first one is to improve the energy efficiency of our wastewater treatment plants through wise design and operational standards. As we know, the best energy is the one we can save.

The second is to better exploit the energy potential with very established technologies such as digestion and the production of biogas. Today, all large wastewater treatment plants could be energy neutral just resorting to state-of-the-art technologies.

The last one is to develop and demonstrate new concepts toward energy positive wastewater treatment plants, as we do in POWERSTEP.

The first option to reduce the energy demand of our WWTPs would be to run energy efficiency programs.

This picture shows the energy requirement of the German WWTPs for different size categories, as illustration of the situation in Europe. This benchmarking exercise highlights that systematic Energy Management Plans could lead to „no regret measures“ with quick win-win effect on the energy demand and carbon emission of our cities.

The second option is to better exploit the energy potential in wastewater with digestion and biogas production. Although about 10% of the biogas produced in Europe is coming from sewage sludge, only 3 countries have extensively invested in biogas from wastewater (Germany, UK and Spain). Even in Germany, a leading country in the biogas sector, we can estimate that the recovered electricity is only few percents of the total energy potential in the wastewater. Today, large state-of-the-art WWTPs can recover up to 10% of the energy potential in wastewater as electricity and can be energy neutral without compromising the treatment performance. This is not science fiction and should be the very short term target for the sector.

Finally, the third option is a realistic vision to transform our treatment plant as regenerative power plant. The EU project POWERSTEP financed by the Horizon 2020 program aims at demonstrating that WWTPs can indeed be energy positive. This means that they can feature a positive energy balance and supply more energy to the grid than they need. This energy can be in the form of electricity, heat, or green biomethane for the heat and transport sector.

Some technologies are already available and can be deployed today. Further research and innovation efforts should be made to unlock the full energy potential from wastewater.

We have seen that the technology can today turns large wastewater treatment plants into



power producing facilities. So what are the barriers that prevent this change to happen? Today the main barriers, beyond the usual inertia of old practices, are economical and legal. Economical indeed, as the sewage treatment plants buy the energy at a higher price than they would sell it to the market. This creates a „glass roof“ that renders unviable most of projects going beyond the energy autonomy.

But the barriers are also legal, as the regulated market is not favorable to biogas from wastewater. Indeed, biogas from wastewater is excluded from most energy strategies and does not receive the same tax or subsidy advantages than other renewables.

In particular, the comparison with biogas from agriculture biomass is striking: whereas sewage biogas receives minor subsidies and must often be financed at full cost, biogas produced in the agricultural sector can receive very attractive subsidies, whereas the product quality is the same.

We can note that sewage biogas brings other societal and environmental advantages: it does not compete with agrar surface and does not contaminate our water bodies, and being produced nearby cities no investment in transregional grids is needed.

There is a real opportunity to consider the sewage treatment plants as an important element of the energy and climate transition within the circular economy policy associated with growth and green jobs. However this change will not happen without political impulse. We plaid for better exploiting the energy potential from wastewater through positive inclusion of energy from wastewater in the European policies, as unfortunately, today, biogas from wastewater is hardly supported by European and national energy policies. We recommend to give biogas from sewage at least the same tax and subsidy advantages than other renewables, and to couple these incentives to energy efficiency targets of the wastewater treatment plants in order to enable the transition to the next generation of energy positive wastewater treatment plants. And for this we need to break the silos: it means that the regulators in charge of the water sector should speak with their colleagues in charge of energy, and find synergies where they are.

Ladies and Gentlemen, to conclude, do not forget that your flush is your energy, and that the old style sewage treatment plants of today can become the resource and energy factory of tomorrow, if the politics create a level playing field for biogas production. It is the matter of the EU to guide the way, the Member States to convey and facilitate, and the cities to realize the energy potential they have with their wastes. The challenge of the climate change is too great to abandon the potential of the cleanest of all renewable energies. IF WE UNLOCK THE FULL ENERGY POTENTIAL OF WASTEWATER, OUR CITIES AND COUNTRIES WILL BECOME GREENER ON THE WAY TO A REAL CIRCULAR ECONOMY ... AND WE WILL MAKE EUROPE GREAT AGAIN! I thank you for your attention.

