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SEPAN's POSITIONS - WASTE-TO-ENERGY PROCESS

SEPAN, whose members comprise of the largest waste recycling companies which apply the Best Available Techniques and implement environmental investments, constitutes a founding member of the European Recycling Industries' Confederation-EuRIC, and participates in the European Associations, namely the European Ferrous Recovery and Recycling Federation/EFR and the European Metal Trade and Recycling Federation/ EUROMETREC.

Acknowledging that Circular economy a key lever for achieving sustainable development, SEPAN believes that the correct prioritization of waste management tasks may favor the creation of significant investments in the environmental industry (and not only that) and to promote the creation of new jobs. Presented below is data and SEPAN's positions on waste-to-energy processes, which are formed with the maximum possible benefits for circular economy, environmental protection, cost-effective management of natural resources and the economic and significant progress of societies and quality of life in mind.

Circular Economy

On 2 December 2015, the Commission adopted an EU action plan for the circular economy. The set of measures constitutes an action plan with substantial prospects in the way of significant new jobs and growth potential and aiming at fostering sustainable consumption and production patterns, in line with EU commitments under the 2030 Agenda for Sustainable Development.

The action plan stressed that the transition to a more circular economy requires action throughout a product's life-cycle: from production to the creation of markets for

'secondary' (i.e. waste-derived) raw materials. Waste management is one of the main areas where further improvements are needed and within reach: increasing waste prevention, reuse and recycling are key objectives both of the action plan and of the legislative package on waste.

EU Waste Management Hierarchy

The waste hierarchy is the cornerstone of EU policy and legislation on waste and a key to the transition to the circular economy.

Its primary purpose is to **establish an order of priority** that minimizes adverse environmental effects and optimizes resources by shifting the focus from waste management to prevention, re-use and recycling.

Waste hierarchy represents the preferred environmental choice with respect to waste management, while contributing in addressing climate change, as follows:

- waste prevention, re-use and recycling have better changes of saving resources (materials and energy) and reducing greenhouse gas emissions.
- waste disposal, in landfills or through incineration with small or zero energy recovery, is the worst choice for reducing greenhouse gas emissions

Waste-to energy

Waste-to-energy is a broad term that covers much more than waste incineration. It encompasses various waste treatment processes generating energy (e.g. in the form of electricity/or heat or produce a waste-derived fuel), each of which has different environmental impacts and circular economy potential.

The main waste-to-energy processes include

- co-incineration of waste in combustion plants (e.g. power plants) and in cement and lime production
- waste incineration in dedicated facilities
- anaerobic digestion of biodegradable waste
- production of waste-derived solid, liquid or gaseous fuels
- other processes including indirect incineration following a pyrolysis or gasification step.

Waste-to-Energy Potentials and Benefits

The waste-to-energy process of refuse-derived secondary fuels that falls under a comprehensive waste management plan offers significant environmental and developmental benefits, such as:

- maximization of waste re-use
- restriction of quantity disposed in land fills
- reduction in the use of non-recyclable energy sources
- contribution to the reduction of gas emissions that are responsible for the greenhouse effect
- more effective environmental protection.

In order to tap into this potential, promote innovation and avoid potential economic losses due to stranded assets, investment in new waste treatment capacity needs to be framed in a long-term circular economy perspective and to be consistent with the EU waste hierarchy, which ranks waste management options according to their sustainability and gives top priority to preventing and recycling of waste.

To attain these objectives can:

- open up tangible economic opportunities
- improve raw materials supply to industry
- create local jobs
- reaffirm Greece's role in the green technologies sector, which has a proven growth potential.

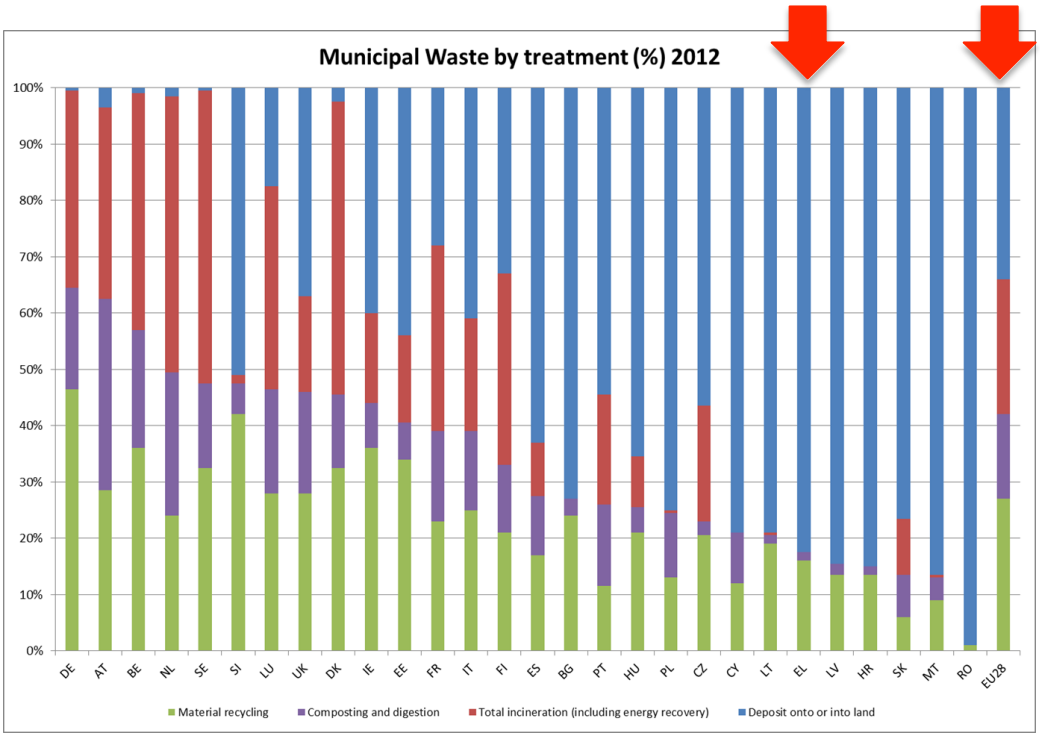
Current Situation in the EU and Greece

In the EU, the use of landfills for waste that can be re-used is either prohibited [e.g. Germany] or is quite costly, resulting in a shift towards incineration (with energy recovery) as a result of the gradual adoption of these policies for this purpose. The waste-to-energy process complements recycling which recovers energy from materials that cannot be recycled and would end up in landfills. It is indicative that in EU countries with a high rate of recycling and low rates of landfill use, there are also high energy recovery rates.

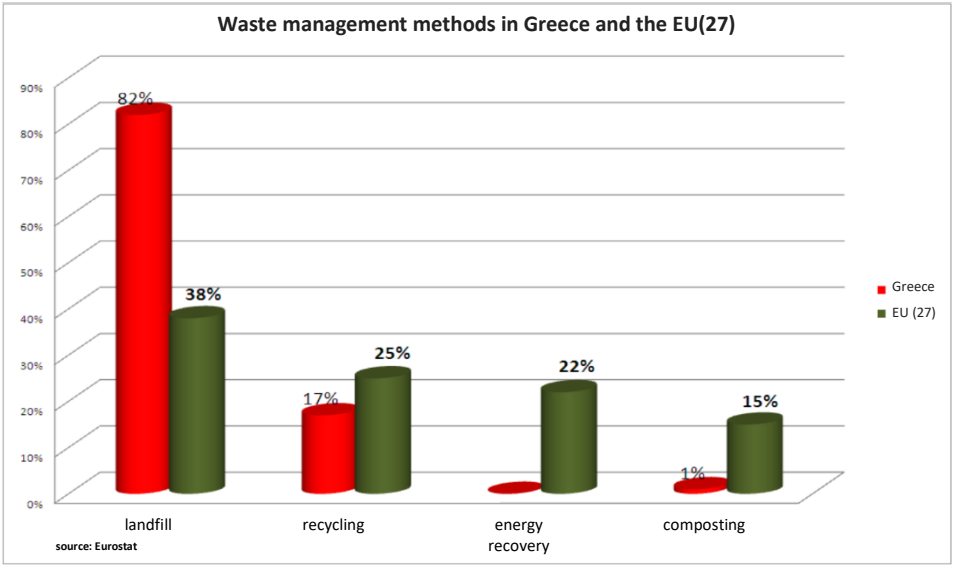
In Greece, safe disposal (landfill), which is the least desirable choice, remains the primary waste management method. This is partly due to the artificially low, due to grants, actual cost of disposing waste at Landfills, which is sometimes zero (disposal at illegal landfills) naturally without taking the environmental burden cost into consideration.

In Greece, the existing energy recovery potential is provided at cement production plants. In recent years in Greece, the cement industry has been re-using secondary fuels derived from the treatment of non-recyclable waste, thereby contributing in diverting waste from the landfill. However, the substitution of conventional fuels to secondary fuels is maintained at low levels compared to other European countries. This is primary due to absence of incentives not to use landfills.

Municipal Waste Management in EU member states



Waste management in Greece



According to the relevant study (ECOFYS 2016) the co-processing rate of waste in the cement industry was 41% for the EU, whereas it did not exceed 6-7% for Greece. The possible increase in Greece's co-processing rate to 30%, which is feasible with the existing potential of the cement industry, would result in the prevention of 720~thous. tons of carbon dioxide emission into the atmosphere.

SEPAN proposals

Waste-to energy generation processes can play a significant role in the shift to a circular economy. Reference is made sole to **energy recovery of non-recyclable materials** (residual waste). Admittedly, it is an appropriate and necessary condition for reducing the quantities that are landfilled.

1) Imposition of disincentives for landfilling

With respect to climate change, it is imperative that there is a reduction in the biodegradable waste that is sent to landfills so as to mitigate methane emissions. Therefore, the imposition of a special landfill duty to further restrict the landfilling of municipal waste is deemed imperative. The activation-establishment of the special landfill duty, pursuant to the provisions of Article 43 of Law 4042/2012, may constitute a financial incentive for the prevention of waste landfilling and the removal of impediments in alternative management. For example, it is necessary for non-recyclable residual waste that is derived from the sorting of recyclable materials at the Recycling Sorting Centers (RSCs) as well as other industrial product production processes that are disposed of in landfill to be charged the special landfill duty. It is clear that the imposition of the special landfill duty will constitute a significant incentive for the re-use of wastes and the attainment of the <26% objective set by the ECHR regarding landfilling.

2) Retention of the waste management hierarchy

It must be understood that the recycling and energy recovery actions of SRF/RDF that are produced from recycling residual materials are not competitive, but supplementary, given that materials that can be recycles are not used to produce SRF/RDF, whereas the unavoidable recycling residual, derived from the production of SRF/RDF and energy recovery, is diverted from the landfill.

Undoubtedly, the improvement and upgrading of the recycling programs precedes the waste-to-energy process, but also energy recovery, namely the energy from waste clearly precedes the safe landfilling, especially in the case of recycling residual materials, when materials have been previously recovered for recycling. It is clear that this solution offers the best possible results for sustainable development, circular economy, environmental protection, eco-efficient management of natural resources and the progress of societies.

The transition towards a circular economy requires striking the right balance when it comes to waste-to-energy capacity for the treatment of non-recyclable waste. This is critical to avoid potential economic losses or the creation of infrastructural barriers to the achievement of higher recycling rates.

When assessing public financial support for waste-to-energy processes, it is particularly important not to undermine the waste hierarchy by discouraging waste management options with higher circular economy potential.

3) Harmonization of institutional framework

The harmonization of the existing institutional framework with the European institutional framework on waste-to-energy and the adoption of European specifications and standards are necessary to promote the re-use of energy from waste.

Specifically, it is proposed that the existing legislative framework undergo following amendments:

- harmonization of the existing legislation regarding RDF/SRF measured parameters for treatment and energy recovery (calorific value, percentage of chlorine and mercury) in the cement industry. According to the European standard, the re-usable materials must be class 1-5.
    - waste-to energy of Compost Type A and/or non-compostable organic fraction in any event and independent of the uses provided for in JMD 3339 (OGG B, 12/12/2014)
    - clear provision for the production of solid recovered fuel at Mechanical and Biological Waste Treatment (MBT) facilities

4) Long-term prospect of new waste-to-energy plants

Use of financial means and the capacity design in order to prevent or address the possible overcapacity of waste to energy plants. In this context, it should be taken into consideration that mixed wastes, which are used as raw materials in the energy generation processes, are expected to be reduced due the separate collection obligation and the more ambitious recycling goals of the EU.

5) Use of energy-efficient cutting-edge technologies

Where waste-to-energy processes are opted for, there is a need to ensure that the most efficient techniques are used: this maximizes their contribution to the EU's climate and energy objectives. The Commission study estimates that if proven techniques and supporting measures are properly implemented, the amount of energy recovered from waste could rise by 29 % to 872 PJ/year, using exactly the same amount of waste as raw material. This shows the potential for energy efficiency improvements.

6) Principle of Proximity

It is necessary to adopt the principles of self-sufficiency and proximity, giving priority to the generation of energy from industrial waste within Greece, having regard to technical and financial criteria.

7) Information

The organization of a campaign to inform citizens of the benefits of the waste-to-energy process by presenting them with examples from established foreign plants is deemed necessary an it will also significantly contribute to the proper updating of local societies and the approbation of waste-to-energy processes.