

Waste-to-Energy global status. Technologies and perspectives in times of transition and climate crisis

K. Kalkanis¹, A. Bourtsalas², C. Chroni³, N.J. Themelis², C.S. Psomopoulos^{1,2}

¹Department of Electrical and Electronics Engineering, University of West Attica, Egaleo, Attica, GR-12244, Greece

²Earth Engineering Center, Earth and Environmental Engineering Department, Columbia University, New York, NY 10027, USA

³Department of Geography, Harokopio University of Athens, Kallithea, Athens, 176 71, Greece

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Presenting author email: cpsomop@uniwa.gr

Climate change is considered by the scientific community as the most demanding challenges humanity is facing and will continue to face in the next decades. This crisis has led governments to invest in switching the energy sources from fossil to renewables. Wastes are identified by IPCC as one of the significant problems that must be addressed to mitigate the impacts of climate crisis. Sustainable waste management is known to be a solution but governments and organizations understand the term differently. One of the methods under question mainly from part of the organizations is Waste-to-Energy (WTE), a technology that is proven and mature, used by many countries as part of the solution for waste minimisation and, also, an important source of renewable energy. In addition, the COVID pandemic and the catastrophic results of climate change have resulted in the generation of enormous volumes of hazardous and non-hazardous wastes that must be disposed globally.

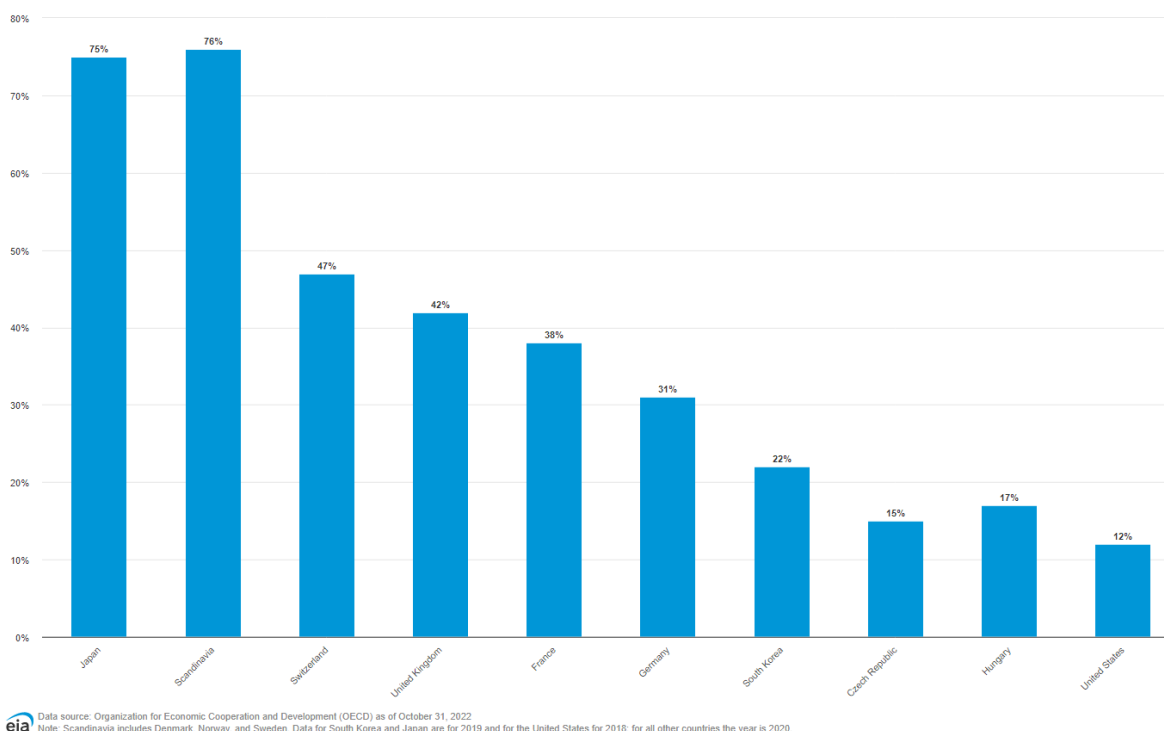


Fig. 1. Percent of the total municipal wastes treated in waste-to-energy facilities in selected countries in world for 2022 (source: OECD)

In this context, the waste-to-energy power plants are a solution to tackling all these challenges, namely sustainable waste management, renewable energy production and destruction of the pathogens in wastes associated with COVID pandemic. However, there are voices globally that still do not accept waste-to-energy as the solution to dealing with post-recycling wastes, instead of the traditional method of landfilling. This presentation will discuss the current status of waste-to-energy technologies, globally and the future perspectives and challenges in relation with the climate crisis that the world is facing. It is divided in three sections: in the first part the waste-to-energy technologies used globally are presented while the second section describes the status of global waste treated by

waste-to-energy technologies is presented. The third section investigates the potential role and perspectives of waste-to-energy technologies in the context of climate crisis, circular economy and energy transition efforts, in view of the current and projected global threats.

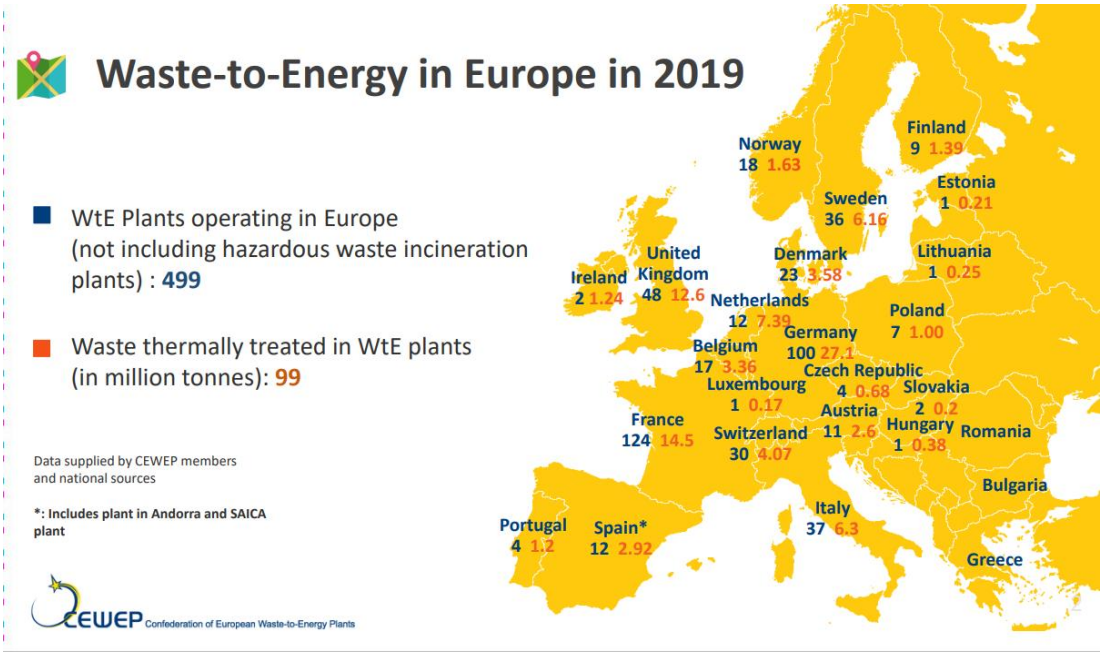


Fig. 2. WtE plants operating in Europe and waste thermally treated with energy recovery for the year 2019 (source: CEWEP)