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Technology Collaboration Programme

Review of Waste to Energy Policies in South Africa and International Comparisons

Summary Series

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Authors: Keristena Grewan and Prof. Cristina Trois (University of University of KwaZulu-Natal)

Edited by: Mar Edo (RISE)

Summary

This report is a review of the Waste-to-Energy (WtE) policy in South Africa within the framework of the IEA Bioenergy Task 36. In addition, driver and barriers in the implementation of WtE solutions in different counties (i.e. Germany, Ireland, Italy, Norway, Sweden and United States of America) are also presented and discussed. The purpose of this review is to provide countries with inspiration and support in implementing suitable policies and solutions in the waste-to-resources management and WtE sector that would facilitate their transition towards circularity.

The South African National Energy Development Institute (SANEDI), in partnership with the DSI/NRF/CSIR South African Research Chair in Waste and Climate Change at the University of KwaZulu-Natal, has developed a Waste to Energy Roadmap for South Africa to contribute to the country's *Just Energy Transition* with the aim to map the potential for insertion of waste to energy technology in South African municipalities. The South African Waste-to-Energy Roadmap identifies relevant technologies for the effective recovery of waste into biogas and energy, while mapping barriers and drivers for potential uptake at local level (Nell and Trois, 2022). One important element of the WtE Roadmap is a WtE Policy Review document (including institutional barriers and drivers) and detailed mapping of the policy and regulatory frameworks pertaining available WtE technologies for the treatment and valorisation of MSW in South Africa.

The development of a WtE Roadmap supports the South African Government in delivering an economic recovery from the COVID-19 pandemic that is green, clean, resilient and inclusive based on the following research question:

"How can South Africa transition to a sustainable smart energy system, implementing WtE as a resource, and how can different WtE solutions co-exist with other renewable energy technologies in a renewable South African energy system?".

Conclusions

Material and energy valorisation of waste are key solutions to waste problems around the world. Moreover, Waste-to-Energy (WtE) substitutes fossil energy at the local scale. In general, from the comparison of WtE deployment among the Task 36 countries, the various drivers and barriers identified in the policy frameworks, from development to implementation appear very similar despite the socio-economic and geographical disparities. It is acknowledged that all stakeholders need to work together to ensure the successful implementation of Waste-to-Energy technologies. South Africa has progressed in the development of strategies aimed at expanding the waste and energy sector, but there is still vast potential in creating a specific waste to energy management framework. In countries with further developed Waste-to-Energy implementation, every level of government is involved in setting and implementing the criteria for the permitting process of WtE projects while the local municipalities are responsible for the management and monitoring process. Best practice from the international policy review suggests having a locally drafted specific and fully aligned waste-to-energy policy and roadmap to advice all levels of government and stakeholders. Waste-to-energy policies can be a driver in motivating and supporting WtE projects if they are developed in consultation with all levels of government and relevant stakeholders being included in an open and deliberated process.