Circular Economy and Waste to Energy

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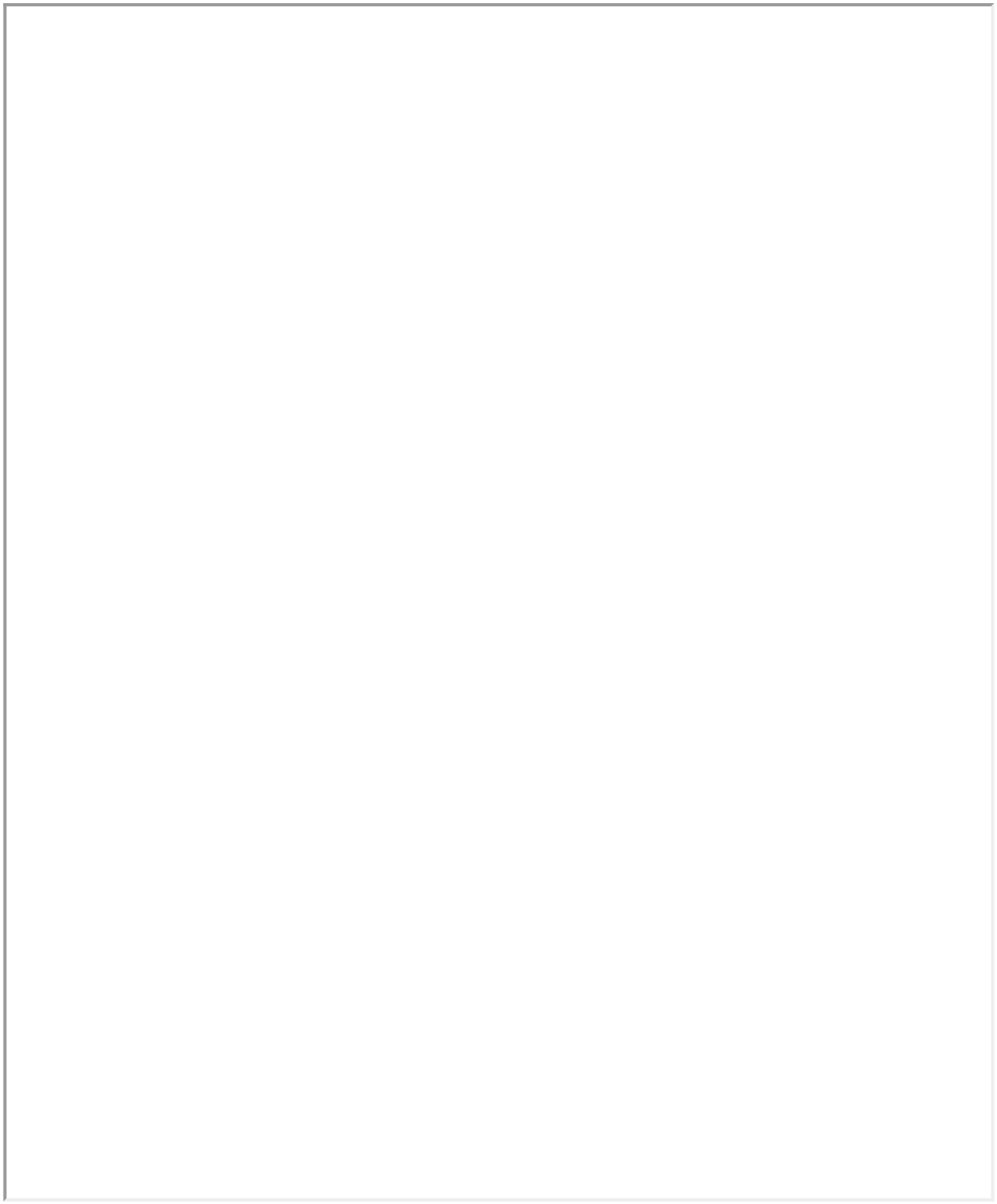
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Why did we conduct this research?

Since 2015, the European Union has been introducing virtuous goals based on the rejection of linear economy in favour of circular economy strongly founded on materials recovery. This paper analyzes the effects that circular economy principles introduced in the European Union context will have on the thermochemical waste treatment plants design.

Key findings:

- Risks of the adoption of a pure gasification, in which the syngas is the objective product but for which problems regarding its use in gas turbine are yet to be solved, are limited.
- The lower excess air that characterizes indirect combustion opens to a potential adoption of solution to extract CO2 (for industrial use) from the off gas.
- The recovery of materials can't be maximized where the separate waste collection is not optimized. At the same time, in that scenario, a power increase of the thermal plants of the region is required in order to avoid the landfill disposal.



Reference:

Rada, E. C., Ragazzi, M., Torretta, V., Castagna, G., Adami, L., & Cioca, L. I. (2018, May). Circular economy and waste to energy. In *AIP Conference Proceedings* (Vol. 1968, No. 1, p. 030050). AIP Publishing.