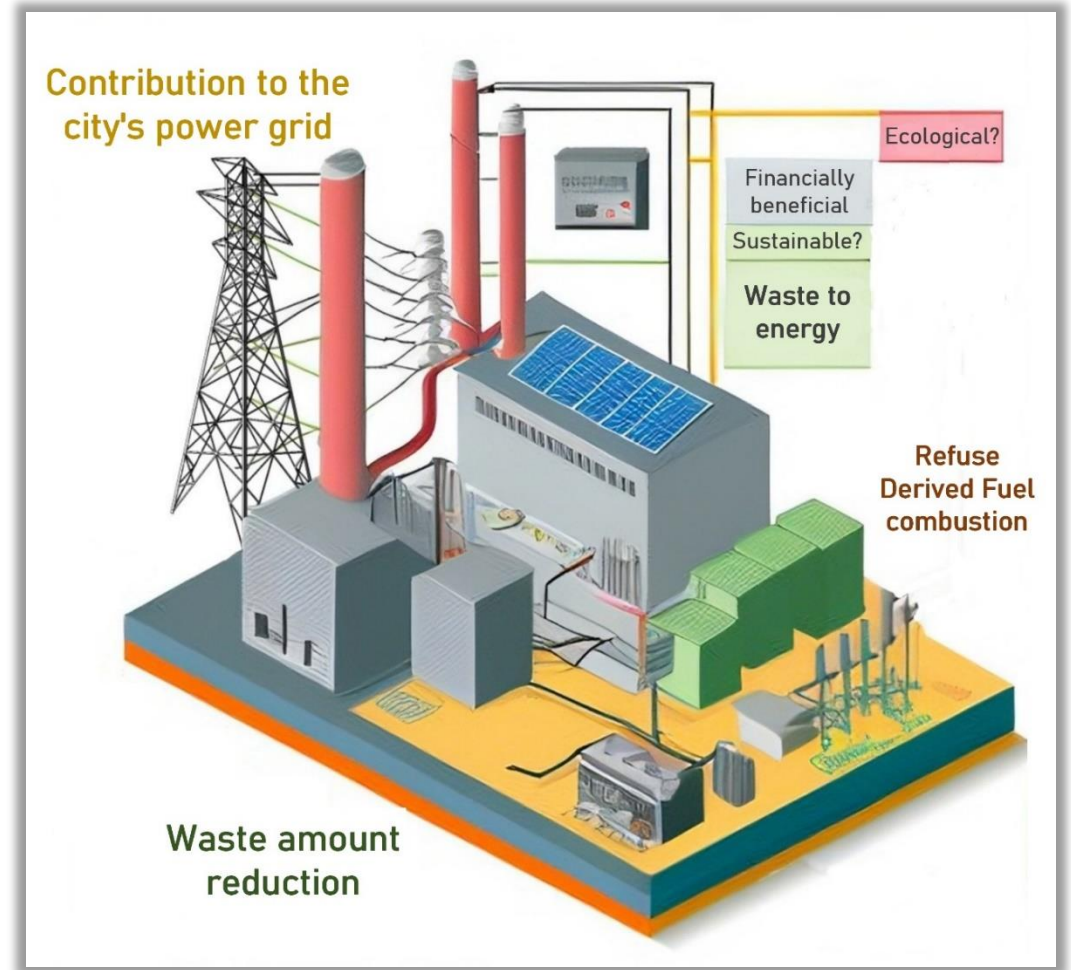


To Burn or Not to Burn. The Question of Waste Incineration in Latvia

Jelena Pubule, Viktorija Terjanika, Daina Kaleja

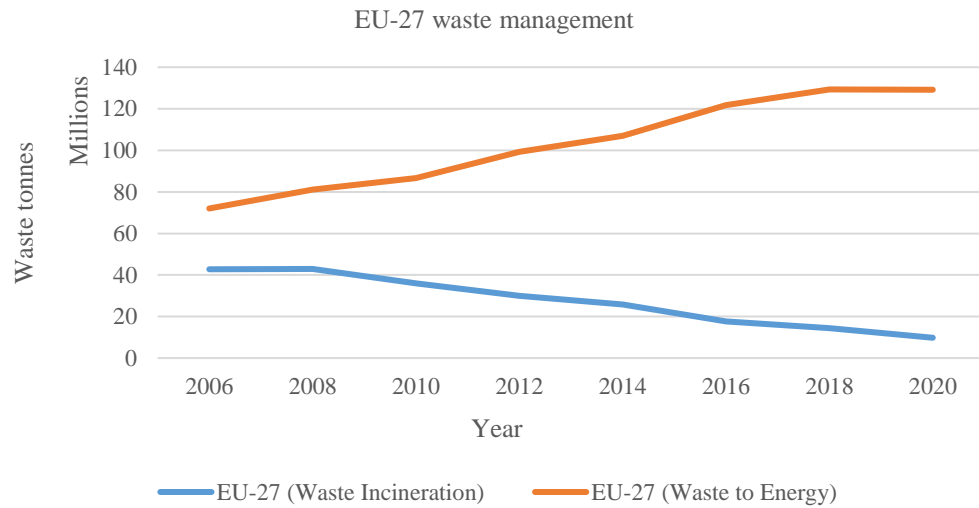
Topicality

- Increasing amount of potentially recyclable municipal solid waste
- The growing demand for energy
- Waste-to-energy (WTE) technology as a potential solution
- Apprehensions regarding the sustainability of the method
- WTE technology is promoted as an environmentally sustainable solution, doubts persist regarding its actual eco-friendliness.

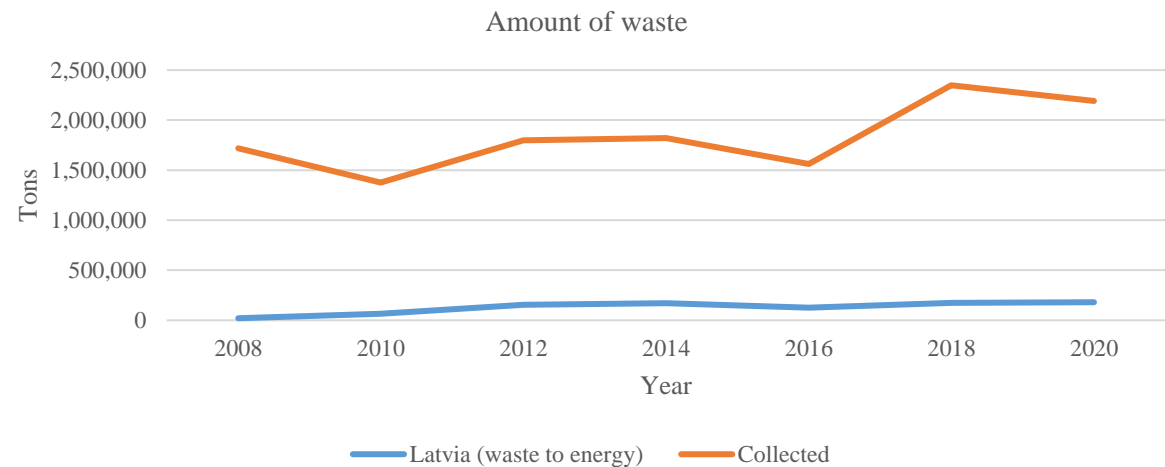


Combustion and Incineration by WTE

Combustion and Incineration by Waste to Energy in the EU-27 (Eurostat, 2022b)



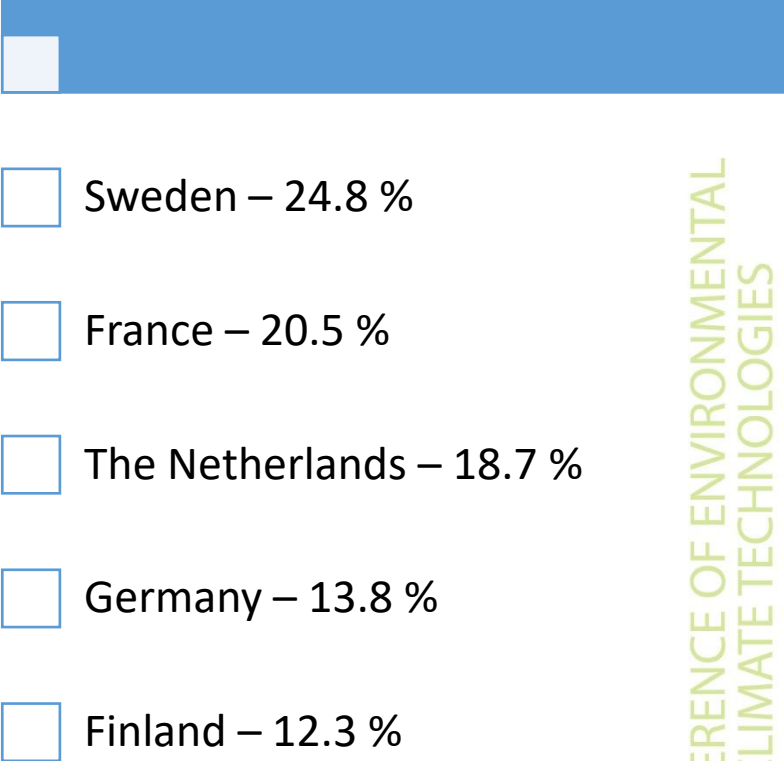
Amounts of waste collected and waste used in energy conversion in Latvia by year (Eurostat, 2022b), (Official Statistics Portal, 2022)



Treatment of municipal waste in the EU between 2000 and 2020

Source: Eurostat		2000	2005	2010	2015	2020
Landfill	Mt	112	88	79	57	52
Incineration		36	45	53	57	61
Material recycling		38	46	55	63	67
Composting		23	26	29	33	40
Other		11	16	6	4	5
Total		220	221	222	214	225
Share of incineration	%	16.4	20.4	23.9	26.6	27.1

EU Member States with the highest share of MSW in heat generation, 2017



EU policies

As a part of the guiding concept of Circular Economy, a waste to energy initiative (document The role of waste-to-energy in the circular economy) has been adopted in 2017: “When waste cannot be prevented or recycled, **recovering its energy content is usually better than landfilling it**”

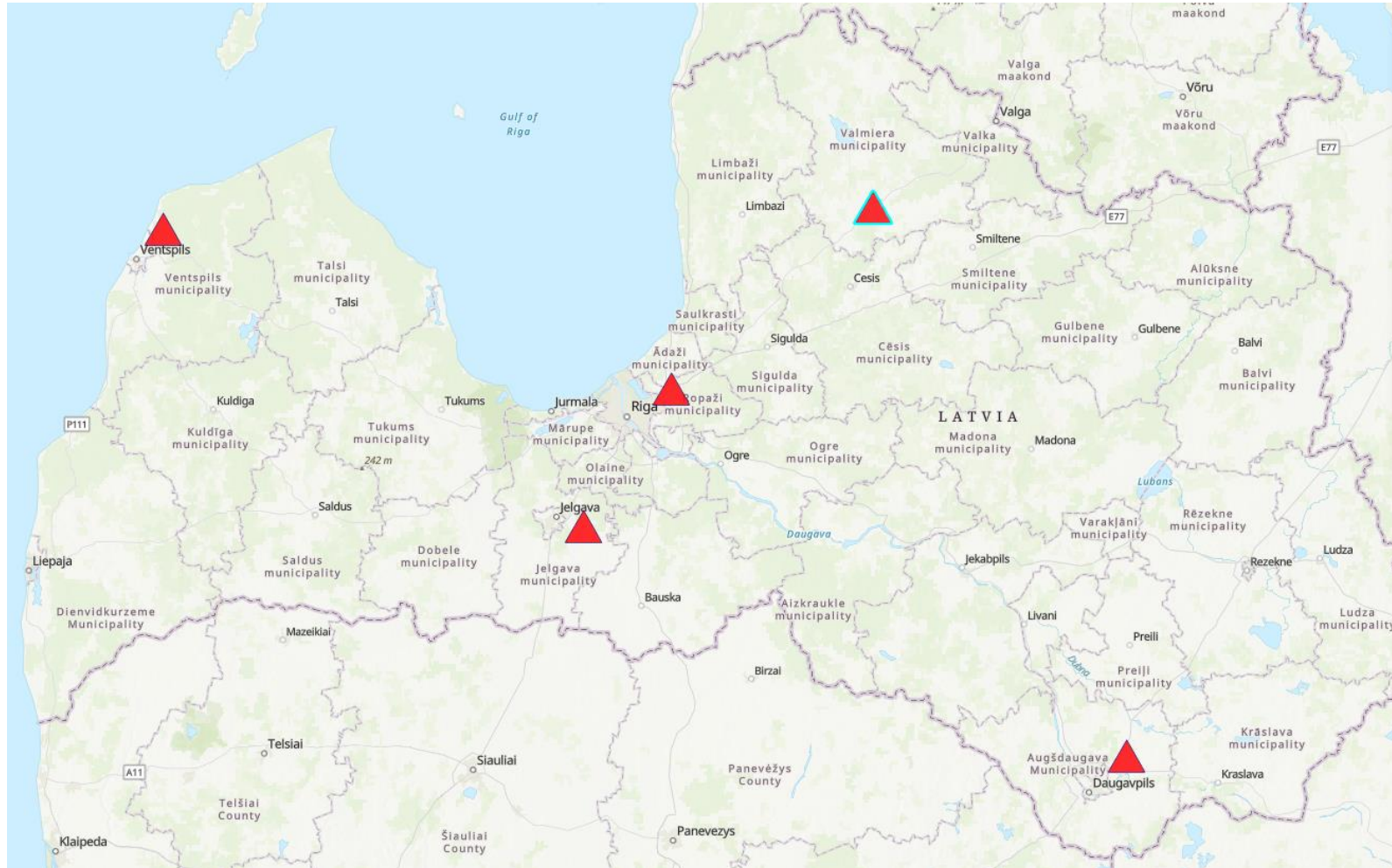
The waste-to-energy operations are **acceptable options** in waste management in the EU, however **not the first choice**

At the Member State level, waste management policy (including waste-to-energy sector) is laid down by **national and regional waste management plans**.



Legislative framework

National waste management plan 2021-2028



Vāc parakstus pret atkritumu dedzināšanas rūpnīcu Pierīgā

Sabiedrības iniciatīvu portālā "Manabals.lv" sāka parakstu vākšana pret atkritumu dedzināšanas rūpnīcu Pierīgā.



FOTO: VLADISLAVS PROŠKINS, F64



Vairāk nekā 5000 cilvēki vāc parakstus pret atkritumu dedzināšanas rūpnīcu Pierīgā

Sabiedrība

LETA 08:04, 26.04.2023



Ropažu novada domē iesniegta rīcība pret atkritumu dedzināšanas rūpnīcu Pierīgā.



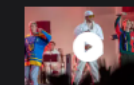
Atkritumu dedzināšanas rūpnīca "Pierīga" Ropažu novada teritorijā. Rūpnīca atrodas adrese: Pūrciņu iela 23, Pīlāri, LV-1045 (+371) 472211

Par Pierīgā plānotu atkritumu dedzināšanas staciju iedzīvotāji uzzina pāris nedēļas pirms apstiprināšanas

3play



Skaties arī



LATVIJĀ · 12:43
"Singapūras satīns" un Gustavo ieraksta kopdziesmu "Čiu riu"



LATVIJĀ · 30:04
Intervija Kučinskis atzīst, ka policijai jāuzlabo darbs; Kariņš iekšlietu ministram



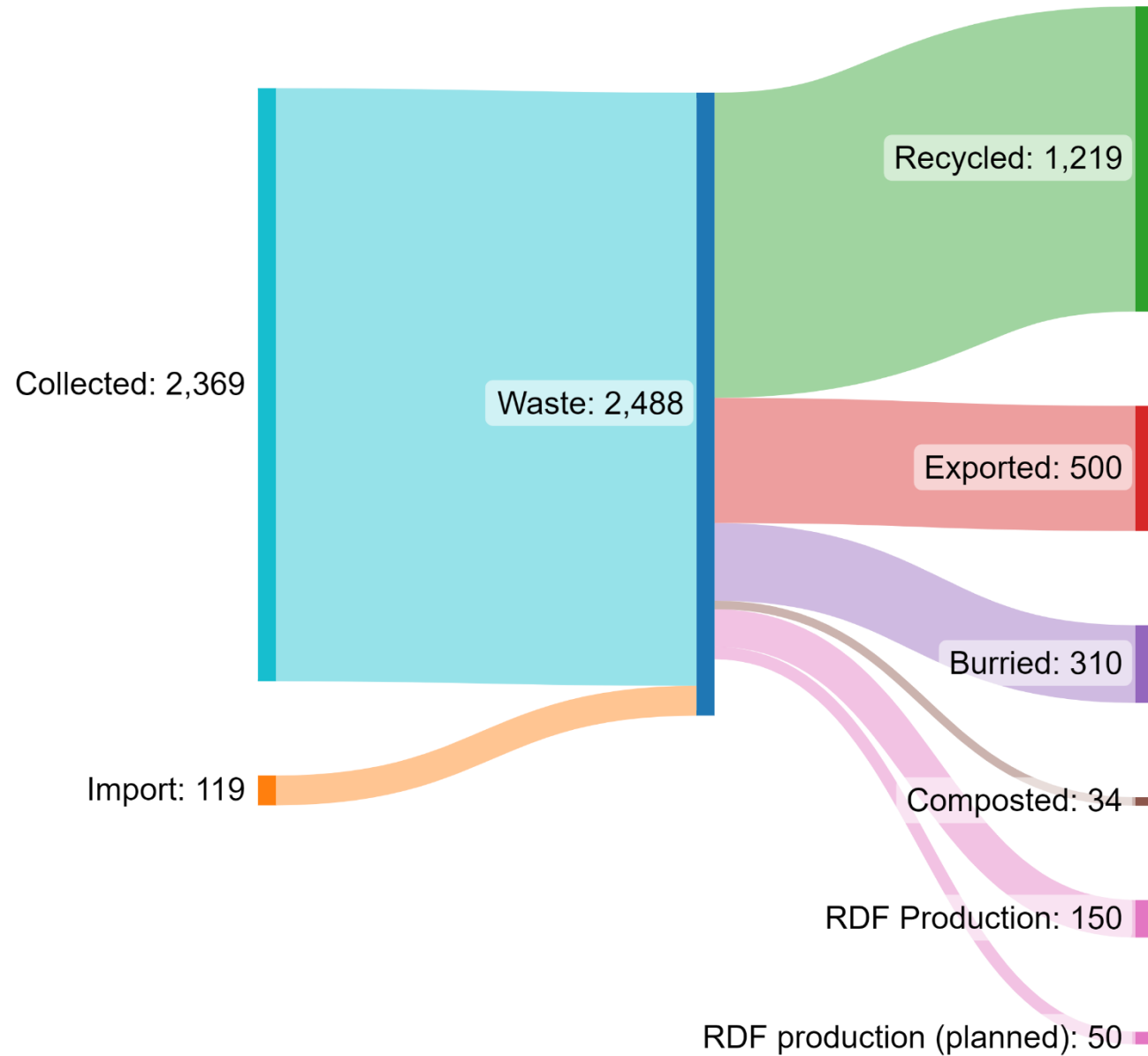
VIDEO › Par Pierīgā plānoto atkritumu dedzinātavu iedzīvotāji uzzinājuši neilgi pirms apstiprināšanas



TVNET
2023. gada 23. aprīlis 20:25



Flows of waste in Latvia, thousands tons, 2020



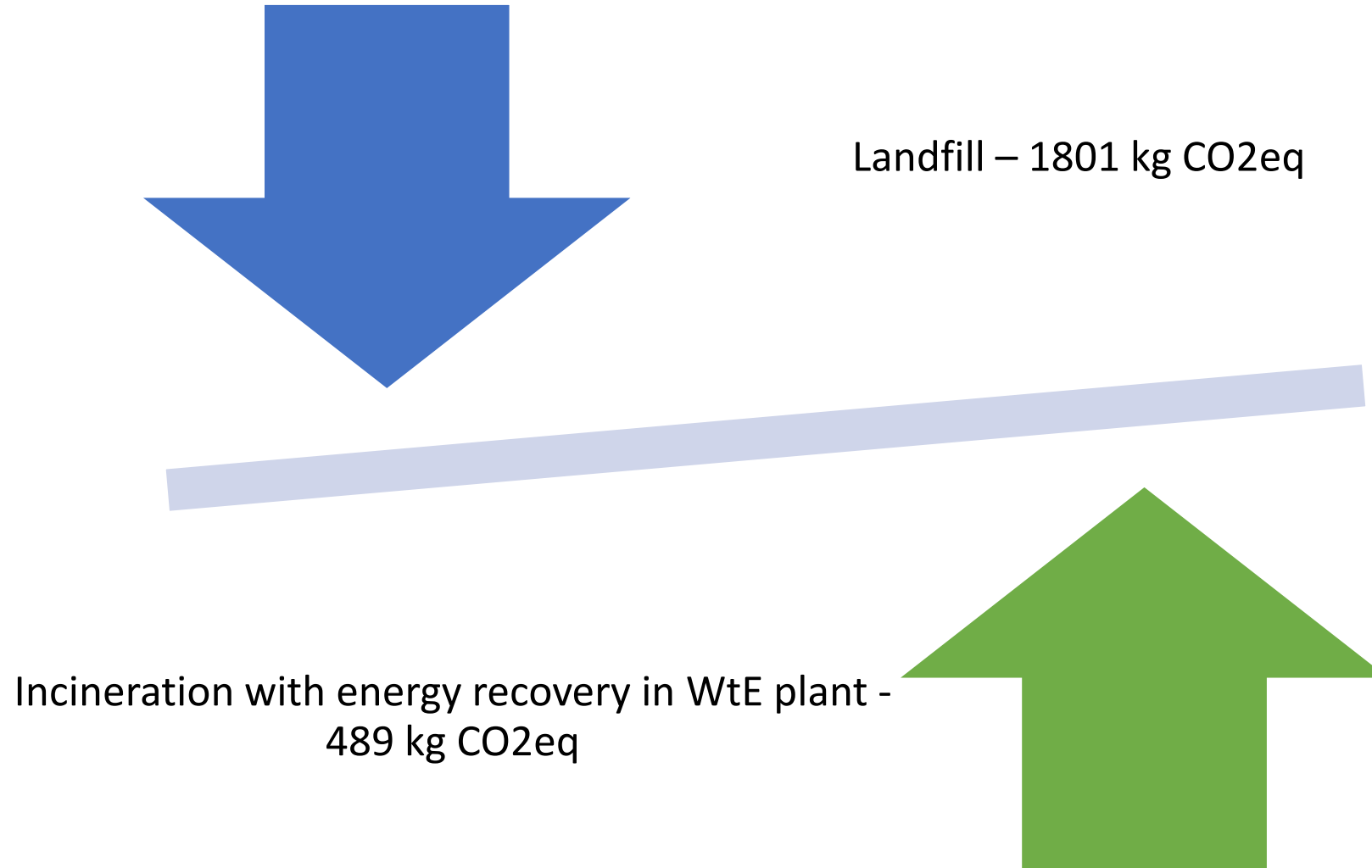
Ecology



Ecology



Emissions per tonne of material (kg CO₂eq)



PROS:

Relative environmental friendliness in comparison with traditional waste incineration. The use of RDF in power plants can reduce CO₂ emissions.

Waste incineration can significantly reduce the amount of waste sent to landfills. Additionally, RDF technology and recycling 100 ktons of municipal waste annually, about 3.5 ha/year of land can be saved.

The lower heating value of RDF may reach high values as ~24 MJ/kg⁻¹, which puts RDF on par with wood pellets, and slightly below anthracite and coke. Such indicators make it possible to use RDF as a fuel without significant losses in the energy received

CONS:

Direct emissions from RDF-burning plant make a significant negative contribution to air pollution and have a more complex disposal of incineration waste. When incineration is widely used, **waste sorting becomes less common** or effective, as RDF requires combustible materials such as plastics left in the waste

Waste must continue to be generated, as it is necessary to provide "fuel" for the WTE station.

The cost of construction and maintaining a WTE station **exceeds the revenue** generated from electricity produced.

According to European Commission, **waste incineration goes against the rules of circular economy** principles and will not be funded

Waste incineration stations cause much public concern.



Main Findings

RDF burning is **controversial topic**, as such fuel can both replace fossil fuel and be a source of pollution and waste production increase

WtE technologies provide additional source of energy and possibility to decrease amount of waste, but **require continuous waste production** and **increased amount of plastic** in the fuel composition

It is crucial to evaluate the current waste management system **and ensure that the circular economy principles are being implemented** at their maximum before considering WtE

In the case of Latvia, if the planned RDF fuel combustion stations are implemented, the estimated annual emissions will be at least 340 tNO_x, 85 tSO₂, and 15 t PM_{2.5}., operating at full capacity, the plants will create 300 000 tons of CO₂.

This research is funded by the Latvian Council of Science, project CO₂ Deal: Effective Valorisation of CO₂ for Decarbonised Regional Development, project No. Izp-2020/1-0302



Institute of Energy Systems and Environment

Prof. Jelena Pubule
jelena.pubule@rtu.lv



CONFERENCE OF ENVIRONMENTAL
AND CLIMATE TECHNOLOGIES