

CEWEP Country Report 2016

Finland



Company Report: Finnish Solid Waste Association (JLY, Jätelaitosyhdistys) for the Westenergy Ltd Wte plant and also for the country information (in cooperation with Ekokem Oyj)

“Municipal Waste” (MW) means waste from households as well as commercial, industrial and institutional waste, which because of its nature and composition is similar to waste from households (excluding hazardous waste).

“Solid Recovered Fuels” (SRF):- solid fuel prepared from non-hazardous waste to be utilised for energy recovery in incineration or co-incineration plants, and meeting the classification and specification requirements laid down in CEN/TS W100343003.

“Refuse Derived Fuels” (RDF): broader than definition of SRF. In the Country Report only RDF expression is used and it comprises SRF as well.

A. Amount of Waste

In your <u>country</u>	Year 2014	In million tonnes
Total amount of Municipal Waste (MW): MW production / inhabitant / year: 500 kg/inhabitant		2,629
Total amount of household waste		60 % of MW (1,5 Mt)
Total amount of commercial/industrial/institutional waste similar to household waste		40 % of MW (1,1 Mt)

Total amount of industrial/commercial waste		see below
Total amount of waste	latest figure 2013	98, of which 68 Mt mining waste, 15 Mt construction, 9 industrial, 1,1 energy sector

B. Treatment of Waste

In your <u>country</u> (concerning MW)	%	Year 2014	In million tonnes
Recycling (including composting)	33		0,87
Incineration	50		1,31 ¹
Landfilling	17		0,45

Total Amount of thermally treated waste in million tonnes	Country	Organisation/ company: Westenergy
In WtE plants/dedicated RDF plants	1,20 ²	0,178 million tons (2014), 0,168 million tons (2015)
In Cement kilns	0	0

¹ Data from national office of statistics

² Data directly collected from WtE plants

Number of	Country	Organisation/ company: Westenergy
WtE plants	7	1
Dedicated RDF plants	2	
R1 plants	7	1

Capacity development in your country	Years			
	2017 – 2020		2021 – 2025	
	Additional Capacity, ktonnes	Additional number of plants	Additional Capacity, ktonnes	Additional number of plants
Planned Waste-to-Energy plants:	145	1	110	1
Planned RDF plants:	0	0	0	0
All (if it is not possible to specify separately)	145	1	110	1
Capacity development in Finland during 2014-2016	Year	2014	2015	2016
New WtE capacity ktonnes		340	0	160
New WtE plants started (number of plants)		1	0	1

C. Energy production in Waste-to-Energy and dedicated RDF plants

1. Total Electricity and Heat production in Waste-to-Energy and dedicated RDF plants

Reference year: 2014 (if data from 2015 are available, please add them and specify the year)

Total Electricity and Heat production	Waste-to-Energy plants and dedicated RDF plants	
	Country	Organisation/company: Westenergy
Reference amount of thermally treated waste in million tonnes:	1,20	0,178 million tons (2014), 0,168 million tons (2015)
Number of plants:	9	1
Electricity produced in million MWh/ year	0,62	0,102 million MWh produced (2014), 0,091 million MWh produced (2015)
Electricity exported in million MWh/ year	0,519	0,086 million MWh (2014), 0,077 million MWh (2015)
Heat* produced in million MWh/ year	2,643	0,299 million MWh produced (2014; only heat), 0,293 million MWh produced (2015; only heat)
Heat* exported in million MWh/ year	2,568	0,267 million MWh sold (2014; only heat), 0,264 million MWh sold (2015; only heat)

* incl. heating, cooling and steam

2. Recognition of energy produced in Waste-to-Energy and RDF plants as renewable

How much %? (Please indicate if it refers to energy production or waste input): 50 %

Contribution of WtE to the production of renewable energy in your country (%) Not known

In your <u>country</u>	Electricity	Heat
Market price per kWh in €cent/kWh		
Subsidy or market based instruments (Please specify e.g. green certificates, feed in tariffs)	No subsidies for WtE.	No subsidies for WtE.
Price incl. subsidy or market based instruments in €cent/kWh		

D. Residues

Reference year: 2014 (if data from 2015 are available, please add them and specify the year)

Slag/bottom ash	Country	Organisation/company:
Annual amount in million tonnes:	0,223363	Westenergy 0,031 million tons (2014), 0,029 million tons (2015)
Method of utilisation or disposal (%): (road construction, cement production, construction block fabrication, landfill)		42.1 % (Road construction & similar, Landfill construction, concrete industry)
Recovery of metals: <ul style="list-style-type: none"> • Annual amount (%): • Ferrous (F) material extracted (gross weight, %): • Non Ferrous (NF) material extracted (gross weight, %): • Typical composition of the NF fraction (% Al, other NF, inert): 	<ul style="list-style-type: none"> • Annual amount (%): 7,5 - 13 • Ferrous (F) material extracted (gross weight, %): 7 • Non Ferrous (NF) material extracted (gross weight, %): 1,5 - 4,8 • Typical composition of the NF fraction (% Al, 18 - 50 other NF, 12 - 20 inert: 30 - 49 	Annual amount: 11.3% Ferrous material extracted: 6.5 % Non Ferrous material extracted: 4.8 % Typical composition of the NF fraction: Al: 17.7 %, Heavies: 11.5 %, Inert: 70.8 %

FGC (Flue Gas Cleaning) residues, (incl. filter dust and boiler ash)	Country	Organisation/company:
Annual amount in million tonnes:	0,051668	Westenergy 0,005 million tons
Method of treatment or disposal (e.g. stabilisation, salt mine, hazardous landfill site):	Stabilisation + landfill disposal (hazardous waste)	Stabilisation + landfill disposal (hazardous waste)

E. Export and Import of MUNICIPAL and SIMILAR WASTE

Into/from your country, reference year: 2014 (if data from 2015 are available, please add them and specify)

	<u>MSW</u>	<u>RDF</u>
Export	0,045 million tons	?
Import	0	?

F. Responsibilities Public - Private

Type of waste:	Responsibility for <u>treatment</u> : Public/Private	Responsibility for <u>collection and transport</u> : Public/Private	Municipalities' responsibility for <u>monitoring</u> : Yes/No
from private households	Public	Both public and private (depends on the municipal decisions)	Yes
commercial waste similar to household waste	Private	Private	No
industrial/commercial waste	Private	Private	No
hazardous waste	Yes, for the households	Yes, for the households	Yes, for the households

G. Refuse Derived Fuels (RDF)

In your country, reference year: 2014

1. **Amount of RDF/year**
 - a. **Current Production:** Our estimate is that around 0,350 million tons of RDF is produced from MSW. We estimate that in addition 0,150 million tons of RDF is produced from other wastes. The RDF is also used in co-incineration plants.
 - b. **Potential:** We assume that less RDF is produced from MSW due to increased capacity of WtE plants.
 - c. **Experience (market development etc.):** We assume that less RDF is produced from MSW due to increased capacity of WtE plants.
2. **Capacity for mechanical-biological treatment/ year**

Currently: 0 (no plants exists)

Planned: 1 plant under construction which would treat mixed household waste.

H. Prices and taxes

1. Waste-to-Energy prices for Municipal Waste (MW)

Reference year: 2014

Average Net fee in €/tonne	VAT (Value Added Tax) rate %
75	24

	Tax in €/tonne MW	Tax for export in €/tonne MW	Tax for import in €/tonne MW	Rules to avoid double taxation if MS of destination and of dispatch have taxes	Comments
Incineration	0	0	0	None	
Co-Incineration	0	0	0		

Waste-to-Energy total price in €/tonne MW _____

2. Landfill taxes and bans

Reference year: 2015

Average Net fee for landfilling in €/tonne	VAT (Value Added Tax) rate %	Landfill tax in €/tonne (If landfill tax is planned please indicate when and the amount planned)	Total price for landfilling €/tonne MW	Landfill ban (If landfill ban is planned please indicate when and for what type of waste)
49 (excluding VAT and landfill tax)	24	55 (70 from 1 st Jan 2016)	129	from 1 st Jan 2016 for organic waste

I. Investment

- The average investment cost per tonne of annual capacity (for a new plant, considering 15-20 years operation):
- Investment cost regarding flue gas cleaning system (% of total investment):
- The average investment cost per MW heat and electricity installed respectively:

J. Employment

The amount of employment created by the Waste-to-Energy industry

Jobs (full time equivalent) per WtE plant including operation process, administration and outsourced personnel hired on regular basis i.e. during maintenance (reference to total capacity): _____

You can also provide this information in another unit, e.g. jobs per 100,000 t/a capacity