

# Waste management in Austria recycling levels, waste to energy, extended producer responsibility

ENVICON Online Conference in Poznan, 19. Oct. 2020

Mag. Dr. Johann Mayr  
Austrian coordinator of  
the union of municipal waste management associations,  
national member in municipal waste europe (MWE)

# Content

- Austrian waste management in short
- the reality in achieving recycling levels,
- the incineration of waste as a part of the Circular Economy
- Extended Producer Responsibility in Austria

# Responsible Resource Management – handbook (German, English)



# Economic sustainability (2013)

- Importance in national economy
- suppliers: mostly familyrun companies from nearby region
- Investments: recycling centers building app. 750 mio. Euro in total within the last 10 years
- catalytic effects
  - Waste management is a factor regarding the joice of place for living and working
  - infrastructure: short transportation

Waste management	Economic value added	employment
<i>direct</i>	<b>466,3 Mio Euro</b>	<b>6.000 Persons</b>
<i>indirect und induced</i>	<b>768,8 Mio Euro</b>	<b>8.779 Persons</b>
<i>total</i>	<b>1.235,1 Mio Euro</b>	<b>14.779 Persons</b>

# Amount of municipal waste in Austria 2017 and 2018



main fraction	2017 (t)	2018 (t)	increase (t)	increase (%)
total amount of municipal waste from households and similar corporations	4.321.964	4.407.686	85.722	2,0%
- mixed municipal waste	1.439.688	1.458.788	19.100	1,3%
- bulky waste	255.784	263.261	7.477	2,9%
separately collected municipal waste from households and similar organisations	2.626.492	2.685.637	59.145	2,3%
- hazardous waste, waste batteries, WEEE-waste	131.884	133.341	1.457	1,1%
- recyclables	1.492.305	1.516.980	24.675	1,7%
- biowaste	1.002.303	1.035.316	33.013	3,3%

# Recyclables Austria 2018

category of recyclable	mass in tons	kg/inh.
organic waste	1.035.316	191
Paper, cardboard packaging, magazines	653.659	74
wood - packaging and bulky	283.619	32
Glass packaging	230.206	26
plastic packaging	161.006	18
metal packaging + scrap	124.345	14
textiles	37.687	4
other recyclables	26.458	3
	2.552.296	362

# Theoretical experiment



typ of plant incl. innercompany plants	AT number	Plants per 1 Mio inh.	equiv. PL
incineration plants for municipal waste	11	1,25	48
thermal treatment plants (without waste incinerators)	50	5,68	216
chemical-physical treatment plants	54	6,14	233
treatment plants for specific wastes (food oil recycling, asbestos waste, chemicals, batteries, etc)	22	2,50	95
Shredder plants for metall scrap, WEEE, ELV	111	12,61	479
building waste recycling plants	941	106,93	4.063
mechanical biological treatment plants (mbt)	15	1,70	65
composting plants	405	46,02	1.749
biogas plants	151	17,16	652
sorting and treatment plants for separately collected wastes	220	25,00	950
Plants for treating plastics (sorting and recycling)	58	6,59	250
recycling plants for separately collected secondary raw material	97	11,02	419
landfills	1020	115,91	4.405
<b>Total</b>	<b>3.155</b>	<b>28</b>	<b>13.624</b>

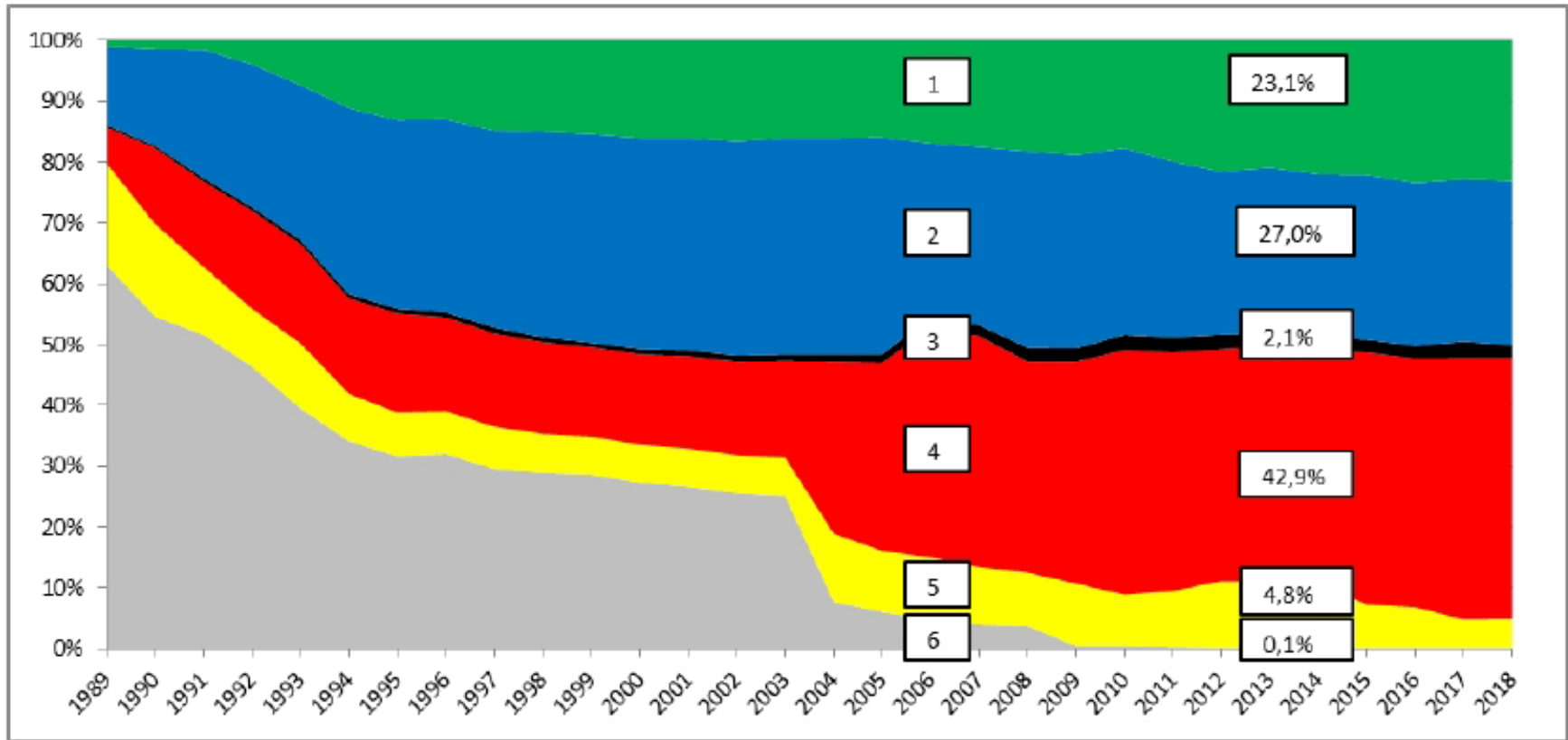
# Structure of waste treatment in Austria



- The table shows the kind and number of waste treatment plants in Austria 2018, in total 3.100 plants.
- If one wanted to transfer it theoretically to Poland by simply multiply it by its inhabitants this would mean, that Poland would have 13.600 plants.



# Success of Austrian waste management



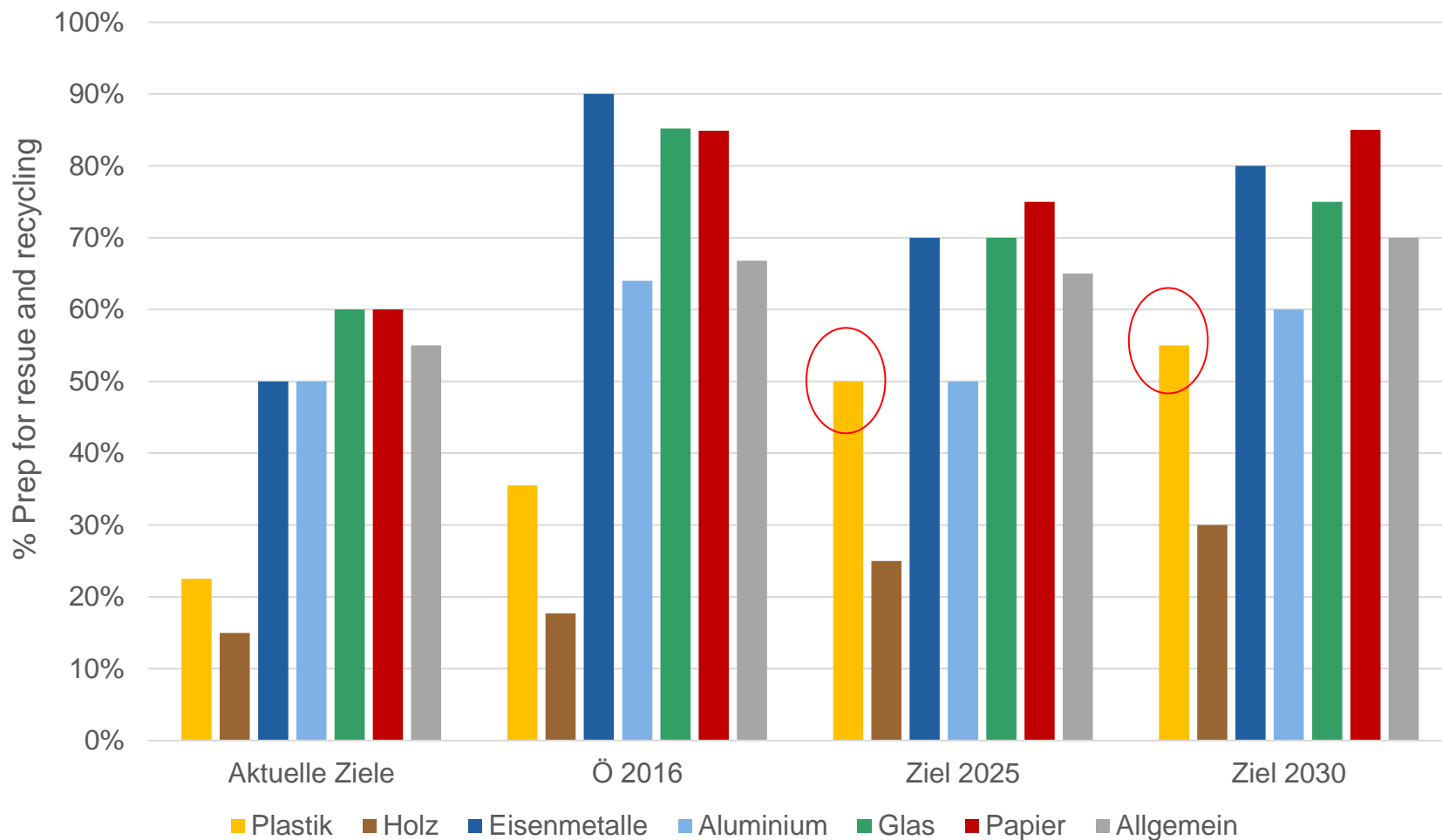
## First treatment

1. Recycling of biowaste from separate collection
2. Recycling of recyclables from separate collection
3. treatment of hazardous waste/waste batteries and WEEE-waste from separate collection
4. incineration with energy recovery
5. biologic treatment in mechanical-biological plants
6. landfilling without treatment
7. landfilling after treatment until 2009 including direct landfilling

# recycling rates in AT, 2018 data

Province	Valuables in kg/cap.a	municipal waste in kg/cap.a	collection rate	new EU-recyclingrate - 8,9%	EU-goal 2025
Burgenland	381	184	67,5%	61,7%	55%
Kärnten	218	207	51,3%	46,9%	55%
Niederösterreich	340	186	64,7%	59,1%	55%
Oberösterreich	363	141	72,0%	65,8%	55%
Steiermark	295	202	59,4%	54,3%	55%
Salzburg	294	171	63,2%	57,8%	55%
Tirol	343	167	67,2%	61,4%	55%
Vorarlberg	256	93	73,3%	67,0%	55%
Wien	172	299	36,5%	33,4%	55%
Gesamt Ö	296	183	61,7%	56,4%	55%

# PACKAGING - RECYCLING RATES



# Waste to Energy as a vital part of Circular Economy



- the incineration of waste with energy recovery is a vital part of the Circular Economy without which the closure of the loop will be impossible
- It dramatically reduces the volume of waste to 10%
- It provides a safe sink to extract hazardous substances from the waste stream and concentrate it in filter cakes due to the high emission standard
- It turns waste into energy to produce heat, steam and electricity, which can be a substitutes fossil fuel and complement intermittent renewable energy sources

# Waste to Energy as a vital part of Circular Economy



- It recovers valuable secondary raw materials (e.g. metals and aggregates from bottom ash) clean and ready to be re-injected in the economy, thus preventing carbon-intensive extraction and use of virgin materials.
- 50% of the energy is green energy as it utilizes the biofraction in residual waste
- Helps to implement the landfill ban and let only non-flammable substances go to landfill. Slags and ashes do not cause methane emission and no harm to ground water

# Extended Producer Responsibility (EPR) in Austria



## 4 EPR-Schemes

- Packaging
- WEEE
- Batteries
- End of Life Vehicles

# Effects of EPR in Austria 2019

	t brought into the market	t separat. collected	% collection rate	t still in Residual waste paid	t residual waste unpaid	t total
<b>Packaging</b>	<b>759.337</b>	<b>590.749</b>	<b>77,80%</b>	<b>84.736</b>	<b>83.852</b>	<b>759.337</b>
paper&cardboard	216.525	166.780	77,03%	10.771	38.974	216.525
glass	296.134	245.485	82,90%	1.787	48.862	296.134
metall	48.335	25.856	53,49%	2.662	19.817	48.335
plastic	198.343	152.628	76,95%	69.516	- 23.801	198.343
<b>WEEE</b>	<b>210.196</b>	<b>116.475</b>	<b>55,41%</b>		<b>93.721</b>	<b>210.196</b>
large elect. equip.	103.023	55.603	53,97%		47.420	103.023
temperature exchangers	33.368	14.240	42,68%		19.128	33.368
screens, monitors	13.433	10.113	75,28%		3.320	13.433
small elec. equip.	58.989	38.440	65,16%		20.549	58.989
lamps	1.383	940	67,97%		443	1.383
<b>Batteries</b>	<b>32.654</b>	<b>18.302</b>	<b>56,05%</b>		<b>14.352</b>	<b>32.654</b>
cell batteries	5.760	2.270	39,41%		3.490	5.760
vehicle batteries	25.940	15.670	60,41%		10.270	25.940
industrial batteries	954	362	37,95%		592	954

# Effects of EPR in Austria

	t brought into the market	t separat. collected	% collection rate	t still in Residual waste paid	t residual waste unpaid	t total	kg/inh. Collected
<b>EPR-Total</b>	<b>1.002.187</b>	<b>725.526</b>	<b>72%</b>		<b>191.925</b>	<b>1.002.187</b>	<b>81,6</b>
Packaging	759.337	590.749	78%	84.736	83.852	759.337	66,5
WEEE	210.196	116.475	55%		93.721	210.196	13,1
Batteries	32.654	18.302	56%		14.352	32.654	2,1
<b>total municipal waste</b>		<b>4.400.000</b>					<b>494,9</b>
			<b>16%</b>	EPR-Responsibility			
inhabitants		8.890.000					



# Effects of EPR in Austria

- Of a total of 4,4 Mio t of municipal waste 726.000 t are under EPR-responsibility
- That is 16%
- Cooperating with PROs municipalities rent out their services and receive about 10% of their income from them
  - E.g. Collection bins, collection, civic amenity sites, information of the consumer by 350 waste advisers

# Links

- [www.argeawv.at](http://www.argeawv.at)
- [www.bmv.at](http://www.bmv.at)
- [www.umweltverband.at](http://www.umweltverband.at)
- [www.abfallverband.at](http://www.abfallverband.at)
- [www.ooe-bav.at](http://www.ooe-bav.at)
- [www.atm.at](http://www.atm.at)
- [www.abfallwirtschaft.steiermark.at](http://www.abfallwirtschaft.steiermark.at)
- [www.gemeindebund.gv.at](http://www.gemeindebund.gv.at)
- [www.staedtebund.gv.at](http://www.staedtebund.gv.at)
- [www.oinhav.at](http://www.oinhav.at)
- [www.municipalwaste.eu](http://www.municipalwaste.eu)

# Contact

ARGE Österreichischer Abfallwirtschaftsverbände

Stadiongasse 6-8/8

1010 Wien

[www.argeawv.at](http://www.argeawv.at)

[info@argeawv.at](mailto:info@argeawv.at)

Bundeskoordinator: Dr. Johann Mayr

Tel. +43 664 390 97 20

[ARGE-facebook](#)

ZVR: 125088441

## **VWM-Grünbuch – Link zum Download:**

Englisch: [https://www.dropbox.com/s/mmrij59wrrwex1f/GreenBook\\_english.pdf?dl=0](https://www.dropbox.com/s/mmrij59wrrwex1f/GreenBook_english.pdf?dl=0)

Deutsch: [https://www.dropbox.com/s/q5pvqma8zgn3bf5/Gr%C3%BCnbuch\\_deutsch\\_neu.pdf?dl=0](https://www.dropbox.com/s/q5pvqma8zgn3bf5/Gr%C3%BCnbuch_deutsch_neu.pdf?dl=0)