

Waste Management in Central and Eastern Europe

2020 Obligations

A sector under severe challenge



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Table of Contents

Foreword	3
Executive Summary	4
1. Introduction	6
2. Legislative and regulatory overview	9
3. Key barriers to change in waste management in CEE	14
4. CEE waste market operators	15
5. Landfill tax rates	16
6. Looking ahead	17
7. Bulgaria	18
8. Czech Republic	20
9. Hungary	22
10. Poland	24
11. Romania	30
12. Slovakia	32
13. Slovenia	34
Glossary	36
CMS Contacts	38

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Foreword

A sector in transformation

The waste management sector in Western Europe has been subjected to enormous commercial and legal changes over the last two decades (at least), with these changes continuing to occur. The once dominant position of landfill as the activity of choice for waste management has been well and truly broken. This has been brought about by a sustained and multi-faceted legislative and policy attack on landfill, primarily from the EU but also at the domestic level. Indeed, in some senses, the waste management industry is a living example of how far legislation can impose transformational change on a sector.

CEE – a long way to go

Central and Eastern Europe (CEE) is enormously behind Western Europe in implementing necessary changes to its waste management sector. The problem for CEE is that it now faces more or less the same legislative targets in relation to diversion from landfill, recycling and the various producer responsibility obligations; however, as it has made little progress so far, the journey that it has to make must now be made in a shorter period of time. Indeed some CEE Member States are not only failing to divert waste from landfill, they are still operating landfills which in technical terms do not meet EU standards. The European Commission is currently looking at the performance of CEE Member States and there is a prospect of infringement proceedings against some CEE Member States.

2020

2020 is shaping up to be a key year. This is when a number of legal targets need to be met and close scrutiny is to be made of CEE Member State performance. Indeed in a recent consultation the EU Commission expressed its concern about compliance in CEE. 2020 is less than seven years away. This is not a great amount of time for CEE Member States to put in place the domestic policy, laws and economic instruments to effect the scale of change necessary and to procure and build the required waste management infrastructure. Clearly, the experiences gained in Western Europe could be usefully and profitably employed in CEE Member States to assist in implementing the necessary changes. It is a big ask to imagine that all the changes will be effected by 2020 but (if not actually in place by 2020) at least the CEE Member States will have to show that they have made significant movement towards those targets.

Of course with so much change required, this may provide great opportunities for investment in the waste management sector in these CEE Member States. For those who are interested in investing in the sector we hope that this paper provides an interesting brief overview of the current position. We will always be willing to assist those who are interested. Do feel free to contact us should you have any queries.



Paul Sheridan

Partner in waste law for over 20 years

For CMS Cameron McKenna LLP

T +44 (0)20 7367 2186

E paul.sheridan@cms-cmck.com



Executive Summary

This paper provides a brief overview of the current position of the waste management sector in seven EU Member States in CEE. The reason for looking at this subject arises from the looming legal targets that have been imposed on the waste management sector across the EU. It is very apparent that a considerable gap exists between the current position of the waste management sector in Western Europe and the current position of the waste management sector in the CEE Member States in meeting these targets.

The CEE Member States now face the same legal targets and obligations as their western counterparts (in terms of recycling, recovery and diversion of waste from landfill) but are much further behind in meeting these targets. In most of Western Europe the waste management sector is fairly mature. It is much less developed in the CEE Member States. Importantly, whilst to date, the CEE Member States have had the benefit of various derogations from relevant EU Directives, these have now run out or are close to running out. As with Western Europe, the CEE Member States are required to meet legal targets for the diversion of particular waste streams from landfill (e.g. BMW) and a legal target to recycle 50% of municipal waste by 2020. However the CEE Member States have to cover so much more ground in order to meet these targets.

Investment at many levels will be required if the CEE Member States are to meet, for instance, separate collection requirements by 2015, reduce the amount of BMW that is landfilled by 2020 and the 50% target for recycling of municipal waste by 2020. Experience of waste infrastructure, activities and solutions in Western Europe could be invaluable in assisting these CEE Member States to reach their targets. Clearly this provides many potential commercial opportunities.

Over the last few decades, huge investment in waste infrastructure has occurred in Western Europe which has brought about substantial changes to the nature and structure of waste management in Western Europe. This has been driven largely by direct and indirect legal and policy mechanisms arising from EU legislation. Key legal instruments have included, for instance, the Landfill Directive, the Waste Framework Directive, the Packaging and Packaging Waste Directive, the End of Life Vehicles Directive and the Waste Electrical and Electronic Equipment Directive. Coupled with pan-EU legal instruments, various legal, fiscal and economic instruments at national level (for instance: landfill tax, mandatory

separate collections schemes, bans on landfilling of particular waste streams and economic support for the build up of recycling and other non-landfill infrastructure) have been brought into play with a view of diverting waste away from landfill towards activities higher up the waste hierarchy, especially recycling and recovery.

The EU's Road Map to a Resource Efficient Europe is yet another important policy instrument which wholly endorses the move to treating waste as a resource to be recycled or recovered rather than landfilled.

A study published by the European Environment Agency in June 2013 presents some stark statistics which underline the investment needed in the CEE Member States if the legal targets are to be met. For instance: top performing Western Member States have recycling rates of up to 70% and the most advanced six Member States - Belgium, Denmark, Germany, Austria, Sweden and the Netherlands - landfill less than 3% of their municipal waste; at the other extreme, CEE Member States are still landfilling more than 75% of their municipal waste. Recycling statistics also demonstrate a wide gap between East and West: four Western EU Member State countries (Austria, Belgium, Germany and the Netherlands) have already reached the 50% recycling target whilst CEE Member States require an annual increase of between 3% and 5% to achieve the 50% recycling target by 2020.

In this paper, we set out a brief overview of the current position, along with summary notes on the related legislative drivers. This is followed by more detailed sections on the current waste management position and infrastructure in the CEE Member States.

September 2013

Introduction

Legislative change, primarily (but not exclusively) from the EU, has imposed, and continues to impose, structural challenges on the waste management sector across the EU. Whilst this sector in Western Europe is generally mature (having experienced decades of development in its waste management infrastructure), CEE is at a comparatively preliminary stage of implementing the recent EU Waste Diversion Legislation which seeks to divert waste from landfill and drive its management further up the waste hierarchy.

This paper evaluates the current legal and policy framework for waste management in seven CEE jurisdictions. Where this paper refers to biomass and biogas, it does so only in relation to biomass and biogas derived wholly from waste.

Referred to below are various reported statistics. Whilst they no doubt point a reasonably accurate picture, they need to be treated with some caution because there are difficulties in securing accurate and like for like statistics in this area. So for instance, whilst Bulgaria is reported as having no record for recycling, our own research shows that this cannot be wholly accurate (see below). Also in 2010 it was reported that 32% of municipal waste in the Czech Republic was diverted from landfill whereas for 2011 this percentage was domestically reported as 42% which represents a very significant difference for only one year.

Current waste management trends in the EU 27

A 2011 study produced for the European Commission entitled 'Implementing EU Waste Legislation for Green Growth' reported that full implementation of the EU Waste Diversion Legislation would save €72 billion a year, increase the annual turnover of the EU waste management and recycling sector by €42 billion and create over 400,000 jobs by 2020.¹ Increasingly, the term 'waste' is becoming synonymous with 'resource'.

Monitoring developments in the EU 27

The European Union Waste Statistics Regulation (EC) No 2150/2002, which came into force in November 2002, requires all Member States to provide data to the European Commission every two years on the generation and treatment of waste. The objective is to ensure better monitoring of the implementation of EU law and policy on waste management through regular, comparable, up-to-date and representative data on the generation, recycling, re-use, recovery and disposal of waste in any given Member State. The 2012 data is published on the Eurostats website² and is referred to below in this paper. This data clearly demonstrates the gaps between East and West.

The amount of municipal waste generated varied significantly across Member States and CEE inhabitants appear to generate the lowest levels of waste. Interestingly, Cyprus had the highest amount of waste (760kg) generated per inhabitant in 2010 (but this is likely to be distorted by the volume of waste generated by tourists). Inhabitants of Luxembourg, Denmark and Republic of Ireland were the next highest waste generators (between 600 and 700 kg per inhabitant), followed by the inhabitants of the Netherlands, Malta, Austria, Germany, Spain, France, Italy, the United Kingdom and Portugal (between 500 and 600 kg per inhabitant). Finland, Belgium, Sweden, Greece, Slovenia, Hungary and Bulgaria generated between 400 and 500 kg per inhabitant, whilst the lowest waste generators per inhabitant were Lithuania, Romania, Slovakia, the Czech Republic, Poland, Estonia and Latvia (<400 kg per inhabitant).



Landfilling of municipal waste in the EU 27

In the EU 27, 502 kg of municipal waste was generated on average per person in 2010, whilst 486 kg of municipal waste was treated per person. This municipal waste was treated in different ways: 38% was landfilled, 22% incinerated, 25% recycled and 15% composted. However the figures at the Member State level vary considerably. In 2010, the Member States with the highest share of landfilled municipal waste were all in CEE, namely Bulgaria (100%), Romania (99%), Lithuania (94%) and Latvia (91%). Member States with the lowest share of landfilled municipal waste were Germany and the Netherlands (0%), Belgium and Sweden (1%) and Denmark (3%)³.

Recycling

Recycling statistics also demonstrate a wide gap between East and West. Recycling was most common in Germany (45%), Belgium (40%), Slovenia (39%), Sweden (36%), Republic of Ireland (35%) and the Netherlands (33%). Recycling was least common in Romania (1%), Slovakia (4%), Lithuania (4%), Malta (7%) and Latvia (9%). Bulgaria had no record of recycling.

Composting

A similar situation exists for composting. The Member States with the highest composting rates for municipal waste were Austria (40%), the Netherlands (28%), Belgium (22%), Luxembourg (20%), Denmark (19%) and Spain (18%). Member States with the lowest composting rates for municipal waste were Greece (1%), Latvia (1%), Estonia (1%), Slovenia (2%), Lithuania (2%) and Czech Republic (2%). No record of composting was recorded for Bulgaria.

Incineration in the EU 27 is increasing

Incineration is primarily divided into:

- mere thermal treatment
- thermal treatment with energy recovery and
- thermal treatment combined with energy and heat recovery (combined heat and power - 'CHP').

Energy-efficient incineration is encouraged by the recently recast WFD and CHP is to receive a potentially significant boost with the entering into force of the EU Energy Efficiency Directive⁴.

Member States with the highest share of incinerated municipal waste in 2010 were Denmark (54%), Sweden (49%), the Netherlands (39%), Germany (38%), Belgium (37%), Luxembourg (35%) and France (34%). Member States with the lowest share of incinerated municipal waste were the Republic of Ireland (4%), Spain (9%), Hungary (10%), Poland (1%), and Slovakia (10%). Member States with no record of incineration activity included Romania, Malta, Latvia, Cyprus, Greece, Estonia and Bulgaria⁵.

Municipal waste, 2010⁶

	Municipal waste generated, kg per person	Total municipal waste treated, kg per person	Municipal waste treated, %			
			Landfilled	Incinerated	Recycled	Composted
EU27	502	486	38	22	25	15
Belgium	466	434	1	37	40	22
Bulgaria	410	404	100	-	-	-
Czech Republic	317	303	68	16	14	2
Denmark	673	673	3	54	23	19
Germany	583	583	0	38	45	17
Estonia	311	261	77	-	14	9
Ireland	636	586	57	4	35	4
Greece*	457	457	82	-	17	1
Spain	535	535	58	9	15	18
France	532	532	31	34	18	17
Italy*	531	502	51	15	21	13
Cyprus	760	760	80	-	16	4
Latvia	304	304	91	-	9	1
Lithuania	381	348	94	0	4	2
Luxembourg	678	678	18	35	26	20
Hungary	413	413	69	10	18	4
Malta	591	562	86	-	7	6
Netherlands	595	499	0	39	33	28
Austria*	591	591	1	30	30	40
Poland	315	263	73	1	18	8
Portugal	514	514	62	19	12	7
Romania	365	294	99	-	1	0
Slovenia	422	471	58	1	39	2
Slovakia	333	322	81	10	4	5
Finland	470	470	45	22	20	13
Sweden	465	460	1	49	36	14
United Kingdom*	521	518	49	12	25	14

* Estimated by Eurostat

0 equals less than 0.5%, '-' indicates a real zero

In January 2011, the European Commission opened infringement proceedings against 23 Member States for non-compliance with the WFD. Of the original 23 cases, 16 remain open, of which 13 (including Belgium and Romania) are now at the Reasoned Opinion stage.⁷

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1 <http://ec.europa.eu/environment/waste/studies/pdf/study%2012%20FINAL%20REPORT.pdf>

2 <http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat/home/>

3 Released by Eurostat on 27 March 2012: <http://europa.eu/rapid/pressReleasesAction.do?reference=STAT/12/48&format=HTML&aged=0&language=EN&guiLanguage=en>

4 http://ec.europa.eu/energy/efficiency/eed/eed_en.htm

5 As above.

6 http://europa.eu/rapid/press-release_STAT-12-48_en.htm?locale=en



Legislative and regulatory overview

In order to understand the drivers behind the transformational change in waste management that is necessary in CEE to meet legal obligations, the key legislative and policy instruments which are driving such change are outlined below.

A. The Landfill Directive (1999/31/EC)

The reason why so much attention is now being directed at this form of waste management is because the EU has determined that landfill is no longer sustainable. The key legal instrument implementing this position is the Landfill Directive. The overall aim of the Landfill Directive is 'to prevent or reduce as far as possible negative effects on the environment, in particular, the pollution of surface water, groundwater, soil and air, and on the global environment, including the greenhouse effect, as well as any resulting risk to human health, from the landfilling of waste, during the whole life-cycle of the landfill'.

Landfill Directive targets for diversion from landfill

The Landfill Directive contains a legal requirement for Member States to progressively reduce the percentage of biodegradable municipal waste (BMW) disposed of at landfill. The percentage reductions are based on a baseline calculated at 1995 levels. Subject to derogations applicable to a number of Member States in both Western Europe and CEE (see below), the targets specified in Article 5(2) of the Landfill Directive are that Member States must achieve or have achieved:

- reduction to 75% by 2006
- reduction to 50% by 2009 and
- reduction to 35% by 2016.⁸

Article 5 of the Landfill Directive provided that Members States which, in 1995, disposed of more than 80% of their collected municipal solid waste (MSW) in landfill, could postpone the attainment of the above targets by a period not exceeding four years.⁹ Bulgaria, the Czech Republic, Poland, Romania, Slovakia and Slovenia landfilled more than 80% of the MSW in 1995 and hence made use of the four year derogation period.¹⁰



Despite the CEE Member States (except for Hungary) benefiting from the derogation periods (see Table 1), they missed the 2010 target and are currently very unlikely (at the current pace of change) to meet the 2013 target. This does not bode well for meeting the 2020 target. Landfilling is still the predominant waste treatment activity in CEE. On this basis, it is expected that a step change, with considerable investment, will be required in CEE waste management if the targets are to be met.

Hungary has made rapid progress towards diversion of BMW from landfill. Interim targets set for 2006 and 2009 by the Landfill Directive were met by achieving a reduction of 34% in 2006 and 54% in 2009, mainly due to a dramatic increase in material recovery (MBT) and an improved separate paper (and packaging paper) collection system.

Table 1: CEE Landfill Diversion Targets: Biodegradable municipal waste

Country	(a) First Landfill Diversion Target for BMW diverted from landfill	(b) Second Landfill Diversion Target for BMW diverted from landfill	(c) Third Landfill Diversion Target for BMW diverted from landfill
Bulgaria	75% (by 2010)	50% (by 2013)	35% (by 2020)
Czech Republic ¹¹	75% (by 2010)	50% (by 2013)	35% (by 2020)
Hungary ¹²	75% (by 2006)	50% (by 2009)	35% (by 2016)
Poland ¹³	75% (by 2010)	50% (by 2013)	35% (by 2020)
Romania ¹⁴	75% (by 2010)	50% (by 2013)	35% (by 2020)
Slovakia ¹⁵	75% (by 2010)	50% (by 2013)	35% (by 2020)
Slovenia ¹⁶	75% (by 2010)	50% (by 2013)	35% (by 2020)

The European Environment Agency's report, published in June 2013, discussed the effect of landfill tax. It stated that Member States which substantially increased their landfill tax or charged landfill tax of €30 or more per tonne were more successful in diverting BMW from landfill. There is a disparity in the use of landfill tax in the CEE Member States (for further details on landfill tax rates applicable in the CEE Member States, see our section on 'Landfill rates' below):

- Slovakia and Romania do not have landfill tax
- Bulgaria, Czech Republic, Slovenia and Poland have landfill tax and
- Hungary is due to introduce landfill tax in 2013.

B. Overarching structure and principles

Key EU strategies

Three key strategies at EU level that influence the overarching policy framework for waste management are:

- the EU Waste Management Strategy,¹⁷ which enshrines the main waste management principles, including the waste management hierarchy, the polluter pays principle, the proximity principle and the self-sufficiency principle¹⁸
- the EU Sustainable Development Strategy, which requires sustainable development to be at the core of Member States' national policies¹⁹ and
- the Roadmap to a Resource Efficient Europe, published by the European Commission on 20 September 2011.²⁰

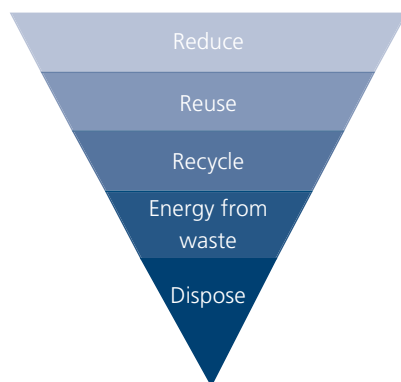
Waste Framework Directive (2008/98/EC) (WFD)

The WFD was last revised in 2008 and restated the basic concepts and definitions in relation to waste management. The WFD sets out the most important waste management principles:

- **The Waste Management Hierarchy** stresses the relative priority of the different methods of managing waste. The Waste Management Hierarchy is an important concept which influences much of the current and future facing legislation and policies. It should not be considered too prescriptively. Member States are currently looking at ways to better apply the Waste Management Hierarchy to the collection and management of municipal, C&I and C&D waste.

The Waste Management Hierarchy is (in order of priority):

- waste prevention
- re-use
- recycling
- other recovery (e.g. energy recovery) and
- disposal.²¹



- **The Polluter Pays Principle** is generally intended to mean that waste producers should pay the costs of management of their related waste. Notably, this is an elastic principle. So for instance, in waste streams where the 'producer responsibility principle' applies, the aim is to place the economic burden of waste management at the end of life of the products on the industry that puts the products on the market²² and to shift this burden away from the consumer and taxpayer.
- **The Proximity Principle** emphasises the need to manage waste as close as practicable to the point of its generation.
- **The Self-Sufficiency Principle** requires Member States, as far as possible, to manage their waste within their own borders, unless export offers significant environment gains or the exporting Member State does not have the technical infrastructure to manage the particular waste. It will be interesting to see whether in the coming years more waste is exported from CEE Member States to Western Member States for treatment (eg. incineration) and hence reduce volumes to landfill in CEE.

Waste Incineration Directive (2000/76/EC) (WID)

The WID was adopted on 4 December 2000 and is aimed at minimising the environmental impact of emissions resulting from the incineration and co-incineration of waste. It imposes higher standards for emissions controls on waste incinerators by requiring the closure of installations which cannot meet the requirements. The WID was replaced by the Industrial Emissions Directive 2010/75/EU, which came into force on 6 January 2011.

C. Producer responsibility

The EU has identified a number of waste streams which are increasing in volume and unless regulated will pose increasing risks to the environment. The EU has determined, for a number of reasons, that the onus and costs of managing these waste streams should be placed on 'producers' of the product (for example: manufacturers, importers, retailers, distributors and packer/fillers) and not on the consumer or taxpayer. This means that the producer will be responsible for targeted amounts of the waste management costs of their products when they reach the end of their life. These are generally referred to as producer responsibility obligations.

EU Waste Electrical and Electronic Equipment Directive (2002/96/EC) (WEEE)

WEEE relates to the collection, treatment and recycling of electrical and electronic products (these are relatively widely defined terms) which are placed on the EU market on or after August 2005. The producers comply with their obligations on an individual basis or, alternatively and more commonly, by joining a recognised compliance scheme. The compliance scheme then undertakes the obligations on behalf of all of its member producers. Poland, the Czech Republic, Hungary, Slovenia and Slovakia were granted derogation periods of up to 24 months.

Electrical and electronic products include the following:	
Large household appliances	Medical devices
Small household appliances	Monitoring and control instruments
IT & telecommunications equipment	Automatic dispensers
Consumer equipment	Display equipment
Lighting equipment	Cooling appliances containing refrigerants
Electrical and electronic tools	Gas discharge lamps
Toys, leisure and sports equipment	

End of Life Vehicles Directive (2000/53/EC) (ELV)

Under the ELV, a duty is placed on the producers (i.e. vehicle manufacturers and importers) to finance end of life vehicle take-back and the treatment/disposal of residual ELV waste. Currently, 85% of end of life vehicles must be recovered with a minimum of 80% recycling. From 1 January 2015, the targets increase to 95% recovery with a minimum of 85% recycling. The CEE Member States are obliged to comply with the ELV and no derogation periods apply.

Packaging and Packaging Waste Directive (94/62/EC) (PPW)

The PPW is designed to increase the recovery, re-use and recycling of packaging waste. Under this Directive, targets are set for re-use and recycling of packaging waste by reference to weight. However, there have been suggestions that such targets ought to be amended to reflect concerns relating to the carbon content of packaging waste, its use and its transportation. The PPW also includes provisions to encourage the use of less packaging. The PPW introduced the following targets for return and/or collection of used packaging:

- by no later than 30 June 2001, between 50 and 65% by weight of packaging waste had to be recovered (including at incineration plants with energy recovery)
- by no later than 31 December 2008, at least 60% by weight of packaging waste had to be recovered (including at waste incineration plants with energy recovery)
- by no later than 30 June 2001, between 25 and 45% by weight of the total of packaging materials contained in packaging waste had to be recycled (with a minimum of 15% by weight for each packaging material)



- by no later than 31 December 2008, between 55 and 80% by weight of packaging waste had to be recycled and
- by no later than 31 December 2008 the following targets for materials contained in packaging waste should have been attained:
 - 60% for glass, paper and board
 - 50% for metals
 - 22.5% for plastics and
 - 15% for wood.

Meanwhile all of the CEE countries were granted derogation periods namely:

- 31 December 2012 for the Czech Republic, Estonia, Cyprus, Lithuania, Hungary, Slovenia and Slovakia
- 31 December 2014 for Poland and
- 31 December 2015 for Latvia.

The PPW targets are due to be reviewed and replaced from 2014. The European Commission wishes to align them with the targets set out in its 2011 Roadmap to a Resource Efficient Europe.

Tyres

The Landfill Directive introduced a ban on the landfilling of whole tyres in 2003 and shredded tyres in 2006 and aims to encourage recycling, re-use and recovery of waste tyres. The CEE Member States are obliged to comply with the ban and no derogation periods apply.

Batteries Directive (2006/66/EC)

The Batteries Directive aims to reduce the impact on the environment that is caused by the manufacture, distribution, use, disposal and recovery of batteries. As a result of this Directive, untreated automotive or industrial batteries (including batteries for domestic use) have been banned from landfill and incineration. The outcome is that batteries must be recycled. The CEE Member States are obliged to comply with the ban and no derogation periods apply.

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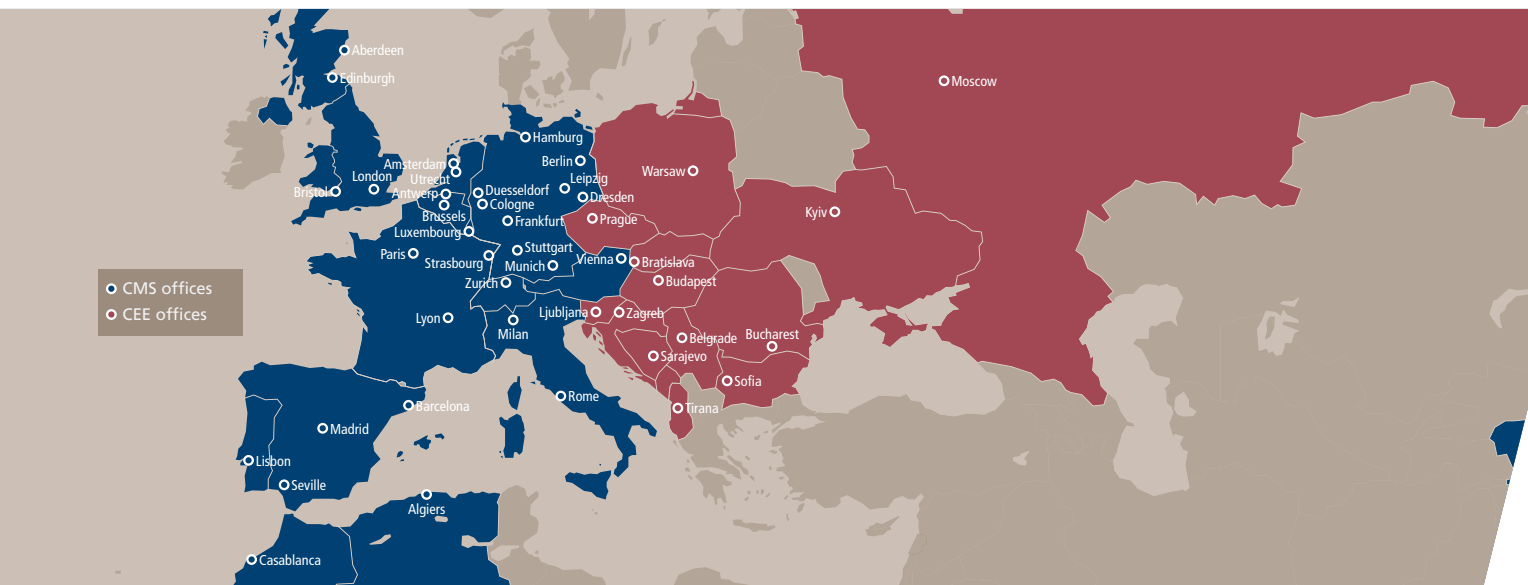
- 7 http://europa.eu/rapid/press-release_IP-11-1103_en.htm
- 8 <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:1999:182:0001:0019:EN:PDF>
- 9 <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:1999:182:0001:0019:EN:PDF>
- 10 http://epp.eurostat.ec.europa.eu/portal/page/portal/waste/documents/Landfill_Directive_Report.pdf
- 11 Communication of the Waste Management Department of the Ministry of the Environment on publishing the 'Waste Management Plan of the Czech Republic' (including the Binding Part stipulated in Government Regulation No. 197/2003 Coll.) (Page 52): [http://www.mzp.cz/C125750E003B698B/en/waste/\\$FILE/waste_management_plan.pdf](http://www.mzp.cz/C125750E003B698B/en/waste/$FILE/waste_management_plan.pdf)
- 12 European Topic Centre on Sustainable Consumption and Production (2.2): http://scp.eionet.europa.eu/facts/factsheets_waste/2006_edition/Hungary
- 13 Poland, The 2010 National Waste Management Plan: http://www.mos.gov.pl/g2/big/2009_06/e97e2a07ce29b48c19f462f83a6bf1a9.pdf
- 14 Government Decision 1470/2004 regarding approval of National strategy for solid Waste Management and National Plan for solid Waste Management: http://www.mmediu.ro/vechi/departament_mediu_en/waste_management.htm
- 15 Waste Management Programme for Slovakia (2011 – 2015)
- 16 www.eea.europa.eu/...solid-waste/slovenia-municipal-waste-management
- 17 Full text available at: <http://ec.europa.eu/environment/waste/pdf/WASTE%20BROCHURE.pdf>.
- 18 See below for further information.
- 19 Original text: <http://register.consilium.europa.eu/pdf/en/06/st10/st10917.en06.pdf>; for commentary see <http://ec.europa.eu/environment/eussd/>.
- 20 Full text available at: <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:DKEY=615217:EN:NOT>.
- 21 Note that 're-use', 'recycling' and 'recovery' can be complicated terms with semi-technical legal meanings.
- 22 For further information, see our section on 'Producer Responsibility'.



Key barriers to change in waste management in CEE

Figures released by Eurostat demonstrate that CEE Member States are behind their Western EU counterparts in waste management. Many commentators suggest that this appears to be due to a number of factors including:

- lack of modern infrastructure
- lack of domestic legislation and policy
- lack of political will
- lack of awareness outside urban centres and
- landfill tax rates being either too low or non existent.



CEE waste market operators

In CEE, as in the EU 15, both municipalities and commercial companies provide waste management services. Major EU-wide waste management contractors own or operate a number of commercial companies in CEE. Well known companies which carry out waste activities in CEE countries include:²³

Alba (Germany)	A.S.A. (Austria) (part of FCC)
AVE (Energie AG Oberösterreich) (Austria)	AVR/Van Gansewilken (Germany)
Befesa (Spain)	Cespa/Ferrovial (Spain)
CNIM (France)	Delta (Netherlands)
E.On Energy From Waste (Germany)	FCC (Spain)
Fortum (Sweden)	Jakob Becker (Germany)
Lassila Tikanoja (Finland)	Lobbe (Germany)
Nicollin (France)	Novera/Equest (UK)
Plasma Leasing (US)	Ragn-Sells (Sweden)
Remondis/Rethmann (Germany)	RWE Umwelt (Germany)
Saubermacher (Austria)	Saur (France)
SEBA Energy (Romania)	Seche (France)
Servicii Salubritate București (Romania)	Shanks (UK)
SITA (France)	Suez (France)
Urbaser/ACS (Spain)	Van Gansewinkel (the Netherlands)
Veolia (France)	Waste Management (US)

23 From a report commissioned by the European Federation of Public Service Unions (EPSU) www.epsu.org

Landfill tax rates

For an overview of the use of landfill taxes in Europe, please see:
http://scp.eionet.europa.eu/publications/WP2012_1/wp/WP2012_1

Bulgaria

The tax is paid for waste sent to:

- non-hazardous landfills
- municipal waste landfills and
- landfills for construction and demolition waste.

There are two tax levels for municipal waste and non-hazardous waste which depend on whether the relevant landfill is EU compliant:

- For EU compliant landfills - 1.53 €/t.
- For non-compliant landfills - 3.06 €/t.

The tax for inert construction and demolition waste is 0.26 €/t.

The landfill tax rate is due to increase significantly in coming years. By 2014 the tax level for municipal waste and non-hazardous waste is expected to be 18 €/t (for EU compliant landfills).

Czech Republic

In 2011, the landfill tax was:

Basic charge (revenues go to the municipality):
Municipal and other waste - 500 CZK (~€20)/t
Hazardous waste - 1,700 CZK (~€68)/t

Risk charge (revenues go to the State Environmental Fund):
Hazardous waste - 4,500 CZK (~€180)/t

Slovenia

Landfill tax in Slovenia in 2010 was:

Inert waste - 2.2 €/t
Nonhazardous waste - 11 €/t
Hazardous waste - 22 €/t

Poland

Over 20 different rates of landfill tax exist. The tax rates increase annually at a similar rate to inflation. The different rates can be divided roughly into three main groups:

Landfill of waste of high risk category - 29.3 - 52.6€/t
Landfill of waste of medium risk category - 12 - 27€/t
Landfill of waste of low risk category - 2.6 - 7.3€/t

Hungary, Slovakia and Romania

There are no landfill taxes in Slovakia and Romania. It is anticipated that Hungary will introduce landfill tax this year.

Looking ahead

In June 2013, the European Commission launched a consultation on the targets set out in the Waste Framework Directive, Landfill Directive and Packaging and Packaging Waste Directive (the 'Consultation'). The Consultation closes on 10 September 2013 and the Commission is due to present a review of waste targets and laws in 2014.²⁵

The review of the European waste management targets is intended to fulfil a legislative obligation to re-evaluate targets and ensure they are supporting the Commission's more recently established aspirations for resource efficiency, as outlined in the Roadmap to a Resource Efficient Europe,²⁶ and the proposal for the 7th Environmental Action Programme.²⁷ The Roadmap sets out targets for EU waste policy so that, by 2020: waste generation should be in absolute decline; reuse and recycling of waste should be at their maximum level; EU waste policy should have been fully implemented; and the use of landfill should have been virtually eliminated.

The Consultation also highlights a number of problems with existing targets, including the disparity between Member States in complying with the Landfill Directive and the large difference in recycling rates under the WFD.

On municipal waste the Consultation highlights that the various options for calculating reuse and recycling rates are not equivalent. There are also concerns regarding the quality of materials used in recycling and a lack of clarity on which materials count towards meeting targets. The Consultation asks whether the methodology for calculating municipal waste rates should be standardised across the EU and whether this should be based on the quantity of waste collected or on the amount of greenhouse gas emissions saved through recycling.

On landfill, the Consultation notes that current targets may be encouraging Member States to switch from landfilling to incineration or mechanical-biological treatment. Proposals include tightening existing targets by, for example, banning the landfilling of household biodegradable waste or introducing new targets to cut overall residual waste irrespective of how it is managed. A limit on the percentage of waste that can go to landfill and a cap on incineration are also proposed in the Consultation. In relation to CEE Member States, the Consultation proposes that landfill targets could be revised for Member States whose economies have grown rapidly since 1995.

Overall, in the Consultation, the Commission expresses its concern that waste management targets have failed to promote compliance in CEE and asks whether the Commission should impose more stringent requirements instead of targets. It is suggested that governments should be forced to apply economic and legal measures such as landfill bans or incineration taxes. Other suggested options include developing guidance to improve the transparency and cost-effectiveness of producer responsibility schemes, guidance on the proper implementation of the waste hierarchy and improving data collection and reporting.

25 <http://ec.europa.eu/yourvoice/ipm/forms/dispatch?form=wastetargets>

26 http://ec.europa.eu/environment/resource_efficiency/pdf/com2011_571.pdf

27 <http://ec.europa.eu/environment/newprg/pdf/Position%20Papers%20received/Deutscher%20Naturschutzing.pdf>



A. Current waste management landscape

In May 2011, the Bulgarian Agriculture Minister, Miroslav Naidenov, announced that investments for producing heating energy, electricity and biofuel from biomass in Bulgaria could reach one billion Bulgarian leva (approximately €511 million) by 2014. To date, it is estimated that the country has attracted more than 100 biomass projects, most of which are in the early stages of development. Amongst the major foreign investors is French utility group GDF Suez, which is reportedly planning to invest more than €100 million in building biomass power plants in four Bulgarian towns.²⁸

Waste in Bulgaria is governed by the Ministry of Environment and Water, whose National Strategic Plan sets out the overall aims in this area. The aim is to reduce the amount of municipal biodegradable waste being landfilled in the period 2010-2020. The waste management strategy is addressed in the National Development Plan, the Environment Health National Action Plan and the two National Waste Management Programmes. Bulgaria has implemented the WFD through the Waste Management Act 2012. The Act creates conditions for improving waste management in Bulgaria without any risk to human health or the environment, as well as increasing volumes of recycled and recovered waste.

In June 2013, the Bulgarian State Energy and Water Regulatory Commission (SEWRC) announced that the planned feed-in tariff (FIT) was to apply to biomass and energy from waste projects constructed between 1 July 2013 and 1 July 2014.²⁹ As the SEWRC proposes a decrease of between 8-40% in the FIT, it is widely considered that state policy is directed at preventing greater investment in this sector as a result of large investments made in other sources of renewable energy between 2011 and 2012.

The greatest barrier to change is the underdeveloped nature of current waste treatment facilities. Separate collection of waste streams is still in its infancy. Notwithstanding this obstacle, recycling is considered to be a top priority in terms of increased investment. Presently, Bulgaria is in the process of establishing a system of 55 regional facilities for the treatment of household waste. Producer responsibility is also becoming a higher priority in relation to certain products. One example of this is the collection of paper and cardboard packaging waste through take back schemes.

Substantial investment in waste infrastructure is necessary to meet landfill diversion targets. The overall costs of meeting the EU standards are estimated to be at least €370 million. This amounts to approximately 20% of total funding provided by Operational Programmes for Environment in Bulgaria. Despite generous EU structural funding that covers 85% of all investment needed in the waste sector, national public co-financing of at least €55 million is also necessary, as well as technical assistance in preparing and monitoring investment projects.³⁰ By 2013, the programme plans to have realised 22 integrated waste management projects serving an additional 3.5 million people.³¹

In November 2009, a new mechanism for waste management infrastructure development under the Sectoral Operational Programme (SOP) came into effect. Under this mechanism, the Bulgarian government is to provide financial resources directly from the national budget to close non-compliant regional landfills and to finance preliminary treatment facilities, whilst resources from the SOP will focus on the construction of regional waste management projects. The total budget of the SOP is around €1.8 billion. Financial contributions from the EU have been made through the European Regional Development Fund (ERDF) (amounting to €439 million) and the Cohesion Fund (amounting to €1.027 billion).³²

The relationship between the public and private sector is governed by the Public-Private Partnership Act, the Public Procurement Act and the Concessions Act. The Public-Private Partnership Act was adopted in June 2012 and became effective as of 1 January 2013, although secondary legislation is still being developed.

Bulgaria has yet to mobilise private finance on a large scale for environment infrastructure. The sector remains heavily dependent on public extra-budgetary environment funds and EU instruments for the required investment levels.



B. Waste infrastructure background

Municipal Waste

Bulgaria has historically adopted a simplistic approach for collecting and processing its waste. However, improvement has been made to municipal waste collection. According to the UN Statistics division, in 2009, 96.7% of the population benefited from regular municipal waste removal, compared to just 77% in 1995.³³

In June 2011, Bulgaria's Minister of Environment and Water, Nona Karadjova, procured the ecological treatment of municipal waste generated in the municipalities of Vidin, Bregovo, Boinitsa, Kula, Gramada, Novo Selo, Dimovo, Ruzhintsi, Belogradchik, Chuprene and Makresh. The project is valued at 20.5 million Bulgarian leva (approximately €10.4 million). The first landfill, as well as waste composting facilities, will be constructed by the end of 2013.³⁴

Sofia Municipal Waste Project

In July 2011, the European Commission approved the first phase of Sofia's much needed municipal waste project. Historically, Sofia has faced increasing difficulties in finding facilities to manage its waste. This phase involves the construction of a landfill and two composting plants. Further, the existing municipal waste separation facility in Suhodol is to be improved and two pilot waste separation schemes are to be set up in the areas of Ovcha Kupel and Kremikovtsi. The second phase for the construction of a plant for bio treatment of waste is pending EU approval. The project is valued at 360 million Bulgarian leva (€184 million), 256 million Bulgarian leva (€130 million) of which will be provided by Operational Programme Environment and the remaining funding will be provided by the Sofia Municipality.³⁵

Sofia CHP

In 2012, Sofia's heating utility, Sofia CHP, signed a contract for technical assistance in relation to a combined heat and power generation plant on the site of one of its existing heating plants. The assignment will be financed by the Kozloduy International Decommissioning Support Fund (KIDSF) and is expected to be finalised by the end of 2013.³⁶

Varna Waste Recycling Plant

On 18 June 2011, Bulgaria's first waste recycling plant was opened by the Bulgarian Prime Minister, Boyko Borisov. The €25.4 million facility, which is based 10km outside Varna, is able to process 140,000 tonnes of waste per year. There are also plans to install a facility for the processing of biogas. The 25 year concession was entered into with the consortium Ecoinvest Assets following a public procurement process by Varna Municipal Council. The facility was built by a Bulgarian company, Recycling Bulgaria, in partnership with a German company, Eggersmann Anlagenbau.

Nikopol Biomass Facility

In January 2010, the Bulgarian energy and construction group Enemona announced its plans to build a biomass power plant in Nikopol, northern Bulgaria. The power plant is planned to be fuelled by a mixture of 80% straw and 20% agricultural waste. The European Bank for Reconstruction and Development is providing 70% of the 100 million Bulgarian leva (approximately €51 million) required to fund the plant. Unfortunately, this project has not seen much progress in recent years.

28 <http://af.reuters.com/article/energyOilNews/idAFLDE73318I20110404>

29 http://www.dker.bg/NPDOCs/pr_biomasa_13.pdf

30 http://www-wds.worldbank.org/external/default/WDSCContentServer/WDSP/IB/2011/05/24/000356161_20110524005013/Rendered/PDF/600780ESW0WHIT0and0cand0dates0FINAL.pdf

31 http://ec.europa.eu/regional_policy/country/prordn/details_new.cfm?gv_PAY=BG&gv_reg=ALL&gv_PGM=1007&gv_defl=7&LAN=7

32 The contribution from the Cohesion Fund represents approximately 22% of the total EU money invested in Bulgaria under the Cohesion Policy 2007-2013:

http://ec.europa.eu/regional_policy/country/prordn/details_new.cfm?gv_PAY=BG&gv_reg=ALL&gv_PGM=1007&gv_defl=7&LAN=7

33 http://unstats.un.org/unsd/environment/envpdf/Country_Snapshots_Aug%202011/Bulgaria.pdf

34 <http://ope.moew.government.bg/en/news/newsdetail/from/current/id/236/page/10>

35 <http://ope.moew.government.bg/en/news/newsdetail/from/current/id/254/page/9>

36 <http://www.ebrd.com/pages/workingwithus/procurement/notices/project/120209a.shtml>



A. Current waste management landscape

Waste management is a relatively new concept in the Czech Republic and is a developing area. The Ministry of Environment is responsible for waste management and the waste strategy is covered by the State Environmental Policy and Implementation Plan, which set goals for 2012 - 2020. The current Czech Waste Act (No. 185/2011 Coll.³⁷, as amended), outlines the rights and duties of persons dealing with waste management, as well as rules to prevent the harmful impact of waste on the environment and human health. In addition, there are regulations for packaging and packaging waste, waste oil and batteries.

Since 2002, a waste recycling obligation has been imposed on all producers of packaged goods in the Czech Republic. Recent research shows that 70% of inhabitants of the Czech Republic actively sort waste and this number is growing steadily.³⁸ In 2011 the Czech Republic produced approximately 30.6 million tonnes of waste; 17% of this was municipal waste and 83% was industrial waste.³⁹ Approximately 42% of municipal waste was recovered (31% went towards material recovery and 11% went towards energy recovery). The rest was landfilled.

As with other Member States, a considerable amount of EU funding is potentially available for waste management projects in the Czech Republic. Between 2007 and 2013, resources totalling more than €776 million from the Cohesion Fund have been made available in the Operational Programme Environment for the purposes of waste management and the rehabilitation of existing ecological burdens in the Czech Republic. Grants from the Cohesion Fund can amount to 85% of a project's total eligible expenditure.⁴⁰ Details of a new Operational Programme for 2014 – 2020 are being discussed.

Recycling in the Czech Republic is rapidly increasing, particularly in Prague, where there are over 3,000 recycling containers (for glass, plastic, paper and beverage containers), 14 collecting yards and 280 electronic stores that accept the hand back of WEEE.

The outlook for waste management will be influenced by a new Waste Management Plan to be adopted in 2014. The draft version of this document was introduced at the Council of Waste Management meeting on 26 September 2012 and promotes the recycling of municipal waste and energy recovery.⁴¹ In the meantime, key provisions of the current Waste Management Plan (2003 – 2013) for the Czech Republic include various targets which were not met:

- increasing the recovery of waste, with preference being given to recycling, with a statutory target of 55% recovery of all waste produced by 2012, as well as increasing the recovery of municipal waste to 50% by 2010
- decreasing the maximum amount of biodegradable municipal waste deposited in landfills so that only 50% is deposited in 2013.

B. Waste infrastructure background

The Czech Republic has three energy from waste facilities (located in Liberec, Brno and Prague, which are currently operating with an annual capacity of more than 640,000 tonnes of municipal waste. This was an anticipated area of expansion but is being reassessed.

Upcoming projects include: (i) an energy from waste plant in Chotikov near Plzen with a capacity of up to 95,000 tonnes of municipal waste; and (ii) an energy from waste plant in Komorany u Mostu in the Usti nad Labem region with an annual capacity of up to 150,000 tonnes of municipal waste.



Both projects have applied for EU funding through Operational Programme Environment; however, the only viable project seems to be the energy from waste plant in Chotikov that will be financed by Plzenska teplárenská.⁴²

There were also plans to build an energy from waste plant in Karvina which would process up to 192,000 tonnes of municipal waste per year. However, this project has been currently put on hold.

According to the draft of the new Waste Management Plan, the construction of more than ten energy from waste facilities could be subsidised in the Czech Republic in upcoming years.⁴³

The first Renewable Energy Act (No. 180/2005 Coll., effective from 2006) was brought into force with the aim of supporting (amongst other sectors) biomass, biogas, landfill gas and sewage gas. A new Renewable Energy Act (No. 165/2012 Coll.) came into effect on 1 January 2013, replacing the 2006 Act. It sets out the regulatory framework for the production and subsidisation of energy and heat generated from waste and other 'secondary inputs', as specified in the Renewable Energy Act.

Termizo CHP Facility, Liberec

The Termizo CHP facility in the northern town of Liberec has been operating since 1999. The facility processes about 96,000 tonnes of municipal waste per year. The facility is owned by MVV Energie CZ (a Czech subsidiary of German company MVV ENERGIE AG).

SAKO Energy from Waste Facility, Brno

The energy from waste facility in Brno, the second largest city in the Czech Republic, has been operating since 1989. The operator, SAKO Brno a.s., received EU funds in 2008 to renovate the facility to build two new energy from waste lines thereby allowing the facility to process up to 240,000 tonnes of municipal waste per year.

Malesice Energy from Waste Facility, Prague

Prague's Malesice Incineration Plant, constructed in 1998, was fitted with de-dioxin filters in 2007 to reduce emissions. It is the largest energy from waste facility in the Czech Republic as it has the capacity to process up to 310,000 tonnes of municipal waste per year. In 2010, a combined heat and power unit was built. It supplies heat and power for approximately 20,000 households.⁴⁴

37 http://ec.europa.eu/environment/waste/pdf/study/cowi_report.pdf ; <http://ekolist.cz/cz/zpravodajstvi/zpravy/odpady-tridi-70-procent-cechu-jejich-pocet-stale-roste>

38 <http://www.czechinvest.org/data/files/cleantech-final-15-3-2011-2481-en.pdf>

39 http://konference.e15.cz/sites/default/files/Sborn%C3%ADk%20prezentac%C3%AD_0.pdf

40 <http://en.opzp.cz/sekcce/510/priority-axis-4/>

41 <http://www.eea.europa.eu/publications/managing-municipal-solid-waste>

42 <http://www.caoh.cz/odborne-clanky-a-aktuality/rozhovor-v-e-petr-havelka-stavba-spaloven-ted-nema-ekonomickou-logiku.html>

43 Draft of the New Waste Management Plan (in Czech, 2012, page 285): http://www.ceskapozice.cz/sites/default/files/file_attachments/poh_1_draft_20.9.2012.pdf

44 <http://zpravy.e15.cz/byznys/obchod-a-sluzby/praha-bude-balit-odpad-do-zasoby-za-25-milionu-korun-973113>



A. Current waste management landscape

The Ministry of Rural Development is responsible for waste management in Hungary and the waste strategy falls within the National Environmental Protection Programme. The New Waste Management Act⁴⁵ came into effect on 1 January 2013 and replaced the old Waste Management Act.⁴⁶ In addition to ensuring that Hungary complies with EU Directives, the New Waste Management Act clarifies the definition of waste and determines in detail how waste should be handled.⁴⁷ The six-year National Waste Prevention Programme, which must be formulated before 12 December 2013 to comply with the WFD, is aimed at reducing waste production. The programme will be drawn up as part of the National Waste Management Plan.

The total amount of generated waste decreased significantly by 2008 (being 56% of the level of generated waste in 2000); this was mainly due to economic restructuring during this period and a reduction in industrial and agricultural waste. Experiences and trends of recent years predict that the decreasing waste trend will continue until 2016 and, with preventative measures, less than 20 million tonnes of waste will be generated by 2014.⁴⁸

Over the past 10 years, landfill has been increasingly replaced by waste prevention and recycling, although the landfill of municipal waste has remained high. This is partly due to the fact that recycling and MBT capacities were counterbalanced by temporarily reduced incineration capacity (i.e. when the large Budapest waste incineration plant was being reconstructed).

In 2001, a general campaign was launched to extend the network for separate waste collection systems in order to increase the rate of recycling by enhancing access to free of charge civic recycling facilities. As a result, the following types of waste are now collected via 'bring systems': metal, plastic, paper, glass and batteries.

The Hungarian waste strategy has focused on building capacity and setting up schemes for separate collection, mainly for packaging waste since 2001. The First National Waste Management Plan set targets for reducing biodegradable municipal waste going to landfill in line with the EU Landfill Directive. Available statistics vary but domestically the statistics suggest that the first two interim targets may have been met by Hungary. The First National Waste Management Plan (2003-2008) set out plans to achieve 50% material or energy recovery of municipal waste by 2012 and reduce growth in municipal waste by less than 50% of the growth rate of real GDP. Hungary also pledged to recycle 55% of packaging waste by 2012. However, in order to meet the required targets, Hungary was required to expand its waste treatment capacity, including extending the network of existing composting and MBT plants, waste incinerators and waste sorting facilities. Hungary's performance in terms of municipal solid waste recycling has been improving from 2% in 2001 to 21% in 2010. At the same time, municipal solid waste generation has decreased by 13%. If the increasing recycling rate of the last five years (e.g. 2008-2013) can be maintained, the level of recycling could reach 47% in 2020 which is just below the 50% target set in the EU legislation for 2020.⁴⁹ No further information is available to clarify whether Hungary has managed to achieve the targets laid down in the First National Waste Management Plan. From both local sources and the information set out in the European Environment Agency's February 2013 study, it is understood that the Second National Waste Management Plan (2009-2014) has not been officially approved. Therefore, it appears that there may be no National Waste Management Plan currently in place.⁵⁰

A fiscal waste driver has been 'eco-taxation' or 'product charges', which was introduced in 1995. A product charge is levied on certain products which have a detrimental impact on the environment, such as packaging materials and tyres. The charge must be paid to an agency, which is appointed by the government and entrusted with organising waste recycling. The charge may be passed onto consumers. Exemptions or discounts apply for eco-labelled products.



B. Waste infrastructure background

Modernisation of the waste infrastructure is heavily dependent on EU structural funds as state and local municipalities provide limited financial resources for setting up waste management facilities. Currently, 17 regional waste management system projects are being planned or installed and are estimated to cost around €680 million.

Budapest CHP

Hungary's Fővárosi Közterület-fenntartó (FKF) CHP facility provides electricity for 120,000 inhabitants and district heat for 20,000 inhabitants through the thermal treatment of approximately 400,000 tonnes of waste each year.

Szarvas biogas plant

In October 2011, a meat and manure-powered biogas plant capable of producing 27.5 GWh of electricity per year was connected to the Hungarian grid. The plant, which is operated by German firm Bioenergie, was constructed at a cost of €17 million and has an electric capacity of 4.2 MW. It can process over 90,000 tonnes of waste.

Szeged biogas CHP plant

The construction of the Szeged biogas plant commenced in 2011 and completed in the first half of 2012.⁵¹ The 1.2 MW plant, which comprises two CHPs with an output of 600 kW/h each, generates power and heat from pig manure and maize silage with a yearly electricity production of 7.5 GWh.

Expansion of Miskolc sewage treatment facility

The expansion of the Miskolc sewage treatment facility with a biogas plant commenced in the second half of 2011 and is expected to be commissioned in 2013. Local sources confirm that the construction works are going forward as expected, with the concrete silos currently being built. The capital cost is HUF 2.2 billion (€74 million).⁵² The plant will use 50,000m³ sewage sludge.

Karcag WEEE plant

In January 2012, the Ministry of Rural Development announced its support for plans for a new WEEE plant in Karcag, by Luxembourg majority owned SDK Hungarn Ltd. The plant is to be constructed at a capital cost of €12-14 million and scheduled to begin production in the second quarter of 2013.⁵³ The official opening of the project together with a press release was held on 5 April 2013. The government of Hungary declared the investment as a 'project with priority' (in Hungarian: '*kiemelt project*') and 170 new jobs are expected to be created following completion.⁵⁴ Local sources confirm that the construction works have commenced, the machinery and equipment to be used in the electronic waste disassembly and recycling plant are being produced, and the plant is expected to open at the end of 2013.

45 Act CLXXXV of 2012 on Waste

46 Act XLIII of 2000 on Waste Management

47 <http://www.kormany.hu/en/ministry-of-rural-development/news/parliament-adopts-waste-management-act>;

<http://www.kormany.hu/en/ministry-of-rural-development/news/new-law-on-environmentally-friendly-waste-management>

48 http://www.eea.europa.eu/soer/countries/hu/soertopic_view?topic=waste

49 <http://www.eea.europa.eu/publications/managing-municipal-solid-waste>

50 <http://www.eea.europa.eu/publications/managing-municipal-solid-waste>

51 <http://www.ebrdrenewables.com/sites/renew/Lists/Projects/DispForm2.aspx?ID=2292&Source=http%3A%2F%2Fwww.ebrdrenewables.com%2FenergyTech%2Easpx>

52 http://www.bbj.hu/business/new-biogas-plant-to-use-sewage-sludge-for-fuel_59105

53 <http://www.kormany.hu/en/ministry-of-rural-development/news/new-electronic-waste-disassembly-and-recycling-plant-to-open-in-karcag>

54 <http://www.karcagiipark.hu/hirek-aktualis/36/01/>



A. Investment background

Under the National Ecological Policy of Poland, over €16 billion will be spent by the end of 2016 on environmental projects, of which 10% has been allocated for waste management.⁵⁵

The Ministry for Regional Development has announced two drafts of Operational Programmes for the years 2007-13: 'Infrastructure and the Environment' and 'Human Resources'. Their combined cost is to be €37 billion, of which €28 billion comes from EU funds. According to the Ministry, the principal purpose of the Infrastructure and the Environment Operational Programme is to make Poland and its regions more attractive for investment by developing its technical infrastructure. The overall cost of the programme is more than €26 billion, of which over €21 billion is from the EU, €4 billion from domestic funds and €1 billion from private funds. Within the Infrastructure and the Environment Operational Programme, €2.941 billion of funding is available for projects related to waste disposal and protection of the land surface. In May 2012, the Cabinet adopted the document: 'The Method of Organisation of Works on Programme Documents connected with the Financial Perspective of the EU 2014-2020'. Through this document, the Prime Minister entrusted the Minister of Regional Development with co-ordinating the preparation of the programme documents, implementation solutions and institutional solutions.⁵⁶

B. Current waste management landscape

Poland had been preparing itself to fulfil EU waste requirements for several years before it entered the EU in 2004. The first Polish law concerning waste management came into force on 1 January 1998 and another important act regarding cleanliness and order in municipalities came into force on 1 January 1997.⁵⁷ The main piece of legislation relating to waste management is the 27 April 2001 Act on Waste (Journal of Laws 2007 No. 39, item 251, with amendments).

To date, there have been three National Waste Management Plans. The latest National Waste Management Plan, adopted in December 2010, sets objectives and tasks for the period 2011-2014 and outlines perspectives for 2015-2022. These objectives include: increasing the percentage of recovery (especially the recycling of glass, metals, plastics and paper); favouring the practical application of the waste management hierarchy; and minimising the storage of waste.⁵⁸

The waste management system in Poland has recently undergone a transformation. Recent amendments to the Municipal Cleanliness and Tidiness Act have meant that, from 1 January 2012, citizens are no longer the legal owners of waste. The Act outlines: the municipality's tasks and the property owners' obligations for maintaining cleanliness and tidiness; the conditions for collecting and managing municipal waste from property owners; and the conditions for granting permits to entities rendering services within the scope regulated by law. The municipality (rather than the citizen) will choose a company to be responsible for waste removal in a specific area. The contractors were to be chosen before July 2013 through a system of public tenders and municipalities. This was required to create a modern waste management system within this 18 month period.⁵⁹ Property owners (as defined in the Municipal Cleanliness and Tidiness Act) will pay the municipality a monthly fee for the management of municipal waste. There are several municipal waste management fee calculation methods including: by number of inhabitants in a property; by volume of water used at the property; or by square meterage of habitable premises.

Within the scope of its regulation, the Municipal Cleanliness and Tidiness Act implements the WFD and Directive 91/271/EEC of 21 May 1991 concerning municipal sewage treatment.



The procedure for municipalities carrying out tasks involving the building, maintenance and operation of regional installations for processing municipal waste includes:

- carrying out tenders to select an entity to build or operate a regional installation for processing municipal waste under the Public Procurement Act (of 29 January 2004) or
- choosing an entity to build or operate a regional installation for processing municipal waste in accordance with the principles defined under the Private Public Partnership Act (of 19 December 2008) or under the Construction Works and Services Concession Act (of 9 January 2009).

If the tender does not produce a positive outcome, or if no private partner is selected, the municipality may independently build or operate the regional installation for processing municipal waste.

By 31 December 2019, municipalities must guarantee the attainment of appropriate levels of recovery and recycling namely:

- 50% of municipal waste in the following waste streams: paper, metal, plastic and glass and
- 70% of construction and demolition waste.

The Ordinance of the Minister of the Environment of 29 May 2012 specifies the annual recycling rates and the preparation of some fractions of municipal waste to be reused or otherwise recovered in individual years up to 31 December 2020.

	Appropriate levels of recovery and recycling [%]								
	2012 r.	2013 r.	2014 r.	2015 r.	2016 r.	2017 r.	2018 r.	2019 r.	2020 r.
Paper, metal, plastic and glass	10	12	14	16	18	20	30	40	50

	Appropriate levels of recovery and recycling and preparing for renewed use [%]								
	2012 r.	2013 r.	2014 r.	2015 r.	2016 r.	2017 r.	2018 r.	2019 r.	2020 r.
Non-hazardous building waste and waste from demolition works	30	36	38	40	42	45	50	60	70



A draft law transposing WID, as well as changes in the thermal treatment of waste, has been referred to the Council of Ministers.

A draft Act on packaging waste is currently underway. By the end of 2014, Poland must recycle 60% of packaging waste. In 2009, Poland scored the worst amongst 11 EU countries by only recycling 37% of packaging waste.

The Minister of Environment's Regulation setting detailed requirements for the collection of household waste from property owners (Journal of Laws Dz.U. of 2013, item 122) has now entered into force. Utilities collecting household waste must adapt to the new rules within three months of the Regulation coming into force i.e. by mid May 2013. The most significant obligation is to have a storage and transport depot located within 60 kilometres from the boundary of the municipality where the utility operates.

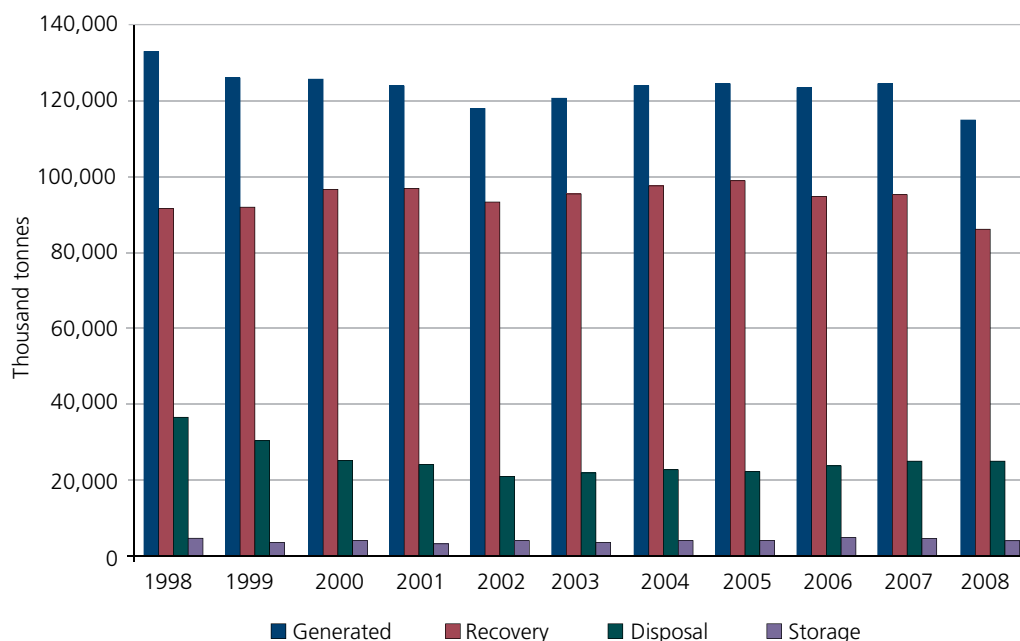
A regulation setting out the criteria and procedures for admitting waste for storage in specific type of waste storage sites came into force on 11 January 2013, thus moving the effective date for the new criteria for household waste storage from 2013 to 2016. This will permit utilities to complete necessary investments in waste incineration plants and regional waste processing facilities.

In Poland, waste management issues are handled by the Ministry of Environment and details of the waste strategy (to 2025) are set out in the Strategy for Balanced Development in Poland and the Ecological Policy of the State.

In contrast to many countries, the reported generation of municipal waste in Poland declined from 12.2 million tonnes in 2000 to 9.8 million tonnes in 2004. However, this decrease is not an accurate reflection of what is actually taking place due to a number of factors: significant unlawful disposal of waste; a flawed system of reporting the volumes of municipal waste collected from households; and a lack of weighing of waste received at landfills.⁶⁰ A growth of municipal waste has been observed from 2009-2012 but its rate has been far below the rate of growth in consumption.

The main form of municipal waste management in Poland is still landfill. In 2010, the figure was 7.4 million tonnes compared with 10.6 million tonnes in 2001 and 9.2 million tonnes in 2004. The percentage of municipal waste going to landfill is gradually declining and there are some positive figures in relation to recycling, with the total recycling of municipal solid waste increasing from 5% in 2004 to 21% in 2010. However, it will require an extraordinary effort to maintain the required pace of development to reach a 50% recycling level by 2020.⁶¹

Figure 1: Waste Management in Poland, 1998 - 2008 (Source: European Environment Agency)⁶²

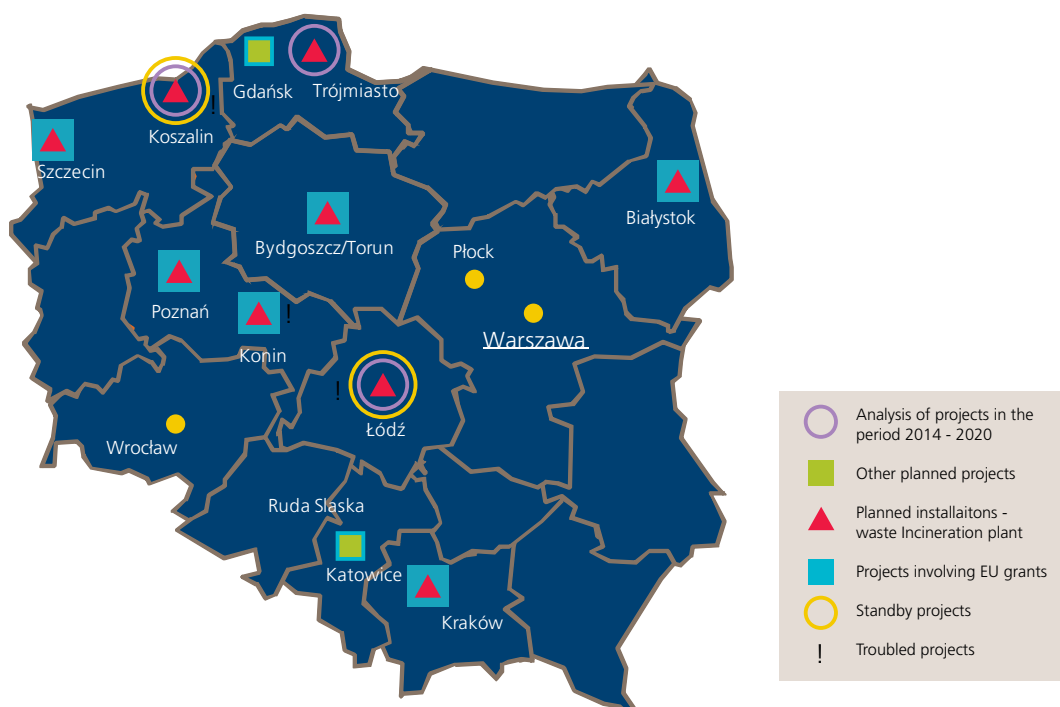


B. Waste infrastructure background

Poland already has a number of operating energy from waste facilities with plans to build a further 12 to 14 plants. The tender procedure concerning the construction of a waste incineration plant has been concluded in the following cities: Poznan, Szczecin, Konin, Krakow, Promnik near Kielce Bydgoszcz and Bialystok. Other cities that are preparing to announce tenders for the construction of incineration plants are Łódź and Gdańsk.

The projects in Poznan and Szczecin are the most developed. A Polish newspaper, Rzeczpospolita, has reported that the municipal waste disposal market is worth PLN 5 billion (€1.2 billion) and is set to rise by 20% in 2013.⁶³

Figure 2: Projects in Poland



Poznan Energy from waste facility

The tender procedure concerning the construction of a waste incineration plant for the city of Poznan has concluded. The PLN 1.1billion (€278 million) contract includes the construction and management of an energy from waste facility with a capacity of 240 thousand tonnes per year, along with a landfill facility processing 10 thousand tonnes of bulky waste per year.

In June 2011, eleven consortia submitted expressions of interest in respect of the 30 year concession. In September 2011, the city of Poznan announced a shortlist of five bidders with competitive dialogue commencing in November 2011. On 15 November 2012, three bids were submitted in the tender procedure for the construction of the waste incineration plant. The bidders were SITA, Articulus (Wheelebretor) and ITPOK (EEW/LHI). On 21 December 2012, the public contracting authority selected SITA Zielona Energia as the preferred bidder and a contract was executed in April 2013.

A conditional agreement for an EU grant for the project was signed by the city of Poznan and the National Fund in October 2011 for an amount of PLN 352 million (€82 million). Construction is due to be completed by the end of 2015.

Bydgoszcz/Torun energy from waste facility

The tender procedure concerning the construction of a waste incineration plant for Bydgoszcz and Toruń has concluded. The contract was signed on 18 October 2012. The project will be performed by Italian consortium Astaldi S.p.A. and Termomeccanica Ecologia, which will obtain PLN 491.6 million (€114 million) gross for its construction and granting for use. Almost PLN 330 million (€76 million) required for the implementation of the investment project will be derived from EU funds under the Infrastructure and Environment Programme. In accordance with the agreement executed with the National Fund for Environmental Protection and Water Management concerning grants, the project must be completed and settled by 31 December 2015. The incineration plant will process about 180,000 tonnes of waste from Bydgoszcz, Toruń and municipalities in the bydgoski and toruński poviats annually.

Bialystok CHP facility

The CHP plant at Bialystok is to be constructed for the price of PLN 652 million (€151 million) by a consortium comprising Budimex SA, Keppel Seghers N.V. from Belgium and Cespa Compania Espanola de Servicios Publicos Auxiliares S.A from Spain.

The incineration plant will process approximately 120,000 tonnes of waste annually. As a result, the percentage of waste in this area that is currently transported to landfill sites is expected to drop from 94% to 12%. Electric energy (38 thousand of MWh a year) and heat energy (360 thousand GJ in the heating season) is expected to be generated as a result.

The construction is to commence in 2013 and is to be completed by the end of 2015. Grants from EU funds amount to PLN 210 million (€49 million).

Konin CHP facility

A consortium of companies, which includes Integral Engineering und Umwelttechnik, Erbud and Introl, will design and construct the waste incineration plant in Konin. The planned incineration plant will process 94 thousand tonnes of waste annually.

At the end of May 2011, an agreement for an EU grant of PLN 155 million (€36 million) for the project was executed.

Krakow CHP facility

The Office of the City of Krakow has advised that Posco Engineering & Construction has been chosen as the contractor for the municipal waste CHP plant in Krakow. Once the contract is executed, the works on the construction are to commence immediately. In order not to lose the EU grant, the construction of the plant is to be completed by the end of 2015. The cost of construction is PLN 797 million (€185 million) net; PLN 371 million (€86 million) of the cost (amounting to 58% of the total) will be covered from the EU Cohesion Fund and PLN 270 million (€63 million) will be financed by a loan from the National Fund for Environmental Protection and Water Management.



Szczecin energy from waste facility

On 18 July 2012, Mostostal Warszawa executed a general contractor agreement for the construction of a waste thermal treatment plant in Szczecin.

The plant will have two lines and will be in constant operation. The plant will process 150 thousand tonnes of waste annually. The total cost of the project is PLN 711 million (€165 million). The project has obtained a grant under the Cohesion Fund for PLN 225 million (€52 million) and a PLN 280 million (€65 million) loan under the National Fund for Environmental Protection and Water Management. It is expected to commence utilising waste in December 2015.

Kielce CHP facility

A consortium of Mostostal Warszawa and Acciona Infraestructuras are planning on designing and constructing a waste CHP plant in Promnik near Kielce. The investment project will serve the city and 17 adjacent municipalities, reaching a total of almost 400 thousand inhabitants. The waste management company will use the generated heat and energy for its own purposes. The contract is to be completed in the second half of 2015 and will cost PLN 223 million (€52 million), PLN 148 million (€34 million) of which will be covered by the EU Cohesion Fund.

Warsaw energy from waste facility

The modernisation and extension of the municipal EfW plant is to be executed by the Municipal Department of Sanitation (MPO) and the Municipal Water and Sewage Service (MPWiK). This project is estimated at PLN 750 million. The plant will be capable of processing approximately 120,000 tonnes of municipal solid waste, representing approximately 15% of the total amount of waste produced by approximately 2 million residents of the Polish capital.

Silesia

Expert analysis has been produced which indicates that an energy from waste plant in Silesia with a capacity of 250,000-260,000 tonnes per year of municipal waste is required.

Other opportunities

Other opportunities also exist in a variety of other areas, including:

- the construction of a waste recycling system in Białystok
- a biomass powered plant in Piecki municipality
- the design, construction, finance, operation and management of an energy from waste facility for the Plock Region and
- the construction and maintenance of a MBT plant in Olsztyn.

55 UK Trade and Investment, 'Opportunities in Poland: Environmental Sector': <http://ukinpoland.fco.gov.uk/resources/en/pdf/business/environmen>
 56 http://www.mrr.gov.pl/english/european_funds/european_funds_2014_2020/programming_2014_2020/strony/default.aspx
 57 <http://www.eea.europa.eu/publications/managing-municipal-solid-waste>
 58 European Environment Agency, 2011 Survey of resource efficiency policies in EEA member and cooperating countries, May 2011
 59 <http://hpwm.eu/component/content/article/39-project/76-changes-in-waste-management-law-approved>
 60 <http://www.eea.europa.eu/publications/managing-municipal-solid-waste>
 61 <http://www.eea.europa.eu/publications/managing-municipal-solid-waste>
 62 http://www.eea.europa.eu/soer/countries/pl/soertopic_view?topic=waste
 63 'Poznan's waste-burning plant tender to be decided in Q3 2012', Rzeczpospolita -19 January 2012



A. Current waste management landscape

In relation to environment and waste, €5.6 billion is to be allocated from the EU Operational Programme Environment to water and wastewater systems, waste management, the remediation of contaminated sites, nature protection and risk prevention in Romania.⁶⁴ However, officials from the Ministry of Environment and Forests recently announced that several Romanian counties were at risk of losing their EU funding as a result of delays in applying for waste management projects under Axis 2 of the Operational Programme Environment.⁶⁵ A UN report on Romania further provides that an estimated €1.168 billion was directed towards waste management and recycling over the period 2007-2013, out of which €930 million was from EU funds.⁶⁶ Plans for funding post-2013 have not yet been disclosed.

The body responsible for waste management in Romania is the Ministry of Environment and Forests. There are several strategy documents in place, including the National Waste Management Strategy, the National Waste Management Plan (developed in 2004), the Regional Waste Management Plans for the eight Romanian regions (issued in 2006) and the Report on Environmental Quality in Romania. There are also regulations for municipal, hazardous and non-hazardous waste, and packaging waste.

The National Waste Management Strategy (NWMS) was published in 2004 (three years prior to Romania's accession to the EU) and covers the period 2003-2013. At that time, the emphasis was on the implementation of the legal framework necessary for EU accession and transposing the EU Waste Diversion Legislation into national legislation. The NWMS and the NWMP are currently under review with a view to updating existing targets and actions.

The development of the legal framework is only part of the solution for the problems that Romania faces in terms of waste management. It is also necessary to foster private sector investment in waste management infrastructure, strengthen the authorities' ability to enforce waste legislation and develop waste charging systems.

The law regarding waste regulatory framework ('Law 211/2011') entered into force on 28 November 2011 and transposed the WFD into national legislation. By 2020, Law 211/2011 aims to re-use and recycle at least 50% of the overall weight of domestic waste and at least 70% of the weight of non-hazardous waste produced from construction and demolition activities.

Romania has also transposed the Landfill Directive into national legislation through Government Decision 349/2005.⁶⁷ There are transitional periods for full compliance with certain types of landfills: 2013 for non-hazardous industrial waste; and 2017 for municipal landfills.⁶⁸

During the EU accession negotiations, Romania was required to cease activity at 137 landfills in urban areas covering approximately 427 hectares by 16 July 2009 and at 101 municipal waste landfills covering approximately about 301 hectares between 16 July 2009 and 16 July 2017. In parallel with the extension of collection services in rural areas, the organisation of transport and transfer systems and the construction of regional landfills, 2686 dumping sites in rural areas should have been closed and restored by 16 July 2009. As these requirements were not fulfilled, Romania had been facing infringement measures.⁶⁹

By 2015, Romania has pledged to close 150 old municipal waste landfills in urban areas and 1,500 old municipal waste landfills and unlawful sites in rural areas. It has also pledged to establish 30 national integrated solid waste management systems. The responsibility for the collection and management of municipal solid waste belongs to the municipalities. Around 90% of urban residents have access to organised solid waste management services, compared to just 6.5% of the rural population.⁷⁰ The Romanian government estimates the cost of meeting EU waste management norms to be €1.8 billion; they require approximately €25-€30 million of investment per county,⁷¹ creating a funding gap of at least €870 million.

The Romanian Ministry of Environment and Forests proposed a draft law which aims to make waste management plans mandatory for the construction of large projects, as well as for demolition, renovation and reconstruction projects that generate waste. In addition, the proposed law prohibited the disposal of recyclable waste and required investors to pay a financial guarantee when applying for a building permit to ensure that construction waste management costs were covered. However, the proposed draft law has not yet been enacted.



B. Waste infrastructure background

In 2006, an Official Journal of the European Union notice was published in respect of a tender for an energy from waste facility in the Constanta region. In the same year, the Ministry of Finance issued two tenders for technical assistance in the procurement process for the following two waste PPP projects:

- **Arges County** in relation to the closure of landfills in Campulung, Mioveni and Topoloveni along with various rural landfill sites and
- **Bacau County** in relation to the closure of existing lawful landfills and 55 unlawful landfills along with the construction of a new landfill, construction of a sorting and composting facility, and for waste collection in Bacau municipality and villages.

Currently, there are several ongoing waste management projects throughout the country. One such project is the Integrated Waste Management System in Botosani county, which is financed by the EU through the Environment Sectoral Operational Programme; this project is due to be completed in 2015 and the total cost is approximately €31 million.⁷² Other waste management investments in Romania that benefit from EU funds include:⁷³

- **Cluj County:** financed by the European Regional Development Fund, state budget and local budget. The estimated value of the project is €61,926,525 (VAT exclusive).⁷⁴ This project is in the early stage of development and construction began in mid-2012
- **Bistrita Nasaud County:** financed by the European Regional Development Fund, state budget (98%) and local budget (2%). The estimated value of the project is approximately €36,716,471 (VAT exclusive).⁷⁵ This project is close to completion, although no official announcement has been made
- **Vaslui County:** financed by the European Regional Development Fund, state budget and local budget. The estimated value of the project is approximately €32,189,973 (VAT exclusive).⁷⁶ This project is expected to complete in 2014
- **Arad County:** financed by the European Regional Development Fund, state budget and local budget. The estimated value of the project is approximately €29,635,795 (VAT exclusive).⁷⁷ All agreements relating to this project appear to be in place and the project is currently under development and
- **Maramures County:** financed by the European Regional Development Fund, state budget and local budget. The estimated value of the project is approximately €58,045,501 (VAT exclusive).⁷⁸ This project is currently under development.

In 2012, Romania started to develop an energy from waste facility in the North-Eastern part of the country. This facility is still under development and no official information is available on the status of this project. Feasibility studies have also been undertaken on other sites for EfW facilities in Bucharest, Brasov, Galati and Timisoara; however, no start dates for these developments have been officially announced.

64 http://www.eea.europa.eu/soer/countries/ro/soertopic_view?topic=biodiversity

65 http://www.mmediu.ro/media/comunicate/2011-10-03/2011-10-26_comunicate_intalnireborbelyorbanfondurieu2.pdf (Available in Romanian only).

66 http://www.un.org/esa/dsd/dsd_aofw_ni/ni_pdfs/NationalReports/romania/waste.pdf

67 http://ec.europa.eu/environment/waste/reporting/pdf/Landfil_Directive.pdf

68 Government of Romania, Ministry of Environment and Sustainable Development, Sectoral Operational Programme Environment 2007-2013.

69 UK Trade and Investment, Recycling and Waste Management Opportunities in Romania, 2010

70 Government of Romania, Ministry of Environment and Sustainable Development, Sectoral Operational Programme Environment 2007-2013, 2007

71 http://www-wds.worldbank.org/external/default/WDSCContentServer/WDSP/IB/2011/05/24/000356161_20110524005013/Rendered/PDF/600780ESW0WHIT0and0candi0dates0FINAL.pdf

72 <http://www.botosanijudetcurat.ro/> (Available only in Romanian)

73 [http://www.posmediu.ro/Lista_proiecte_aprobate/preconizate\(1472\).html](http://www.posmediu.ro/Lista_proiecte_aprobate/preconizate(1472).html) (Available only in Romanian)

74 <http://www.cjcluj.ro/semnare-contract-statii-transfer-deseuri/> (Available only in Romanian)

75 <http://ecobn.ro/> (Available only in Romanian)

76 [http://www.posmediu.ro/SMID_VS\(1707\).html](http://www.posmediu.ro/SMID_VS(1707).html) (Available only in Romanian)

77 <http://www.deseuri-arad.ro/> (Available only in Romanian)

78 <http://www.cjmaramures.ro/detaliu.aspx?eID=1769&t=Comunicatedepresa&Node=21> (Available only in Romanian)



A. Current waste management landscape

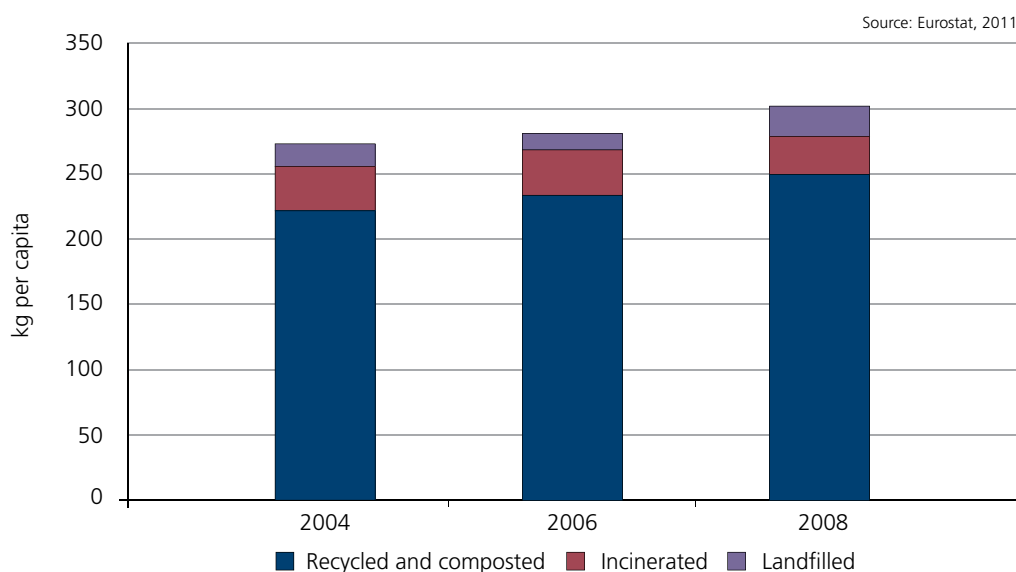
The Ministry of Environment is the government body responsible for waste management in Slovakia. Act No. 223/2001 Coll. on Waste and on Amendment of Certain Acts (as amended) is a comprehensive act that regulates waste management in Slovakia.⁷⁹ It provides that a Waste Management Programme will set out the objectives of waste management for Slovakia. The waste strategy and programmes for waste management are contained in the Waste Management Programme for Slovakia and Implementation Plans for individual EU Directives.

According to a 2011 report from the World Bank,⁸⁰ the waste management sector in Slovakia is largely independent from EU funding and has substantial private sector participation.⁸¹ Whilst Slovakia has received funding from the EU Operation Programme Environment for waste management infrastructure development, the amount provided was a considerably smaller sum than that received by many of Slovakia's neighbours.

Slovakia has sought to address the issue surrounding the use of poor and non-compliant landfills through economic incentives. The main economic incentive is the charging mechanism for compliant and non-compliant landfills introduced in 2004 through Act No 17/2004 on landfill charges. Landfill fees were first introduced in the 1990s as a way of encouraging municipalities to upgrade or build new landfill operations.

The total volume of waste produced in Slovakia decreased by roughly 43% from 2002 (15,100,000 tonnes) to 2009 (8,500,000 tonnes). However, the total volume of waste produced increased in 2010 (10,750,000 tonnes) and a further increase was noted in 2011 (10,840,784 tonnes). The practice of landfilling of municipal waste still prevails. According to Eurostat figures for 2004-2008, landfilling had stabilised at approximately 80% of the total municipal waste produced in Slovakia; this decreased to 75% in 2011 (see *Figure 3* below).

Figure 3: Municipal waste in Slovakia by treatment, 2004-2008 (Source: Slovakia Country Profile 2010) ⁸²



B. Waste infrastructure background

Slovakia is in the early stage of developing a PPP market. Slovakia has two energy from waste facilities in operation (one facility generates electricity and the other facility generates heating). Another additional site is under consideration.



Biogas is set to grow considerably. In mid-2011, 33 landfill gas plants were in operation and, by September 2012, this figure had increased to 60 operational landfill gas plants. The Institute for Energy Security has reportedly stated that Slovakia is on the verge of a biogas boom as feed-in tariffs are two to three times higher than for traditional sources.⁸³

Bratislava energy from waste facility

The facility in Bratislava (refurbished in 2003), owned by the City of Bratislava, is the largest in Slovakia and is capable of processing 140,000 tonnes of waste per year. A proportion of the energy from this waste facility is consumed by the facility itself with the remaining energy being transmitted into the public grid.

Košice Heat facility

The facility in Košice is a thermal incinerator which processes 80,000 tonnes of waste per year and produces heat for community heating purposes. The facility is operated by Kosit a.s., a joint venture of the City of Košice (34%) and the Italian firm, 4 ITALY Srl. Heat off take is by TEKO a.s. It is anticipated that, with an additional €20 million investment, a turbine could be installed to produce electricity and thereby improve the efficiency of the facility. This capital project is, according to information provided by Kosit a.s., financed by using its own resources and loans.

Zilina Energy from Waste Facility

A further energy from waste facility, with a capacity of 60,000 - 80,000 tonnes of waste per year and capital value of €60 million, is planned in the city of Zilina in North West Slovakia. It has not yet been decided if the facility will be restricted to generation of electricity or will be a CHP.

Landfill gas

In January 2012, plans to build three new landfill gas plants in Bosany, Dvory Nad Žitavou and Samorin were announced at a cost of €16 million, €3 million and €4.5 million respectively. The plant in Bosany is already in operation and works on the plant in Dvory Nad Žitavou commenced at the beginning of 2013. Landfill plants in Ožďany (€4 million), Belá nad Cirochou (€4 million) and Kamenica nad Cirochou (€4 million) are also in operation, as well as newly built biogas plants in Gabčíkovo and Moldava.

Other planned landfill gas plants include Nová Ves nad Žitavou (€3.17 million), Červeník, (€3.5 million) Humenné (€4.1 million), Janík (€3.2 million), Hlohovec (€3-4 million), Ladomirová, Štrkovec (€3-4 million), Buzica (€2-4 million), Medzilaborce (€3.2 million), Sered' (€4.5 million) and Nový Sad (€5 million).

79 http://scp.eionet.europa.eu/facts/factsheets_waste/2009_edition/factsheet?country=SK

80 Word Bank report entitled: 'Solid Waste Management in Bulgaria, Croatia, Poland, and Romania. A cross-country analysis of sector challenges towards EU harmonisation', (April 2011) Report No: 60078-ECA.

81 http://www.eea.europa.eu/soer/countries/sk/soertopic_view?topic=waste

82 During the period 2007-2013, the EU Operation Programme Environment provided funding of €934,223,079 for the development of Waste Management infrastructure in Slovakia: http://ec.europa.eu/environment/pdf/policy/EPR_2010_sk.pdf

83 'Plans for three biogas power plants are announced', HNonline, 23 January 2012.



A. Current waste management landscape

Waste management in Slovenia falls within the remit of the Ministry for Agriculture and Environment. Regulations in the area of waste management are mostly based on the Environment Protection Act (adopted in 2004), the Decree on the Landfilling of Waste (adopted in 2006), the Decree on Waste (adopted in 2011), Regulation (EC) No. 1013/2006 on Shipments of Waste and the Decree on the Implementation of Regulation (EC) No. 1013/2006 on Shipments of Waste.

The framework governing waste in Slovenia is contained in the Decree on Waste and the waste strategy is covered by the Strategic Guidelines of the Republic of Slovenia for waste management. In addition, there are regulations for municipal waste, hazardous and non-hazardous waste, packaging and packaging waste, waste oil and batteries, as well as special regulations for biodegradable waste and wastewater.

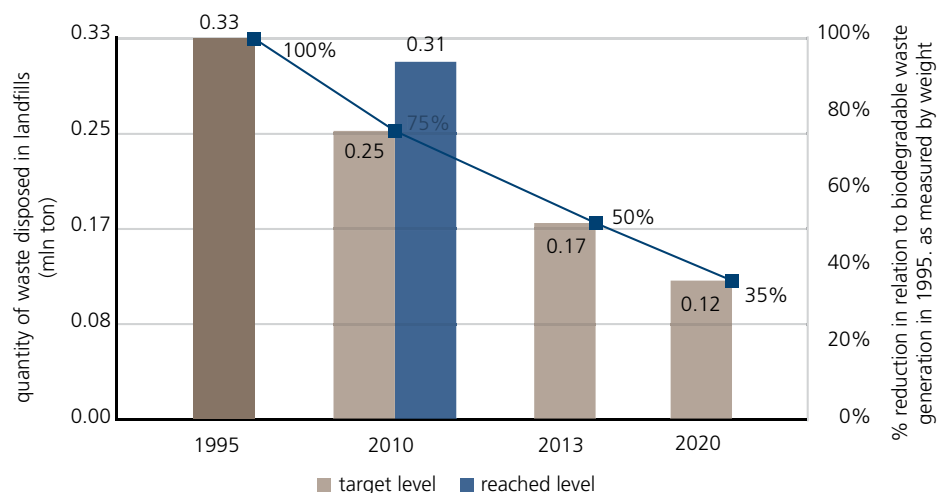
Pursuant to Article 149 ZVO-1, the government of Slovenia can define the mandatory scope of municipal public utility services in relation to communal waste, thus broadening the possibility for private investment in this sector. On 13 March 2013, the government of Slovenia adopted an Operating Programme on the handling of communal waste; this established the need for additional infrastructure for the biological treatment of household generated biological waste, as well as a new system of mechanical and biological treatment centres for the treatment of mixed communal waste, where the envisaged capacities for the latter are currently between 6,000 and 150,000 tonnes annually. Furthermore, the Operating Programme on the Handling of Communal Waste establishes the need for new infrastructure for energy generating treatment of communal waste as well as additional capacities for already existing facilities for the disposal of communal waste. Slovenia is also planning to adopt a general Operating Programme for the prevention of waste production in 2013.

Environment targets for waste management in Slovenia have been harmonised with the EU targets. The volume of waste generated in Slovenia is growing annually, with more than 7 million tonnes of waste being generated each year. The recovery of waste is improving. In 2008, a total of 68% of all waste in Slovenia was recovered: 77% of waste from manufacturing and services; 29% of municipal waste; and 47% of hazardous waste.⁸⁵ The majority of municipal waste is being landfilled. By establishing both a 'door to door' system for collecting individual fractions of municipal waste and municipal waste management centres, as well as improving energy recovery from municipal waste, it is expected that the recovery of municipal waste will increase.

The Slovenian landfill tax was introduced in 2001 and is paid by the landfill operator. Until 2010, the collected tax went into the state budget; after October 2010, the landfill tax revenue from municipal landfills goes to municipalities and the revenue from industrial landfills goes to the state budget. Figures do show an increase of recycling since the landfill tax was introduced.



Figure 4: Reduction in quantity of biodegradable municipal waste disposed in landfills in Slovenia (Source: Ernst & Young (Estimate based on data from 2009))



B. Waste infrastructure background

Slovenia has one active energy from waste facility (Celje), one regional facility covering 32 municipalities scheduled for completion in September 2016 (Ljubljana) and a further site in the early stages of development (Maribor).⁸⁶

Celje Energy from waste facility

Slovenia's first energy from waste facility in Celje (valued at approximately €58 million) was a joint initiative by the Municipality of Celje (contributing €2.8 million), 23 other municipalities in the Savinja region and the government of Slovenia (contributing €2.8 million). Approximately €29 million came from Cohesion funds.⁸⁷ The facility in Celje diverts the biodegradable municipal waste of around 250,000 inhabitants in the related municipalities from landfill.

In 2011, several landfills were closed due to their inability to meet modern standards.

84 http://www.eea.europa.eu/soer/countries/si/soertopic_view?topic=waste

85 http://www.eea.europa.eu/soer/countries/si/soertopic_view?topic=waste

86 <http://www.ebrd.com/pages/project/eia/362.shtml>

87 http://ec.europa.eu/regional_policy/projects/stories/details_new.cfm?pay=SI&the=72&sto=1689&lan=7®ion=ALL&obj=ALL&per=ALL&defl=EN

Glossary

'anaerobic digestion'	the bacterial fermentation of organic material in the absence of free oxygen.
'biodegradable waste'	defined by the Landfill Directive as any waste that is capable of undergoing anaerobic or aerobic decomposition, such as food and garden waste, paper and paperboard. ⁸⁸
'biogas'	gas produced by the anaerobic or thermal conversion of biomass that has been wholly derived from waste.
'biomass'	vegetable, animal or other organic substances being biodegradable which as a waste may degrade and emit biogas or perhaps be used as a fuel in thermal plants.
'biodegradable municipal waste (BMW)'	the fraction of municipal waste that will degrade within a landfill or anaerobic digester, giving rise to landfill gas emissions, primarily methane. It includes food, garden (green), paper and cardboard wastes.
'CEE'	for the purposes of this paper, comprises Bulgaria, Czech Republic, Hungary, Poland, Romania, Slovakia and Slovenia.
'CHP'	combined heat and power unit.
'C&D waste'	construction and demolition waste, which includes concrete, bricks, gypsum, wood, glass, metals, plastic, solvents, asbestos and excavated soil arising from activities such as the construction of buildings and civil infrastructure, total or partial demolition of buildings and civil infrastructure, road planning and maintenance.
'C&I waste'	commercial and industrial waste.
'composting'	a biological process that submits biodegradable waste to anaerobic or aerobic decomposition, which results in a product used on land as a soil improver or as a growing media.
'EU Energy Efficiency Directive'	EU Energy Efficiency Directive 2012/27/EU
'EU 15'	Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden and the United Kingdom.
'EU 27'	Austria, Belgium, Bulgaria, Cyprus, the Czech Republic, Denmark, Germany, Greece, Estonia, Finland, France, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Poland, Portugal, Romania, Slovenia, Slovakia, Spain, Sweden and the United Kingdom.
'EU Waste Diversion Legislation'	includes the Landfill Directive, the WEEE Directive, the End of Life Vehicles Directive, the Packaging and Packaging Waste Directive, the Batteries Directive, the WFD and the WID.
'incineration'	thermal treatment of waste in a waste incineration plant as defined in Article 3(4), or co-incineration as defined in Article 3(5), of Directive 2000/76/EC on the Incineration of Waste. It includes incineration with or without energy recovery.
'Landfill Directive'	Council Directive 1999/31/EC of 26 April 1999 on the landfill of Waste.
'landfill gas'	a form of biogas produced by organic waste decomposing under anaerobic conditions in a landfill and typically has methane concentrations around 50%.
'landfilling'	the long term deposit of waste into or onto land.
'mechanical-biological treatment (MBT)'	a type of waste processing facility that combines a waste sorting and crushing facility with a form of biological treatment such as composting or anaerobic digestion.



‘municipal waste’	consists of waste collected by or on behalf of municipal authorities. The bulk of the waste stream originates from households (and can include bulky wastes), though similar wastes from sources such as commerce, offices, public institutions and selected municipal services are also included in some jurisdictions. Municipal waste does not include waste from municipal sewage networks or municipal C&D waste.
‘recovery’	form of extraction of value from waste that is not reuse or recycling. Extracting energy from waste via incineration is a common form of recovery.
‘recycling’	reprocessing of waste material so that it is put to another use (except as a fuel) and diverts the waste from landfill.
‘reuse’	reprocessing of waste material for its original use.
‘Waste’	defined by Article 3(1) of the WFD which lists a number of waste types but then ends with the following catch all: ‘any substance or object which the holder discards or intends or is required to discard’.
‘Waste Electrical and Electronic Equipment Directive (WEEE)’	Directive 2002/96/EC on waste electrical and electronic equipment.
‘Waste Framework Directive (WFD)’	Directive 2008/98/EC of the European Parliament and of the Council on Waste.
‘Waste Incineration Directive (WID)’	Directive 2000/76/EC of the European Parliament and of the Council on Waste.
‘waste management’	defined by Article 3(9) of the WFD as ‘the collection, transport, recovery and disposal of waste, including the supervision of such operations and the after-care of disposal sites, and including actions taken as a dealer or broker’.

88 Biodegradable waste degrades under anaerobic conditions in landfills and, as a result, methane is produced. This is commonly called 'landfill gas'. Generation and treatment of biodegradable waste in landfill is considered a priority for a number of reasons. A significant reason is due to the environment impact associated with uncontrolled releases of landfill gas (methane is one of the most potent of the six greenhouse gases).

CMS Contacts

EU Waste



Paul Sheridan

Partner

T +44 (0)20 7367 2055

E paul.sheridan@cms-cmck.com



Harvinder Deol

Senior Associate

T +44 (0)20 7367 3023

E harvinder.deol@cms-cmck.com



Valentina Keys

Associate

T +44 (0)20 7367 2173

E valentine.keys@cms-cmck.com



Jonathan Beckitt

Partner

T +44 (0)20 7367 2113

E jonathan.beckitt@cms-cmck.com



Robert Gray

Partner

T +44 (0)20 7367 2518

E robert.gray@cms-cmck.com

Bulgaria



Kostadin Sirleshtov

Partner

T +359 2 92199 42

E kostadin.sirleshtov@cms-cmck.com



Borislava Pokrass

Associate

T +359 2 92199 96

E borislava.pokrass@cms-cmck.com

Czech Republic



Helen Rodwell

Managing Partner

T +420 2 96798 818

E helen.rodwell@cms-cmck.com



Lukas Janicek

Senior Associate

T +420 2 96798 833

E lukas.janicek@cms-cmck.com



Radim Kotlaba

Senior Associate

T +420 2 96798 830

E radim.kotlaba@cms-cmck.com

Hungary



Péter Simon

Partner

T +36 1 48348 29

E peter.simon@cms-cmck.com



Ferenc Matrai

Partner

T +36 1 50549 12

E ferenc.matrai@cms-cmck.com

- CMS offices
- ◀ Rio de Janeiro
- Dubai ▶
- Beijing ▶
- Shanghai ▶

Poland



Wadim Kurpias

Partner

T +48 22 520 8441

E wadim.kurpias@cms-cmck.com



Marcin Oszczak

Senior Associate

T +48 22 520 8433

E marcin.oszczak@cms-cmck.com



Stanisław Wajda LL.D.

Of Counsel

T +48 22 520 8400

E stanislav.wajda@cms-cmck.com



Katarzyna Sosnowska

Lawyer

T +48 22 520 8482

E katarzyna.sosnowska@cms-cmck.com

Romania



Loredana Mihailescu

Senior Associate

T +40 21 4073 876

E loredana.mihailescu@cms-cmck.com



Despina Andrian

Associate

T +40 21 4073 895

E despina.andrian@cms-cmck.com

Slovenia



Aleš Lunder

Partner

T +386 1 62052 10

E ales.lunder@cms-rrh.com



Tomaž Petrovič

Partner

T +386 1 62052 10

E tomaz.petrovic@cms-rrh.com

Slovakia



Ján Azud

Partner

T +421 2 3233 3431

E jan.azud@rc-cms.sk

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CMS Cameron McKenna LLP
Mitre House
160 Aldersgate Street
London EC1A 4DD

T +44 (0)20 7367 3000
F +44 (0)20 7367 2000

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