

# WASTE MANAGEMENT & THE CIRCULAR ECONOMY IN GERMANY

**WEBINAR**  
**25 JUNE 2020**

Anne Bräutigam  
Investor Consulting  
Energy, Building & Environmental Technologies  
[www.gtai.com](http://www.gtai.com)



# Agenda

1. Market Size & Development
2. Market Opportunities
3. Research and Support Landscape
4. About Germany Trade and Invest



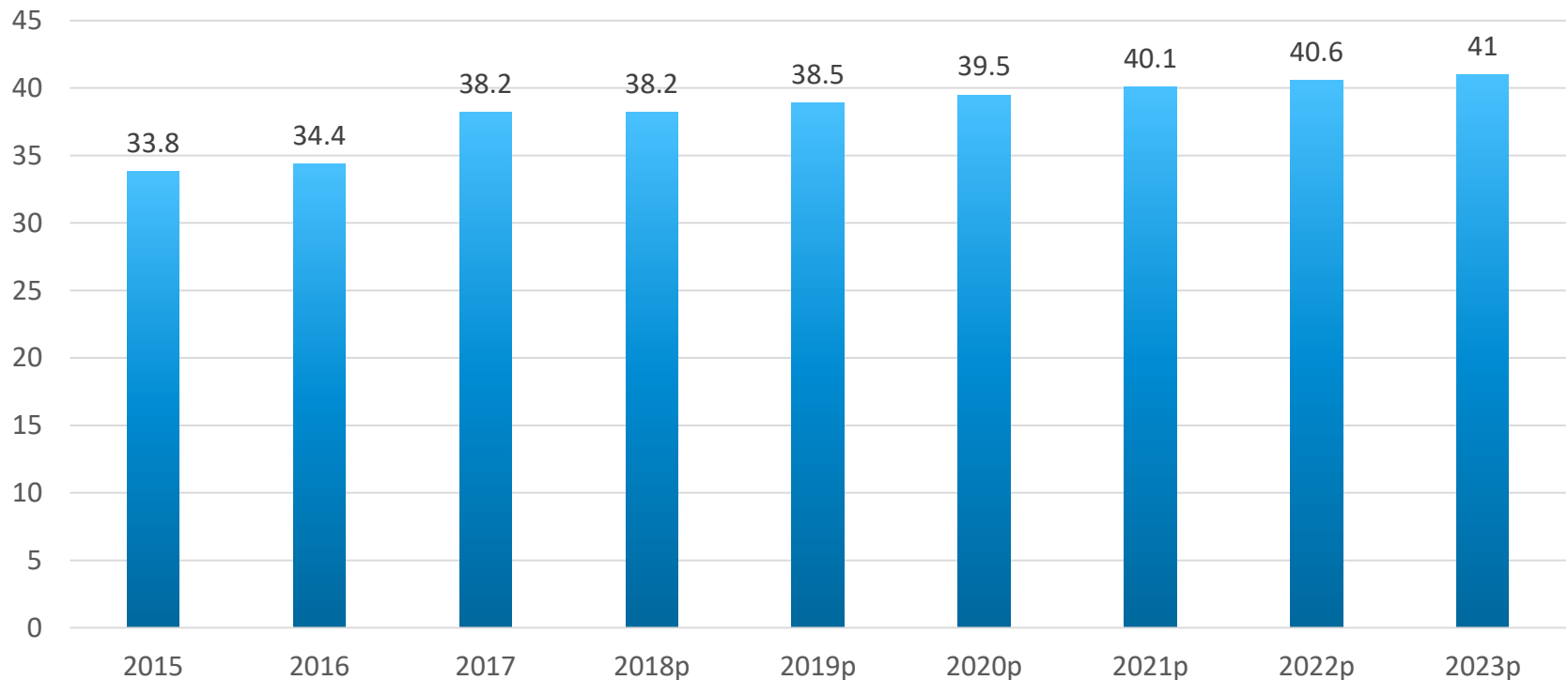
# MARKET SIZE & DEVELOPMENT

# Waste disposal and recycling markets

Waste management services are not substitutable and provide stable turnover.

## Turnover of the German waste disposal and recycling industry

2015-2023, in bn EUR



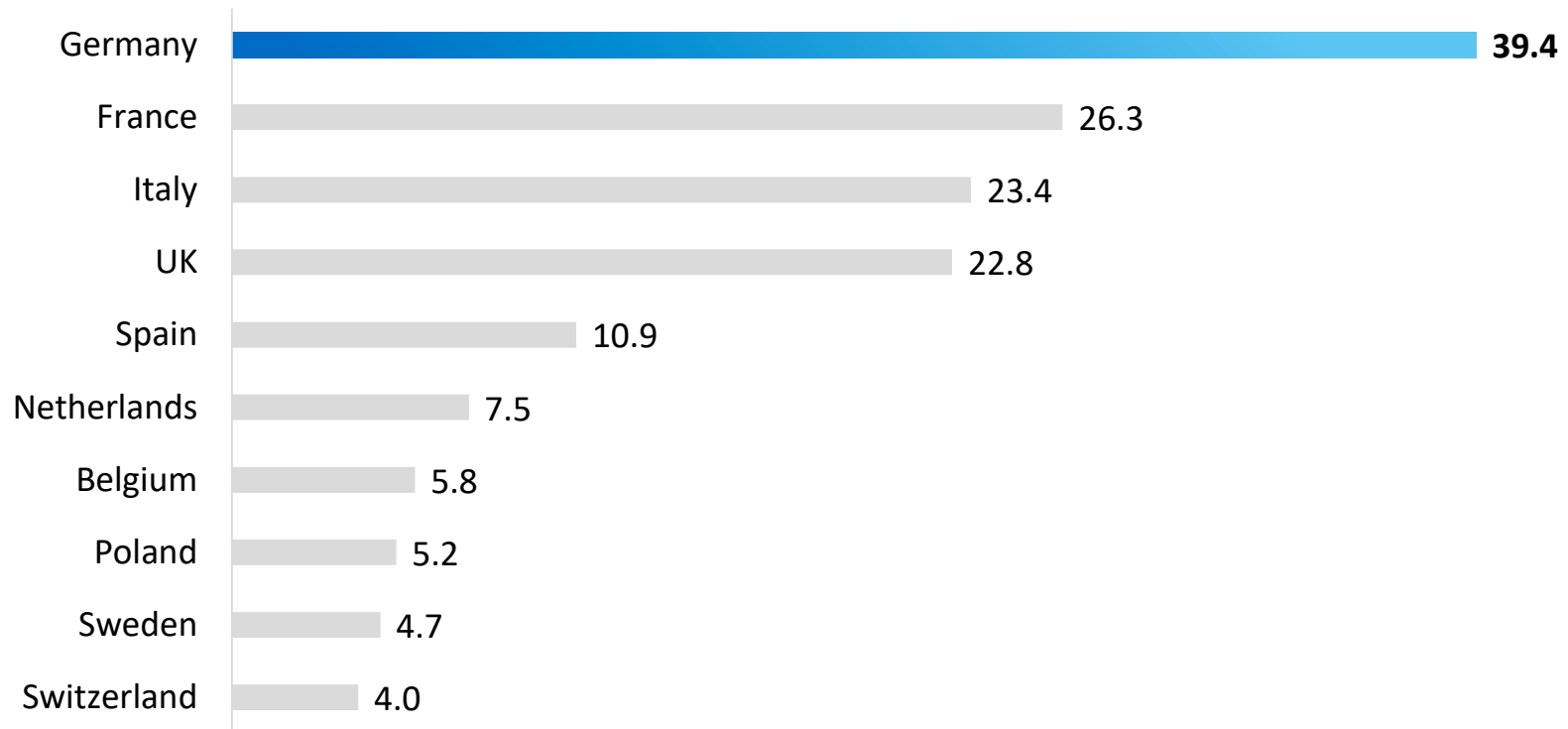
*Note: This number represents around 5700 taxable privately organized companies in the Collection, treatment and disposal of waste as well as the recovery of valuable materials segment; p=forecast; Source: Statista 2019*

# European waste disposal & recycling markets

Germany is by far the largest market in Europe

## Turnover of the waste disposal and recycling industry

2017, in bn EUR



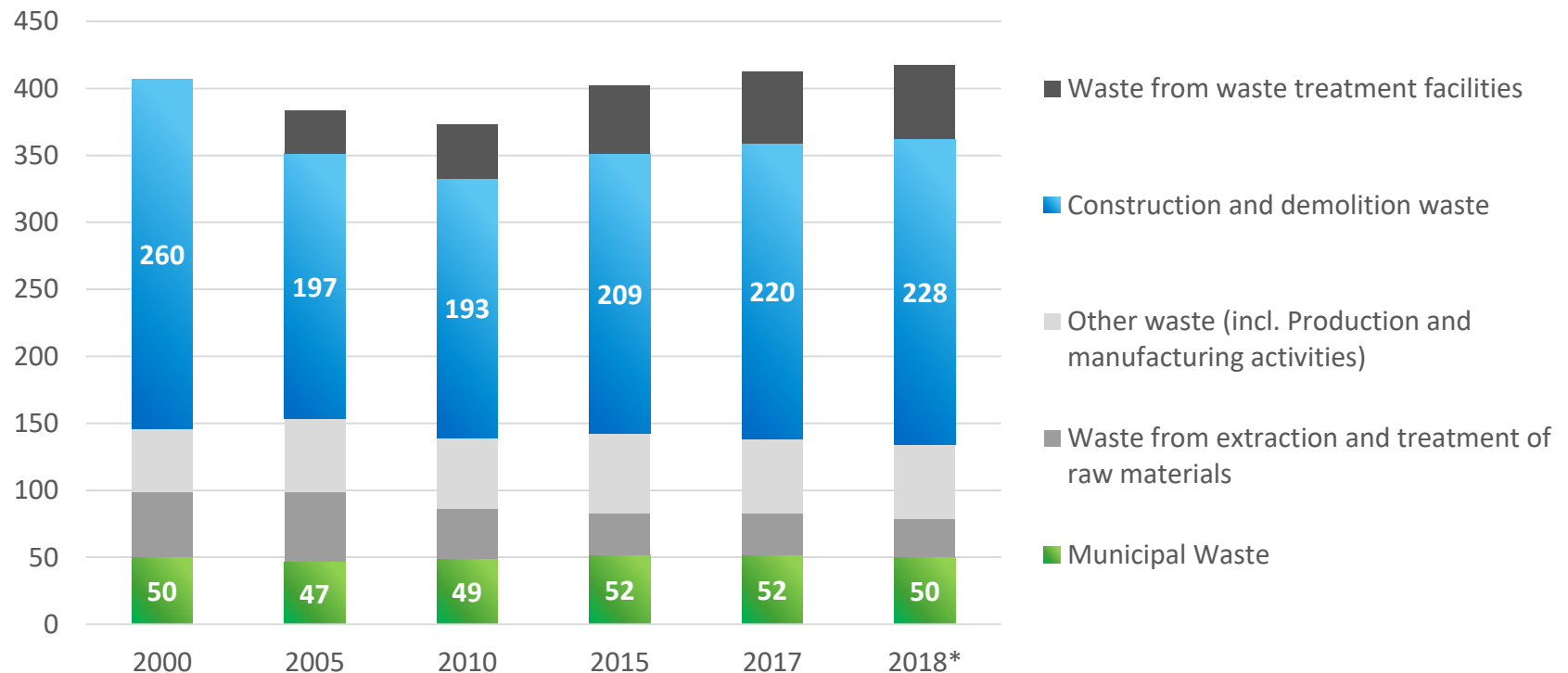
Source: Statista & Eurostat 2019

# Waste Volume

Construction and demolition waste accounts for 53% of Germany's waste volume

## Waste Type & Total Waste Volume in Germany

In million metric tons

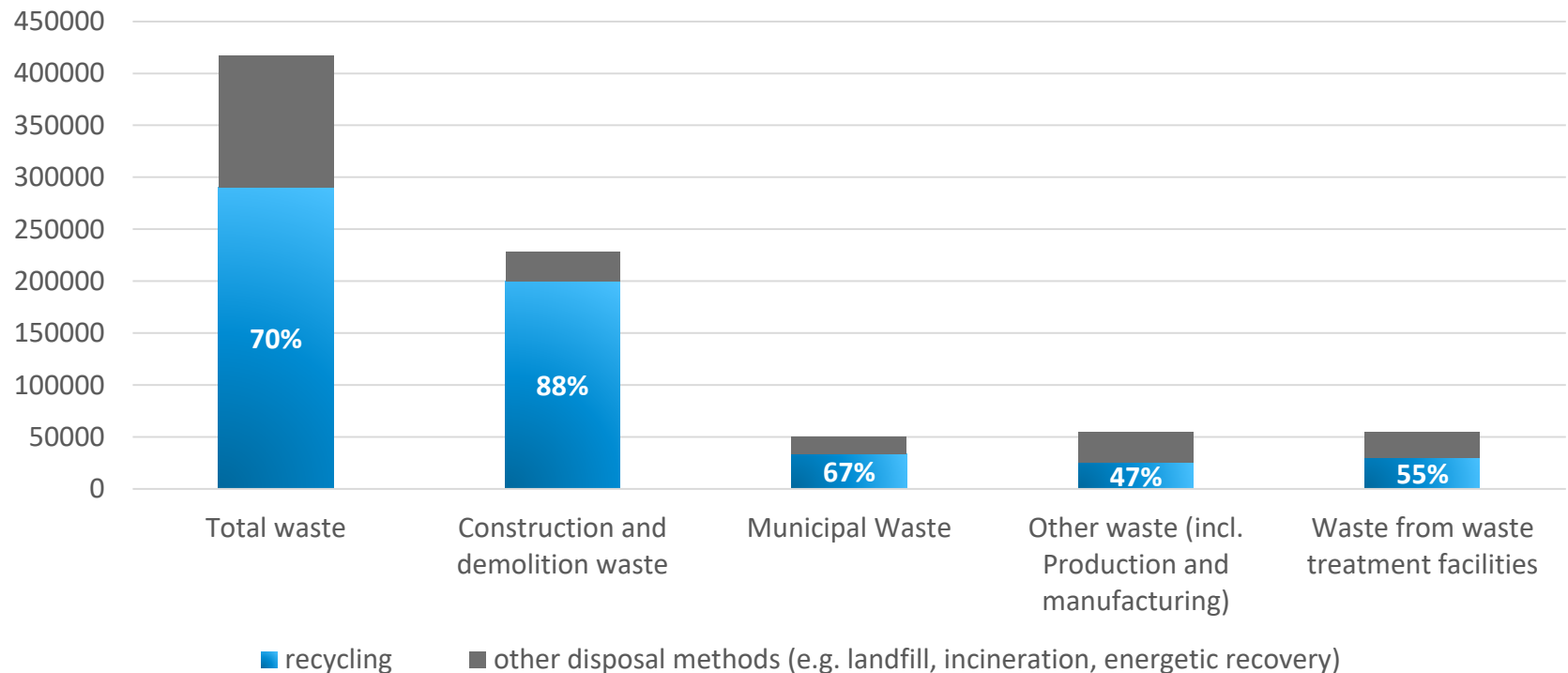


Note: \*preliminary data; Source: Federal Statistical Office 2020

# Recycling Quotas in Germany

Only 70% of waste was recycled in 2018

Waste volume (in kt) and recycling quota (in %) of different waste types in Germany  
2018, including hazardous waste



Note: Rounding errors may occur.

Source: Federal Statistical Office 2020

# German Waste Management Act (KrWG)

The legal framework for waste management is the backbone of Germany's leading circular economy market



## KEY REGULATIONS



### OPTIMIZING WASTE MANAGEMENT

Objective: minimize waste generation & maximize recycling

### CLARIFYING RESPONSIBILITIES

Definition of responsibilities along the product life cycle & incentives to manufacture durable products

### PRIORITIZING THE ENVIRONMENT

Introduction of 5-level waste hierarchy giving precedence to the environmentally best option

### AIMING HIGHER

Target: reuse or recycle 65% of all municipal waste by 2020 (EU general target: 50%)

Source: UBA, BMUB, Waste Management Act (Kreislaufwirtschaftsgesetz)



# MARKET OPPORTUNITIES

# Business opportunities at a glance

Material flows where further improvement of recycling processes is needed



**Aircrafts**



**Packaging**



**Plastics**



**Textiles**



**Wind Turbines**



**E-Car Batteries**



**Construction Waste**

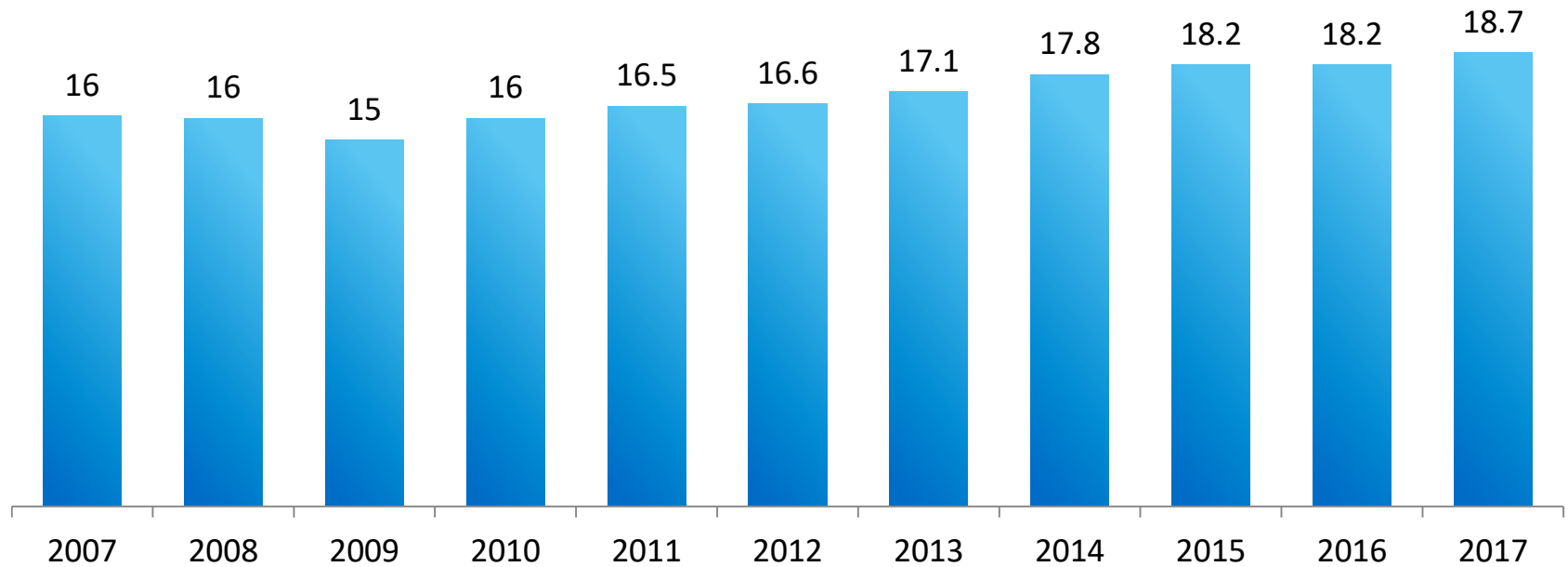


**CFK/GFK**

# Packaging waste

## Packaging waste in Germany (in million tons)

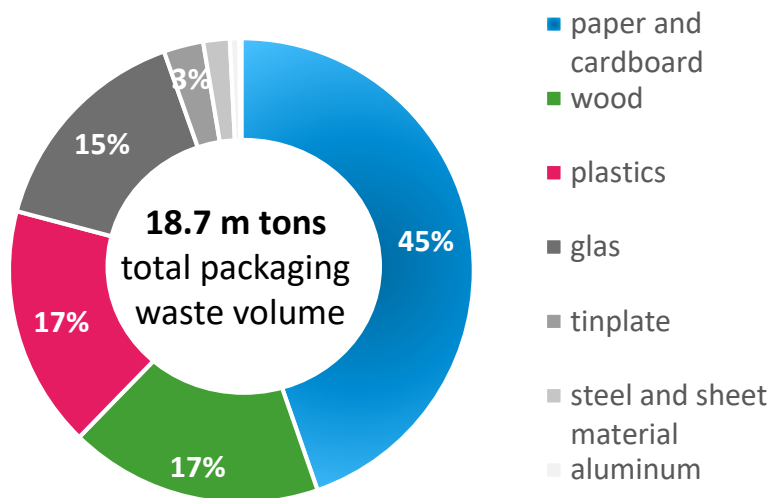
---



Source: Gesellschaft für Verpackungsmarktforschung mbH (GVM), 2019

# Packaging waste

## Packaging waste type in Germany 2017

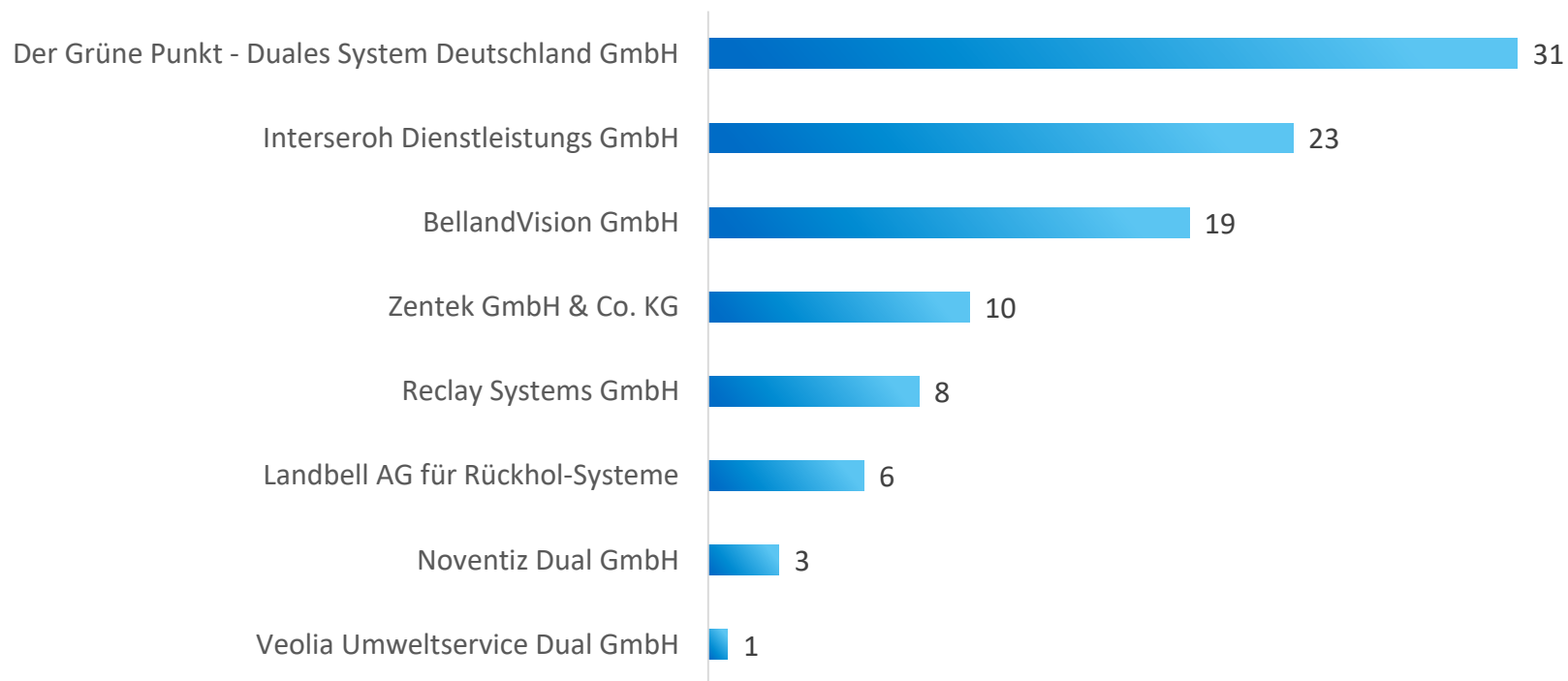


Source: German Environment Agency 2018; German Bundestag, Drucksache 18/11274

# Packaging waste

The organization of the collection, sorting and recycling of the packaging is done by approx. ten dual systems active in the market.

## Market shares of operators of dual systems in Germany in 2019 (in %)

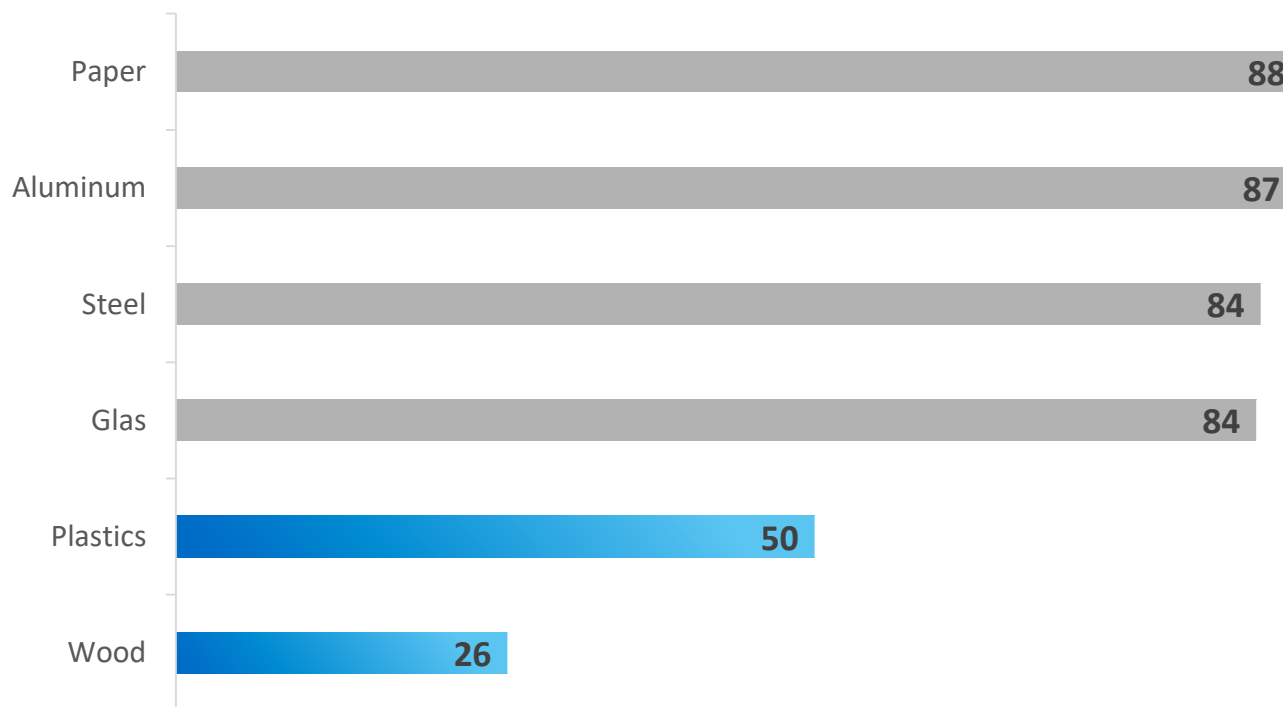


Source: Statista 2020; rounded figures

# Packaging waste

Plastics and wood packaging still have great need for recycling.

Recycling share of packaging waste (2017, in %)

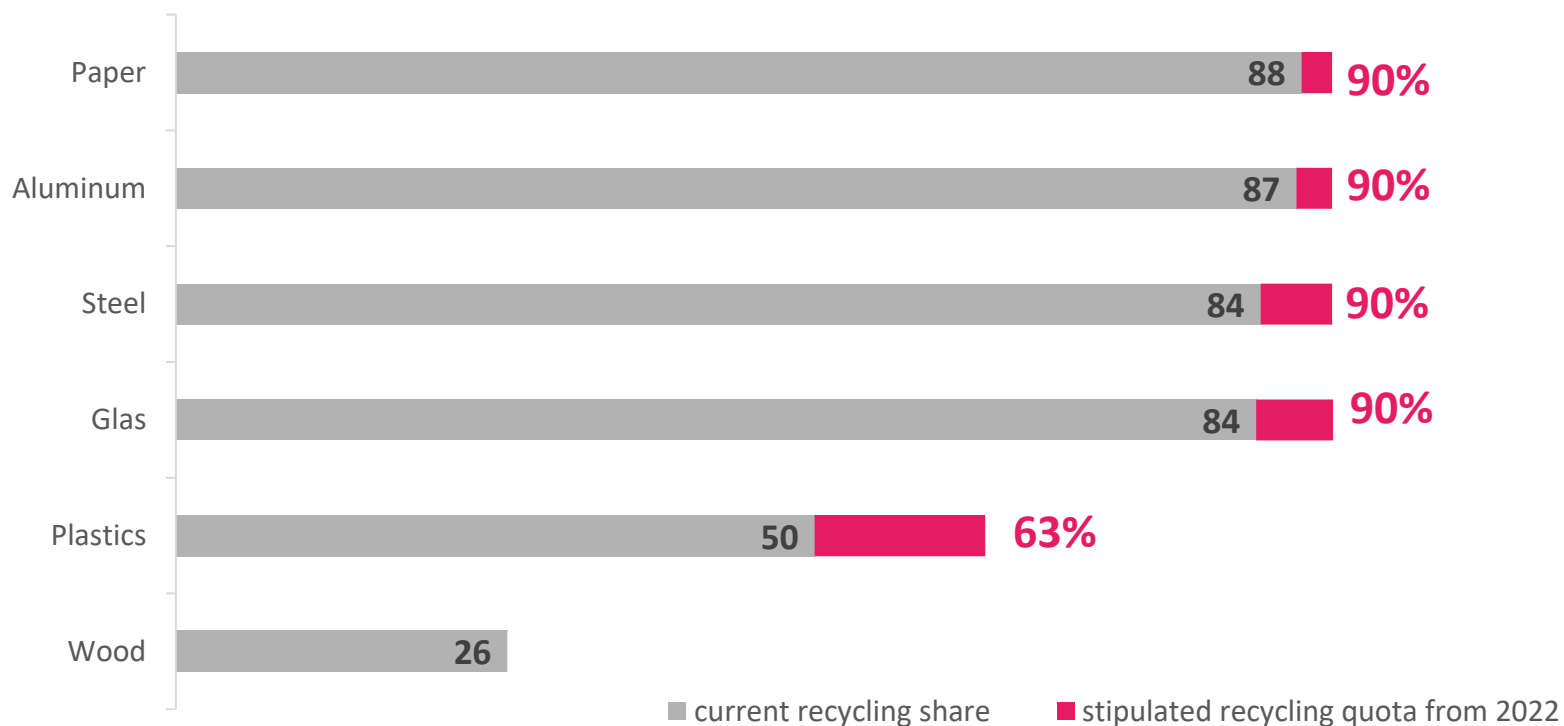


Source: Federal Environment Agency 2019

# Packaging waste

Stipulated recycling quotas increase significantly from 2022 onwards – creating need for new and improved recycling technologies.

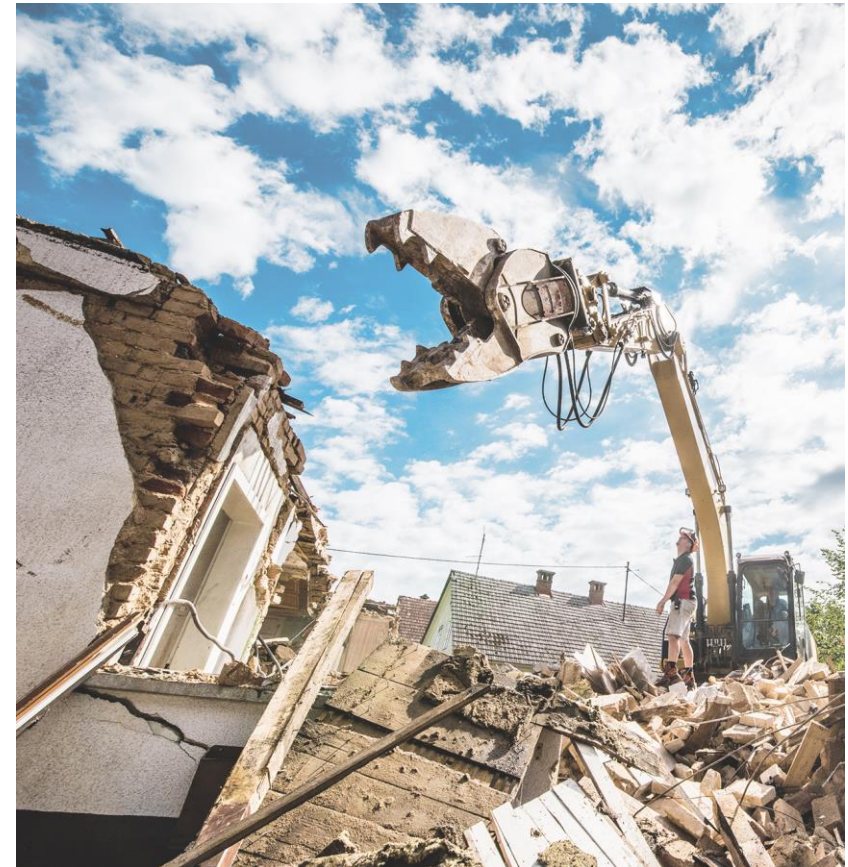
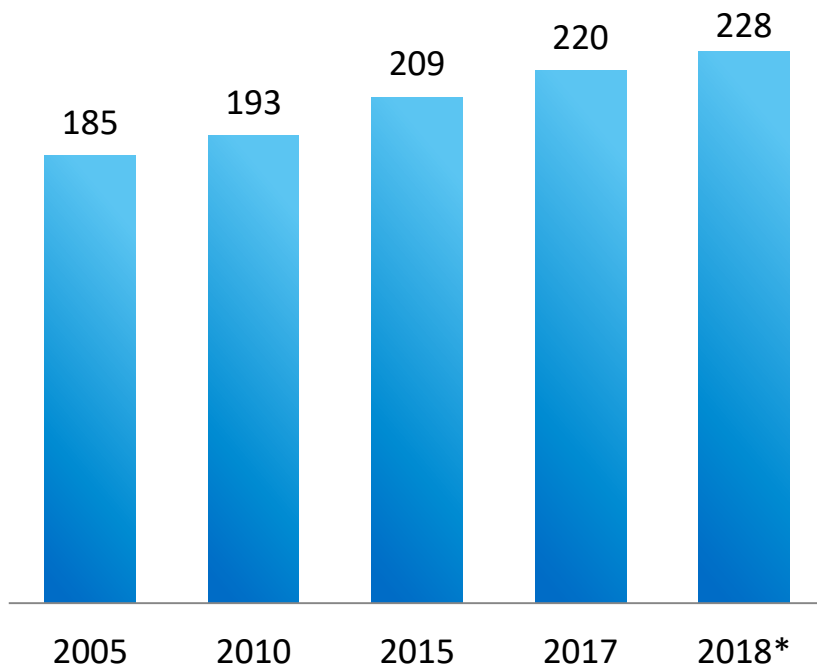
Recycling share of packaging waste and quota from 2022 (2017, in %)



Source: Federal Environment Agency 2019

# Construction waste

**Construction and Demolition Waste Volume**  
In Germany, in million metric tons



Note: \* preliminary data; Source: Federal Statistical Office 2020; German Industry Association BAU 2018



# Construction waste

Concrete is a very stable, but not sustainable construction material.



# Textiles & clothes waste



**Real collection volume (2013)**  
**1.01 million tons**

**Use of old clothes (2013)**  
**54% re-use for second-hand**  
**21% further use as cleaning cloths**  
**17% recycling**  
**6% thermal use**  
**2% waste disposal**

**Used clothes collection potential**  
**1.25 to 1.35 million tons<sup>1</sup> annually**

*Note: <sup>1</sup>calculation based on a usage time of 2 years*

*Source: German Association for secondary resources and waste disposal (bvse - Bundesverband Sekundärrohstoffe und Entsorgung)*

# Battery recycling

The German government aims to have between 7 and 10 million electric vehicles registered by 2030.



# Battery recycling

Germany is prepared to create an entire battery value chain



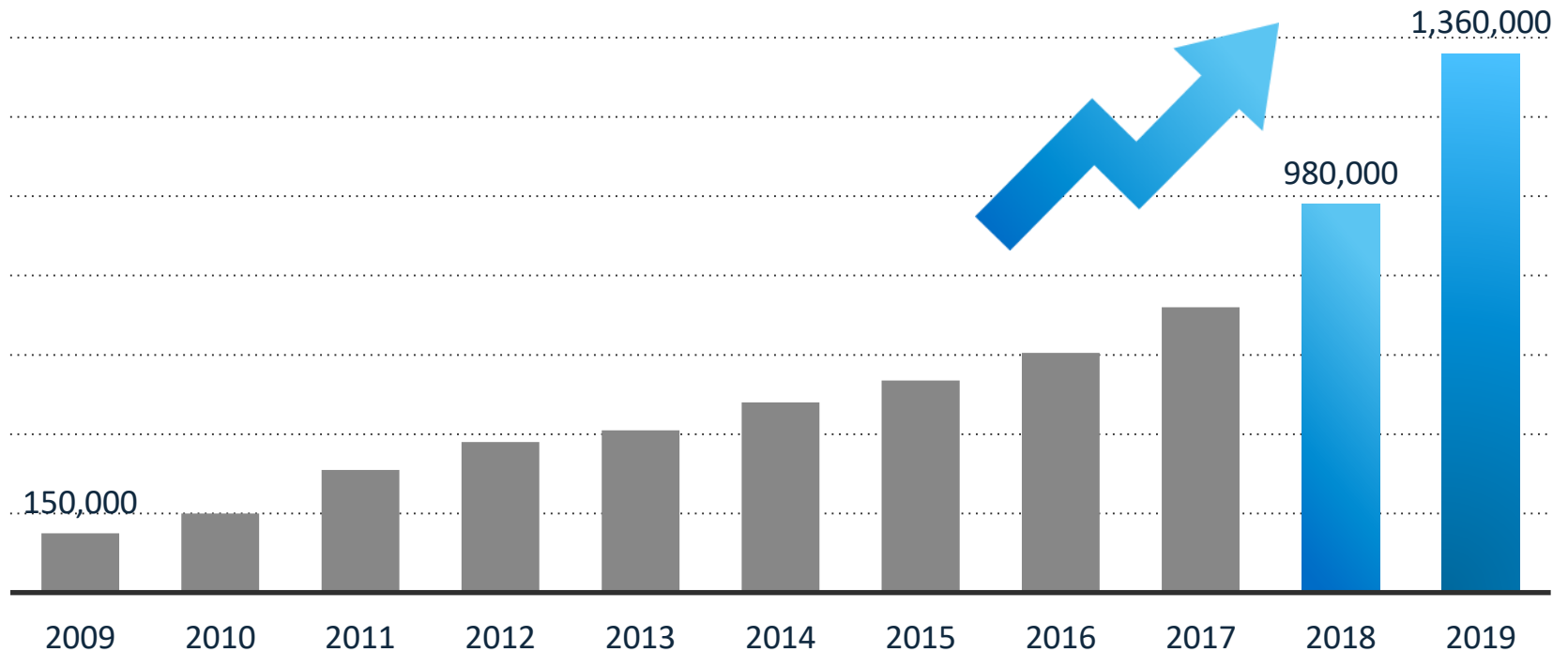
Market potential  
for automotive  
batteries produced  
in the EU in next  
decade: 250 bn €

- Germany's federal government has decided to establish a **strong battery industry value chain**: from material producers through mechanical and plant engineering to cell manufacturers and, of course, recycling companies.
- Germany is the location of one of the world's first **pilot plants for recycling strategic raw materials of electric vehicle batteries**

Source: Statista, 2019; ZIV; ID 152721; Federal Environment Agency 2017; BMWi, 2019; EuPD-Research, 2019; European Battery Alliance, 2019; EU-Commission, 2019

# Battery recycling

## E-Bikes: Sales between 2009 and 2018



Source: Statista, 2020



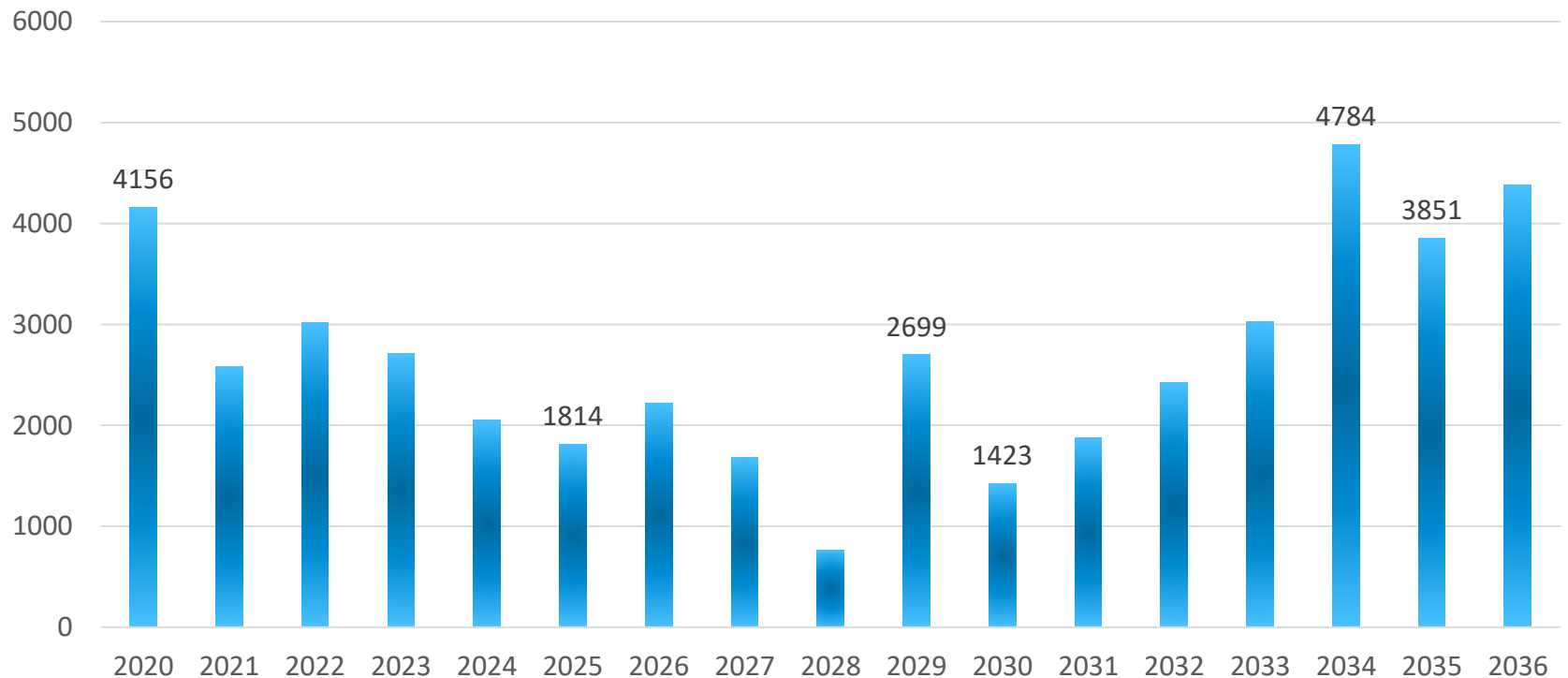
# Wind turbine recycling

There are currently more than 29,000 onshore wind turbines in Germany. At the end of 2020, many plants will lose their funding.



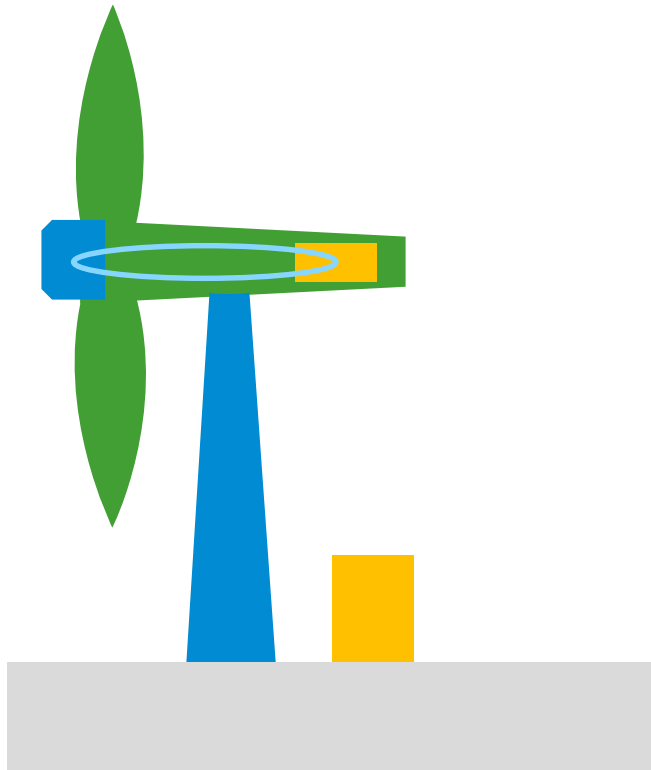
# Wind turbine recycling

## Wind energy capacity that reaches end of funding period in Germany (in MW)



Source: Fachagentur Windenergie an Land e. V. 2018

# Wind turbine recycling



Concrete

Steel

Composite materials

Electronic components

Copper

Aluminum

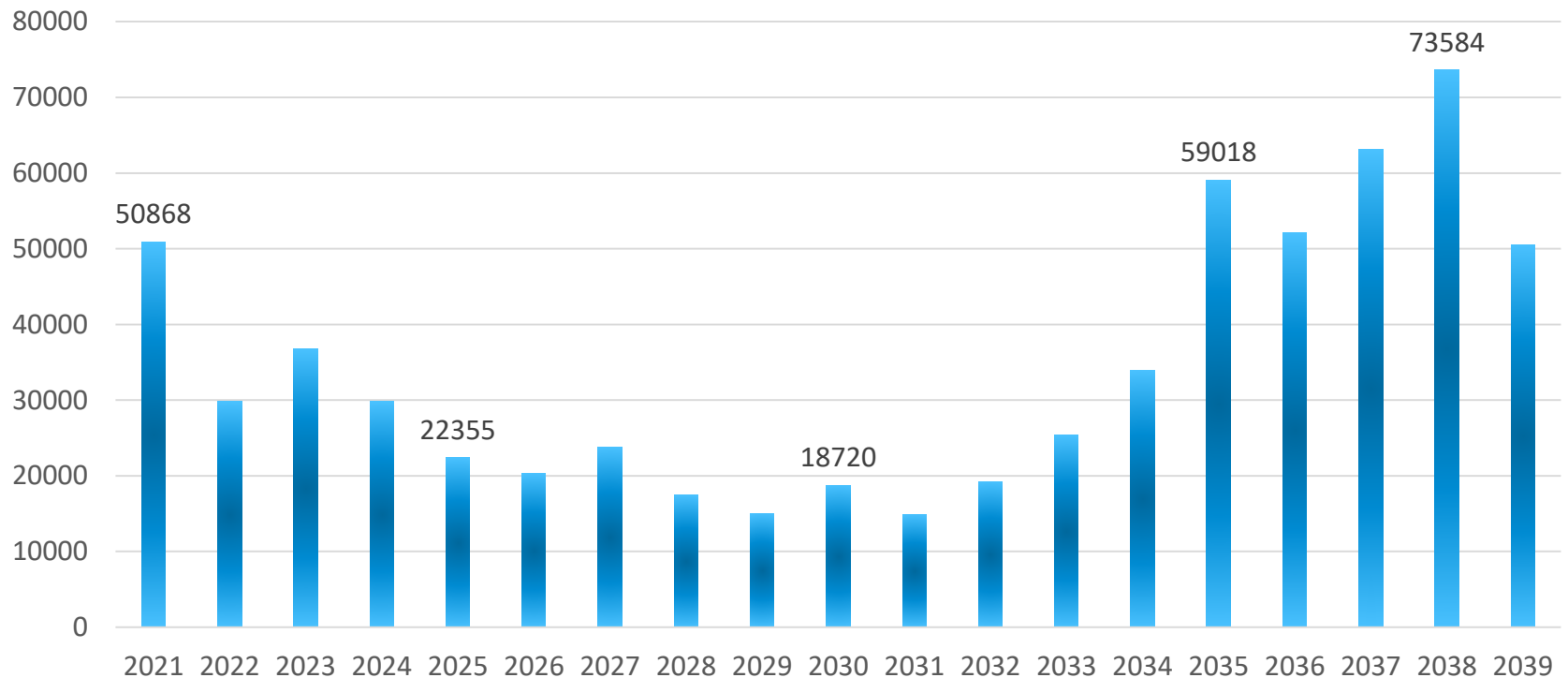
PVC

Operating fluids



# Wind turbine recycling

## Glass-fibre reinforced plastic waste prognosis from wind energy turbines in Germany (rotor blades) (in t)



Source: Federal Environment Agency 2019

# RESEARCH AND SUPPORT LANDSCAPE



# ***Environmental Innovation Program***

Non-repayable grants, availability not depending on the investment location.



## **Aid intensity**

Up to 30% of eligible costs

Grant volume: 2015 on average  
per project ca. EUR 1.16 million

## **Eligible costs**

Cap-ex needed to set up the demonstration plant

Commissioning of the facility (except continuous  
costs of operation)

External certificates or measurements, if needed  
to prove success of project

## **Requirements**

Commercial plants with demonstration character that are set up for the first time in  
Germany, or combine existing technologies in a new manner

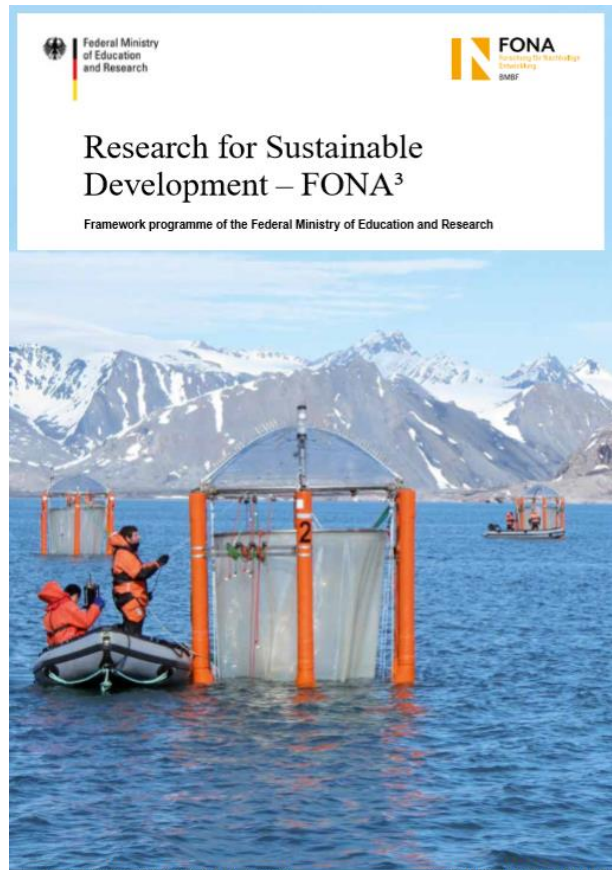
Well suited for replication

Eligible are projects in the following areas (selection) with a positive environmental impact:  
Waste water treatment, reduction & prevention, Waste prevention, recycling, and removal

<https://www.umweltinnovationsprogramm.de/>

# R&D Support of the German Government

## 7th Energy Research Programme of the Federal Government



Source: Federal Ministry of Education and Research

© Germany Trade & Invest



Source: Federal Ministry of Economics and Energy

A photograph of a modern cable-stayed bridge, likely the Bixi Bridge in Hamburg, Germany. The bridge features a tall, white, A-frame pylon with numerous stay cables supporting the deck. The bridge deck is dark and extends diagonally across the frame. The background shows a sky with scattered white clouds. A large, semi-transparent blue rectangle is overlaid on the left and bottom portions of the image, serving as a background for the title text.

# GERMANY TRADE AND INVEST



# What we do



International marketing of Germany as a business and technology location



Economic promotion of the new federal states and Berlin

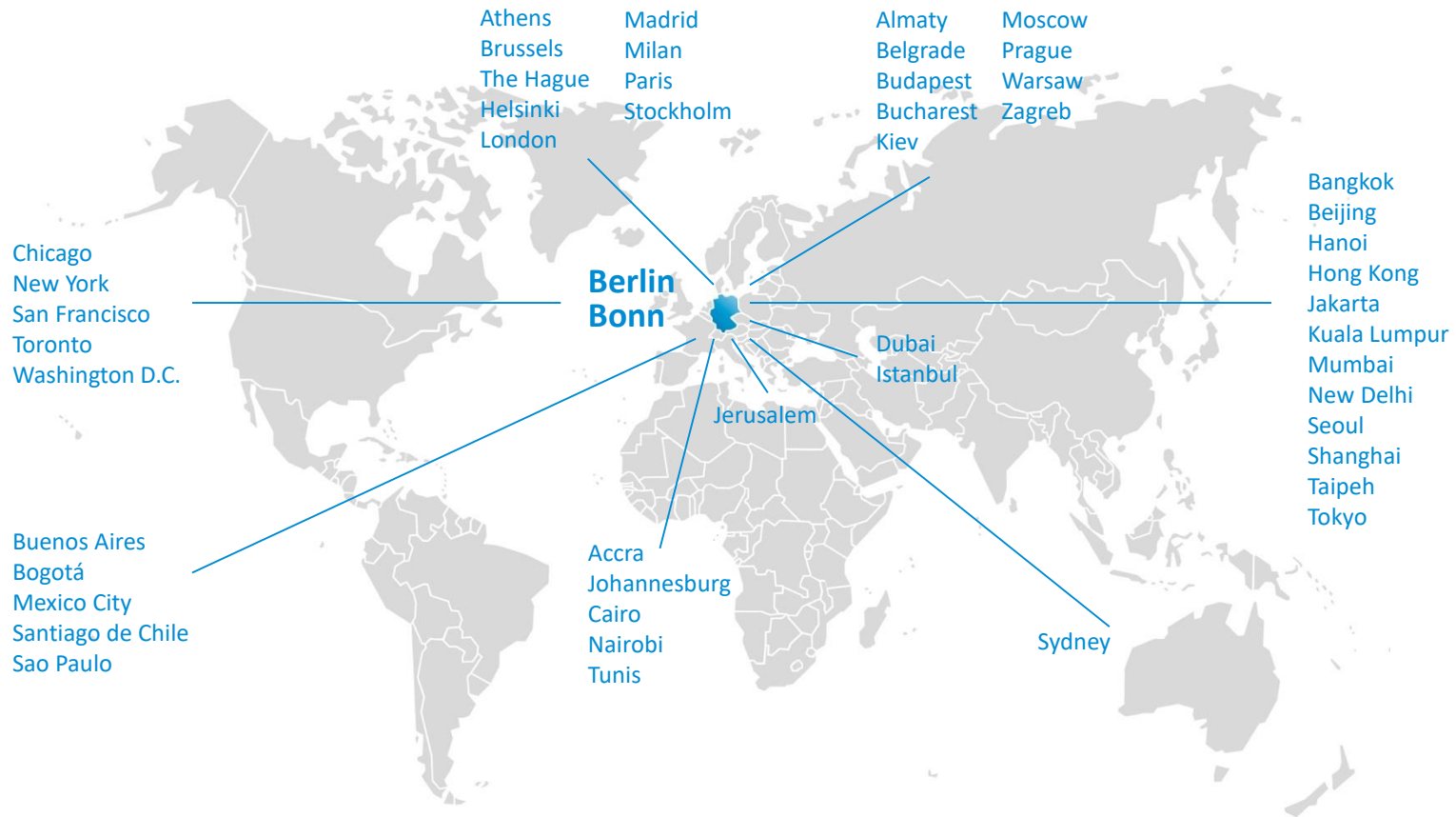


Business location consultancy services for international investors



Export market information for the German economy

# We are on the spot for you worldwide – ensuring that you receive competent support.





# Expanding to Germany's recycling sector?

## The role of Germany Trade & Invest



### Our advisory services include:

- Market-entry information
- Tax and legal information and support
- Funding and financing options advice
- Location identification, location visit support
- All services **free of charge** and strictly **confidential**

# Summary

The challenges will require innovative technology. GTAI is here to support your expansion to Germany.



**Aircrafts**



**Packaging**



**Plastics**



**Textiles**



**Wind Turbines**



**E-Car Batteries**



**Construction Waste**



**CFK/GFK**

# Contact us for more information and individual investment support

## **Ms. Anne Bräutigam**

*Senior Manager Investor Consulting*

T +49 (0)30 200 099-223

[Anne.Brautigam@gtai.com](mailto:Anne.Brautigam@gtai.com)

Friedrichstr. 60

10117 Berlin

## **Ms. Flérida Regueira-Cortizo**

*Senior Manager Investor Consulting*

T +49 (0)30 200 099-230

M +49 (0)171 171 500 30

[Flerida.Regueira@gtai.com](mailto:Flerida.Regueira@gtai.com)

Friedrichstr. 60

10117 Berlin

**Meet us:**



**Follow us:**



Germany Trade & Invest is the economic development agency of the Federal Republic of Germany. The company helps create and secure extra employment opportunities, strengthening Germany as a business location. With more than 50 offices in Germany and abroad and its network of partners throughout the world, Germany Trade & Invest supports German companies setting up in foreign markets, promotes Germany as a business location and assists foreign companies setting up in Germany.

Supported by the Federal Ministry for Economic Affairs and Energy on the basis of a decision by the German Bundestag.

© Germany Trade & Invest

All market data, infographic and cartographic material made available by Germany Trade & Invest has been prepared with the utmost care.

Germany Trade & Invest accepts no liability for the actuality, accuracy, or completeness of the information provided.