WtE plant in Dubai, UAE, by courtesy of Hitachi Zosen Inova AG.

# Industry Barometer Waste-to-Energy 2023

## Contents

# Comment by CEWEP

*Waste-to-Energy industry anchor for growth and employment*

In the difficult economic conditions of the past months, the WtE industry has shown resilience. Not only it guarantees waste treatment with high ecological and hygienic standards, but it also provides stability for growth and employment in Europe.

*Waste-to-Energy will remain indispensable*

It seems that the EU has started taking the implementation of a circular economy seriously. Its recent projects such as the Ecodesign Regulation, the End-of-Life Vehicles Regulation or the Packaging and Packaging Waste Regulation mean that there will be less waste and it will be easier to recycle.

However, these pieces of EU legislation will have effect only after 2030. The discussions surrounding the legislative process also show how difficult it is to include all stakeholders in such a transformation.

As long as the industry manufactures products for which high-quality material recycling is not feasible, neither technically nor economically, we will need a reliable option to treat the residual waste. Waste-to-Energy (WtE), with the highest possible ecological standards, is such an option.

This year's industry barometer also shows how difficult it is to develop alternative technologies for treating non-recyclable waste. Innovation is necessary in the waste management sector. However, we should not rely on these alternative technologies to take over a significant part of waste treatment until their technical and economic feasibility, as well as their ecological performance, has been proven. WtE has a proven record of many decades. In the years to come, it will remain an indispensable pillar for waste management in Europe.

*$CO_2$ levy must be steered properly*

The results of this year's industry barometer show once again that the participants do not expect $CO_2$ taxation or emissions trading to unfold much steering effects for WtE, neither to increase recycling nor to reduce $CO_2$ emissions.

This is because steering towards lower $CO_2$ emissions is not so much in the hands of WtE, but rather about the production of non-recyclable and hard-to-recycle plastics, for which fossil resources are being used. Plastic waste is responsible for most of the fossil $CO_2$ emissions from waste incineration. Charges should be levied according to the polluter pays principle, and not at the end of the treatment chain, which is waste incineration.

If waste incineration is the only waste management option made more expensive by emissions trading (or $CO_2$ taxes), this could also have counterproductive consequences for the waste management and the climate. For example, when, instead of saving greenhouse gases through WtE (replacing fossil fuels), the waste is diverted to landfills. While methane emissions from

landfills have a huge climate impact, they are not covered neither in the EU ETS nor in the national emission schemes.

If the prices for waste incineration alone increase, landfilling could indirectly even benefit, although reducing landfilling of waste that can be recovered higher up the hierarchy, is the way forward.

Here lies the steering effect and here is the significant potential to reduce GHG emissions in the waste sector but this is not (yet) tackled appropriately in the EU.

If the prices for waste incineration increase significantly through EU ETS or $CO_2$ taxes another dangerous consequence could occur: more and more waste could be exported outside Europe to treatments with lower environmental and social standard ("waste leakage").

These negative consequences must be avoided. When discussing emissions trading, the waste management sector must be analysed in a holistic way. An isolated focus on waste incineration does not only disregard a level-playing field, but also has detrimental effects for climate protection and environmental goals.

As in previous years, CEWEP (Confederation of European Waste-to-Energy Plants) supported ecoprog's survey on the Industry Barometer Waste-to-Energy 2023 and encouraged its members to participate.

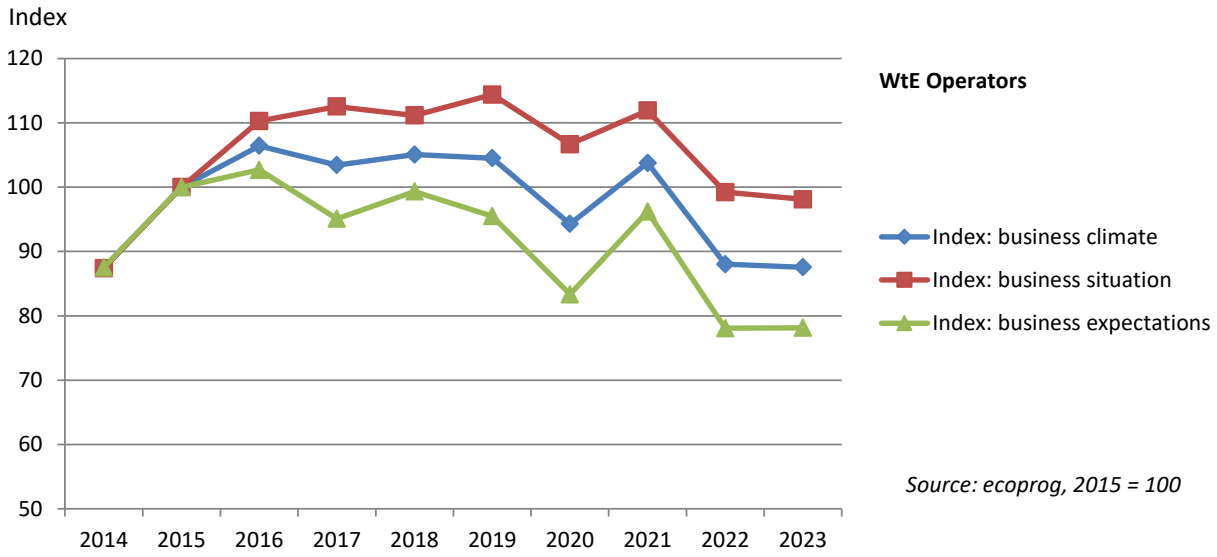
# WtE Industry Barometer: situation has stabilised

In 2023, the business development remained at a low level for the WtE plant operators. However, capacity utilisation returned to higher levels in 2023. In the WtE industry, the trend has reversed already and in a positive way.

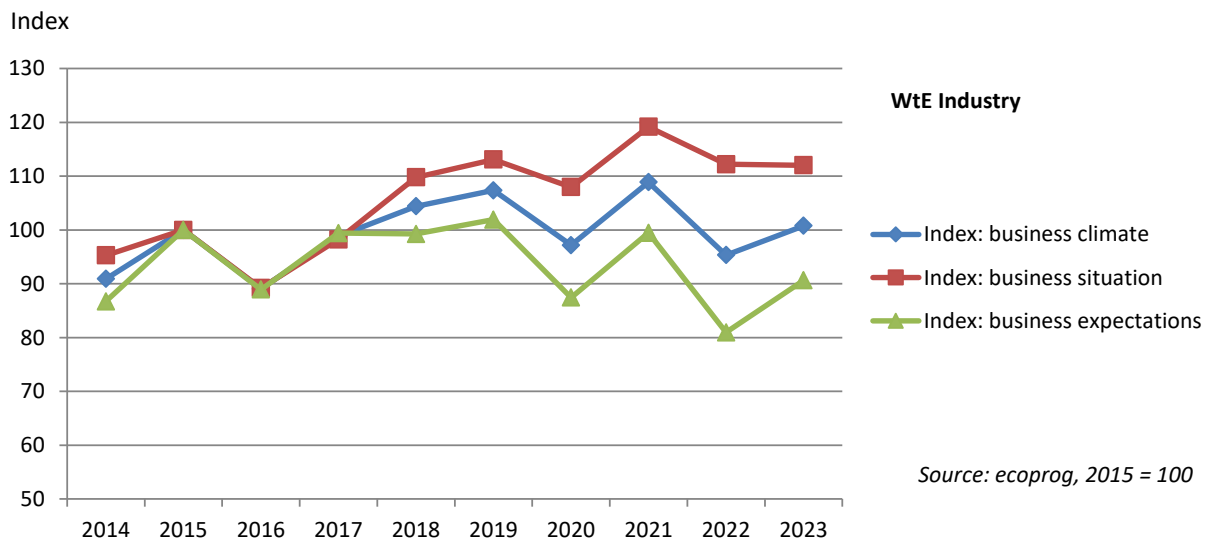
### Plant operators: mood has stabilised

The business climate among the WtE plant operators remained almost unchanged, at 87.6 points in 2023 compared to 88 points in 2022. Therefore, the situation of the plant operators has stabilised in 2023.

***Fig. 1: Development of the business climate among WtE operators and in the WtE industry***




*Source: ecoprog, 2015 = 100*




*Source: ecoprog, 2015 = 100*

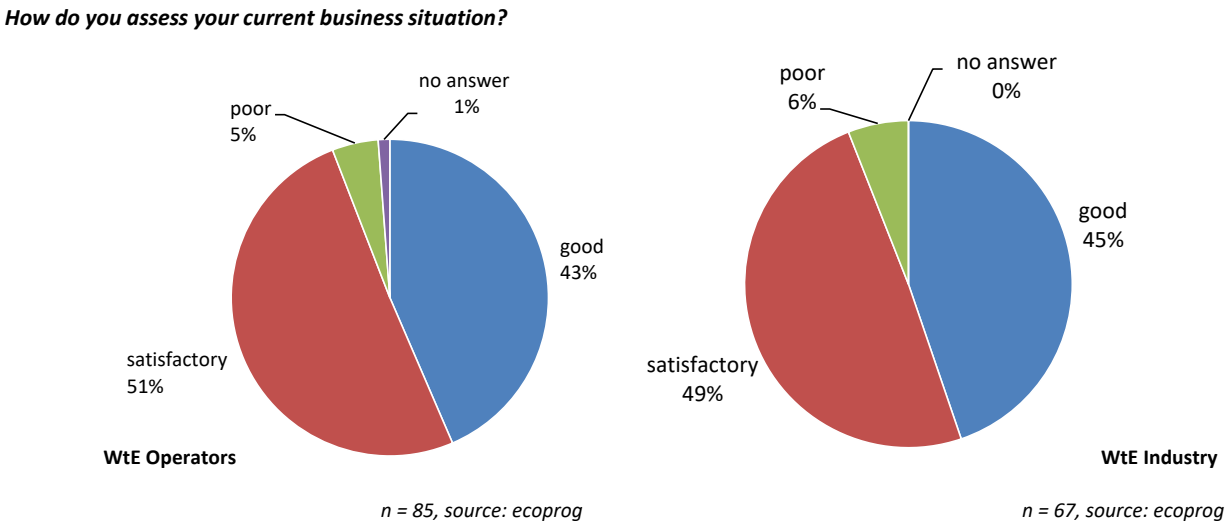
Overall, 94% of the operators still rated their current business situation as "good" or "satisfactory". The demand is one factor reflecting that the situation on the operator market has stabilised. 57% reported an unchanged demand in the past 12 months (2022: 47%), and only 22% reported a deteriorated demand (2022: 40%).

Furthermore, 42% of the participants reported a high utilisation of their plant, compared to 27% in the previous year.

Continuing high energy revenues may be one reason for the positive perception of their own business situation. The industry barometer survey does not ask for those, since the energy prices are well represented by the different exchanges.[1]

For the next 12 months, on the contrary, the operator industry remains sceptical. 35% continue to expect an unfavourable business performance and only 16% expect an improvement.

***Fig. 2: Business situation among operators and in the industry***




## WtE industry in a positive mood

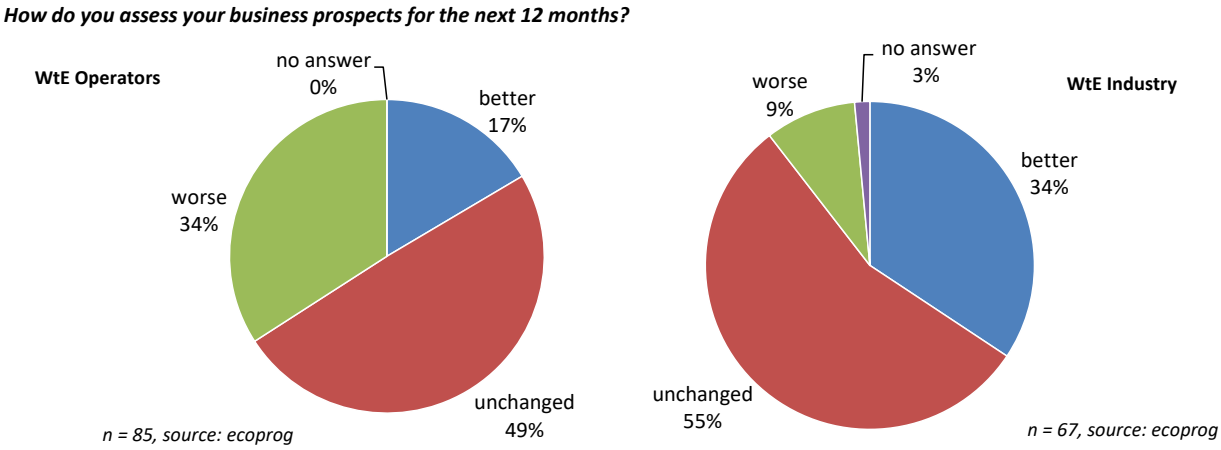
Unlike the operators – and also unlike last year – the WtE industry has returned to more optimistic expectations for the future. 34% of the participants expect a favourable development in the next 12 months, while only 9% of respondents are pessimistic about the future. In 2022, the share of optimists and pessimists were more or less the same.

[1]These and all other interpretations of the data are an assessment by ecoprog. Accordingly, the responsibility for these statements lies solely with ecoprog.

Also in this group, 90% of the companies surveyed rate their current business situation as good or satisfactory. 28% reported a higher demand (2022: 31%), and 30% an increased order backlog (2022: 27%).

According to ecoprog's assessment, as in the previous year, this is due to the positive framework conditions for the manufacturing and supplier industry. These include the outdated European plant park and the necessary development of new waste infrastructure, especially in Southern and Eastern Europe.

***Fig. 3: Business expectations among operators and industrial players***




## Number of employees continues to increase

Both the operators and the industry expect the number of employees to remain stable or to increase. In industry, this trend is even more pronounced, mainly due to the significantly more positive business expectations.

## Gate fees are increasing – especially in Germany

45% of the WtE plant operators surveyed expect the gate fees to increase in the next 12 months, while only 20% expect them to decrease. For these expectations, it also plays a role that almost half of the participants come from Germany, where a $CO_2$ tax on waste will be introduced in January 2024. In Germany, 58% of the operators expect costs to increase, but only 39% of the operators from outside of Germany.

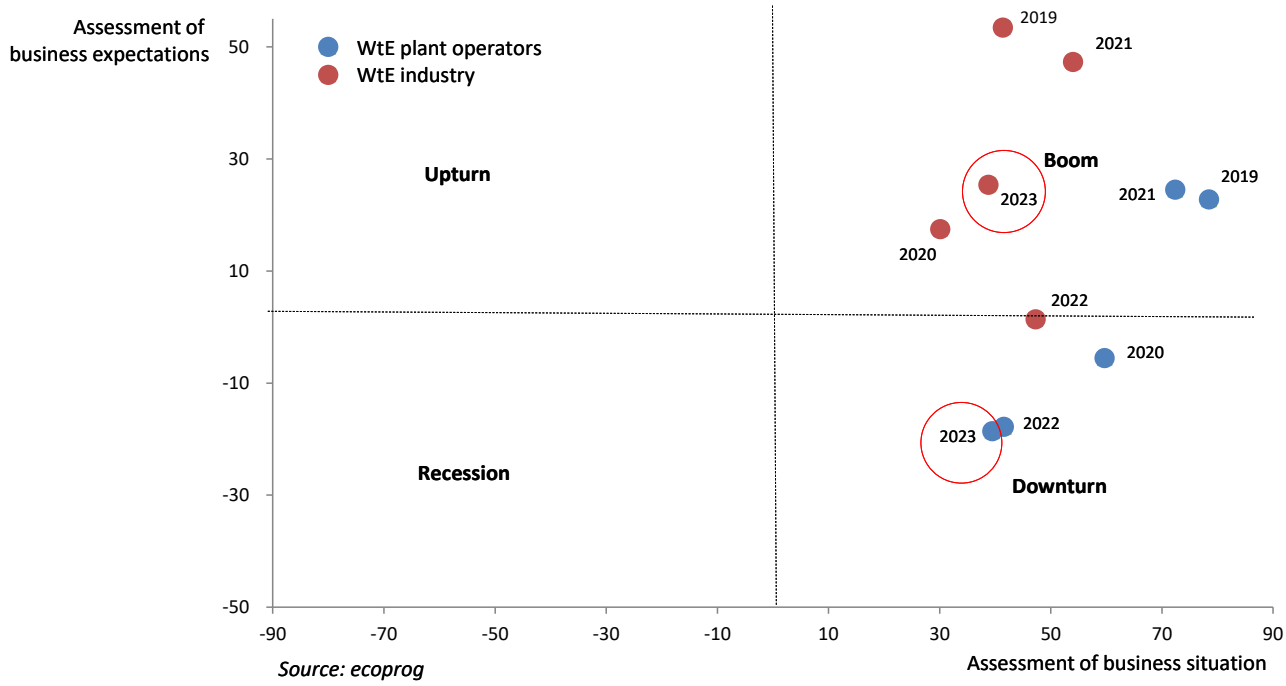
In the industry, the price shock of last year has weakened. Due to an improved situation in supply chains and energy prices as well as the decreasing inflation, only just under half of the respondents expect prices to increase further.

## Consequences of $CO_2$ emissions trading

The inclusion of municipal waste incineration in the EU Emissions Trading Scheme for $CO_2$ (EU ETS) from 2028 onwards is currently considered to be likely.

As a result, both the operators and the industry are assuming the costs for waste treatment to increase in general. However, both groups, operators and the industry, expect emissions trading to have only a minor impact on the $CO_2$ emissions of WtE plants. They do not expect $CO_2$ taxation to unfold a steering effect.

***Fig. 4: Classification of the results***




## Consequences of CCU/CCS and new technologies

The EU Commission has proposed to establish an EU-wide voluntary certification system for $CO_2$.

Only 26% of the operators stated to hope for additional revenues – for example from Bioenergy with Carbon Capture and Storage (BECCS) – and 35% do not expect any significant revenues from this. It is a newer and so far less regulated topic, which is why 40% of the participants do not yet feel confident enough to have an opinion on this.

Most of the plant operators (51%) do not consider the emergence of new treatment processes, such as chemical recycling, waste-to-fuel or waste-to-hydrogen, to have dangerous consequences. 31% even think that it is unrealistic that one of these technologies will be established to a greater extent.

**Consequences of market concentration in the EPC sector**

In recent years, the number of suppliers for Engineering, Procurement and Construction (EPC) has decreased on the European WtE market. Industrial companies are taking a differentiated approach to this issue.

Due to this increasing market concentration on the part of their customers, one third of the companies surveyed think there is a risk of monopolies or oligopolies being formed. For another third, however, competition has not changed significantly because this affects only a few companies. 15% said competition on the global market had increased, due to the emergence of new suppliers in the EPC sector, for example from China.

*The WtE industry barometer has been elaborated annually since 2012. For the 2023 survey, we have questioned around 500 operators of thermal waste treatment plants and more than 700 plant manufacturers and suppliers in the WtE industry worldwide. Participants could either complete an online questionnaire or reply by e-mail or fax. The survey took place in September 2023.*

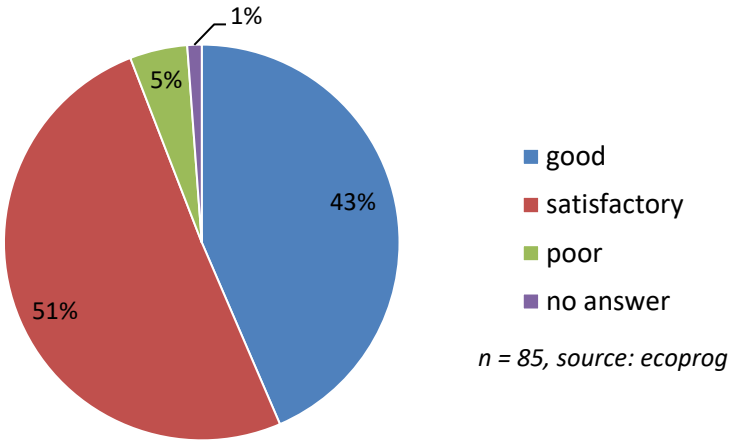
*ecoprog GmbH carried out the survey and the evaluation. As a respected industry expert, ecoprog assists clients from Germany and abroad in dealing with implementation-oriented management issues with political, technical or economic backgrounds in the sectors of environmental and energy technology. We work in the fields of strategy consulting, market and competition analyses as well as multi-client studies.*

*For each valid response to the industry barometer, ecoprog will donate €10 to SOS Children's Villages.*

# Data annex

## Current business situation

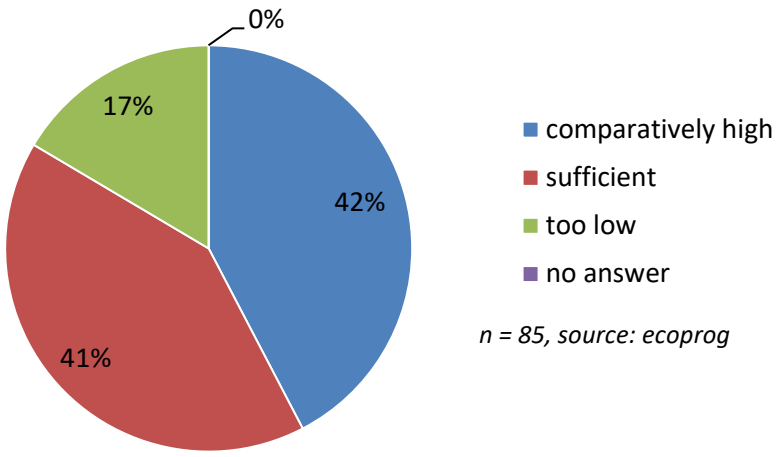
***How do you assess your current business situation?***




*n = 85, source: ecoprog*

## Current capacity

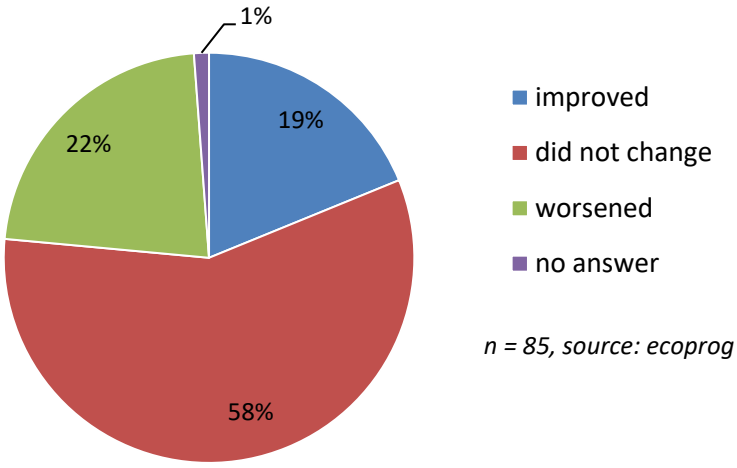
***How do you assess the current capacity utilisation of your plant?***




*n = 85, source: ecoprog*

## Demand in the past 12 months

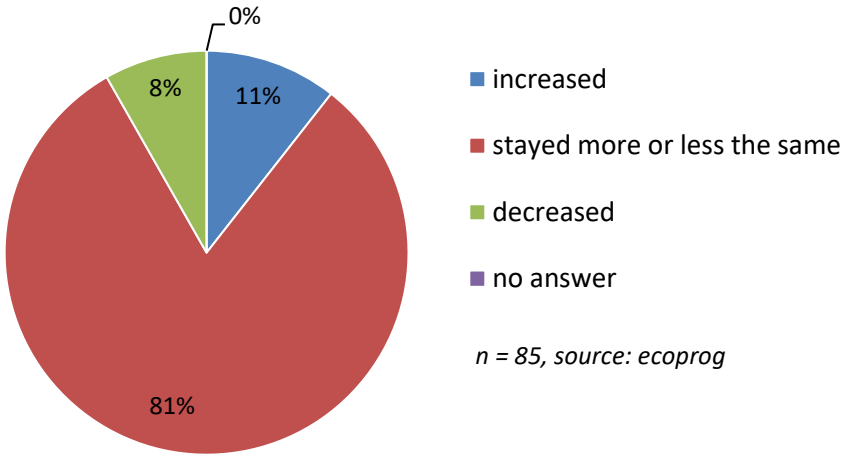
***In which way has the demand on the spot market for municipal waste developed in the past 12 months? The demand has …***




*n = 85, source: ecoprog*

## Capacity utilisation in the past 12 months

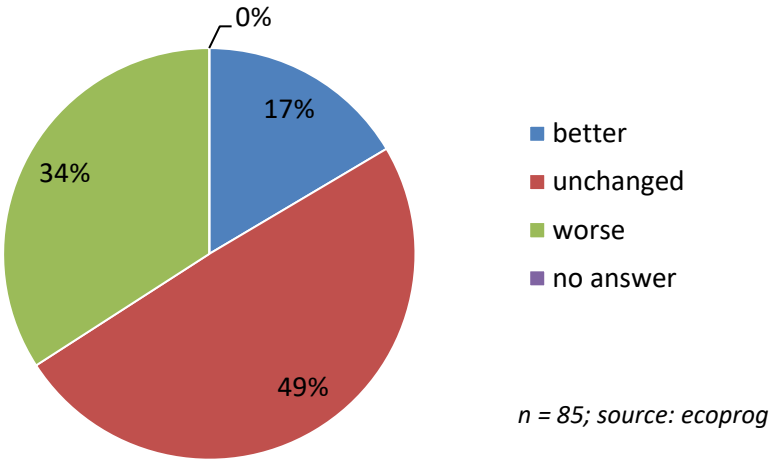
***In the past 12 months, the capacity utilisation of your plant has…***




*n = 85, source: ecoprog*

## Business prospects

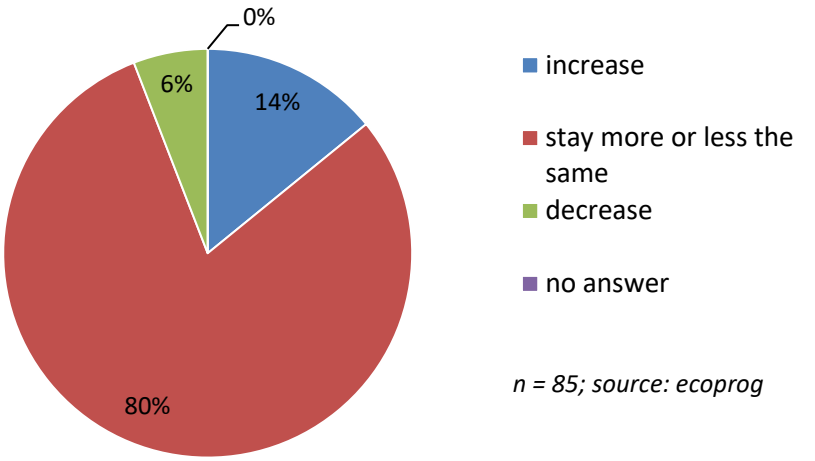
***How do you assess your business prospects for the next 12 months?***




*n = 85; source: ecoprog*

## Workforce development

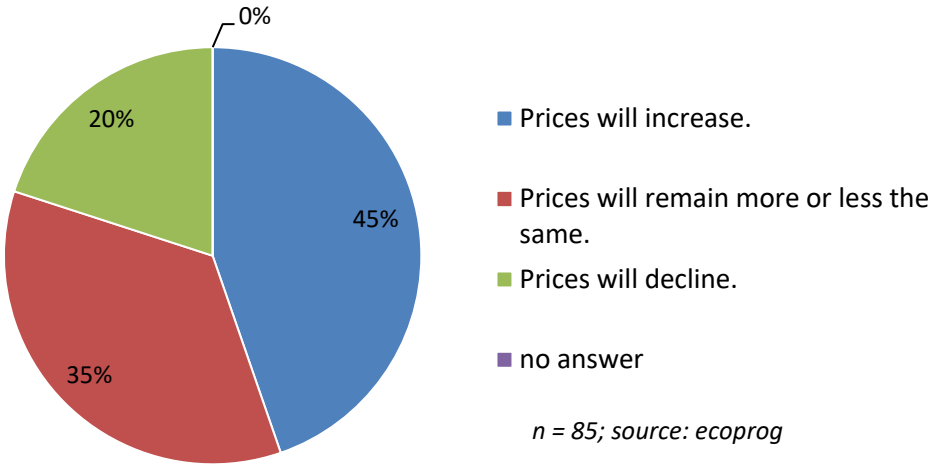
***In the next 12 months, the number of employees working for your company will …***




*n = 85; source: ecoprog*

## Gate fee development

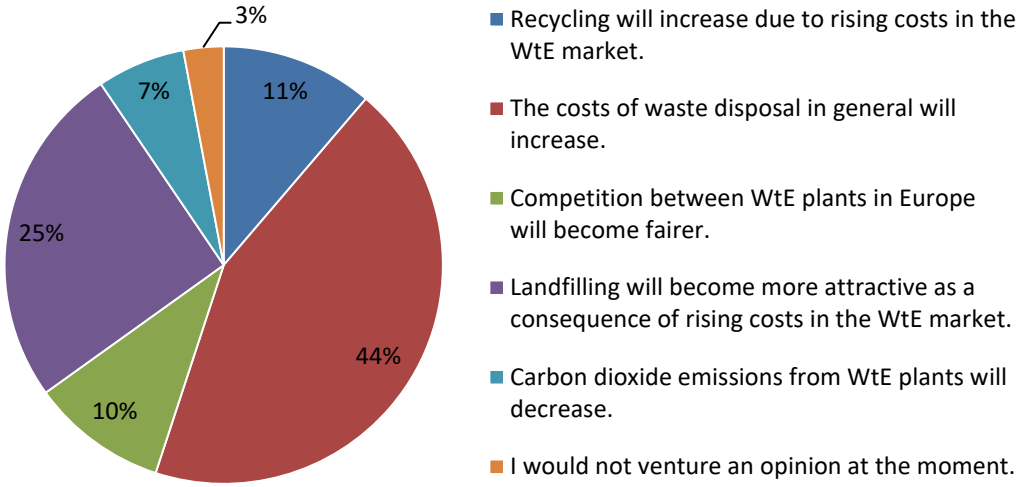
***Which development do you expect for gate fees in the 12 months to come?***




*n = 85; source: ecoprog*

## $CO_2$ emissions trading: consequences for thermal waste treatment

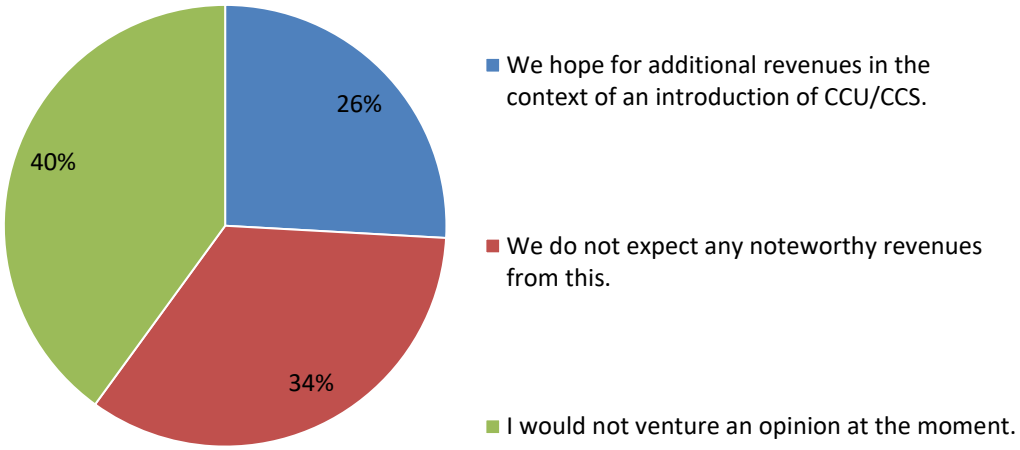
***At present, it is considered probable that municipal waste treatment plants will be included in the EU emissions trading scheme for carbon dioxide (EU ETS) in 2028. What do you think are the consequences? (multiple answers possible)***




*n = 85; source: ecoprog*

## Importance of CCU/CCS for thermal waste treatment plant operators

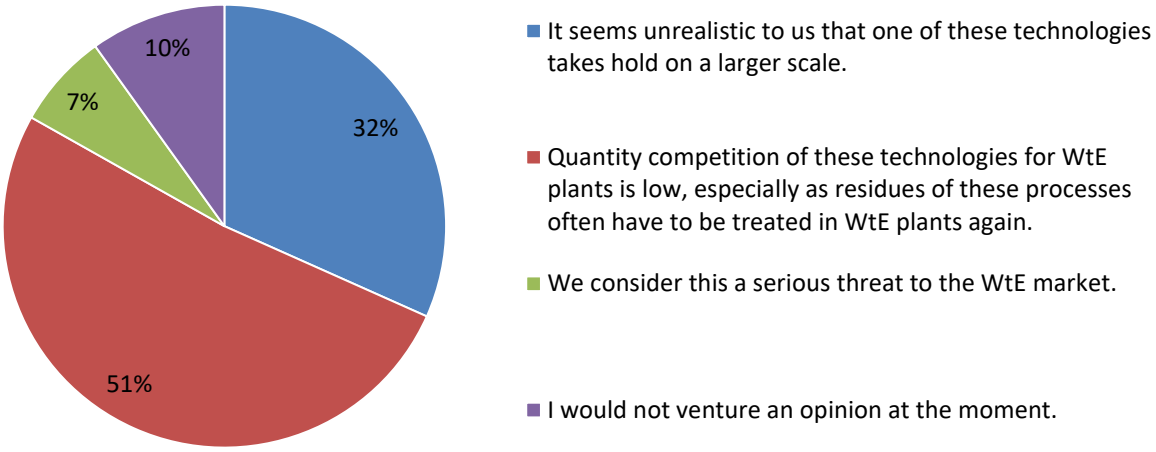
***The EU Commission has proposed the setting-up of an EU-wide voluntary certification system for carbon dioxide. In theory, this is where operators of WtE plants would be able to generate revenues, for instance via Bioenergy with Carbon Capture and Storage (BECCS). In what sense is this of importance for you?***




*n = 85; source: ecoprog*

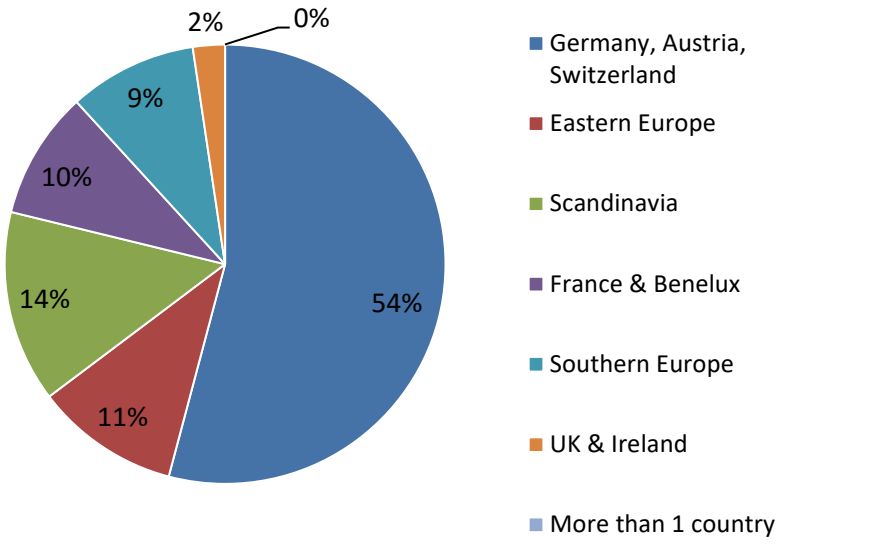
## Possible impact of new technologies on the market for thermal waste treatment

***Several new technologies – for instance in the context of Chemical Recycling, Waste-to-fuel or Waste-to-Hydrogen – are also aimed at waste streams that are currently being treated in WtE plants. Do you regard this as dangerous for your own business? (multiple answers possible)***




*n = 85; source: ecoprog*

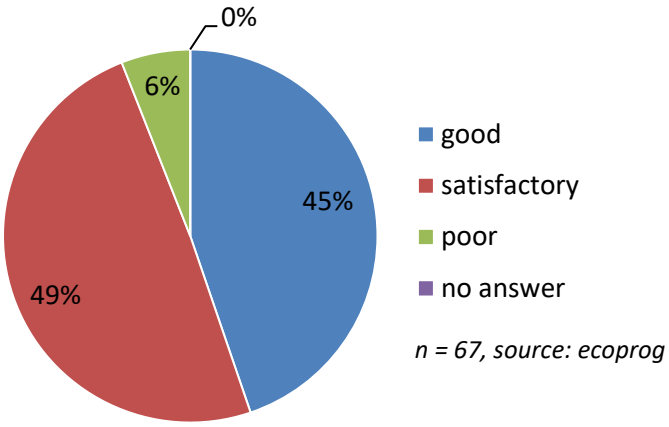
## Plant locations of survey participants by region




*n = 85; source: ecoprog*

## Current business situation

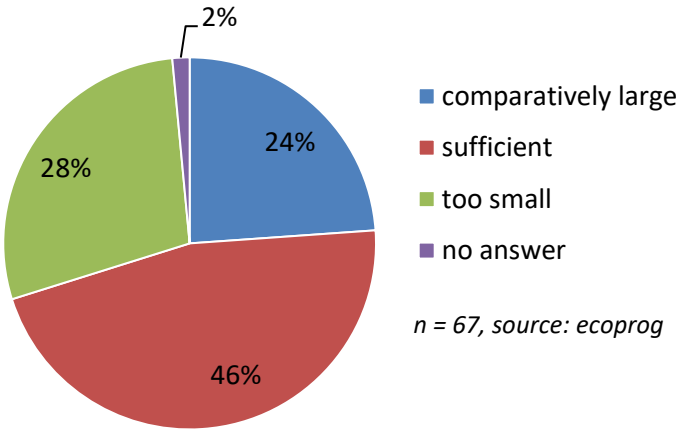
***How would you describe your current business situation?***




*n = 67, source: ecoprog*

## Present order backlog

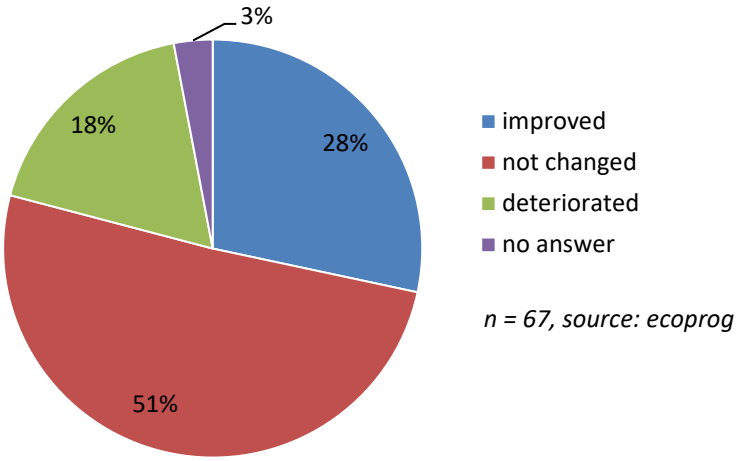
**How do you asses your present order backlog in the thermal waste treatment segment?**




*n = 67, source: ecoprog*

## Demand in the past 12 months

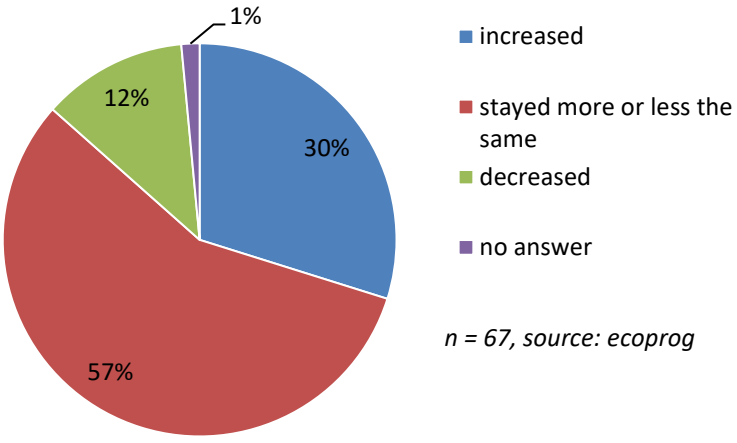
***In which way has the demand in the thermal waste treatment segment changed in the past 12 months? The demand has …***




*n = 67, source: ecoprog*

## Order backlog in the past 12 months

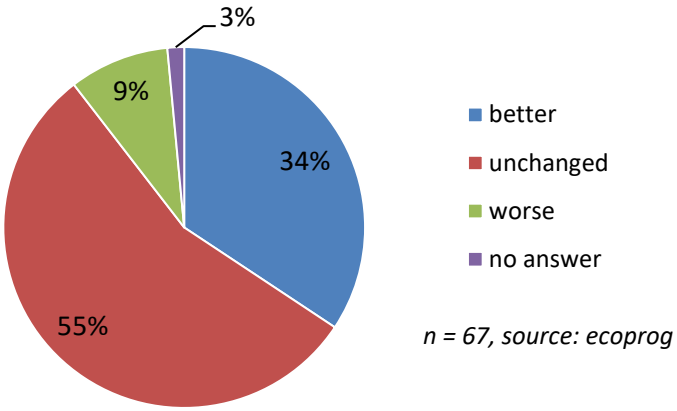
***In the past 12 months, your order backlog in the thermal waste treatment segment has …***




*n = 67, source: ecoprog*

## Business prospects

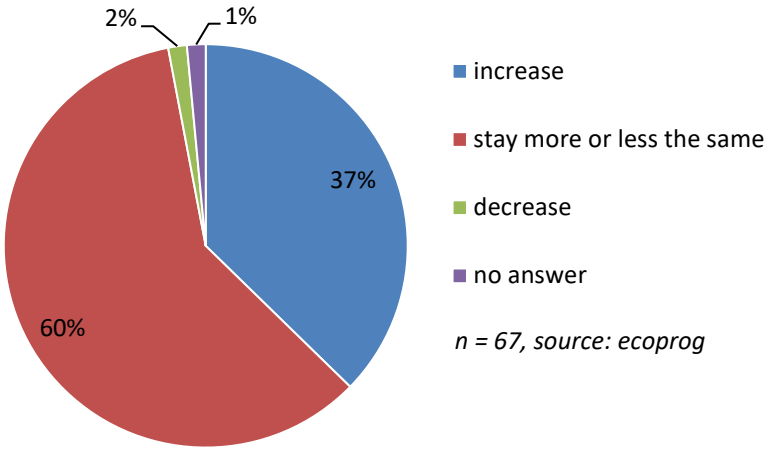
***How do you assess your business prospects for the next 12 months?***




*n = 67, source: ecoprog*

## Workforce development

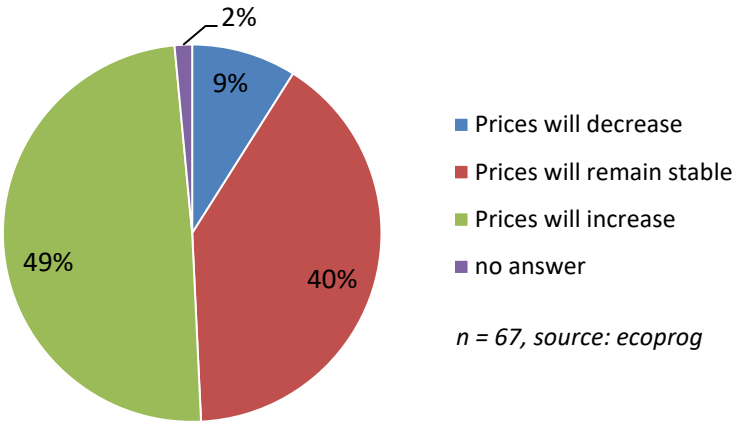
***In the next 12 months, the number of your staff will …***




*n = 67, source: ecoprog*

## Future price development

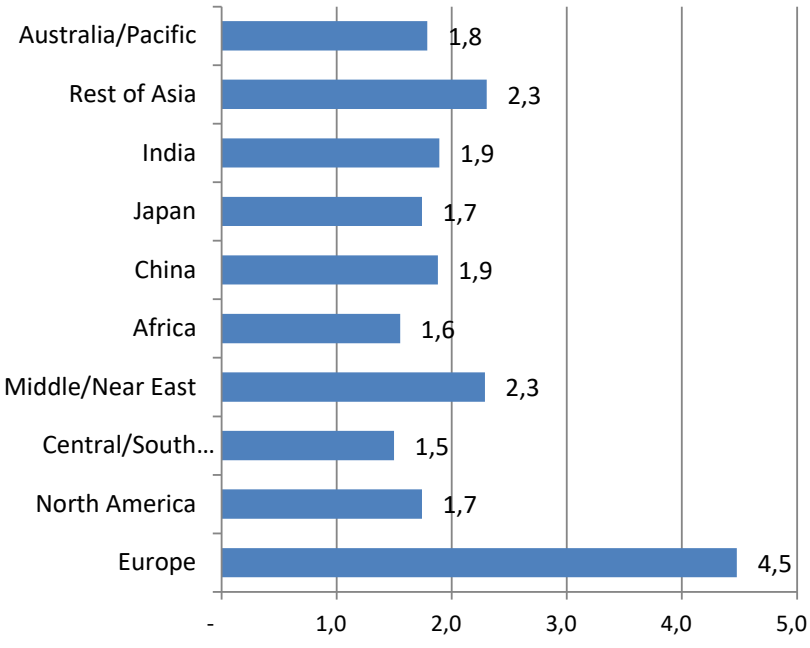
***In which way do you expect the prices for constructing, maintaining and modernising thermal waste treatment plants to develop in the next 12 months?***




*n = 67, source: ecoprog*

## Current market regions

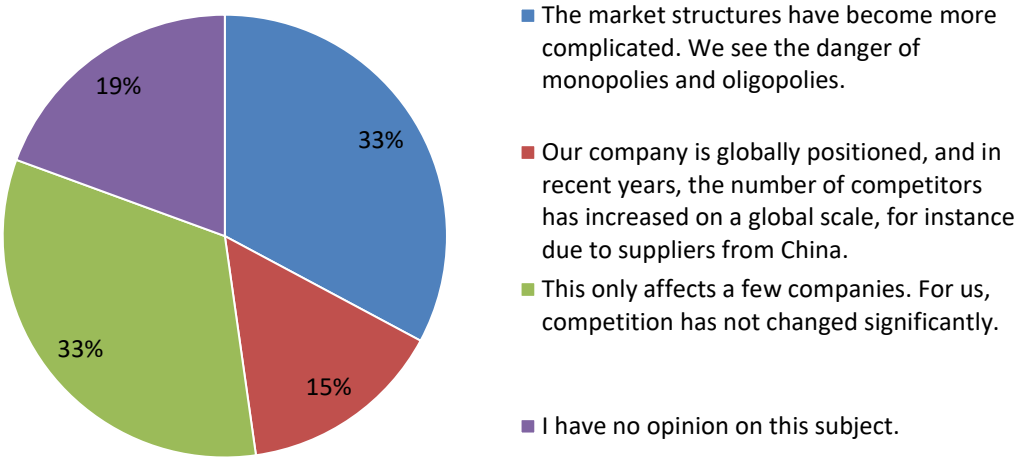
***How important are the following markets for your company today? (1=unimportant, 5=very important)***




*n = 67, source: ecoprog*

## Consequences of market concentration in the EPC sector

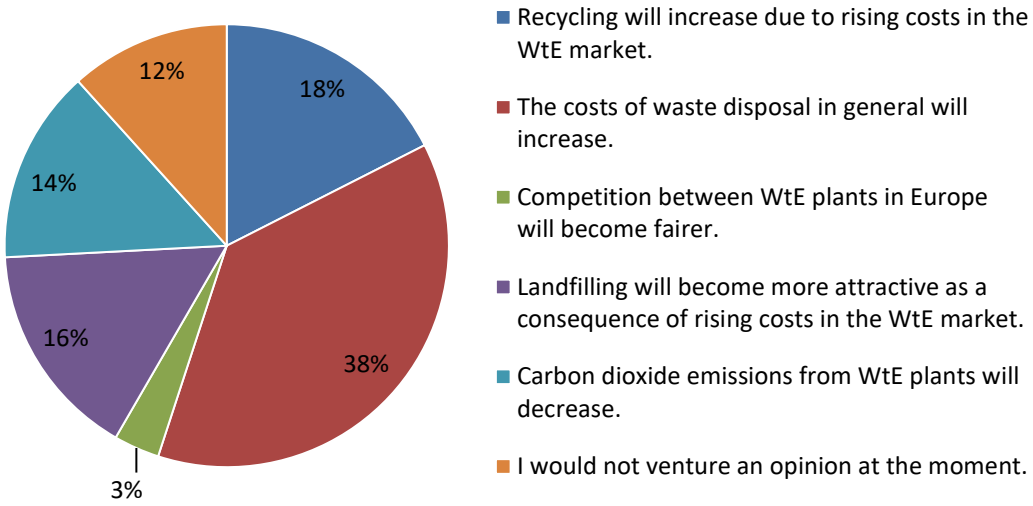
***Over the recent years, the number of EPC contractors in the WtE segment in Europe has decreased. What does this mean for your company?***




*n = 67, source: ecoprog*

## $CO_2$ emissions trading: consequences for thermal waste treatment

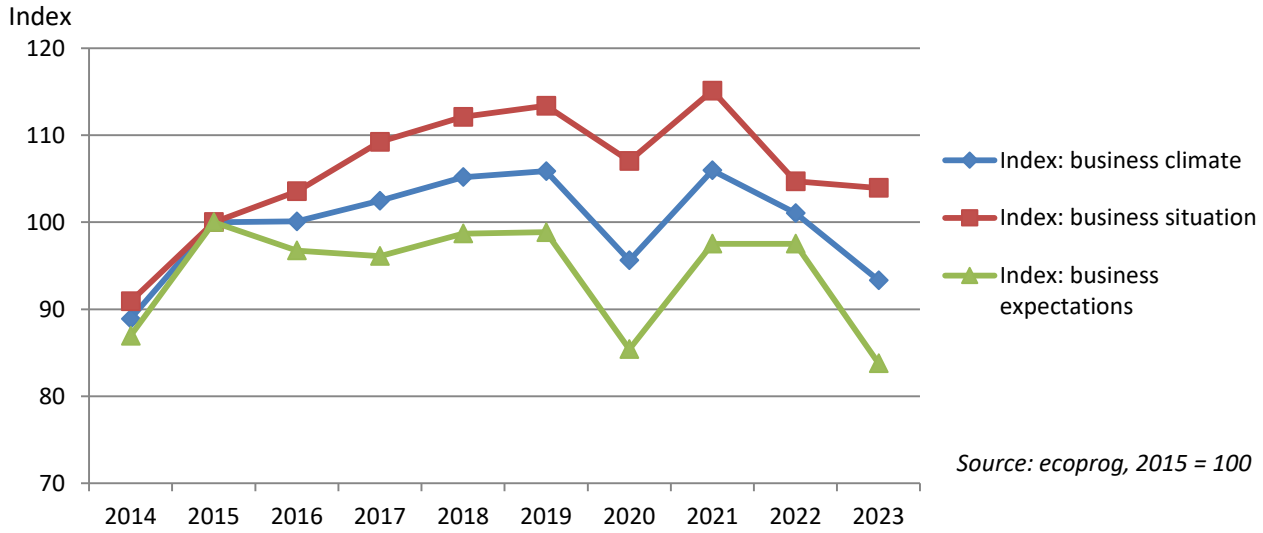
***At present, it is considered probable that municipal waste treatment plants will be included in the EU emissions trading scheme for carbon dioxide (EU ETS) in 2028. What do you think are the consequences? (multiple answers possible)***



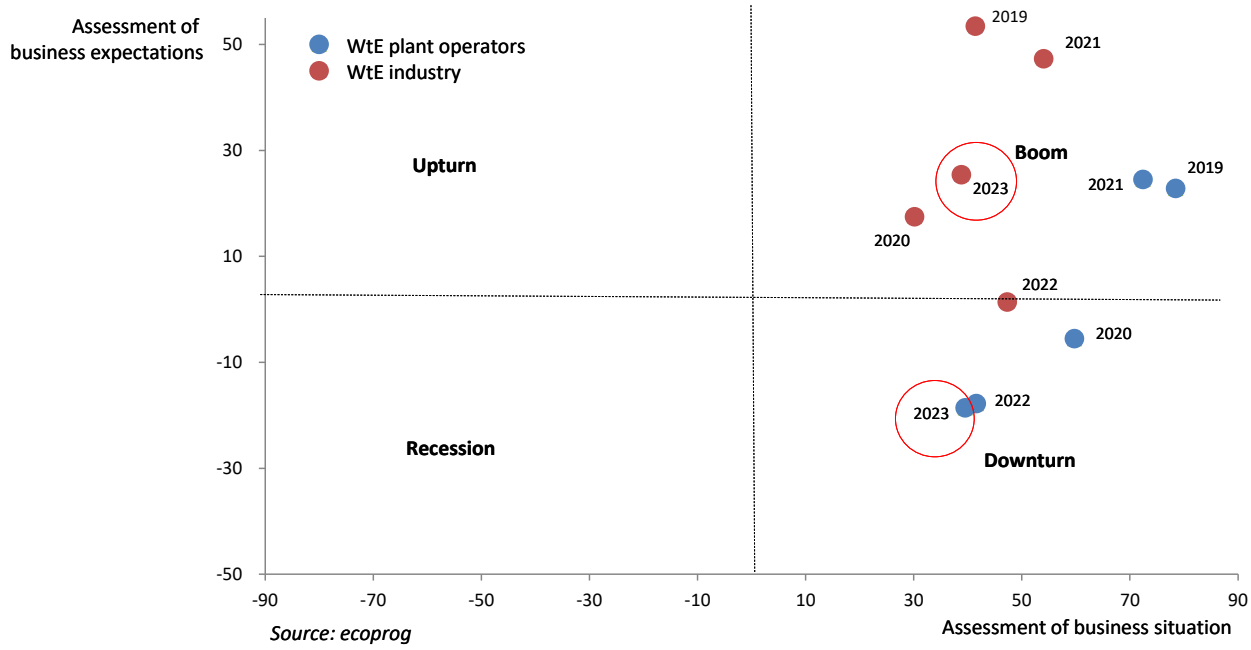

*n = 67, source: ecoprog*

# Time series

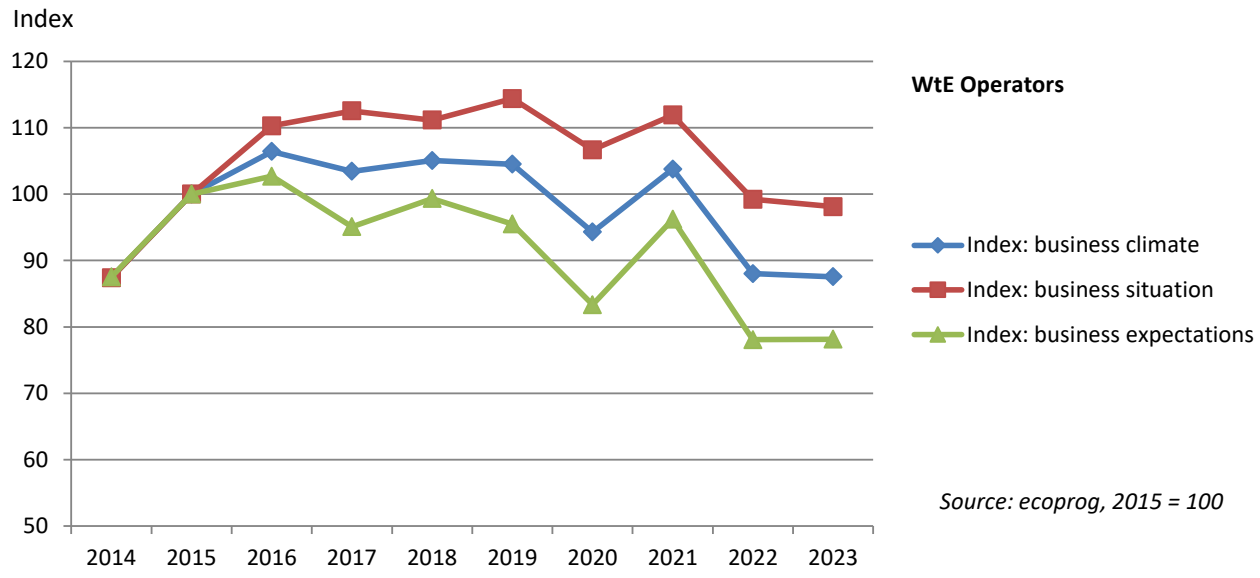
## Industry barometer operators & industry




## Classification of results

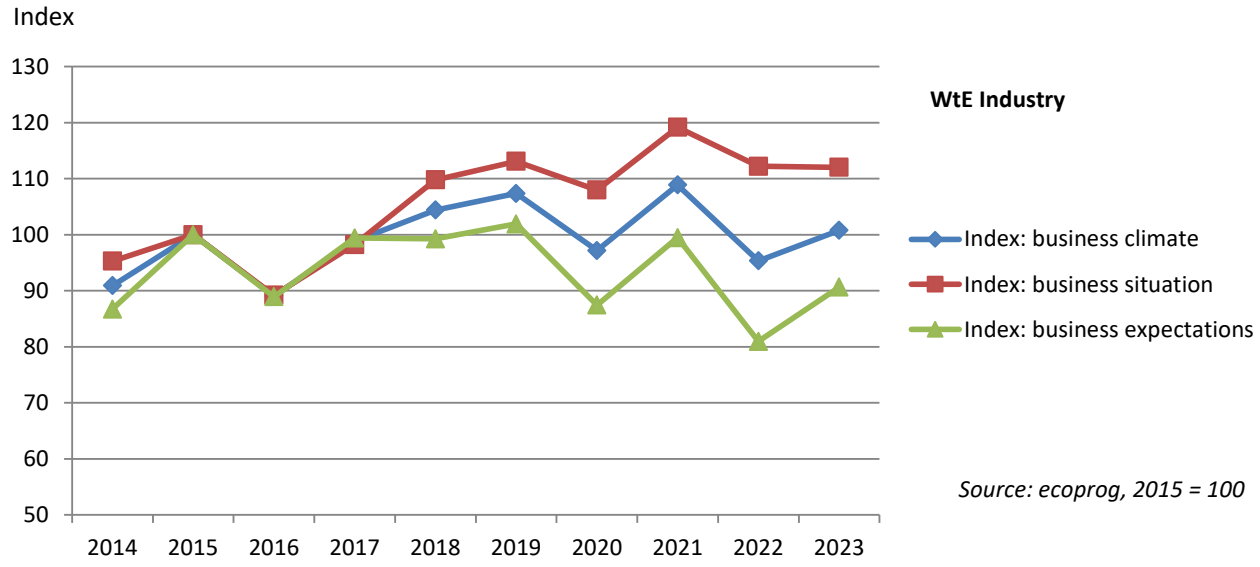


## Industry barometer for operators of thermal waste treatment plants



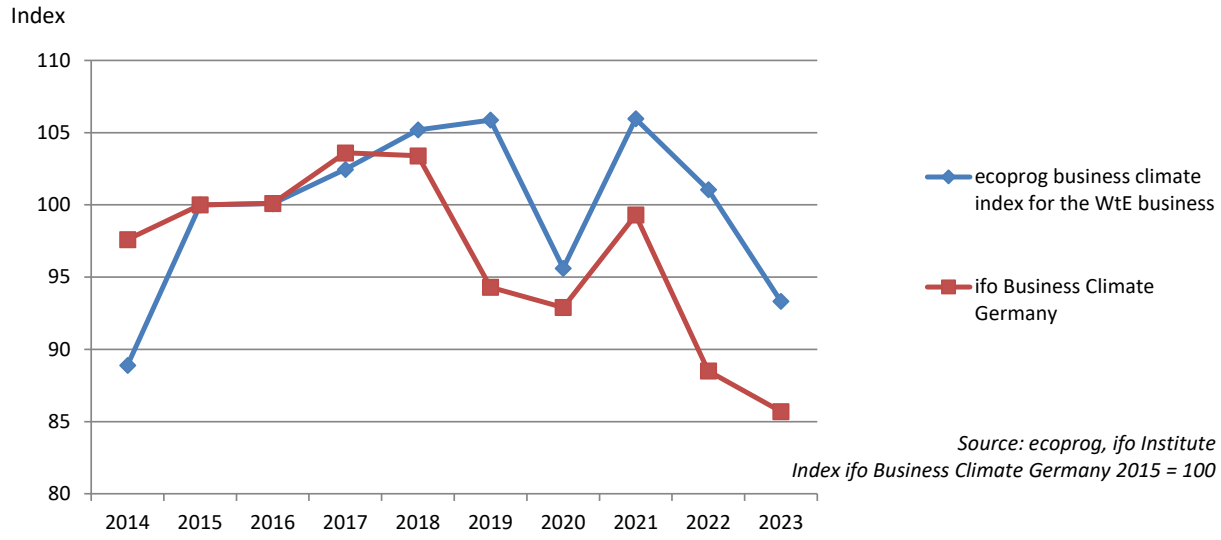

*Source: ecoprog, 2015 = 100*

## Industry barometer WtE-Industry




*Source: ecoprog, 2015 = 100*

## Comparison of ifo business climate index




*Source: ecoprog, ifo Institute*
*Index ifo Business Climate Germany 2015 = 100*

The calculation of the business climate index was carried out according to the method developed by the ifo Institute in the 1950s.

By courtesy of ifo Institute.

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