



WtE plant in Wiesbaden, Germany, by courtesy of Doosan Lentjes GmbH.

# Industry Barometer Waste-to-Energy 2024

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## Comment by CEWEP

### *Waste-to-Energy is needed*

Amid difficult economic conditions, the operators of Waste-to-Energy (WtE) plants report both high utilisation and demand. There is a simple reason for this: WtE is needed!

In many countries, landfill taxes are increasing, while landfill space is becoming scarce in others. The space that is designated to be used for landfills has been declining over the years – and rightly so, since the EU Landfill Directive stipulates that landfilling of municipal waste is to be reduced to 10% by 2035. However, many EU Member States are still far from reaching this goal, and ten Member States continue to landfill more than half of their municipal waste.

These countries need a positive investment climate, to ensure that non-recyclable waste will be treated in line with the adequate environmental and hygienic quality standards. Otherwise, some parts of Europe will experience serious disposal problems. This also means that the EU taxonomy must recognise WtE technology as an ecologically viable solution for residual (non-recyclable) waste. Furthermore, the bashing, which blames WtE for the fact that non-recyclable waste is generated in the first place, must end.

As long as the industry manufactures products that cannot undergo quality recycling, because it is neither economically nor technically feasible, we will need a reliable waste treatment option that fulfils high ecological standards – and this is thermal waste treatment.

### *Carbon capture needs reliable regulation*

The operators of WtE plants are open to capture and store unavoidable CO<sub>2</sub>, or to use it economically. To be able to do so, they need planning security, a reliable legal framework, appropriate infrastructure and the development of a market.

The investment costs are very high, while a market for the CO<sub>2</sub> that is captured has yet to emerge and transport infrastructure to suitable CO<sub>2</sub> storage needs to be established.

WtE plants will also be able to create negative CO<sub>2</sub> emissions through the focused capture of both fossil and biogenic CO<sub>2</sub> emissions, i.e. they can become climate positive. This is indispensable to achieve the EU's net zero target.

In order to contribute to this target, a business case for WtE and CCUS is needed.

### *EU ETS must consider impacts on the entire waste management chain*

For a long time, it has only been discussed to include WtE plants into the EU ETS. Though as early as 1997, it was agreed to reduce methane emissions from landfilling, namely in Article 2a of the Kyoto Protocol. The UN platform for the scientific monitoring of climate change, the *Intergovernmental Panel on Climate Change* (IPPC), has also found that landfilling produces most of the waste management emissions.

To date, however, no landfill in the EU must pay for their emissions. At the same time, the WtE plant operators in the EU are obliged to monitor and report their CO<sub>2</sub> emissions. In many EU Member States, they already pay for the CO<sub>2</sub> emissions they emit – although their climate impact is significantly lower than that of landfilling. This policy does not lead to efficient climate protection and it turns the EU waste hierarchy upside down.

When it comes to the EU ETS, the waste sector must be regarded in a holistic way. Otherwise, we risk counterproductive developments like more landfilling or waste exports.

With all that being said, we must bear in mind what the genuine problem is. Solutions must be developed where there is a steering effect, and this is in the production stage and not later, when end-of-life is achieved and the waste must be treated. Almost all fossil CO<sub>2</sub> emissions from WtE plants arise from plastic waste. This is where the use of fossil raw materials must be reduced and this will only happen with the right incentives.

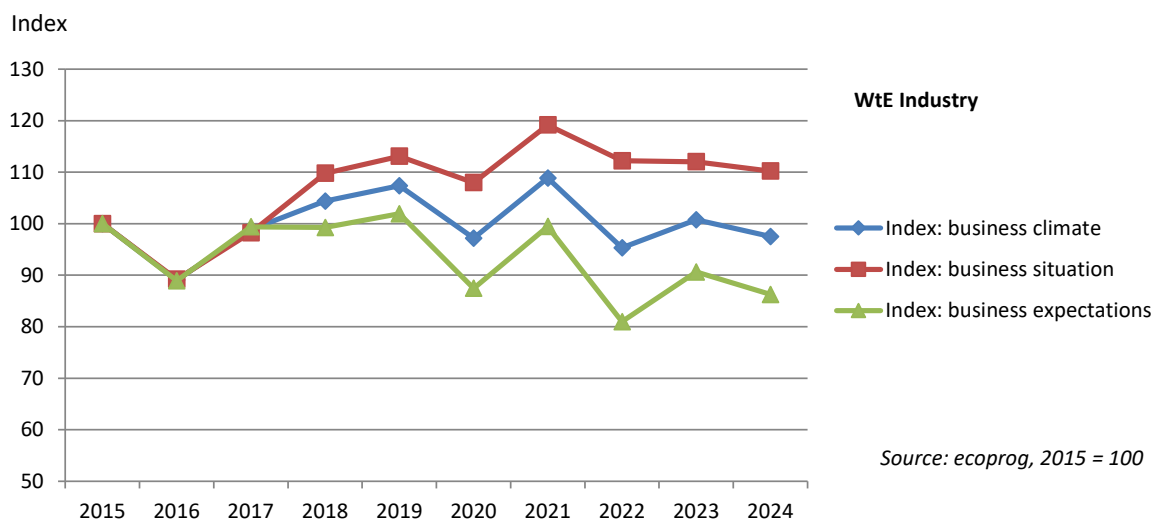
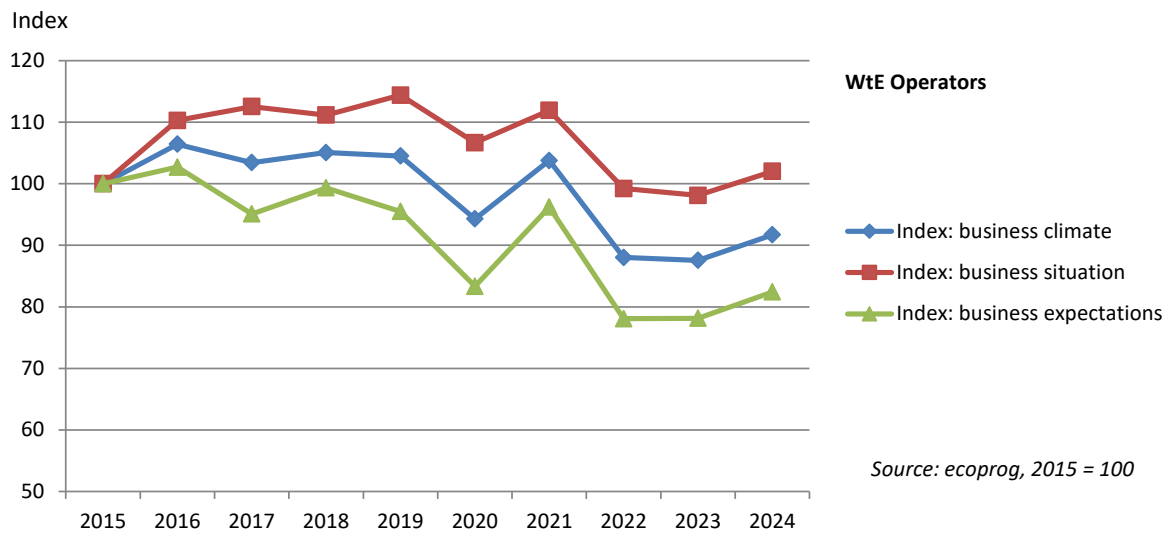
There is already an approach that goes into this direction. For each tonne of non-recycled plastic packaging waste, Member States pay 800 EUR to the EU. If this charge was paid by the polluter/producer (instead of the taxpayer) and used to reduce greenhouse gases in the waste management sector (e.g. through carbon capture in WtE plants and efficient methane collection at landfills), this would be an efficient climate protection measure.

As in previous years, CEWEP (Confederation of European Waste-to-Energy Plants) supported ecoprolog's survey on the Waste-to-Energy Industry Barometer 2024 and encouraged its members to participate.

## WtE Industry Barometer: industry defies difficult economy

In 2024, the business development of the WtE plant operators improved, despite the difficult economic environment. Both the business climate and the business situation and expectations are more positive than in the previous year. The mood in the WtE industry, on the other hand, is negative in comparison to 2023.

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



### Mood amongst plant operators continues to improve

In 2024, the business climate of the WtE plant operators increased to 91.7 points, compared to 87.6 points in 2023. Overall, 95% of the operators still rated their current business situation to be

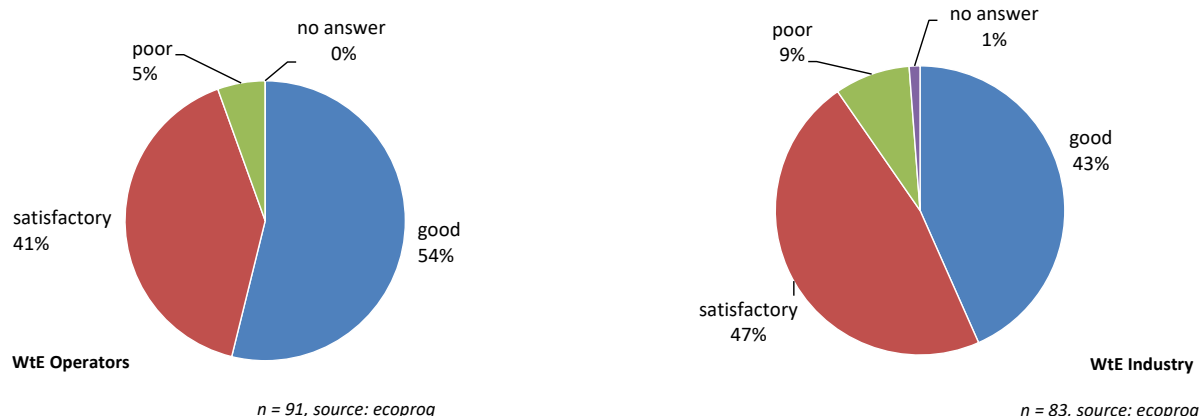


good or satisfactory. Furthermore, 66% of the participants reported a high utilisation of their plants, compared to 42% in the year before.

Expectations for the next 12 months also show an overall improved mood amongst the operators. Only 20% of participants expect the business performance to be more unfavourable, compared to 34% in 2023.

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

*How do you assess your current business situation?*



For ecoprogram, the positive assessment of the operators shows that disposal capacities for non-recyclable waste continue to be insufficient in Europe. Waste disposal is under pressure – and this will continue to increase in the years to come, as landfilling will experience further restrictions. For the operators of thermal waste treatment plants in a large market such as Germany, this means that declining commercial waste volumes can also be compensated by increasing imports from other European countries.<sup>1</sup>

### WtE industry

Companies in the WtE industry also rate their current business situation to be good or satisfactory. Overall, 90% of the companies agree to this (2023: 94%). Three quarters of the companies describe their order backlog to be sufficient or relatively high. 26% of the companies reported an increase of their order backlog; slightly fewer reported a decrease (23%).

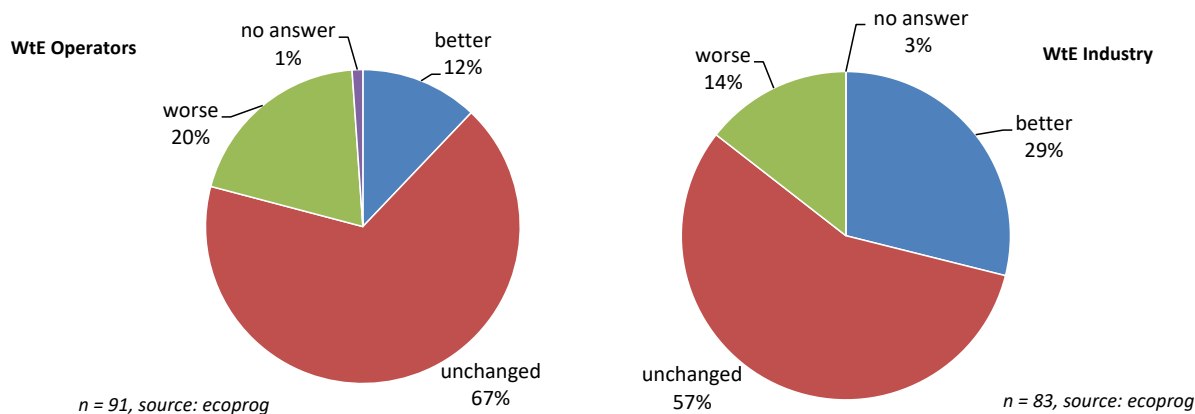
For the future, more companies expect their business to develop in a favourable (29%) rather than in an unfavourable way (14%).

Even though the results are slightly worse than last year, the overall situation remains good.

<sup>1</sup>These and all other interpretations of the data are an assessment by ecoprogram. Accordingly, the responsibility for these statements lies solely with ecoprogram.

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

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



### Number of employees continues to increase

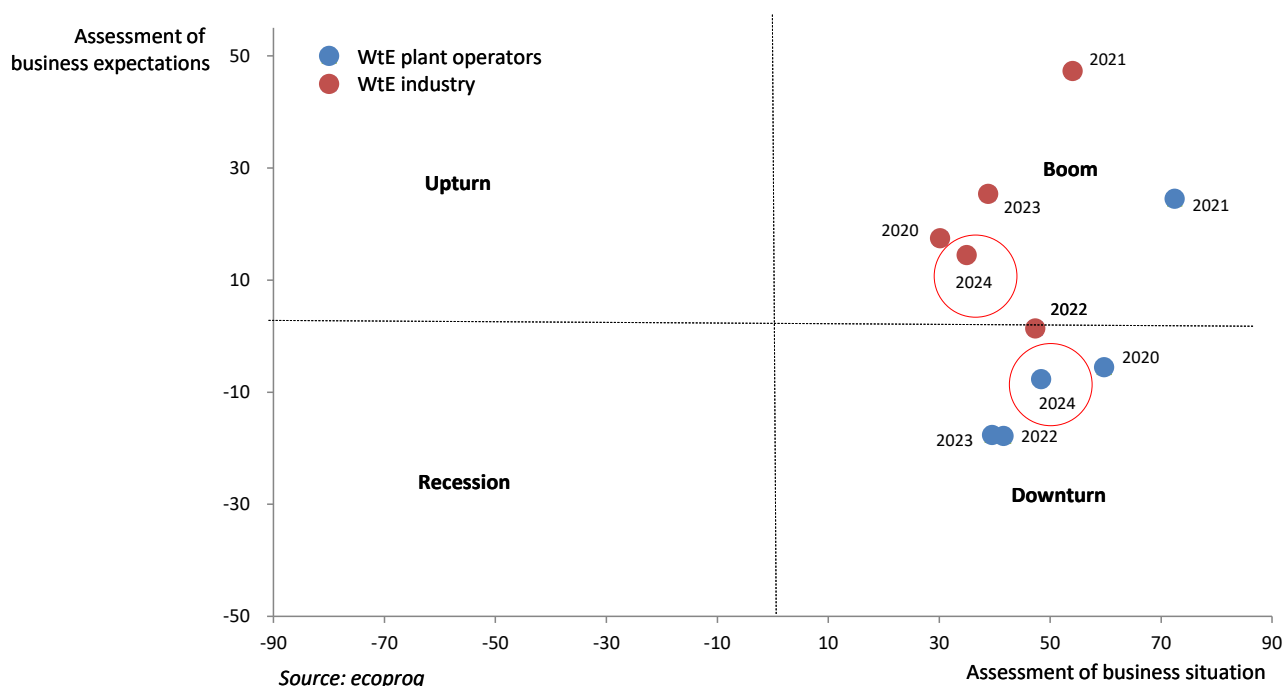
As in the last year, most operators and industrial companies expect their number of employees to remain stable or to increase in the next 12 months. However, this trend has weakened, as the mood in the industry is lower than last year. Only 28% of industrial companies expect their number of employees to increase (2023: 37%).

### Gate fees are increasing – especially in Germany

49% of the WtE plant operators surveyed expect higher gate fees in the next 12 months, while only 11% expect the fees to decrease. This development has intensified compared to 2023, when 45% assumed rising fees and another 20% assumed a low gate fee level.

Another factor that plays a role in this assessment is that almost half of the participants in the survey come from Germany. In January 2024, Germany introduced a CO<sub>2</sub> levy on waste fuels, which will continue to increase in the years to come.

Fig. 4: Classification of the results



### Discussions about carbon management, implementation remains difficult

CO<sub>2</sub> emissions and their pricing remain one of the most important issues in the industry. Overall, 61% of the WtE plant operators surveyed state that the development of carbon management (CO<sub>2</sub> capture with subsequent storage or economic exploitation of the CO<sub>2</sub>) is being discussed for their site. 14% of respondents say that it has already been decided to develop such infrastructure at their site. Only 16% of the operators surveyed say to not expect to introduce carbon management in the next 10 years.

However, there are obstacles when it comes to implementing this, which also explains the large gap between those who are discussing and those who have already decided on an implementation. For the plant operators, the high investment costs (34%) and the still inadequate legal framework (31%) are the biggest obstacles. By contrast, the insufficient testing of the currently available carbon management technologies is considered as less problematic.

The respondents could also provide their own information on the currently existing obstacles to carbon management. Almost all the answers relate to economic issues and infrastructural problems. For example, they said that adequate business models would not yet exist, the costs were too high, and financial incentives were insufficient. In addition, there would be a lack of CO<sub>2</sub> transport infrastructure (e.g. pipelines to transport away the CO<sub>2</sub>) or too much space would be needed at their site.



## **Consequences of separate biowaste collection for thermal waste treatment**

In this year as well, we have asked how the recycling legislation affects the WtE market, specifically about the obligation to separately collect biowaste in accordance with Article 22 of the EU Waste Framework Directive, which is obligatory since the beginning of this year.

Once again, the operators of the WtE plants are rather unimpressed by the consequences for their own activities. 63% of the respondents said that the separate collection of biowaste will not affect the amounts that will be available for WtE in the future. A major reason for this is that some countries (including Germany) had already introduced a separate collection before 2024; therefore, no significant changes are expected in these countries. Furthermore, the amount of mixed waste in these countries has not decreased significantly. Rather, the separation of organic waste was superimposed by other developments, e.g. population growth or increased waste intensity.

Only 28% of the respondents expect the quantities for thermal waste treatment to decrease in the future due to the introduction or expansion of separate collection.

## **Segments and geographical structure of the industry**

Traditionally, Europe remains the most important region for the (predominantly European) WtE industry. In an international comparison, it is striking that China and other Asian countries have significantly lost in importance compared to the previous year.

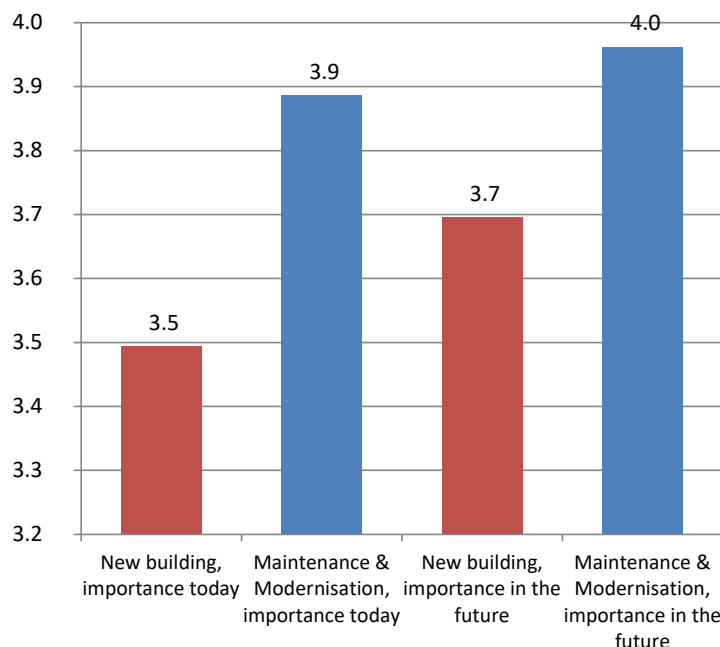
ecoprogram thinks that this also reflects the sharp decline in WtE projects in China, especially because of the Chinese real estate crisis (even though China remains the world's largest WtE market in terms of capacity). The exceptional economic situation in Australia, on the other hand, is appreciated; and the Middle East, with its preference for European providers, remains interesting as well.

However, it is difficult to develop new WtE markets. There is not just one reason why markets such as India or Brazil are sluggish in their developments. The industry considers several reasons to be of equal importance, including inadequate financial incentives (26%), a poor image of thermal waste treatment (22%), an inadequate legal framework (21%), or landfilling (18%).

In the traditionally strong European market, with its aging plants, maintenance and modernisation of WtE plants are already more important than the new construction business – and this is not about to change.

**Fig. 5: Importance of new construction business compared to modernisation**

*How important are maintenance and modernisation compared to new construction for your company (1 = unimportant, 5 = very important)*



*n = 83, source: ecoprolog*

*The WtE industry barometer has been elaborated annually since 2012. For the 2024 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 2024.*

*ecoprolog GmbH carried out the survey and the evaluation. As a respected industry expert, ecoprolog 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, ecoprolog will donate €10 to SOS Children's Villages.*

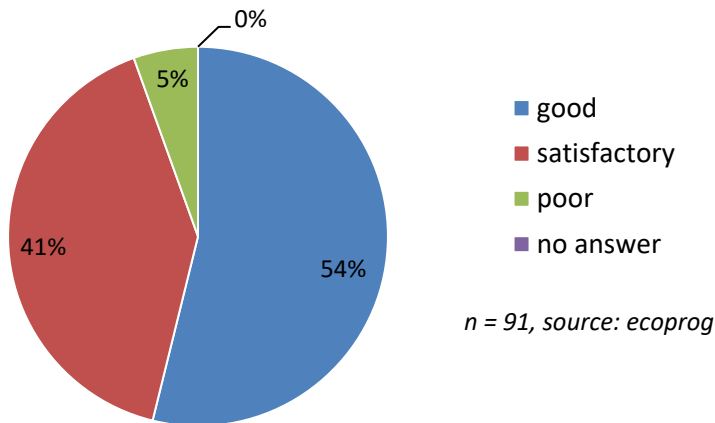
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## Data annex

## Survey of operators of thermal waste treatment plants

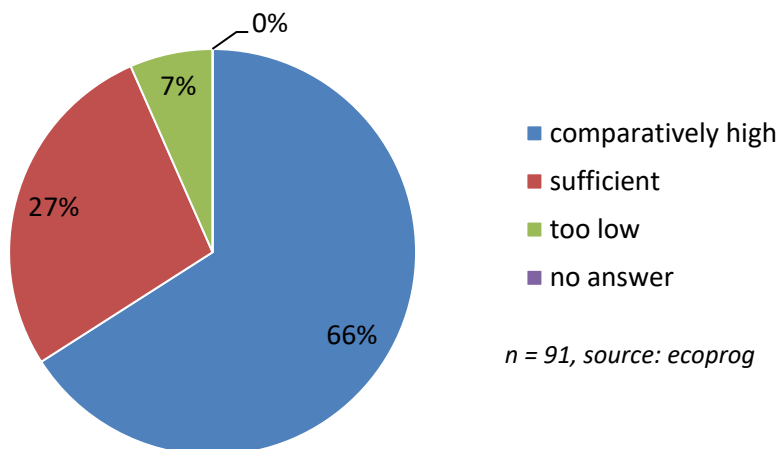
### Current business situation

*How do you assess your current business situation?*



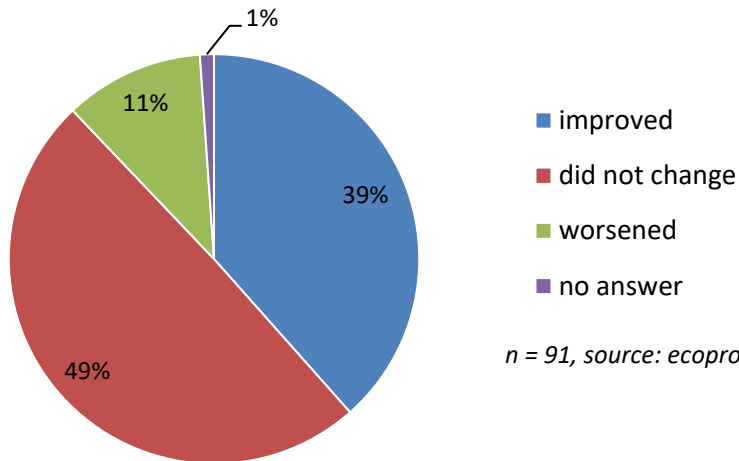
### Current capacity

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



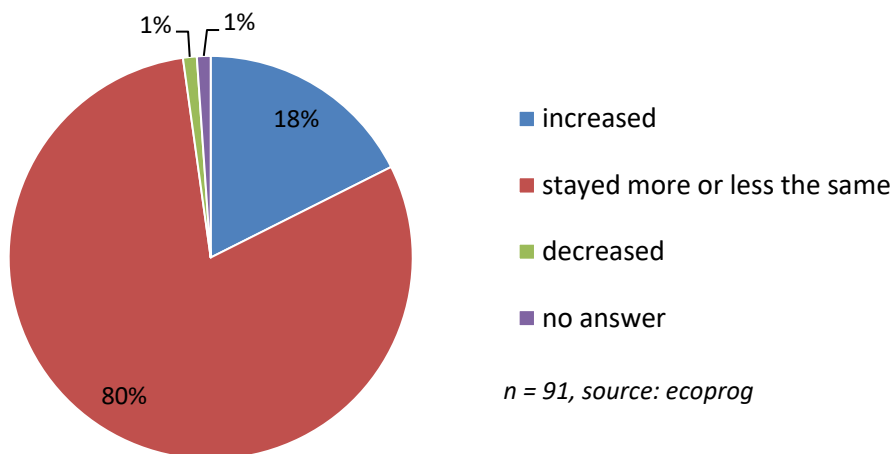
**Demand in the past 12 months**

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



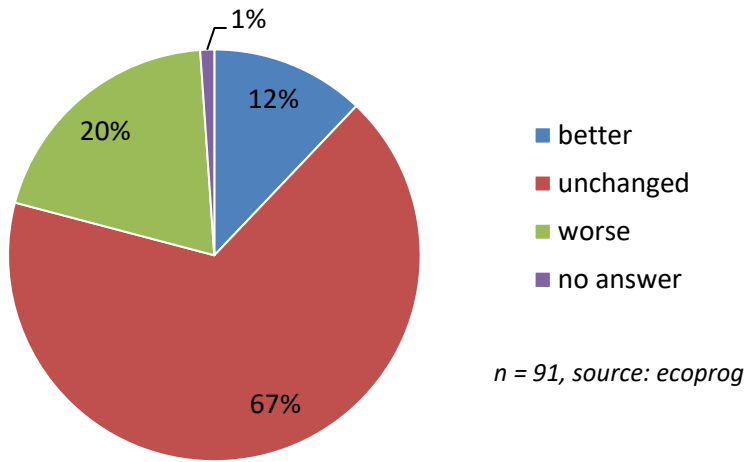
**Capacity utilisation in the past 12 months**

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



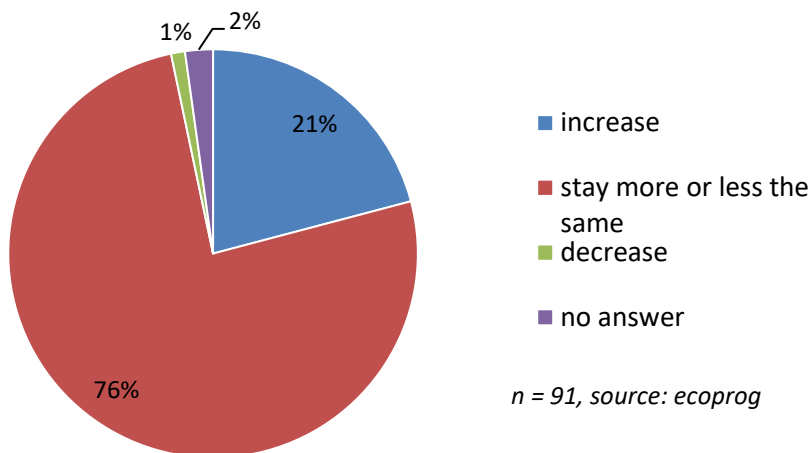
**Business prospects**

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



**Workforce development**

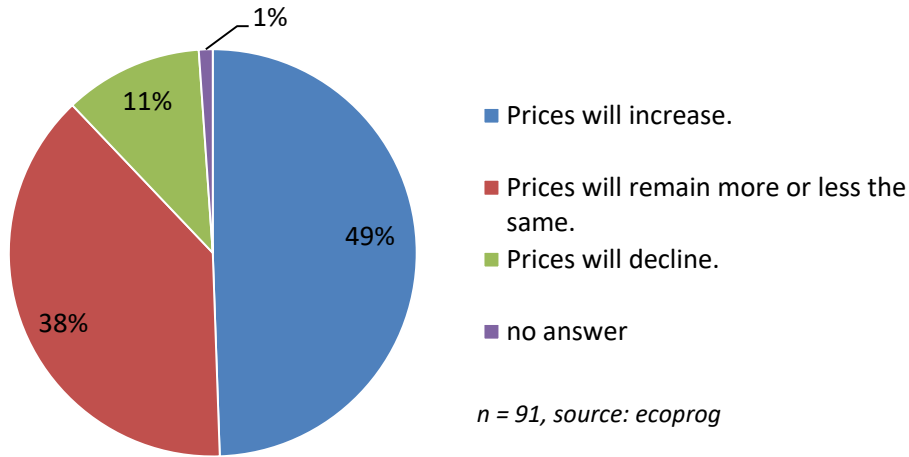
*In the next 12 months, the number of employees working for your company will ...*





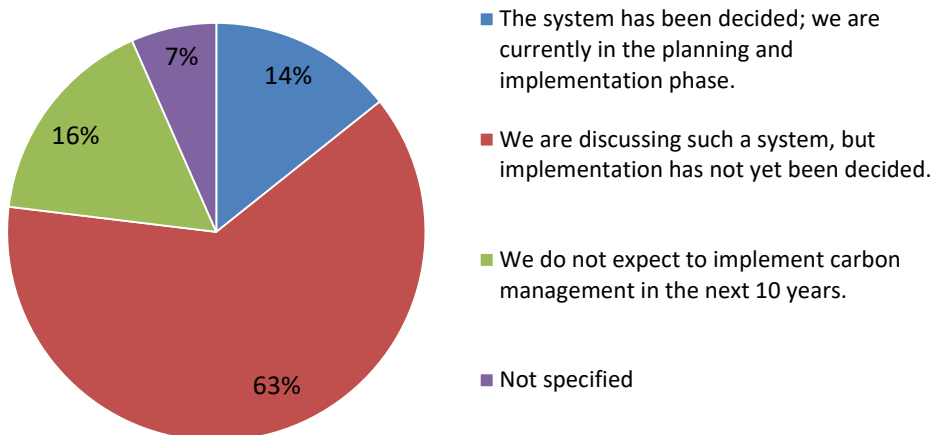
**Gate fee development**

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



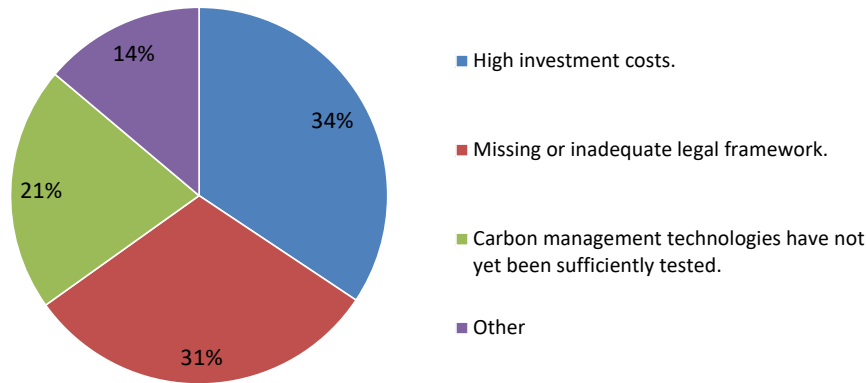
**Plans for setting up a carbon management system**

*Are you currently planning to set up a carbon management system (CO<sub>2</sub> capture with subsequent storage or economic utilisation of the CO<sub>2</sub>)?*



**Obstacles to the implementation of carbon management**

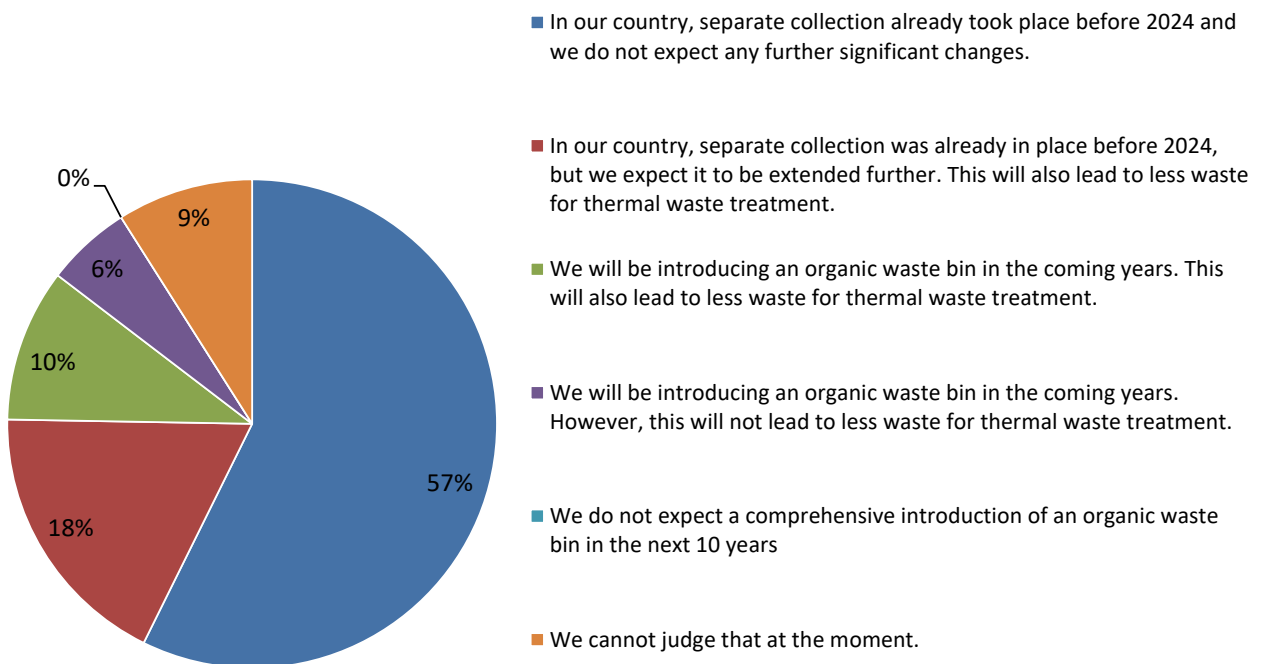
*What do you currently see as the biggest obstacles to implementing carbon management at your site? (multiple answers possible)*



*n = 91, source: ecoprogram*

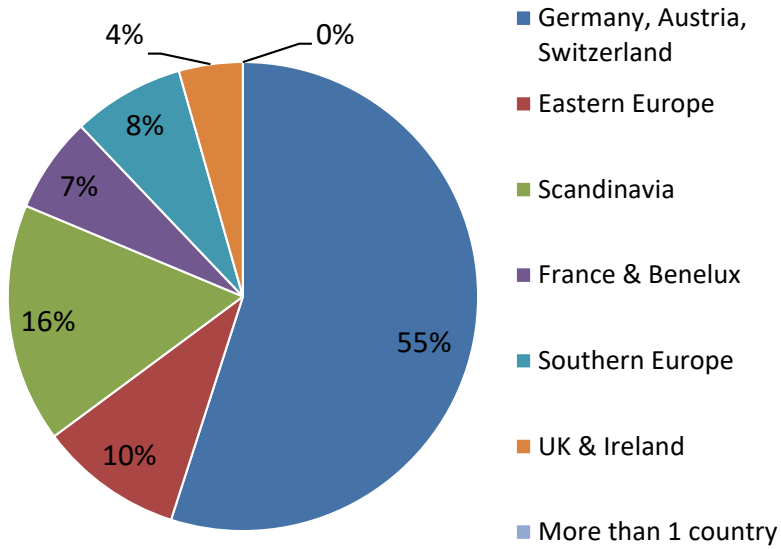
**Impact of separate collection of biowaste on thermal waste treatment**

*In accordance with Article 22 of the EU Waste Framework Directive, separate collection of biowaste has been mandatory since 2024. How do you assess its implementation and consequences in your country?*



*n = 91, source: ecoprogram*

**Plant locations of survey participants by region**

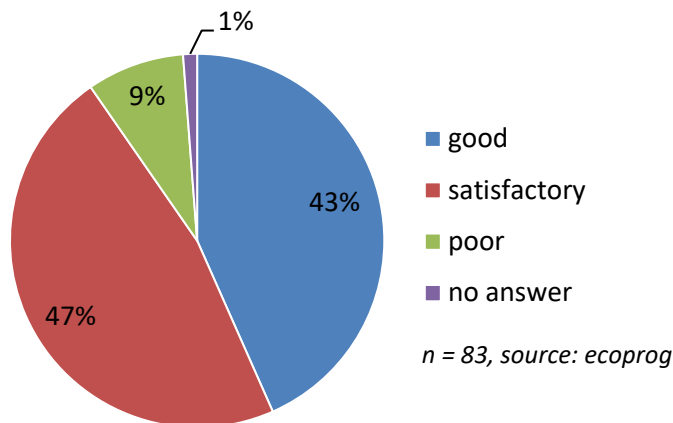


*n = 91, source: ecoprogram*

## Survey of WtE industry and WtE plant manufacturers

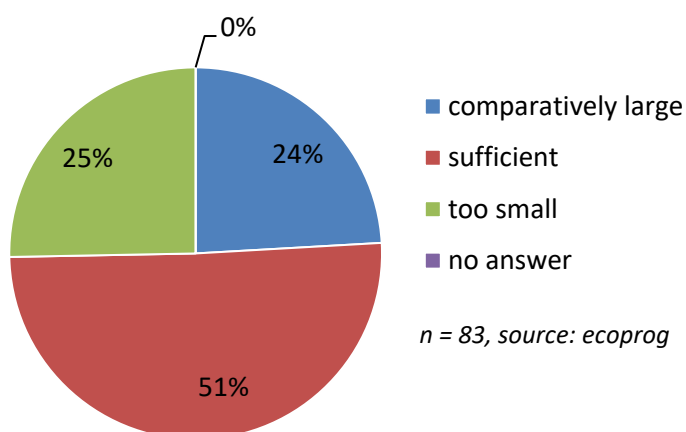
### Current business situation

*How would you describe your current business situation?*



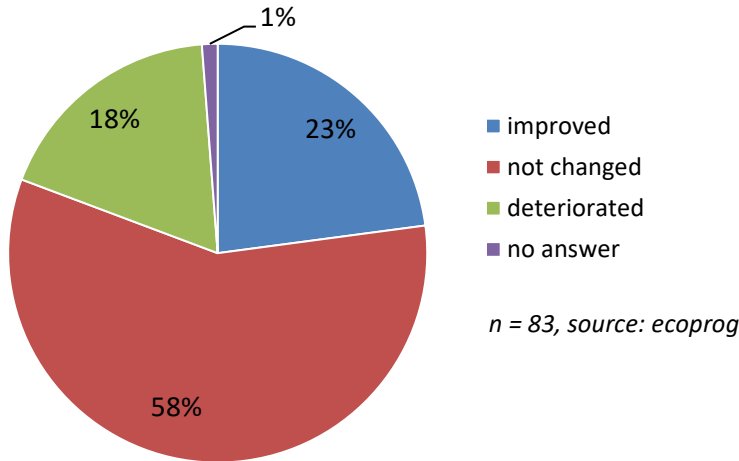
### Present order backlog

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



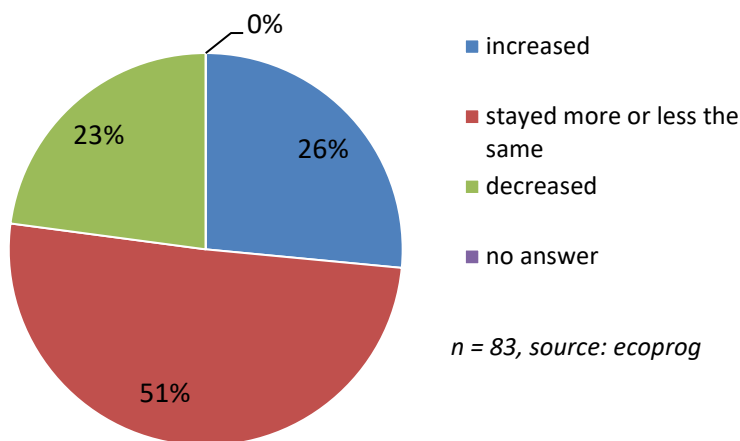
**Demand in the past 12 months**

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



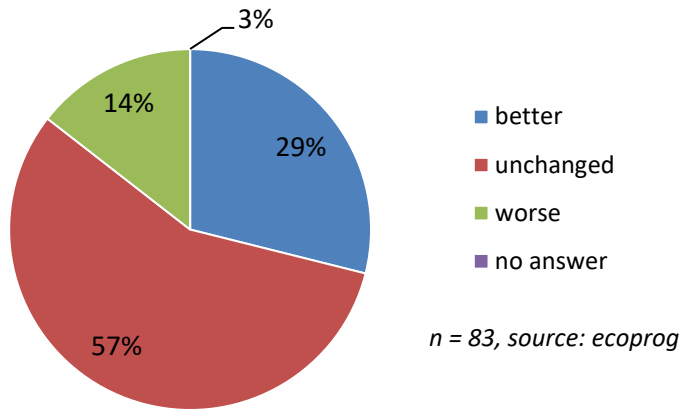
**Order backlog in the past 12 months**

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



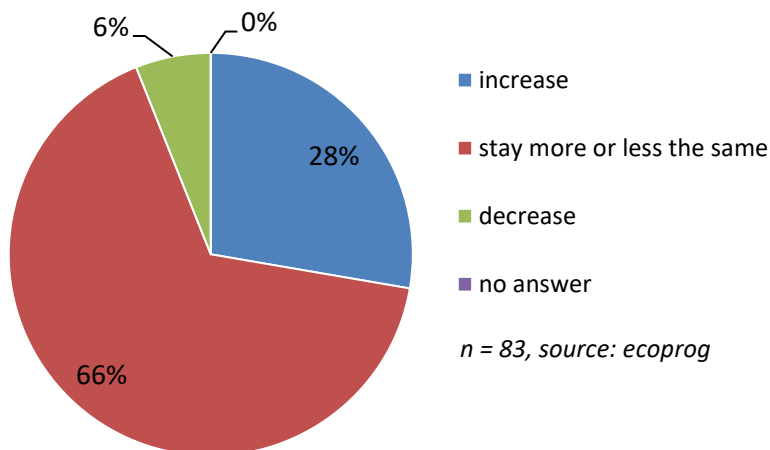
**Business prospects**

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



**Workforce development**

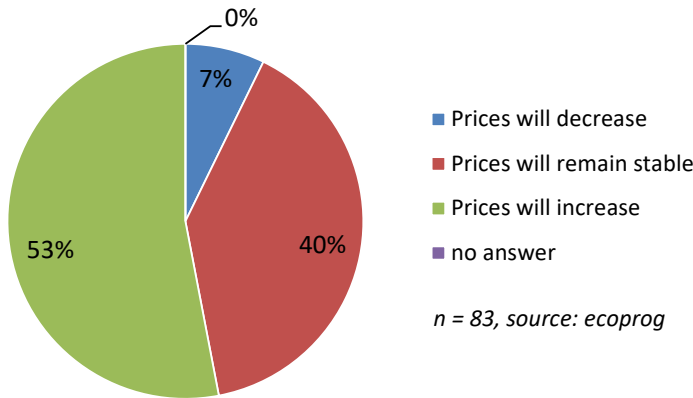
*In the next 12 months, the number of your staff will ...*





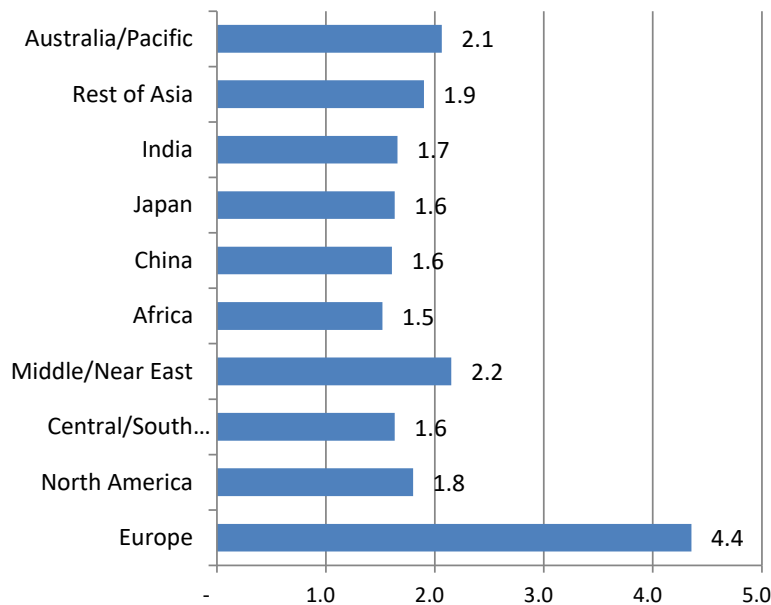
**Future price development**

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



**Current market regions**

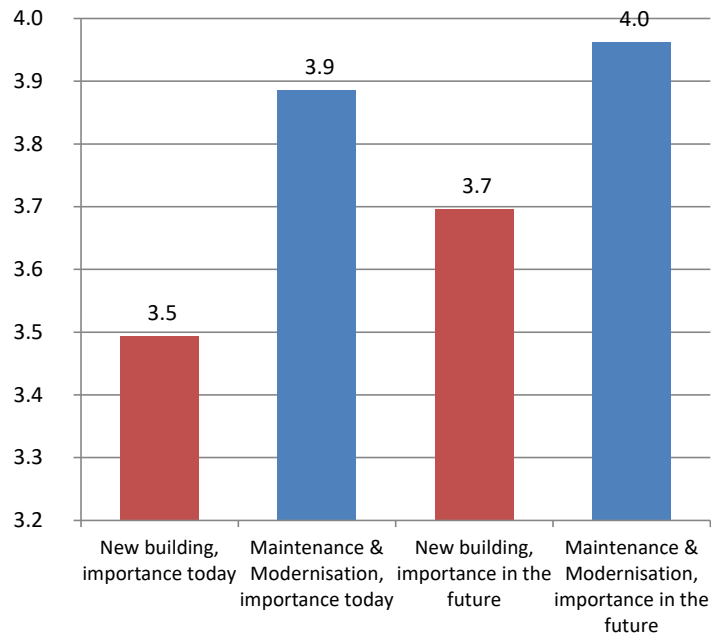
*How important are the following markets for your company today?  
(1=unimportant, 5=very important)*



*n = 83, source: ecoprogram*

**Importance of new construction business compared to modernisation**

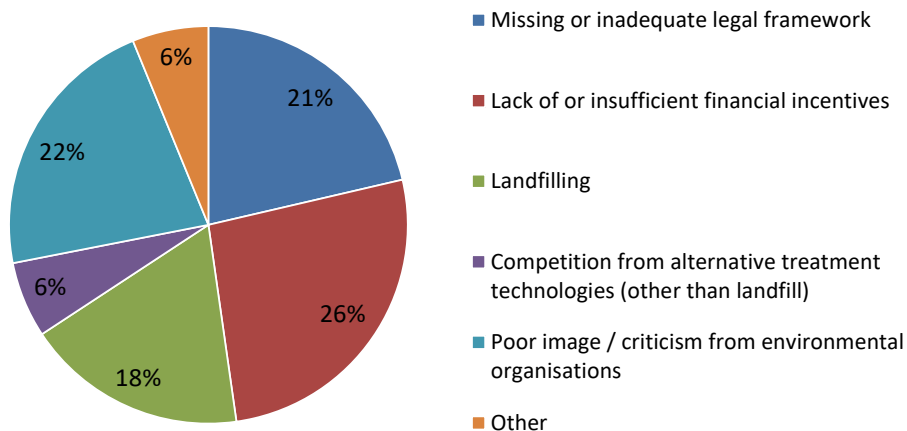
*How important are maintenance and modernisation compared to new construction for your company (1 = unimportant, 5 = very important)*



n = 83, source: ecoprogram

**Main barriers to new markets for thermal waste treatment**

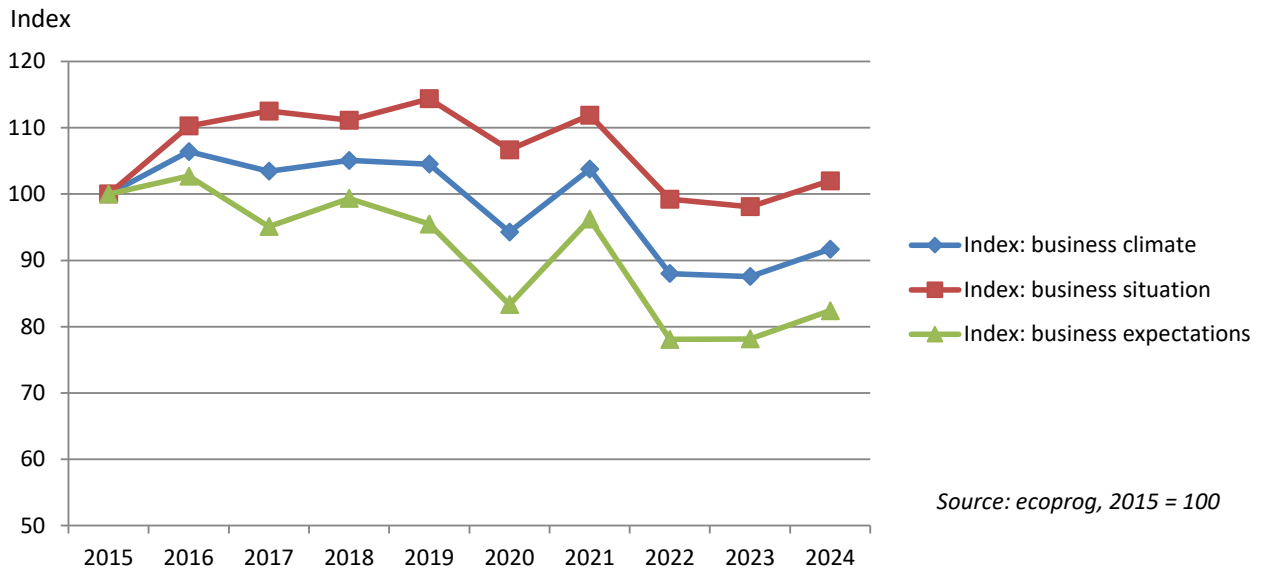
*What do you currently see as the biggest obstacles to the creation and development of new markets for thermal waste treatment? (multiple answers possible)*



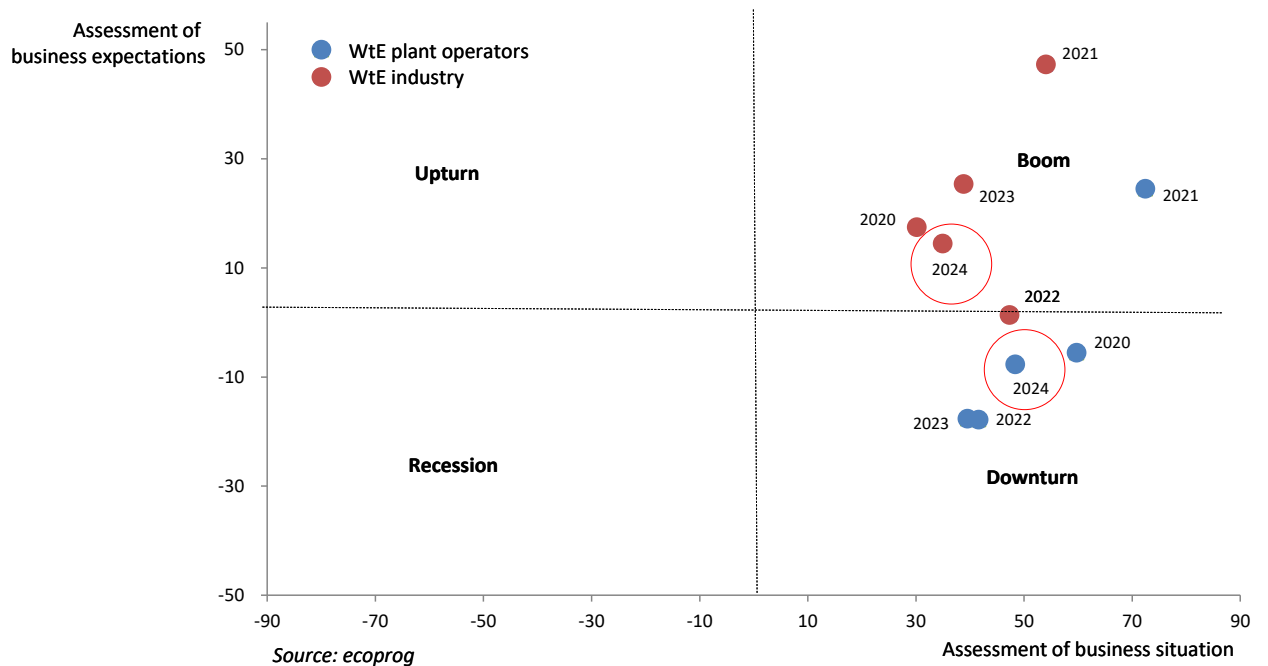
n = 83, source: ecoprogram

## Time series

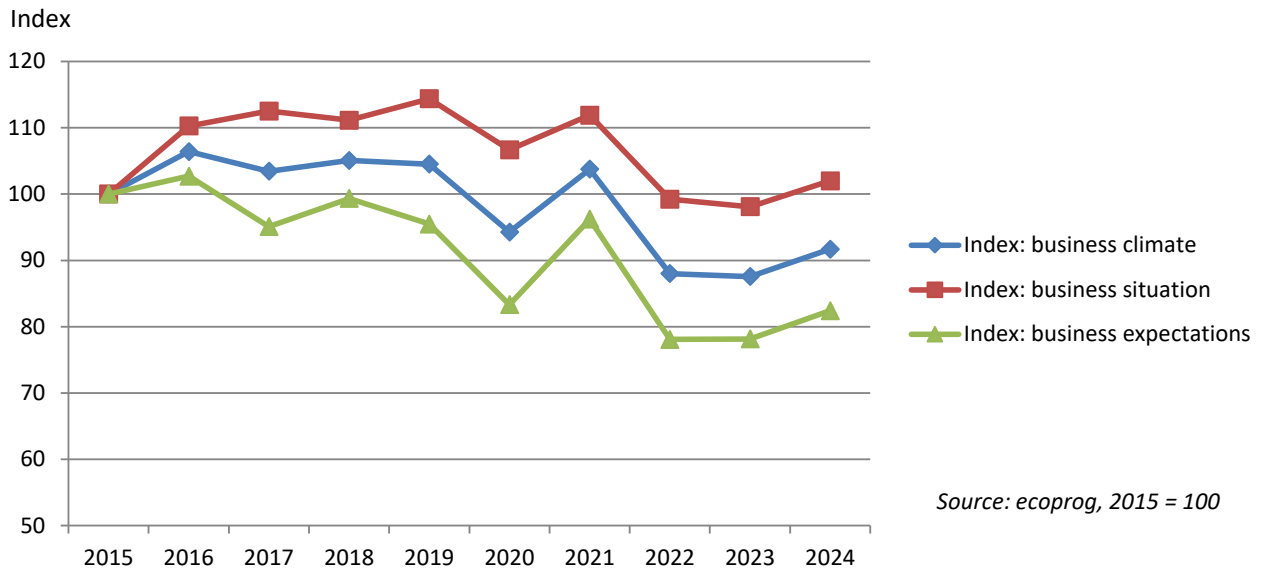
### Industry barometer operators & industry



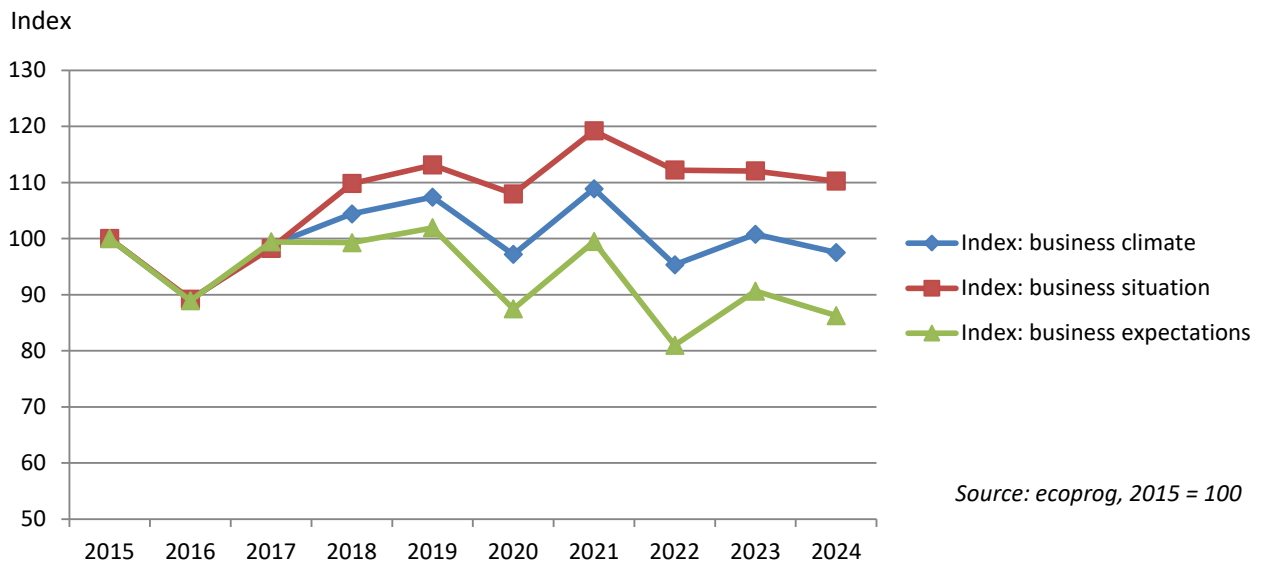
### Classification of results



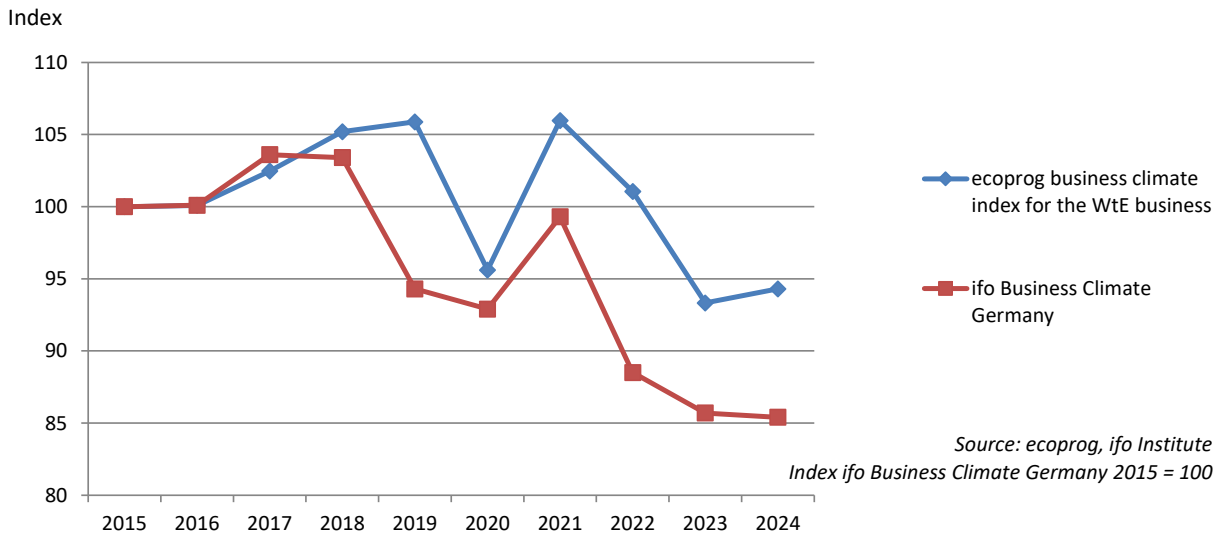
**Industry barometer for operators of thermal waste treatment plants**



**Industry barometer WtE-Industry**



**Comparison of ifo business climate index**



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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