WtE facility Kaunas, Lithuania; with kind permission of Standardkessel Baumgarte Holding GmbH

Industry Barometer Waste-to-Energy 2021

Content

Comment by CEWEP

Thermal waste treatment is needed

The continuous high degree of capacity utilization of Waste-to-Energy (WtE) plants – also against the backdrop of rising levies and other burdens – demonstrates the high waste treatment performance of the WtE sector. This holds particularly true for the time of the COVID-19 crisis.

The WtE sector supports the fundamental ecological upheaval of our times, in the circular economy as well as in climate policy.

At the same time, the original – sanitary – function of WtE has to be kept in mind: reliable treatment of non-recyclable residual waste as well as *guaranteed waste treatment safety*.

The long-term high utilization rate of WtE capacity clearly shows the importance of sufficient WtE capacities for a reliable treatment of residual waste volumes.

Reducing WtE capacities or impeding new plants where they would be necessary for treatment safety would not entail more recycling, as is wrongly claimed ever so often, but instead leads to more illegal disposal channels, and thus increases environmental pollution.

Higher burden for waste incineration without steering effect

Putting more burden on WtE would make the whole waste management chain more expensive, according to a considerable majority of WtE plant operators, while they do not expect any effects on the market share of thermal waste treatment.

This evaluation is based on the knowledge of the nature of the waste delivered daily to their plants. The vast majority of these wastes can neither undergo material recycling nor biological treatment.

In order to boost the circular economy and to increase material recycling, products and packaging will have to be designed to consist, to a large extent, of recyclates while at the same time being extensively recyclable with the technical processes available.

Increasing the price for thermal waste treatment does not help much. On the contrary: almost all sorting and recycling plants use thermal waste treatment to dispose of those sorting residues which they cannot make good use of. If thermal treatment becomes more expensive, recycling costs are bound to increase as well. As a consequence, recyclates will become more expensive compared to new goods.

A steering effect, due to additional levies, turns out to be also limited from an energy perspective.

Waste is not a fossil fuel which can be replaced by other forms of energy production. Waste remains – and has to be disposed of. At the same time, energy from waste suitable to cover base-load demand complements the volatile renewable energy sources.

A heavier financial burden placed on thermal waste treatment would only have a steering effect if appropriate technical and economical alternatives were available.

In the case of those residual wastes, for which there is no such alternative, this will only create increased treatment costs. At worst, likewise, the legal waste treatment channel will be made so expensive that further illegal disposal will be fostered.

WtE sector as a driver of innovation

Whether it is Carbon Capture or hydrogen: the industry barometer demonstrates the intense efforts of the WtE operators to shape the transformation of our current economic system. To the same extent, they safely treat the non-recyclable waste each day.

WtE plants are already providing heat and power which are produced in cascade use from partly renewable raw materials. Simultaneously, the WtE sector is working on capturing and using or saving the resulting carbon dioxide in a climate-friendly way, while also proportionately generating green hydrogen from the energy produced.

Hence, the WtE sector has the unique opportunity to be not only climate-neutral, but to become even climate-negative in the future, due to its biogenic share in energy production.

The path, admittedly, will be long. But the survey has also revealed that the WtE sector is facing these challenges.

In addition to that, the WtE sector creates new jobs. 20 % of the operators plan to increase their staff, and 38 % of the suppliers also plan to recruit more personnel.

CEWEP (Confederation of European Waste-to-Energy Plants) supported the ecoprog Waste-to- Energy (WtE) survey also in 2021, a year strongly marked by the COVID-19 crisis, and, as in previous years, encouraged its members to participate.

WtE Industry Barometer: Recovery and increasing prices

The business sentiment in the Waste-to-Energy (WtE) industry, compared to the previous year, has significantly improved and has already reached the all-time peak values of 2018/2019. It is true that the specific values are a little higher for the WtE plant operators, but an extremely positive spirit has returned to the WtE industry, too. This includes the current business situation as well as the business expectations.

Plant operators as optimistic as rarely before

The WtE plant operators rate their current business situation with 72 out of a possible 100 points as very good. This is the third-highest figure in this survey which has been conducted since 2012 on a yearly basis. Business expectations as well have hardly ever been considered more positive with 25 out of a possible 100 points. For comparison only: in the September 2021 ifo business climate index, the current business situation had been rated with 29 points, business expectations with 4 points.

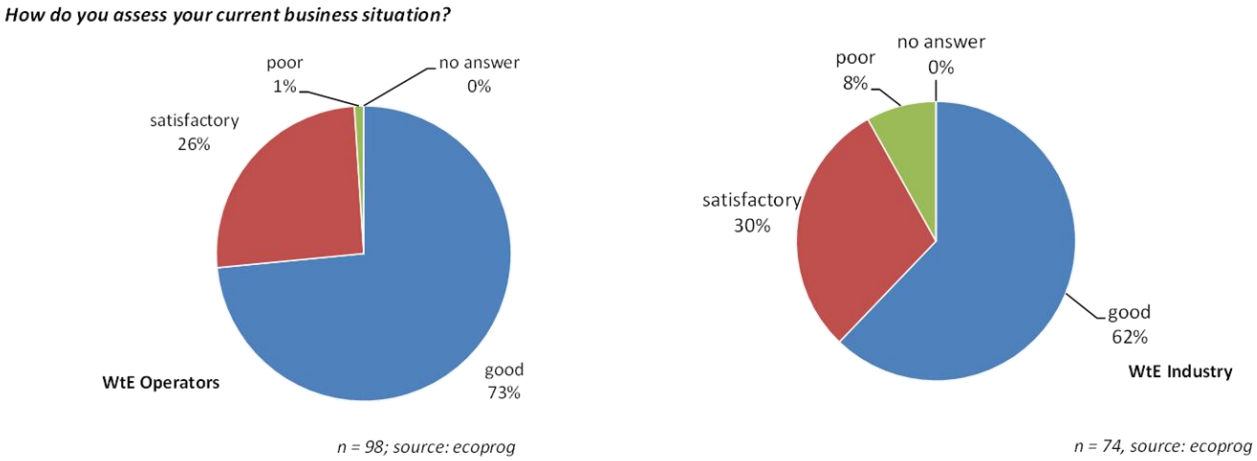
Fig. 1: Business climate development of WtE operators and WtE industry

The positive assessment encompasses almost all areas: 69 % of the plant operators assess the current capacity utilization of their plant as relatively high; more than a third reports an increased demand on the spot market. After years of high plant capacity utilization, 16 % still report a renewed increase in capacity utilization; not a single operator reported reduced capacity utilization.

For suppliers to WtE plants, the positive business expectations represent a drop of bitterness: almost half of the operators expect increasing prices in thermal waste treatment in the months to come. Here, however, it is essential to mention that this evaluation presumably is not only based on the positive market assessment, but also on higher costs of plant operation. These are due to

additional duties, for instance in the context of carbon dioxide pricing but also increased raw material costs.[1]

Fig. 2: Current business situation of operators and industry



Industry experiences all-time peak

In the WtE industry, the upswing in sentiment is even more explicit than among the operators. The industry reaches a business climate value of 51 out of a possible 100 points – which is an all-time peak in this survey conducted on a yearly basis since 2012. The current business situation has been rated with 54 out of a possible 100 points. 85 % of the companies consider their volume of orders to be relatively high or sufficient, while it has remained stable, or even increased, in the past 12 months for 93 % of the companies.

With 47 out of a possible 100 points, business expectations have reached the second-highest value since the beginning of this survey in 2012. 46 % of the respondents have already observed a growing demand in the past 12 months.

The currently greatest problem in the industry are the price increases of the previous months for raw materials and deliveries. As a result, almost 80 % of all industrial companies in this survey expect rising prices in the future.

Higher burdens cause rising disposal costs

A higher burden placed on thermal waste treatment is seen as a future inflater by the plant operators. In the past years, the strain has intensified, be it in the form of direct taxation of thermal waste treatment (as is the case in the Netherlands or Sweden) or increased burdens put on carbon

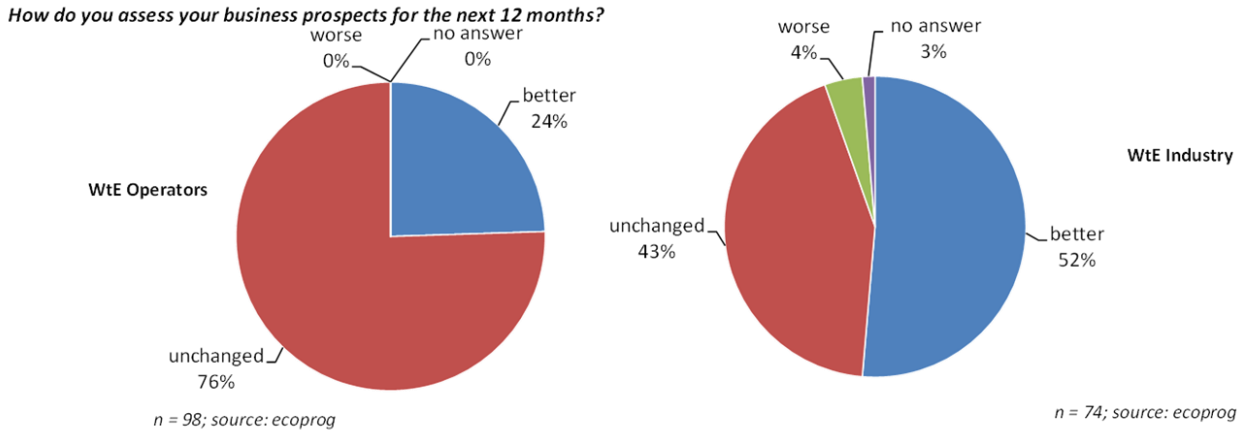
[1] These and all of the following interpretations are assessments made by ecoprog. Therefore, ecoprog is solely responsible for these statements.

dioxide emissions (as for instance in the Netherlands, Sweden and Denmark; in Germany, the topic is at least being discussed).

Only in the eyes of a minority of WtE operators, also in light of the currently positive situation, this implies the risk of decreasing market shares; on the contrary, 70 % of the respondents expect waste disposal in general to become more expensive. Other than in energy politics, for instance, the steering effect of carbon dioxide pricing is not regarded as relevant in this context.

Still, almost half of the respective respondents do expect this to cause increasing recycling volumes as well as a restriction of waste exports.

Fig. 3: Business prospects of operators and industry



Hopes for the EU Waste Shipment Regulation

The amendment of the EU Waste Shipment Regulation gives rise to positive expectations among the WtE plant operators. Almost 50 % of the respondents expect this to cause an increase in demand of thermal waste treatment.

Certainly it is true that this cannot be seen as a direct correlation, given that especially the exports of presorted plastic wastes in the focus of criticism must not undergo thermal treatment. Nevertheless, an indirect correlation can definitely be deduced. For example, as a result of a material recycling in the EU, an increase in sorting residues that have to be thermally recovered can be expected.

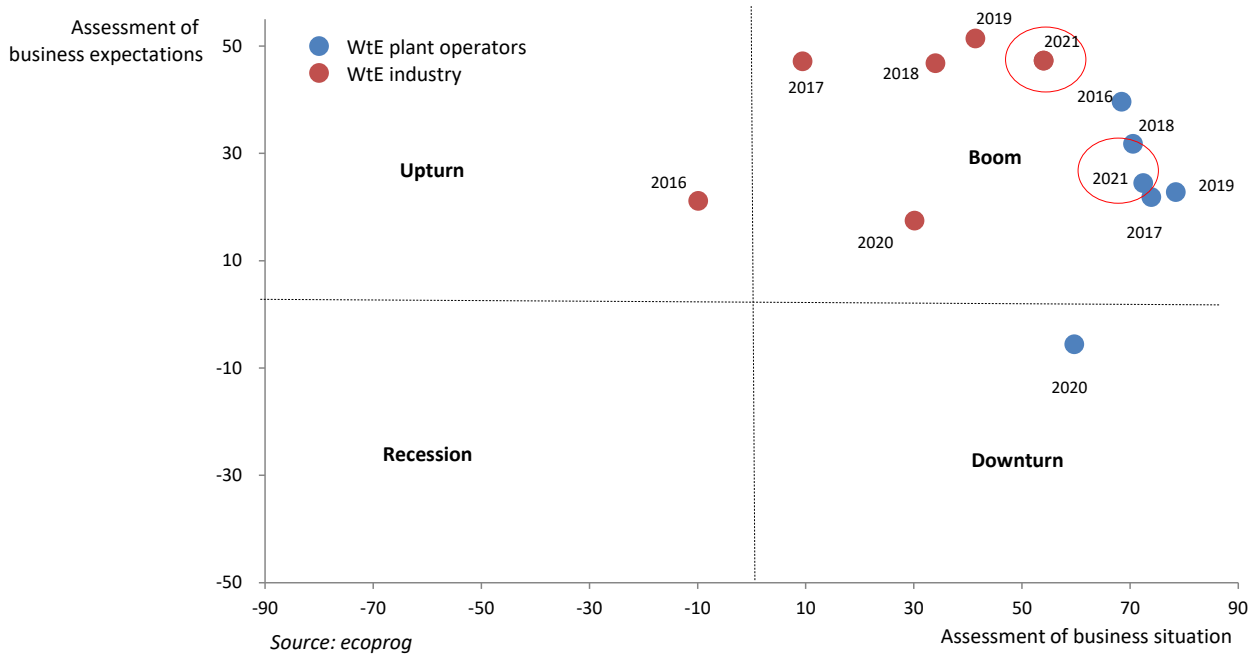
Great openness for innovations

By their own account, 44 % of the WtE operators interviewed are currently considering the possible production of hydrogen as an energy source of the future; another 48 % evince a great deal of interest in this topic.

Although it is hard to tell precisely the exact nature of this ‘considering’, this result does point out the high significance which the WtE industry attributes to this topic.

In the WtE industry as well, hydrogen was considered to be a very important subject. Generally speaking, the industry assumes that hydrogen production in WtE plants will establish itself (3.4 out of a possible 5 points). An even slightly more positive evaluation is given of the subject of Carbon Capture and Storage (CCS) / Carbon Capture and Utilization (CCU) which deals with the utilization or disposal of the carbon dioxide generated in the process of thermal waste treatment.

Fig. 4: Classification of results



Source: ecoprog

The chemical recycling of plastics is likewise regarded as realistic, although in this case evaluations turn out to be already slightly more sceptical.

Torrefaction of waste and biomass destined for incineration in (coal-fired) power plants, on the contrary, is approached with great caution. This is comprehensible in light of the already resolved decommissionings of many coal-fired power plants is Europe.

With some limitations, the importance of these innovations is also recognized with regard to their own businesses.

Focus on Europe

As every year, also in 2021, the WtE industry was asked which regional markets were most important to them.

In this context, the prevailing tendency again revealed the dominance of Europe. All other markets were considered to be slightly less relevant than in the past.

On one hand, this is certainly due to the fact that this survey is primarily addressed to European companies, many of which are global players though. On the other hand, this judgement of course also reflects the positive market perception in Europe, as expressed, for instance, by the WtE plant operators.

Not least of all the COVID-19 pandemic has additionally pointed out the challenges for the global WtE business, for example in the form of travel restrictions or extreme economic downturns in countries which before had been characterized by relatively high economic growth rates.

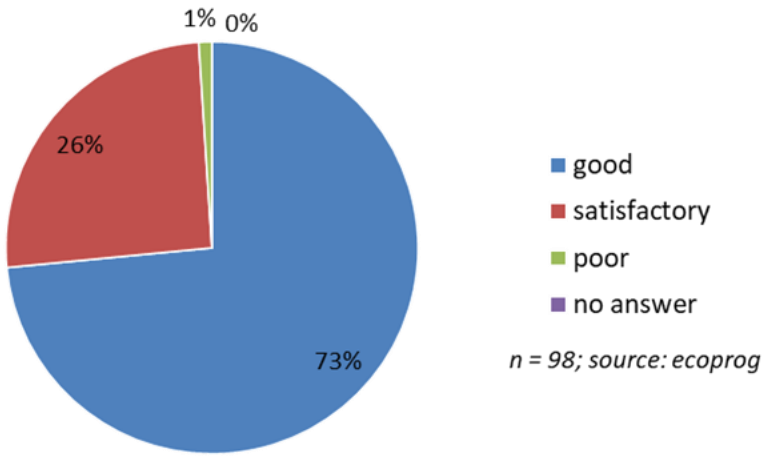
The WtE industry barometer was elaborated for the first time in 2012. For the survey in 2021, we have questioned about 500 operators of thermal waste treatment plants and more than 700 plant manufacturers and suppliers in the WtE industry worldwide. Participants could choose to either complete an online questionnaire or to answer via fax. The survey was carried out between late September and mid-October.

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.

Data annex

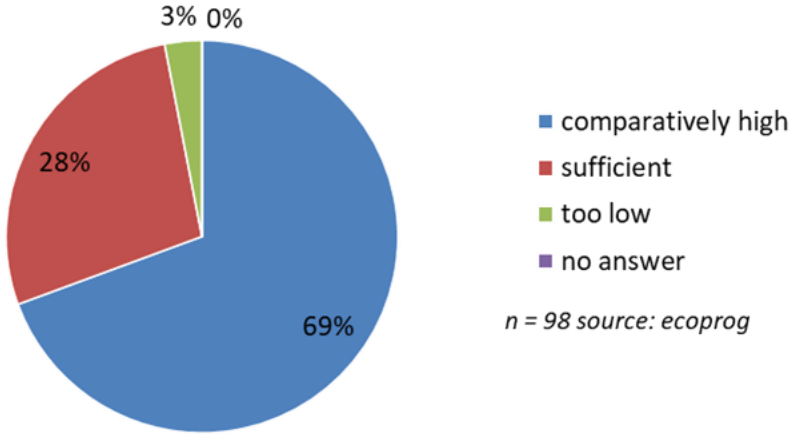
Current Business Situation

How do you assess your current business situation?



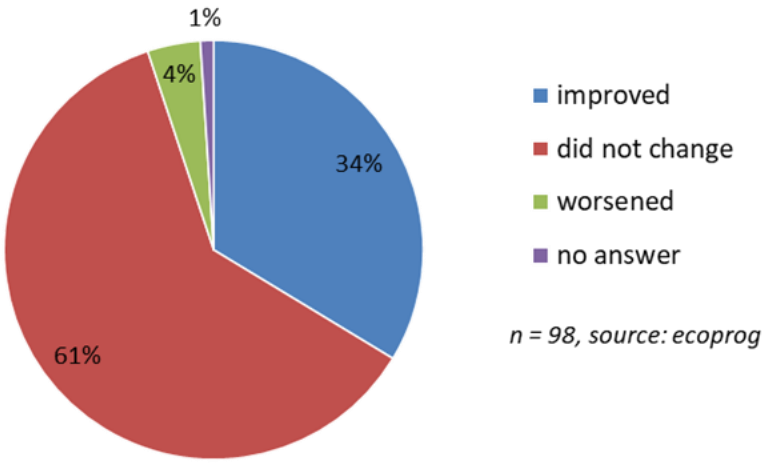
Current capacity

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



Demand in the past 12 months

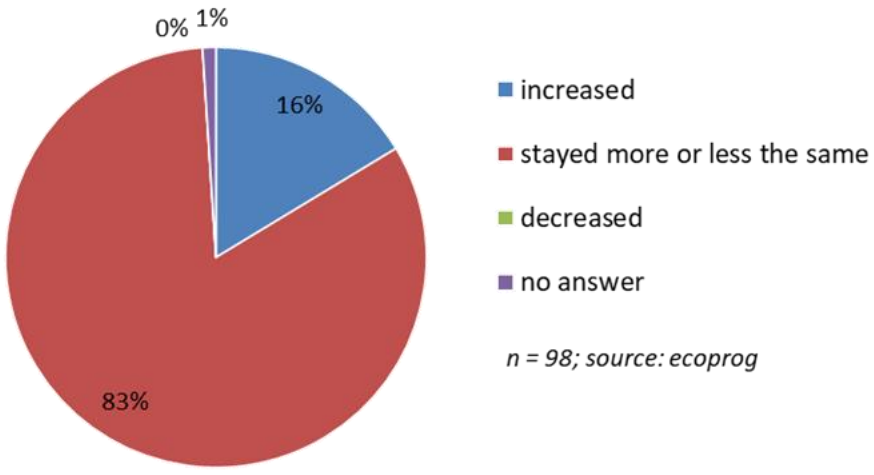
In which way has the demand on the spot market for municipal waste developed in the past 12 months? The demand has …



n = 98, source: ecoprog

Capacity utilisation in the past 12 months

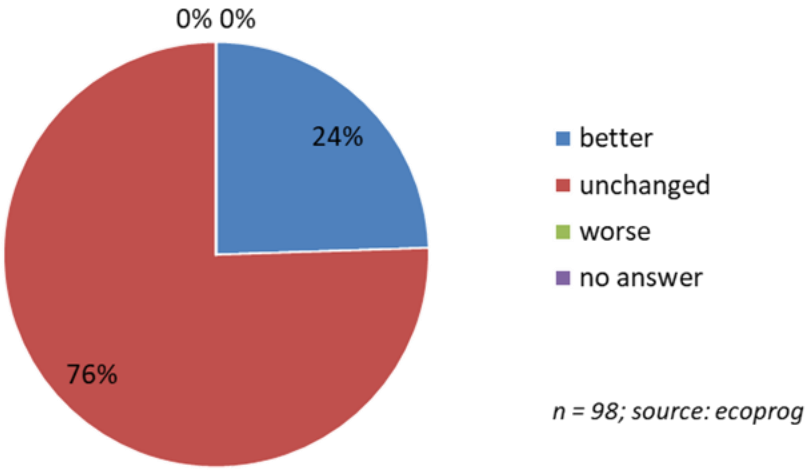
In the past 12 months, the capacity utilisation of your plant has…



n = 98; source: ecoprog

Business prospects

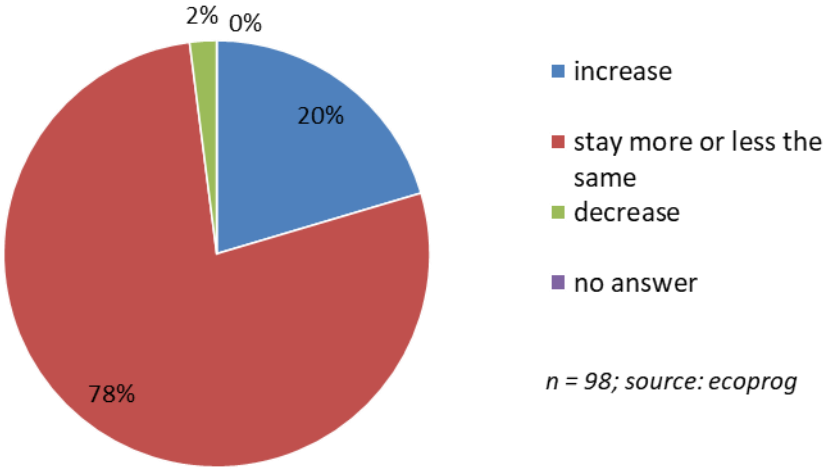
How do you assess your business prospects for the next 12 months?



n = 98; source: ecoprog

Workforce Development

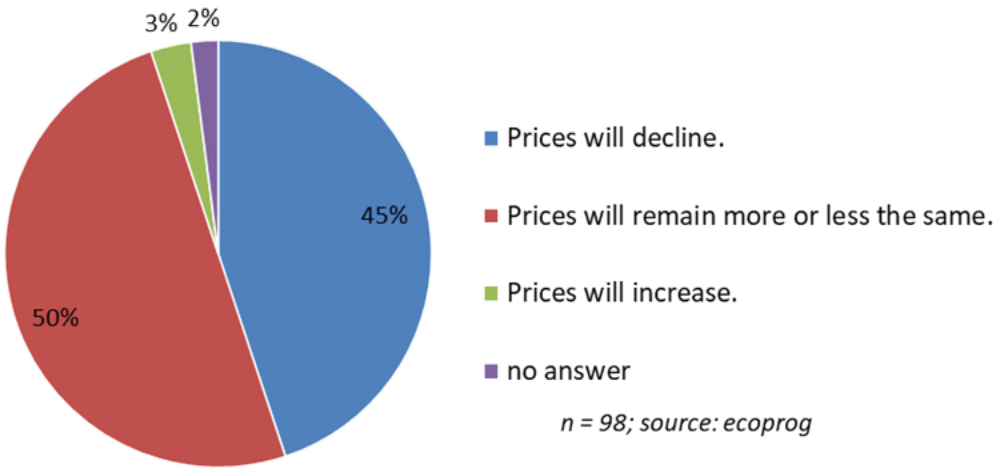
In the next 12 months, the number of employees working for your company will …



n = 98; source: ecoprog

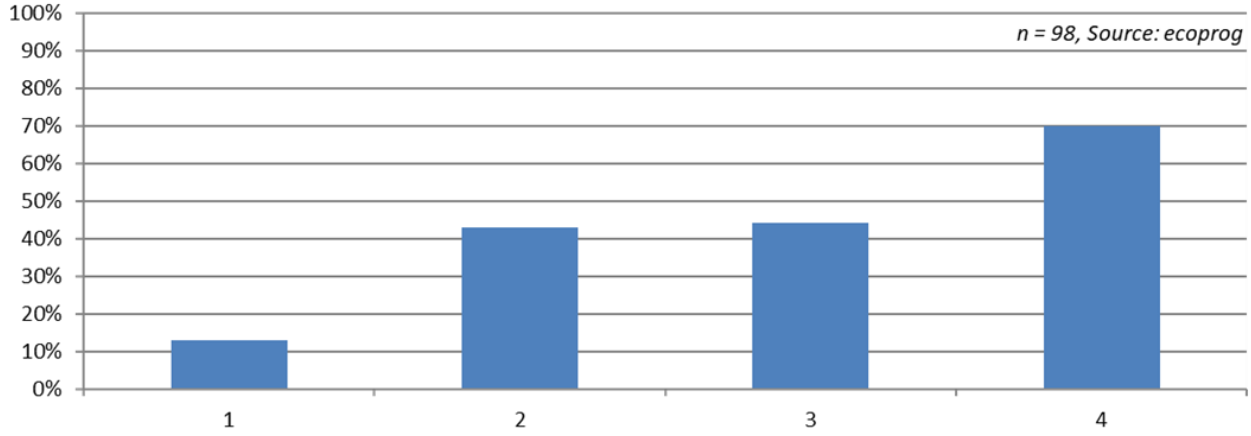
Gate fee development

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



Steering effect

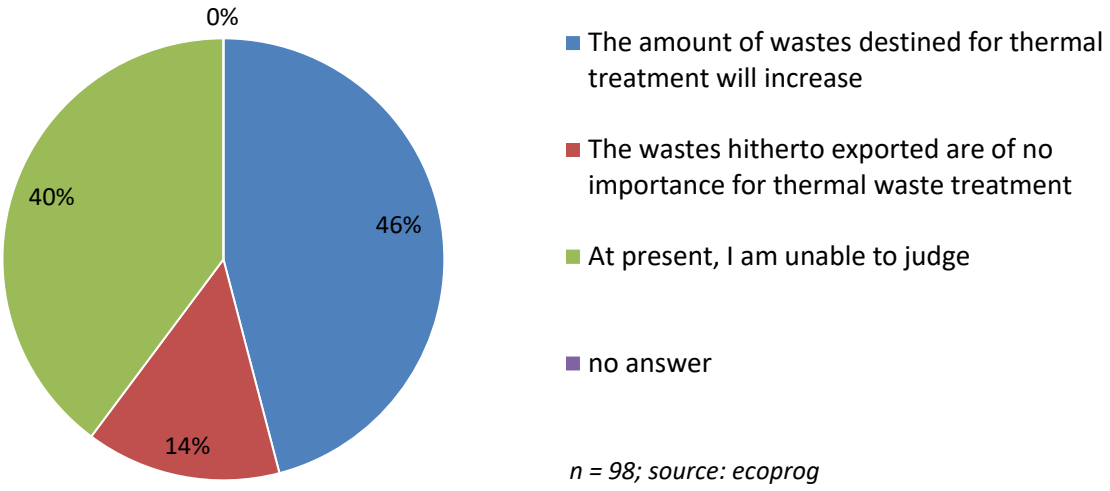
In countries such as the Netherlands, Sweden, Denmark or Germany the prices for thermal waste treatment are constantly being increased by taxes and duties. In your opinion, what are the consequences? (multiple answers possible)



1 The market share of thermal waste treatment will decrease in these countries
2 Waste exports to these countries will decline
3 More waste will be sent for sorting and recycling
4 Waste disposal in general will become more expensive

Export effects

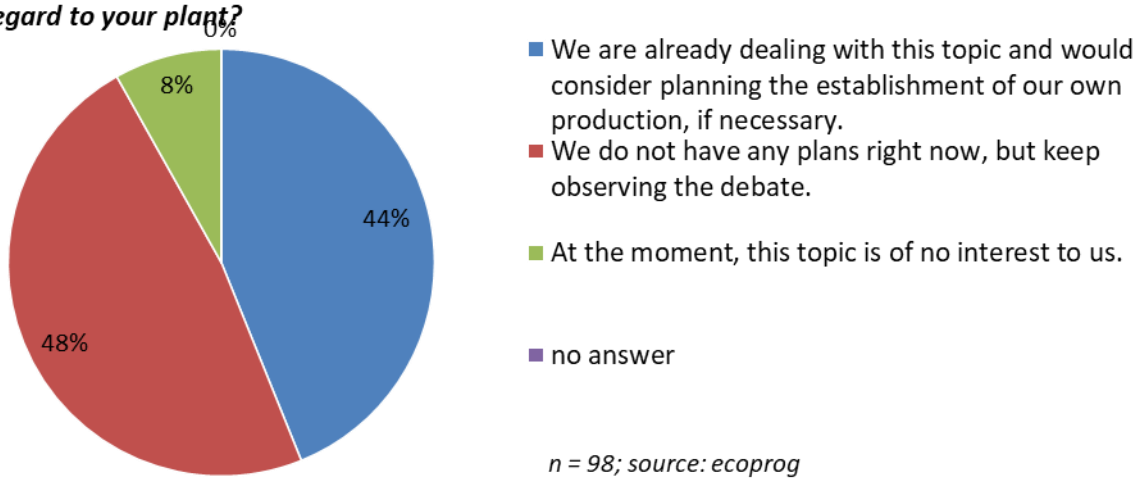
The EU Waste Shipment Regulation is currently being amended. It is widely expected that, at the end of this process, especially waste exports outside the EU will be hampered. What does that mean for thermal waste treatment?



n = 98; source: ecoprog

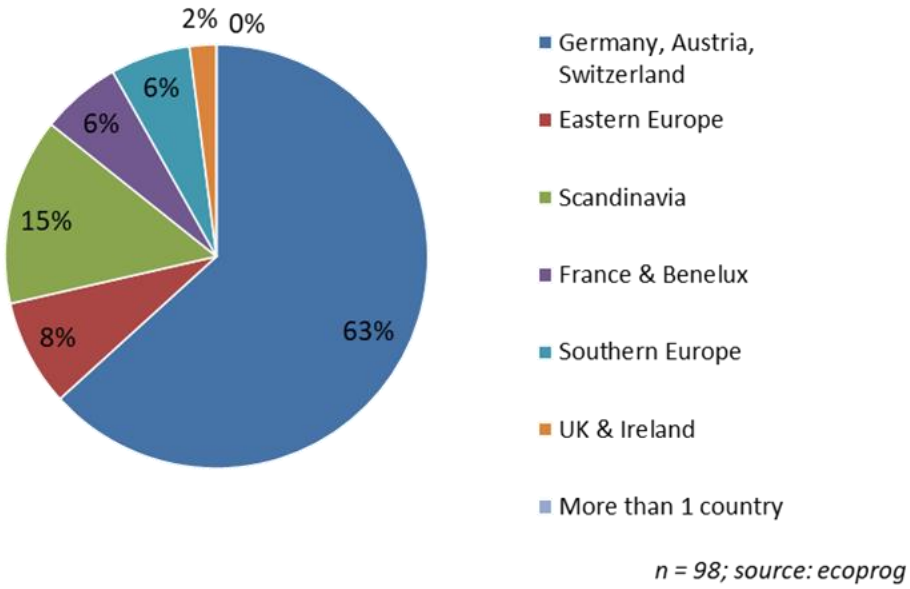
Hydrogen

Hydrogen is traded as an energy carrier of increasing importance. At waste-to-energy plant locations as well there are initial plans for the production of hydrogen. How do you assess this topic with regard to your plant?



n = 98; source: ecoprog

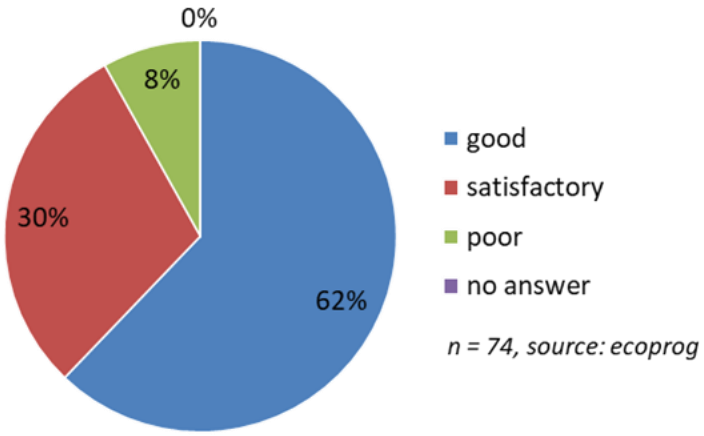
Plant locations of survey participants by region



n = 98; source: ecoprog

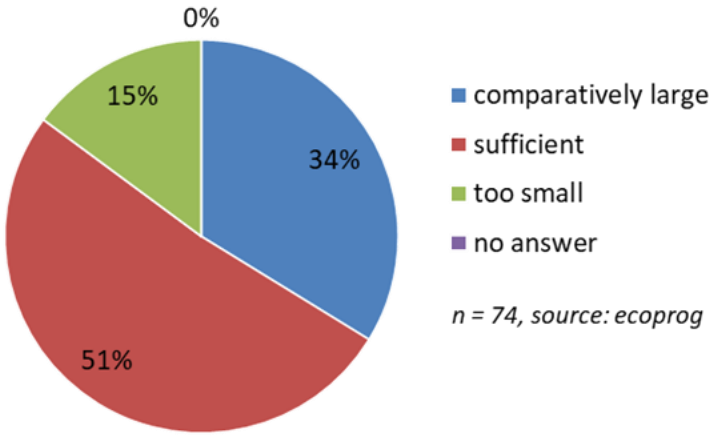
Current business situation

How would you describe your current business situation?



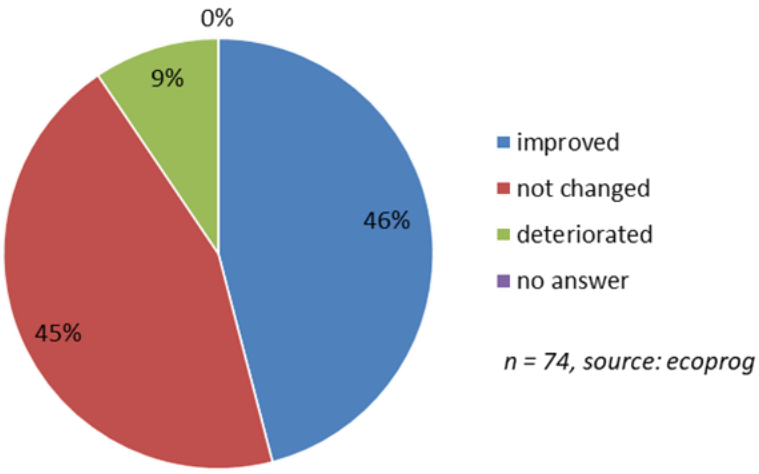
Present order backlog

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



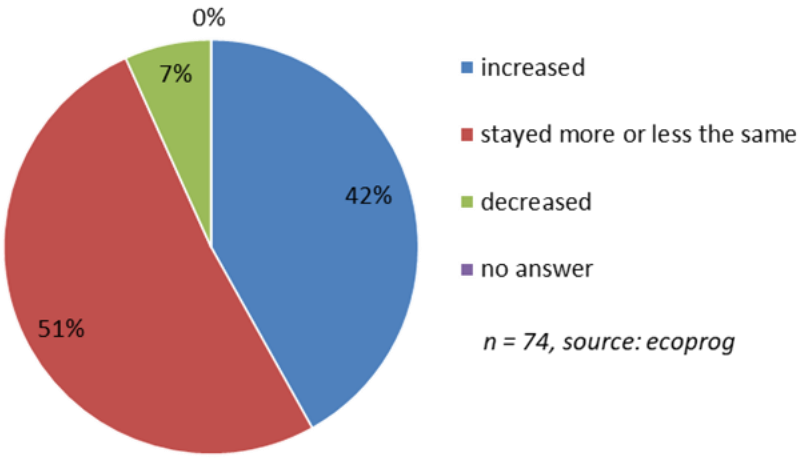
Demand in the past 12 months:

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



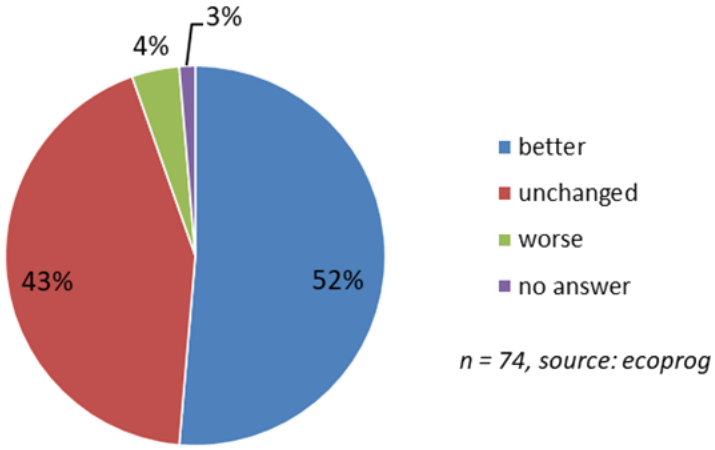
Order backlog in the past 12 months

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



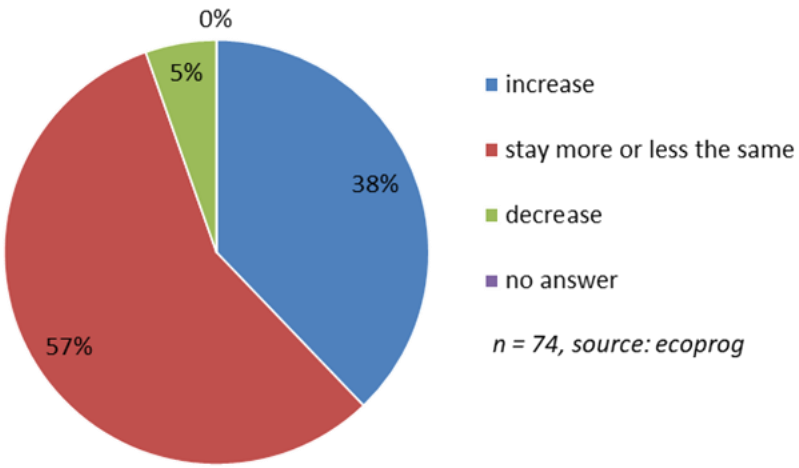
Business prospects

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



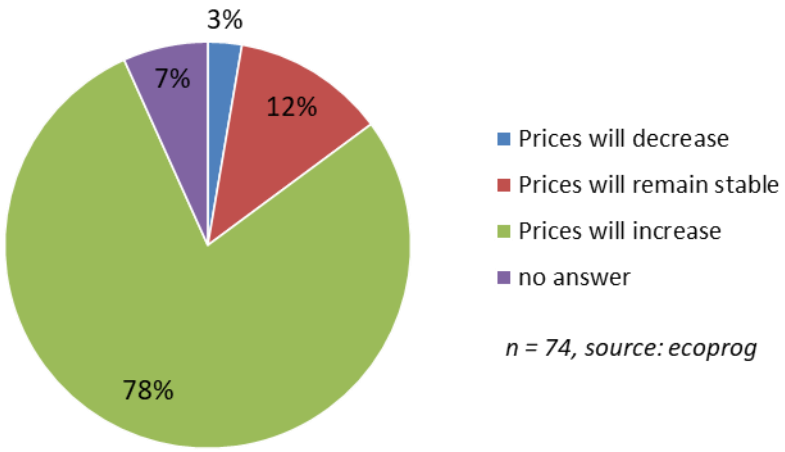
Workforce development

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



Future price development

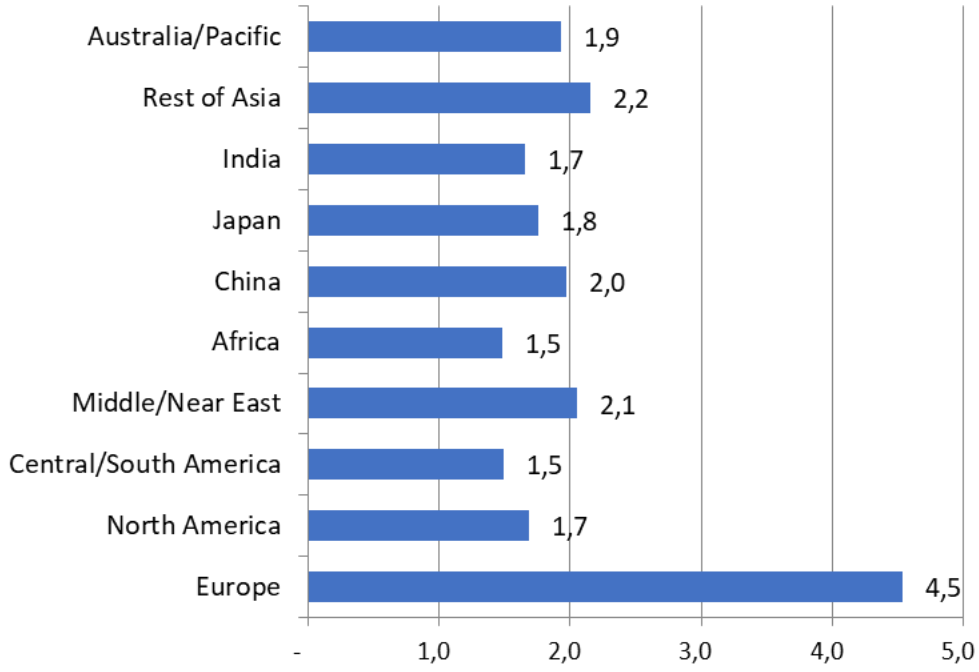
In which way do you expect the prices for constructing, maintaining and modernising thermal waste treatment plants to develop in the next 12 months?



n = 74, source: ecoprog

Current market regions

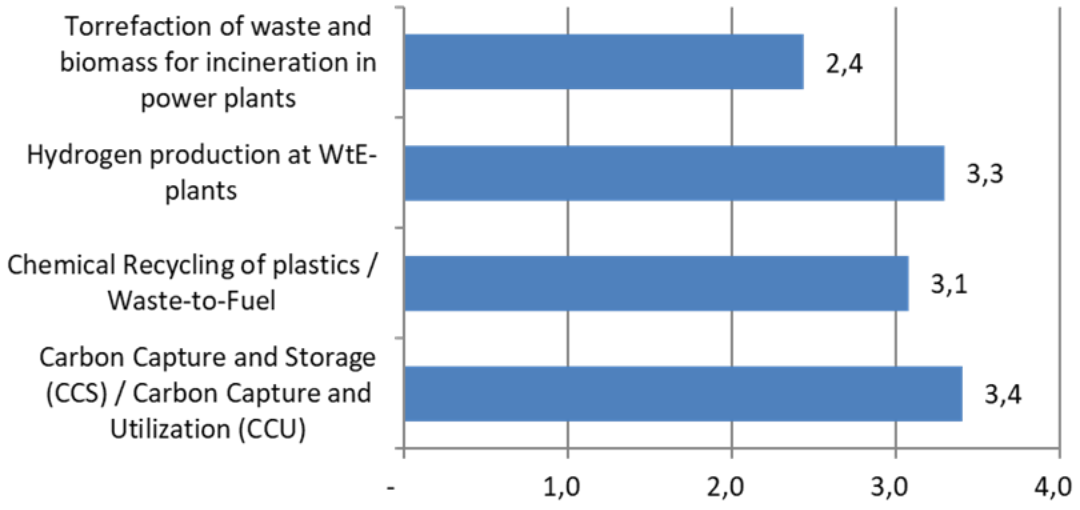
How important are the following markets for your company today? (1=unimportant, 5=very important)



n = 74, source: ecoprog

Effects of technologies

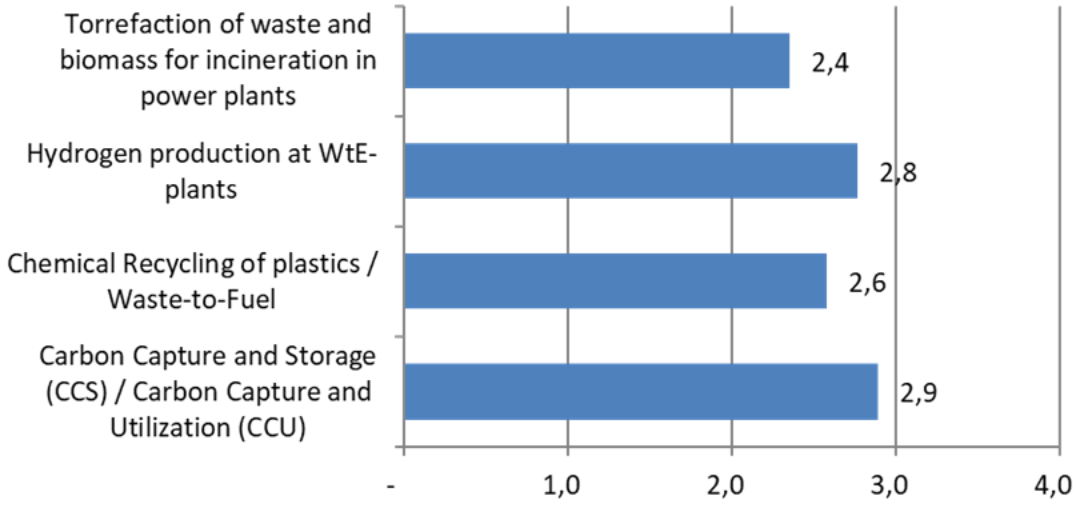
In your opinion, to what extent will the following technologies prevail? (1 = little extent, 5 = large extent)



n = 74, Source: ecoprog

Relevance technologies

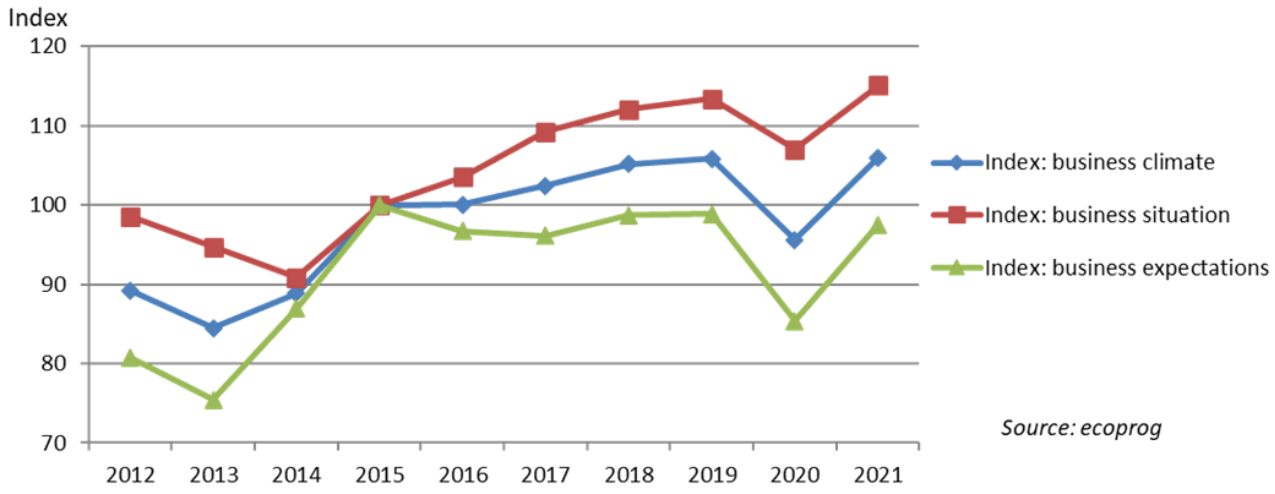
How important do you consider these technologies as a present or future market for your business? (1 = unimportant, 5 = very important)



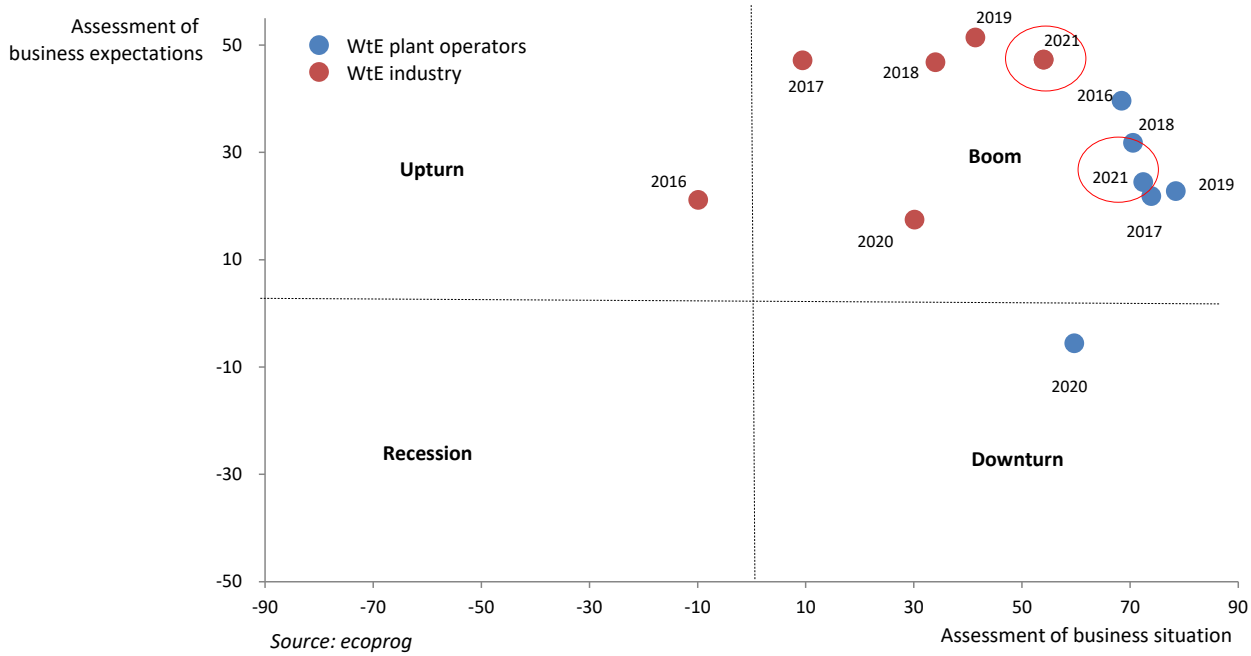
n = 74, Source: ecoprog

Time series

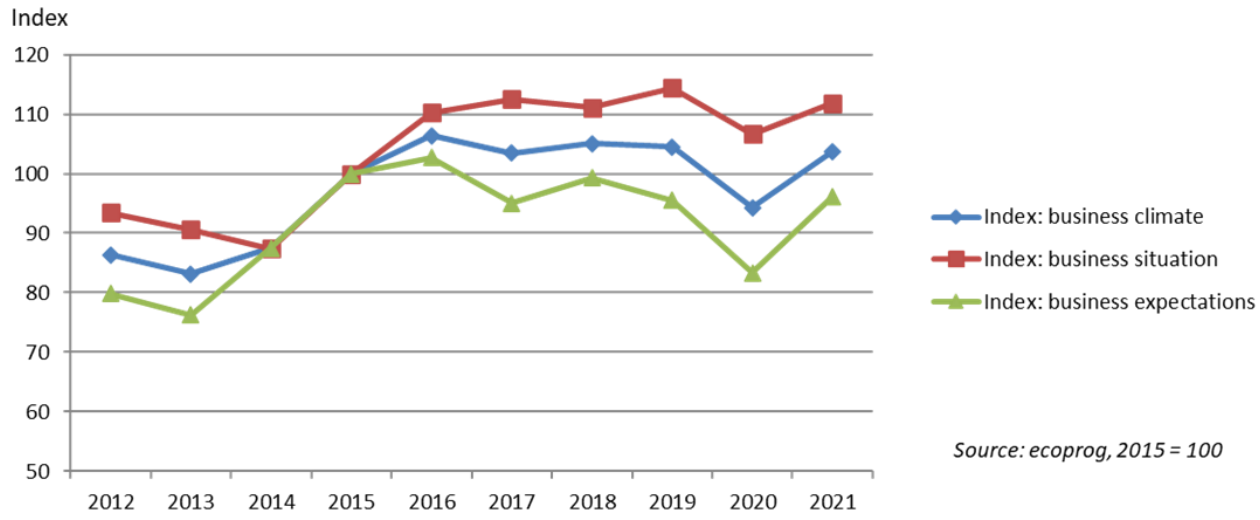
Industry barometer operators & industry



Classification of results

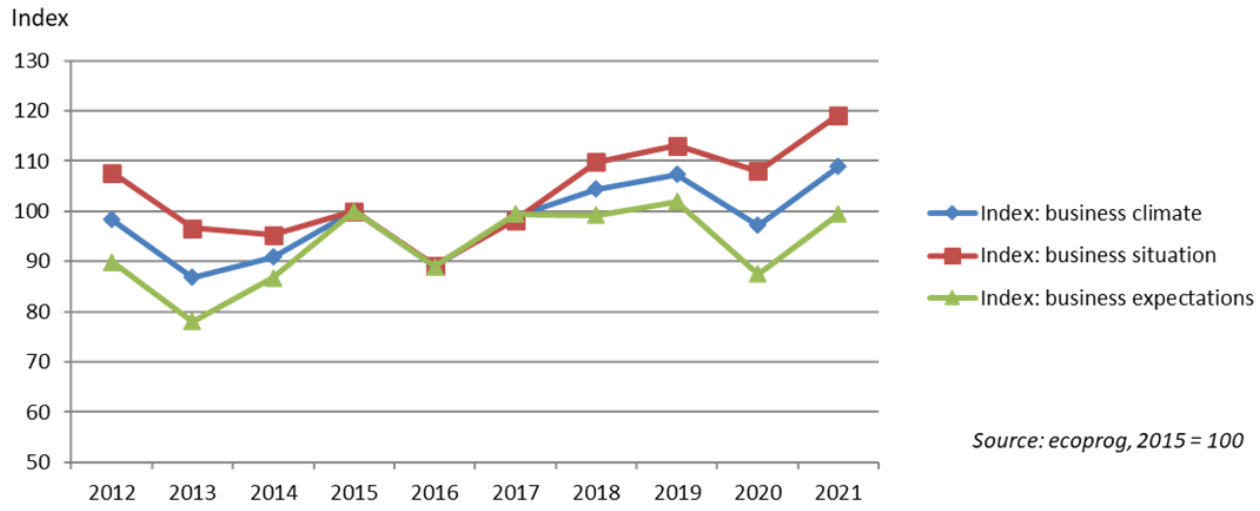


Industry barometer for operators of thermal waste treatment plants



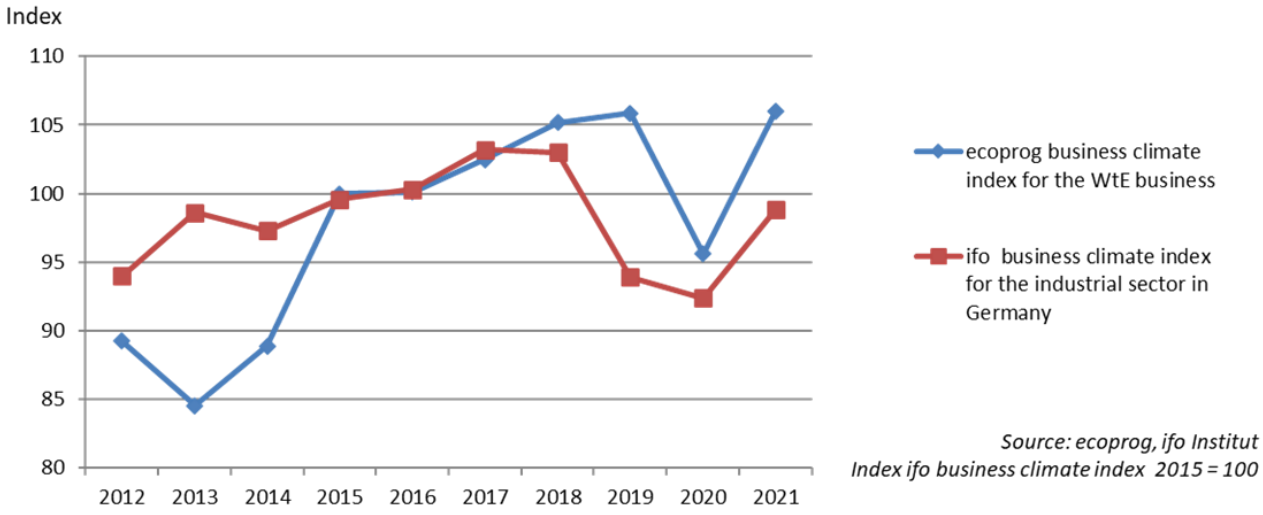
Source: ecoprog, 2015 = 100

Industry barometer WtE-Industry



Source: ecoprog, 2015 = 100

Comparison of ifo business climate index



Source: ecoprog, ifo Institut
Index ifo business climate index 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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