

RESULTS

WINDENERGY

trend:index

MOOD BAROMETER FOR THE
ONSHORE AND OFFSHORE WIND
INDUSTRY

AUTUMN 2023

26/10/2023



wind:research



WindEnergy
Hamburg

The global on & offshore event

24 – 27 September 2024

windenergyhamburg.com



INTRODUCTION

OVERVIEW & PARTICIPATION

This edition of the WEtx online survey was visited by more than 640 individuals, 278 of whom completed the questionnaire entirely, and 588 in part. This puts participation at 92 %, a significant improvement over earlier surveys.

#	Survey period	Visitors	Survey started	Survey completed	Visitor participation rate	Visitor completion rate	Survey completion rate
1	Q2 2018 (16/03 – 19/04/2018)	1,952	1,187	674	61 %	35 %	57 %
2	Q4 2018 (25/09 – 09/11/2018; trade fair)	2,414	1,655	958	69 %	40 %	58 %
3	Q2 2019 (02/04 – 13/05/2019)	2,299	1,254	817	55 %	36 %	65 %
4	Q4 2019 (23/10 – 30/11/2019)	1,582	1,026	712	65 %	45 %	70 %
5	Q2 2020 (17/03 – 29/04/2020)	1,867	1,156	782	62 %	42 %	68 %
6	Q4 2020 (27/08 – 16/10/2020, trade fair)	2,517	1,277	865	51 %	34 %	68 %
7	Q2 2021 (23/03 – 04/05/2021)	1,384	501	334	36 %	24 %	67 %
8	Q4 2021 (09/09 – 28/10/2021)	1,459	502	322	34 %	22 %	64 %
9	Q2 2022 (14/03 – 14/04/2022)	1,477	874	608	59 %	41 %	70 %
10	Q4 2022 (26/09 – 03/11/2022, trade fair)	1,360	842	518	62 %	38 %	62 %
11	Q2 2023 (13/03 – 28/04/2023)	986	543	443	55 %	45 %	82 %
12	Q4 2023 (05/09 – 12/10/2023)	640	588	278	92 %	43 %	47 %

Representativeness was determined based on the following categories: Regional distribution, activities across the value chain, coverage of different production areas, onshore and offshore segments, position of respondent. The distribution of response rates (based on IP addresses) across countries and regions corresponds to the market volume of the respective country or region while accounting for the onshore and offshore segments. This ensures a high level of representativeness. The only exception is China which, due to its relatively isolated market and low response rate, is proportionally underrepresented compared to the rest of the Asia region. This statement relates to existing onshore and offshore capacities as well as the importance, or market share, of the wind industry (turbines, towers, foundations, projects, development, etc.).

INTRODUCTION

Objective, Method, Participants

WindEnergy trend:index (WETix) is a semi-annual survey first launched in 2018 by WindEnergy Hamburg, the leading global trade fair for onshore and offshore wind energy, in collaboration with wind:research, the leading market research institute for the wind energy industry, to gauge the mood in the industry.

- The survey covers all onshore and offshore regions globally. The following market regions were defined: Germany, Europe (including Germany), North America, Asia, and Rest of World (RoW).
- In the following diagrams, Germany is reflected individually; however, the results for all of Europe include Germany, as well.
- Around 14 per cent of respondents work in the offshore segment exclusively and roughly 33 per cent are primarily active in the onshore segment. About 40 per cent are involved in both the onshore and offshore segments. Companies identifying as “other” (8.3 %) often hail from the hydrogen or photovoltaics industries.
- 17 per cent of respondents work in operation and maintenance. Furthermore, around 47 per cent are active in manufacturing as well as planning and project development, and roughly 8 per cent perform installation-related work. Activities within manufacturing are mostly focused on production of turbines and other components.
- About 32 per cent of respondents primarily do business in Germany, and another 32 per cent are focused on Europe. About 15 per cent are active in each, North America and Asia, and 11 per cent in the rest of the world.
- Around 15 per cent of survey participants hold positions in business, corporate or operations management, followed by respondents from sales, R&D and design as well as maintenance and other segments (such as consulting, law).

INTRODUCTION

KEY FINDINGS –

COMPARING QUESTIONS 1 TO 9

The mood among the respondents to the current WETix received somewhat poorer marks for both, the onshore and offshore segments.

- After past surveys delivered positive or stagnating assessments almost consistently, the general conditions for wind energy now tend to be seen in a negative light. Compared to the results six months ago, opinions have shifted to the negative side, with only Asia giving a slightly more positive or unchanged response.
- For Germany, the views about the economic environment for wind have worsened somewhat, especially in the offshore segment where conditions are receiving even poorer marks. After a continuous rise had been seen since the second half of the year 2019, the overall perspective is now trending downward for the first time.
- Across all regions, the assessments of the global market draw a mixed picture: After a slight upturn in the previous survey, there is now a subdued downward trend in some regions.
- Assessments of the market situation in Germany are unfavourable by comparison, and responses to the four questions addressing the market situation for Germany are now ranging at the bottom of the scale.

INTRODUCTION

KEY FINDINGS –

COMPARING QUESTIONS 1 TO 9

Assessments of the global markets reveal a mixed mood. Especially the short-term perspective has worsened significantly in some markets.

- Following stagnation six months ago, assessments of the European market are now pointing in a negative direction. The curve very much resembles that for Germany, a plausible outcome since as a European country, Germany influences the market assessments for the entire continent.
- Opinions about the long-term North American market are maintaining their high level but responses are more negative for offshore than for onshore. While short-term ratings are more visibly trending towards the negative, this is consistent with the more general picture of periodical mood changes.
- Asia is showing a slight improvement in the onshore segment for both, the coming twelve-month period and the next two years. There are hardly any changes in the long-term expectations for the offshore segment but a more pronounced negative change can be seen in short-term assessments.
- The rest of the world reveals a minor improvement over the short term and a stronger upwards trend in the longer term as the general level remains below that of other regions.

INTRODUCTION

KEY FINDINGS –

COMPARING QUESTIONS 1 TO 9

The mood in Germany is similar to that in all of Europe (i.e., slight losses). This means that assessments for Germany remain at a high level although a downward trend is discernible.

- The overall mood remains positive. There is no industry segment, time or region with the mood declining into the negative quadrant; in the context of all WETix trend surveys conducted so far, most ratings are still in the medium to upper range. This applies to Germany, as well, a country which has returned the poorest results among all regions in nearly all past surveys.
- Meanwhile, we can see a significantly better mood now in Asia, a fact that can be attributed in part to easing supply chain issues.
- All regions continue to show very similar assessment levels. While in past surveys, assessments for some regions differed substantially from the others, the picture in the present WETix is very similar everywhere.
- What has also shrunk in this WETix is the difference between the onshore and offshore segments, with offshore reflecting a slightly poorer mood for the first time.

INTRODUCTION

KEY FINDINGS –

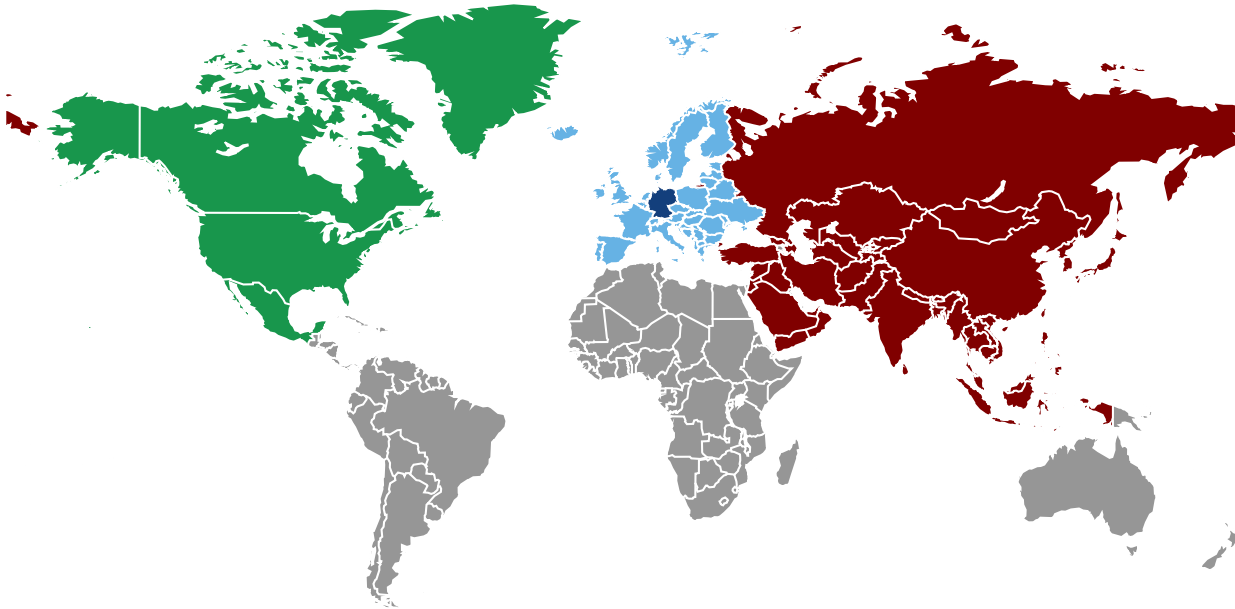
COMPARING QUESTIONS 1 TO 9

The results of the 12th WETix confirm wide-spread concerns about insufficient resources throughout the wind industry. The perception of saving potential stagnates.

- This WETix again reflects wide-spread concerns regarding the lack of resources. Responses to the question to what extent a shortage of resources is getting in the way of the expansion goals indicate a 'strong' or 'very strong' impact on both, onshore and offshore wind.
- After more positive assessments of the saving potential had been seen in the last issue of this report, opinions voiced in the latest survey have clearly turned negative, especially in the offshore segment. Costs or cost pressures might be playing a role here; the same applies to the question whether the technology has reached the end of its development potential.
- The question about turbine sizes and power output expected by 2030 for both the onshore and offshore segments, included in last year's WETix survey for the first time, underlines the potential for further technological progress. Compared to last year, the averaged responses indicate an expectation of increasing turbine rated output power until 2030 for the onshore segment. As for the offshore segment, however, respondents believe the average power output capacity will drop slightly, compared to last year.

OVERVIEW OF COUNTRIES STUDIED

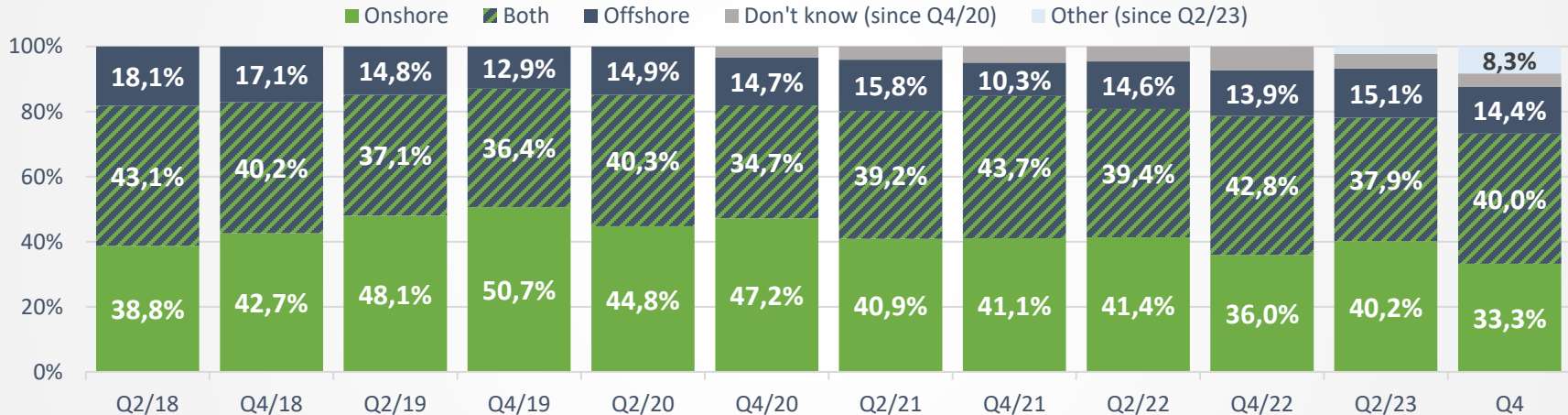
The survey covers all onshore and offshore wind energy regions globally. The pre-defined market regions were: Germany, Europe (including Germany), North America, Asia and Rest of World (RoW), including Africa, Australia as well as Central and South America.



MARKET SEGMENTS

Around 14 per cent of respondents work in the offshore segment exclusively and roughly 33 per cent are primarily active in the onshore segment. 40 per cent are involved in both the onshore and offshore segments. Companies identifying as “other” often hail from the hydrogen or photovoltaics industries.

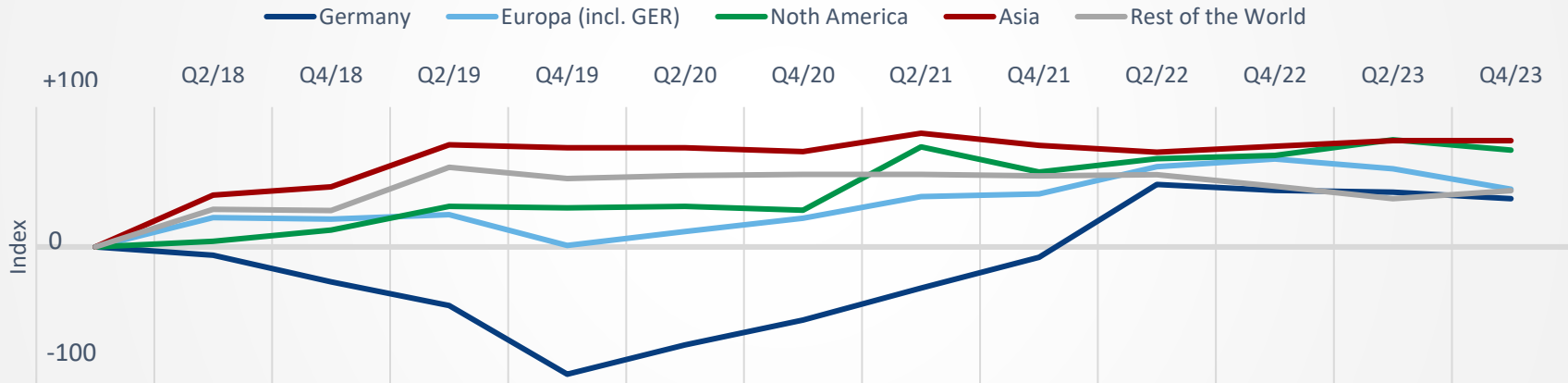
In which segment of the wind industry is your company's focus?



ASSESSMENT OF THE ECONOMIC ENVIRONMENT ONSHORE WIND

Assessments of the current business environment for offshore wind in Asia and the rest of the world continue to trend upwards while results for North America, Europe and Germany are declining. Feedback for Europe in particular is significantly poorer.

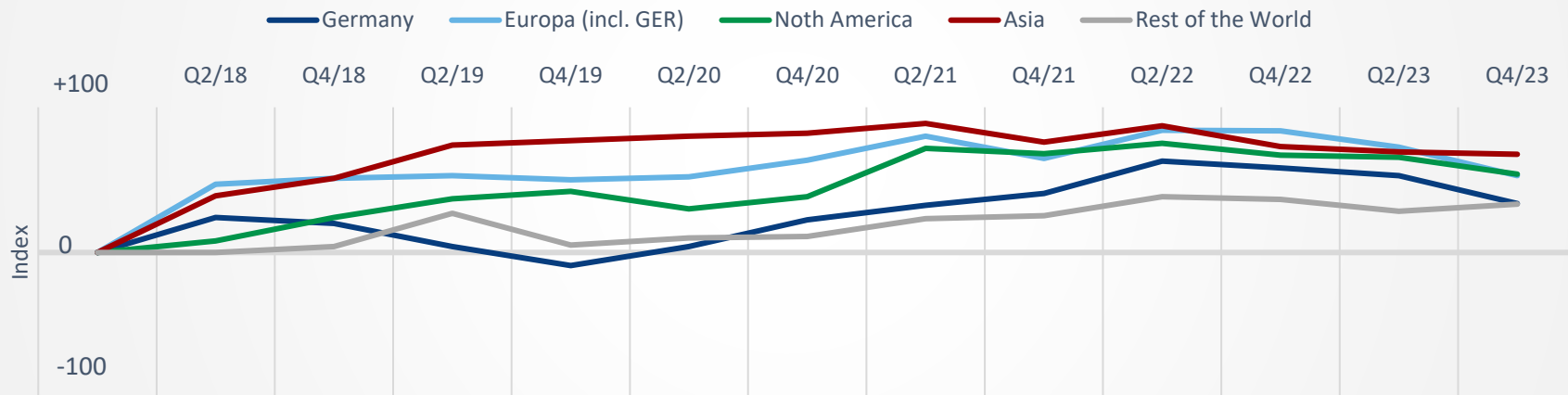
How do you assess the current development of the framework conditions for **onshore wind energy** (overall: legal, political and social)?



ASSESSMENT OF THE ECONOMIC ENVIRONMENT OFFSHORE WIND

In this WETix, most assessments of the business environment for the offshore wind segment are slightly more negative than six months ago. The most pronounced drop is seen for Germany, whereas assessments of the conditions for the rest of the world have improved somewhat.

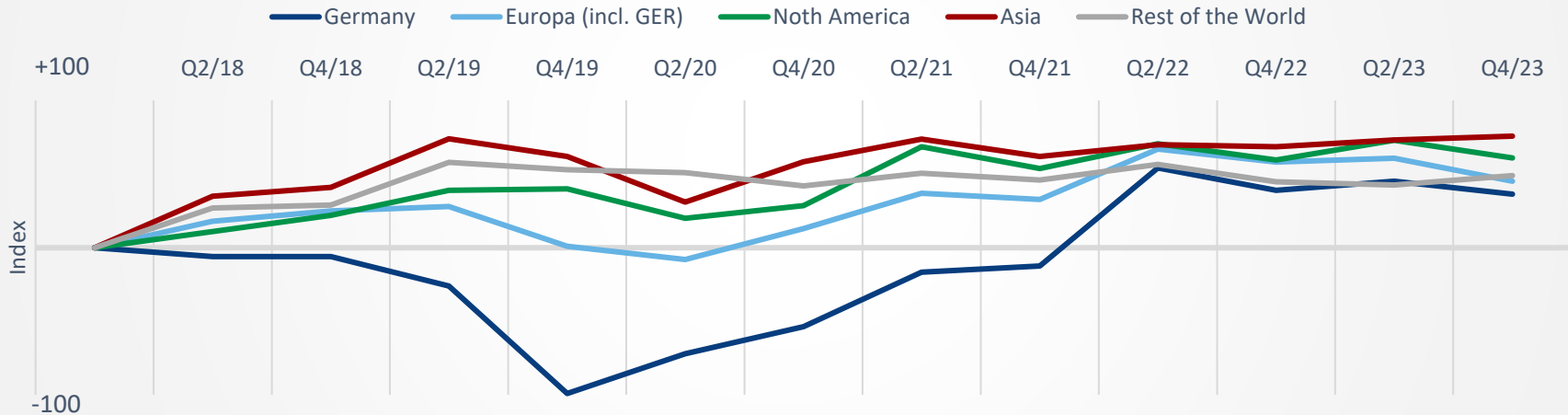
How do you assess the current development of the framework conditions for **offshore wind energy** (overall: legal, political and social)?



ASSESSMENT OF THE ONSHORE WIND INDUSTRY GLOBAL – PRESENT

The current global onshore wind industry market has received markedly poorer assessments for North America, Europe and Germany than six months ago whereas Asia has improved slightly and the rest of the world shows a more vigorous upturn.

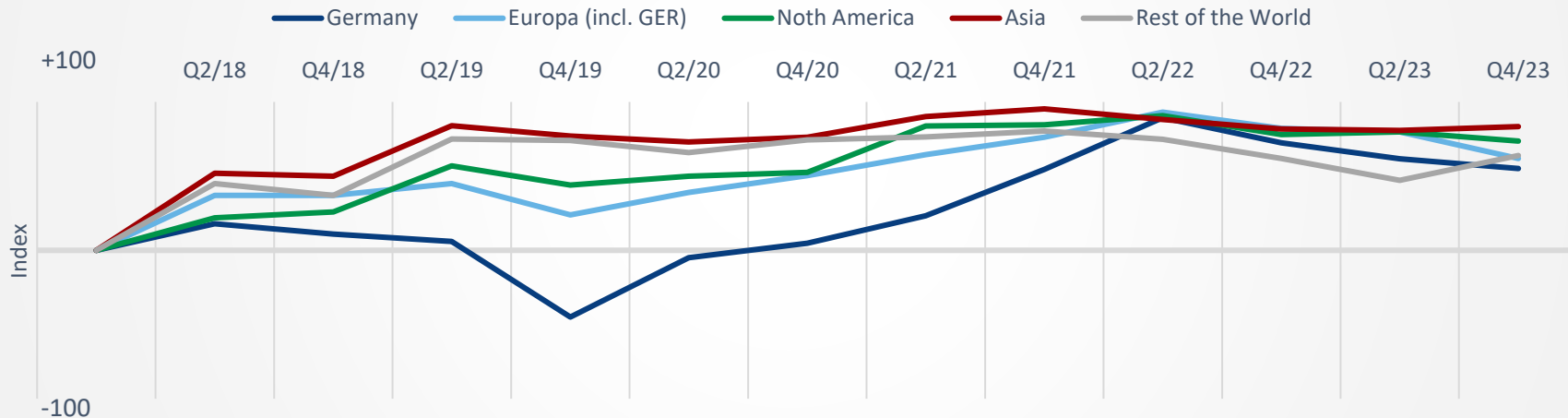
How do you assess the global market for the **onshore wind industry**
in the next twelve months?



ASSESSMENT OF THE ONSHORE WIND INDUSTRY GLOBAL – NEXT TWO YEARS

As in previous WEtix editions, expectations for the future market are more positive than the assessments of the present situation. The European, North American and Asian markets continue to receive positive marks, if with slight losses here or there. Ratings of the German market, while still clearly in the positive quadrant, continue to decline.

How do you assess the global market for the **onshore wind industry** in two years?

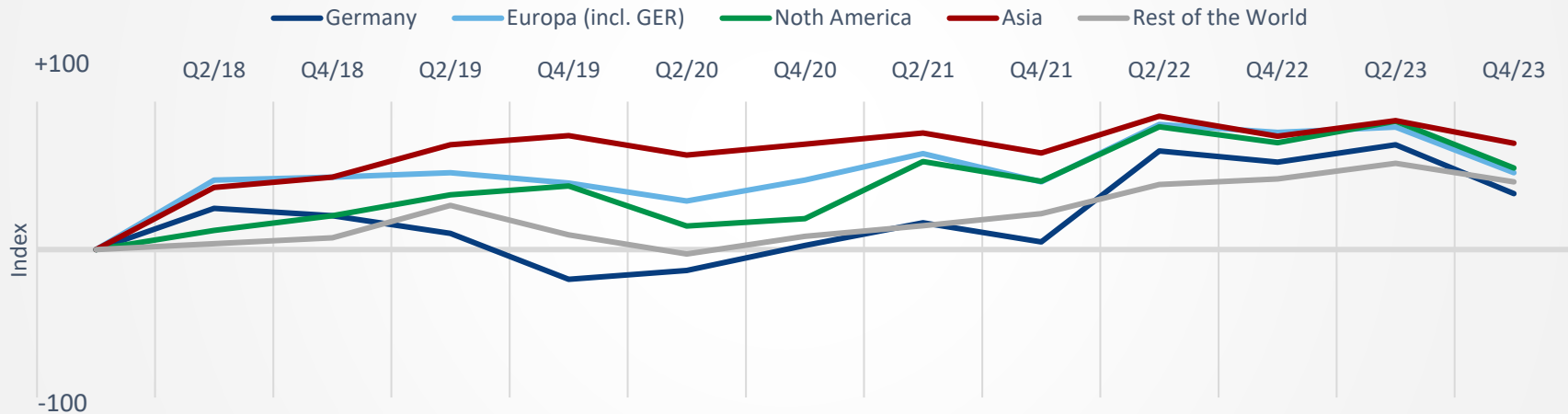


ASSESSMENT OF THE OFFSHORE WIND INDUSTRY

GLOBAL – PRESENT

In every single region, the market for offshore wind energy is receiving poorer marks for the coming twelve-month period than six months ago. Contrary to past surveys in which the offshore segment consistently received a significantly better rating than onshore, current assessments for both are roughly at the same level.

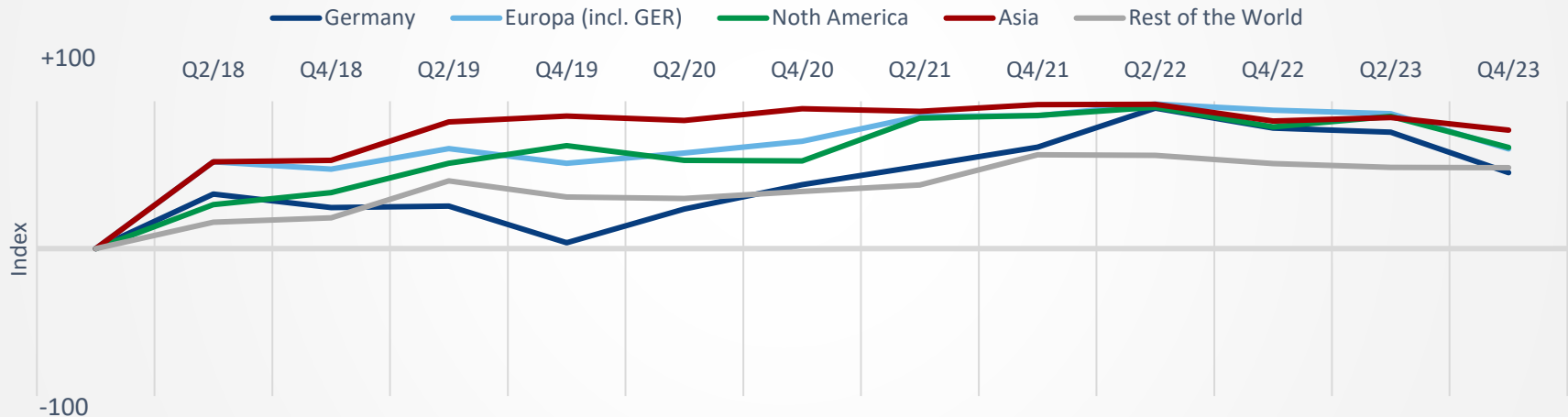
How do you assess the global market for the **offshore wind industry** in the next twelve months?



ASSESSMENT OF THE OFFSHORE WIND INDUSTRY GLOBAL – NEXT TWO YEARS

The assessments of the future global market for the offshore wind industry draw a consistent picture. All countries are seeing a decline, which is, however, less distinct for Asia and the rest of the world than for North America, Europe and Germany.

How do you assess the global market for **the offshore wind industry** in two years?

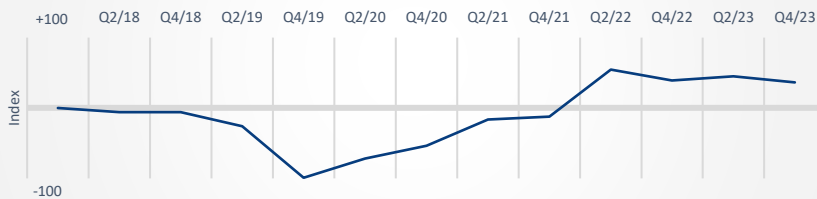


ASSESSMENT OF THE ONSHORE AND OFFSHORE WIND INDUSTRY IN GERMANY

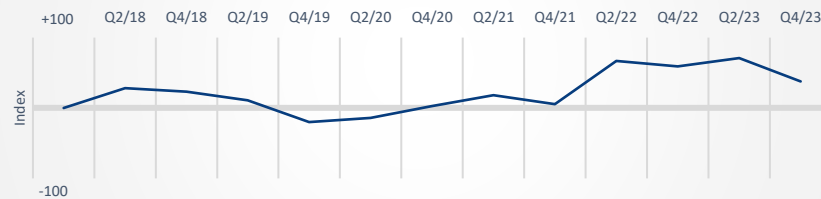
COMPARISON: CURRENT VS. IN TWO YEARS

The slight decline of the mood regarding the coming twelve-month period in the German market continues during the current six-month period. Expectations for the next two years are again more negative.

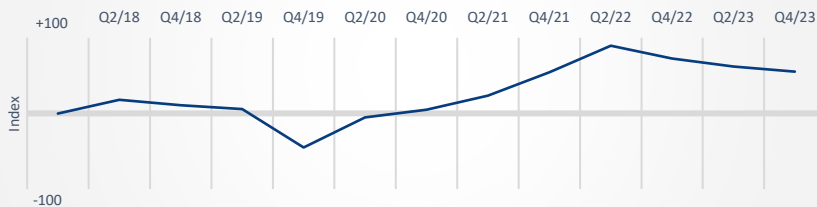
How do you assess the global market for the **onshore wind industry** in Germany in the next twelve months?



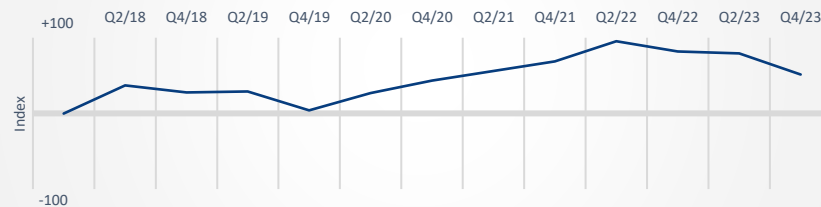
How do you assess the global market for the **offshore wind industry** in Germany in the next twelve months?



How do you assess the global market for the **onshore wind industry** in Germany in the next two years?



How do you assess the global market for the **offshore wind industry** in Germany in the next two years?

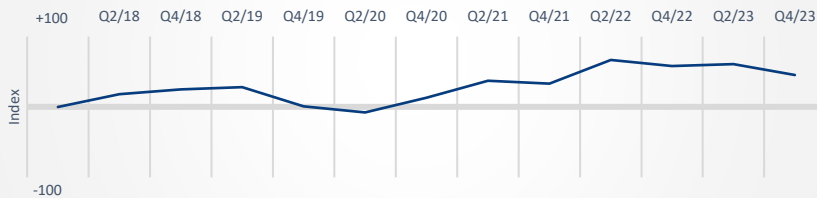


ASSESSMENT OF THE ONSHORE AND OFFSHORE WIND INDUSTRY IN EUROPE (INCLUDING DE)

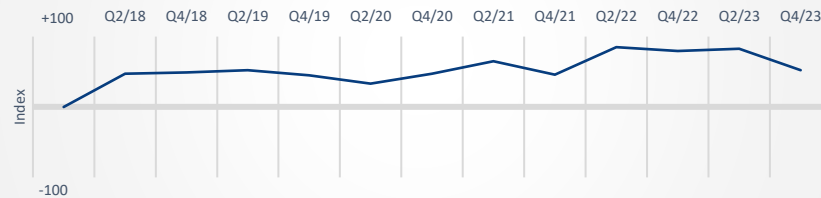
COMPARISON: CURRENT VS. IN TWO YEARS

The general development of the mood in Europe resembles that in Germany – which is explicitly included in the Europe results. The decline discernible six months ago is continuing for both segments in all of Europe.

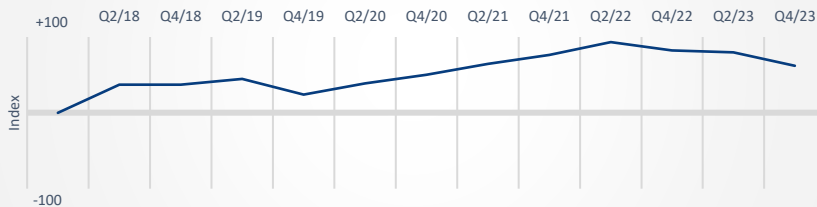
How do you assess the global market for the **onshore wind industry** in Europe (incl. GER) in the next twelve months?



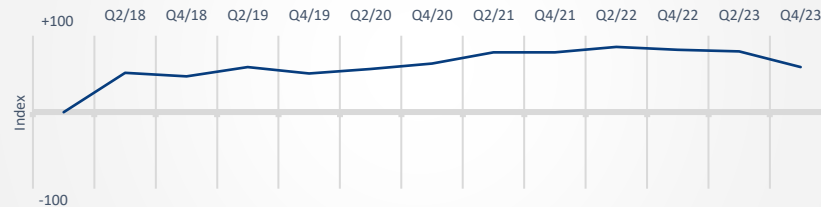
How do you assess the global market for the **offshore wind industry** in Europe (incl. GER) in the next twelve months?



How do you assess the global market for the **onshore wind industry** in Europe (incl. GER) in the next two years?



How do you assess the global market for the **offshore wind industry** in Europe (incl. GER) in the next two years?

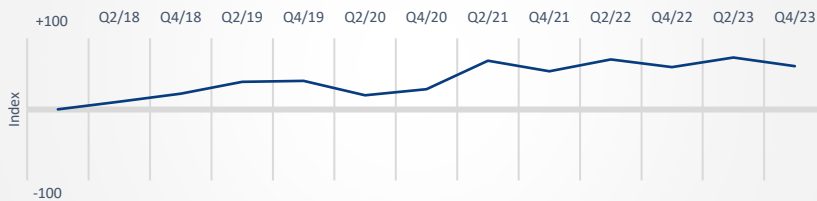


ASSESSMENT OF THE ONSHORE AND OFFSHORE WIND INDUSTRY IN NORTH AMERICA

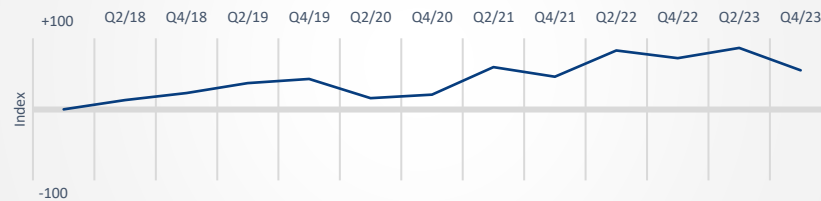
COMPARISON: CURRENT VS. IN TWO YEARS

The mood in the American market is negative for both industry segments. Expectations are most positive for the development of the onshore segment over the next two years, where the trend is near-stagnant.

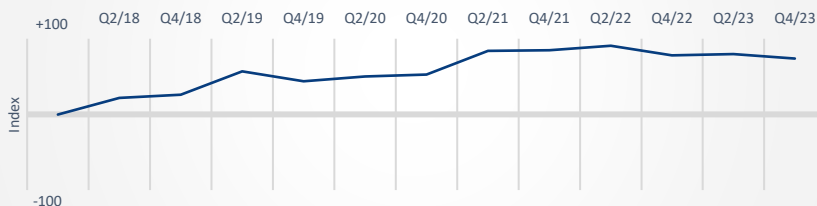
How do you assess the global market for the **onshore wind industry** in North America in the next twelve months?



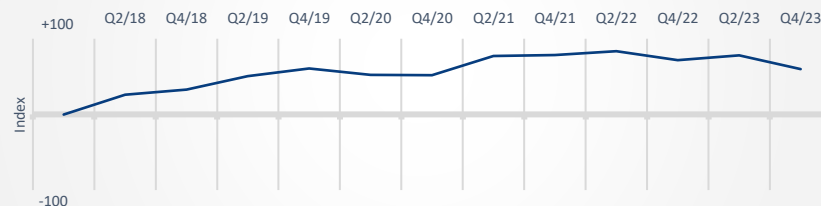
How do you assess the global market for the **offshore wind industry** in North America in the next twelve months?



How do you assess the global market for the **onshore wind industry** in North America in the next two years?



How do you assess the global market for the **offshore wind industry** in North America in the next two years?

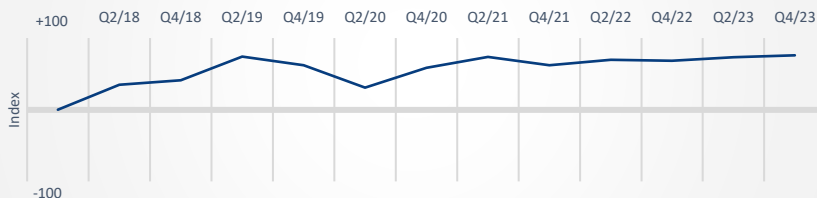


ASSESSMENT OF THE ONSHORE AND OFFSHORE WIND INDUSTRY IN ASIA

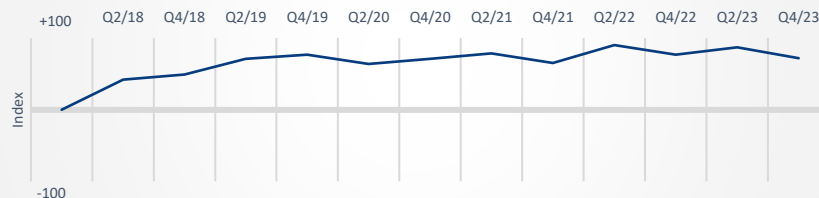
COMPARISON: CURRENT VS. IN TWO YEARS

Assessments of the current situation of the wind industry in Asia show a mixed picture for both onshore and offshore; however, changes from previous years remain minor. The only outlier is the offshore segment which is seen in a less favourable light over the next twelve months.

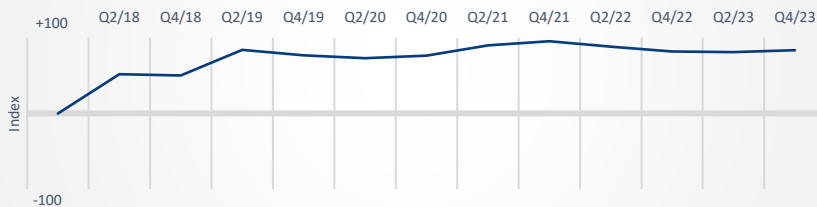
How do you assess the global market for the **onshore wind industry** in Asia in the next twelve months?



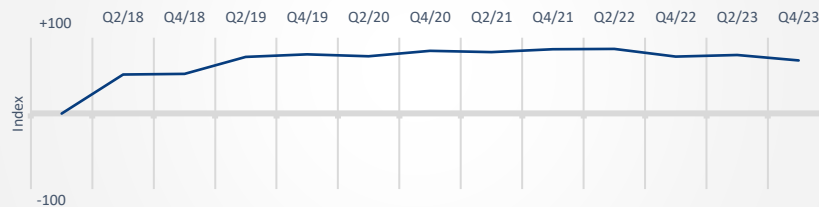
How do you assess the global market for the **offshore wind industry** in Asia in the next twelve months?



How do you assess the global market for the **onshore wind industry** in Asia in the next two years?



How do you assess the global market for the **offshore wind industry** in Asia in the next two years?

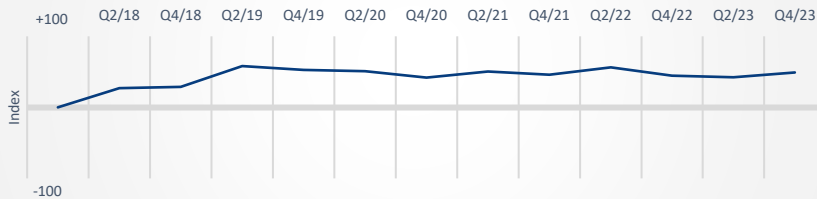


ASSESSMENT OF THE ONSHORE AND OFFSHORE WIND INDUSTRY – REST OF WORLD

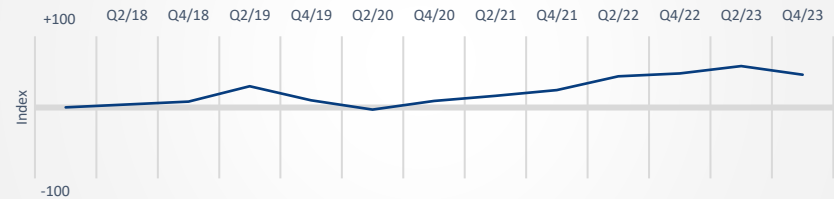
COMPARISON: CURRENT VS. IN TWO YEARS

Compared to all regions, the rest of the world receives the lowest marks; however, a positive trend can be seen in the short-term assessments of both the onshore and offshore segments. The long-term perspective for both is either stagnating or trending downwards.

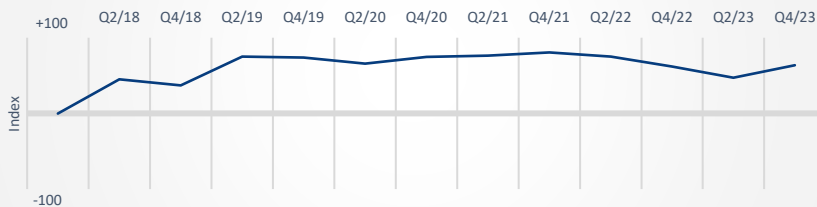
How do you assess the global market for the **onshore wind industry** in the **rest of the world** in the next twelve months?



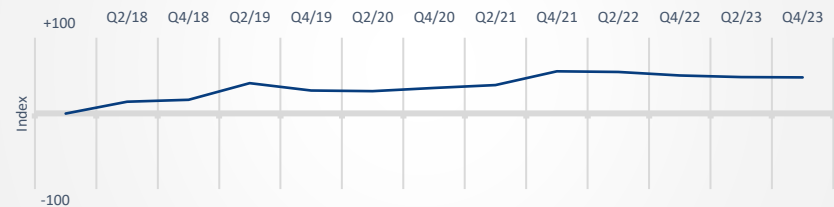
How do you assess the global market for the **offshore wind industry** in the **rest of the world** in the next twelve months?



How do you assess the global market for the **onshore wind industry** in the **rest of the world** in the next two years?



How do you assess the global market for the **offshore wind industry** in the **rest of the world** in the next two years?



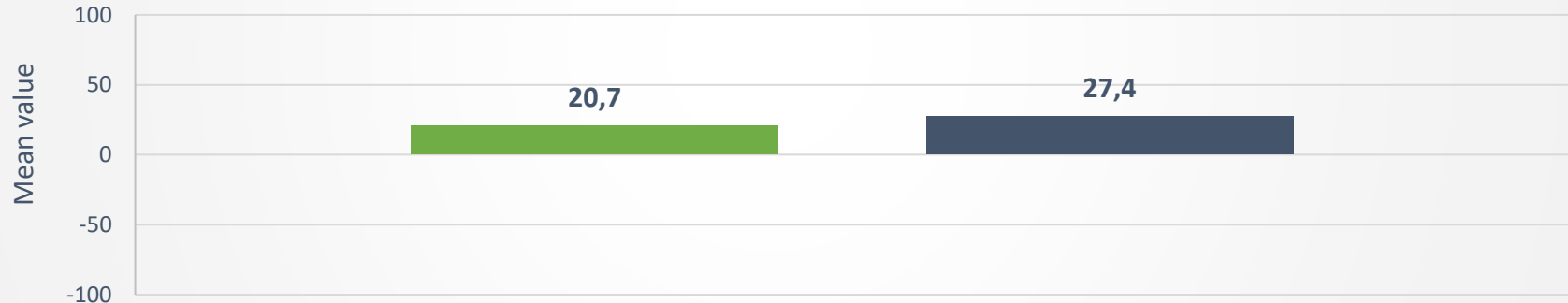
LIKELINESS OF REACHING EXPANSION TARGETS

The lack of resources is seen as a significant to major factor preventing the realisation of the expansion targets for both, offshore and onshore wind.

How much does the current global lack of resources hinder the expansion targets for onshore and offshore wind?

- from barely [-100] to strong [100] -

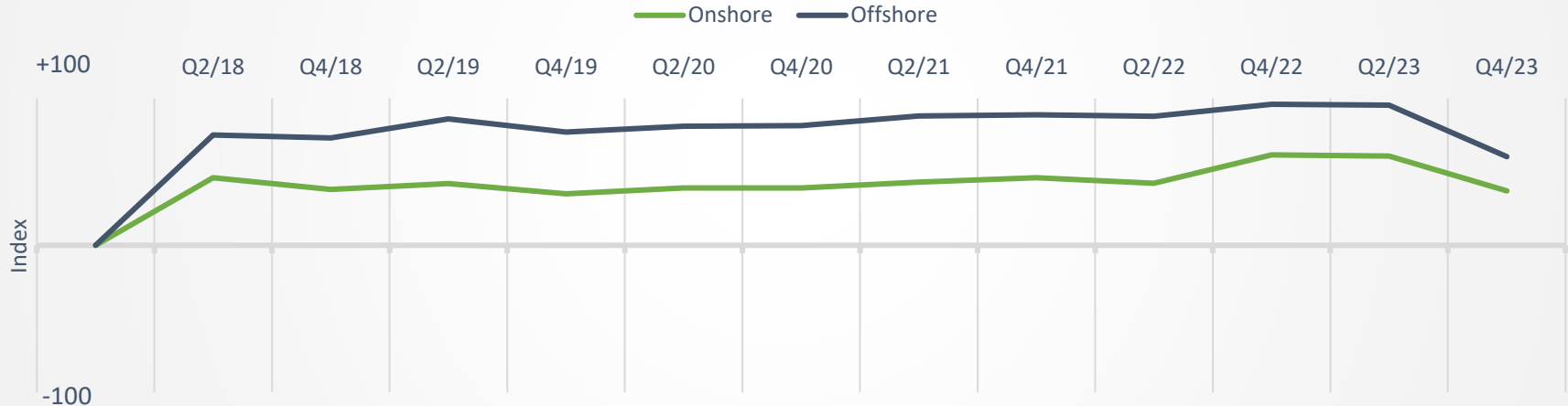
■ Onshore ■ Offshore



COST REDUCTION THROUGH NEW TECHNOLOGIES

After technology-enabled further saving potential had received positive assessments consistently in recent surveys over several years, the current WEtix is showing a decline for the first time – a surprisingly strong decline, in fact. The answer to the next question suggests that the saving potential is nearly exhausted, with the emphasis now on criteria such as cost reduction and speed of implementation.

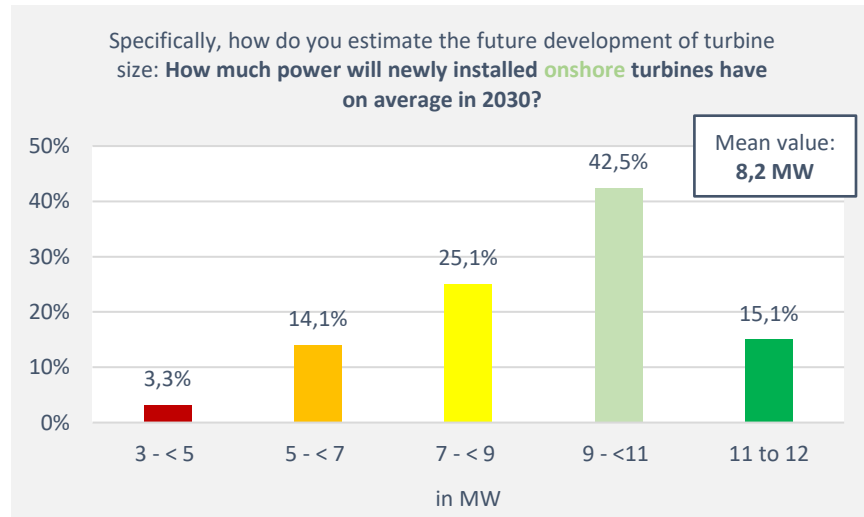
How do you assess further **cost efficiency potentials through technology** (e.g. bigger turbines, floating)?



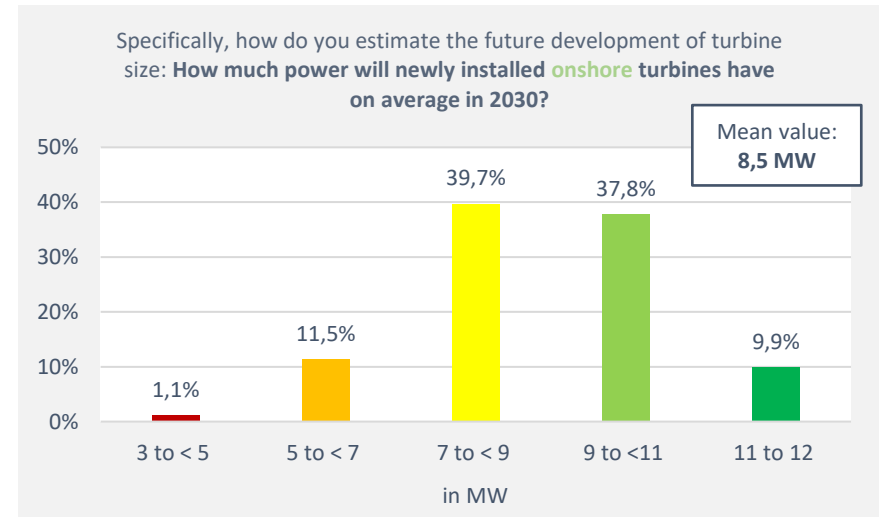
ASSESSMENT FOR ONSHORE TURBINES

The future development of turbine sizes and turbine output (in MW) is generally seen in a positive light. Compared to the second quarter, respondents are now expecting newly-installed onshore turbines to have a higher average power output capacity by the year 2030, with a mean value around 8.5 MW.

Previous evaluation (Q2/2023)



Current evaluation (Q4/2023)

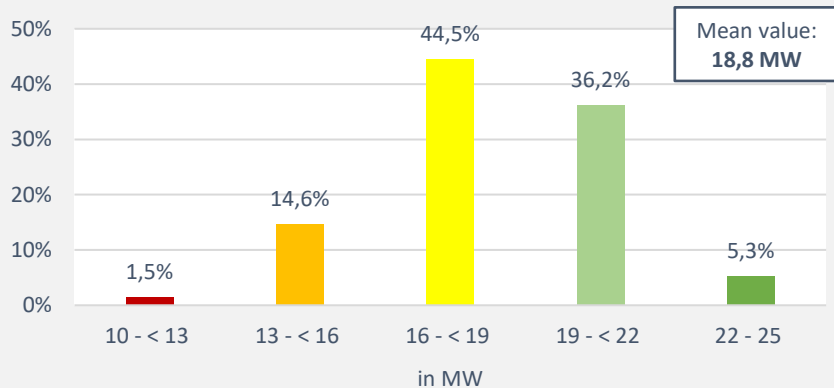


ASSESSMENT FOR OFFSHORE TURBINES

Contrary to onshore, the average power output of newly-installed offshore turbines for the year 2023 has dropped from 18.8 MW to 18 MW since the second-quarter survey. The most pronounced difference is seen in the 10-13 MW category, the share of which has increased from 1.5 per cent to 11.9 per cent relative to other sizes.

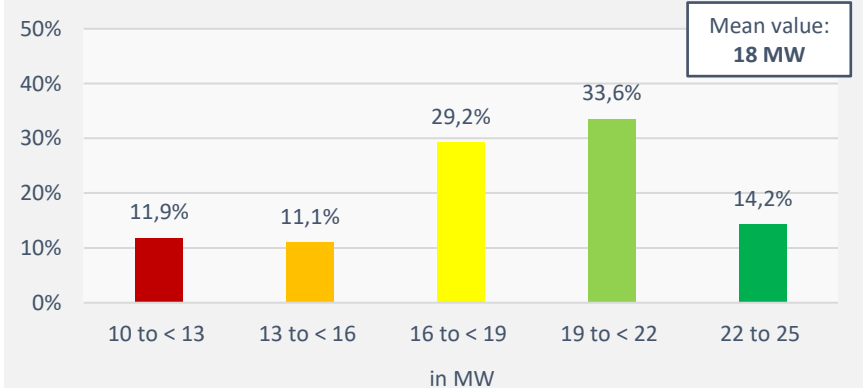
Previous evaluation (Q2/2023)

Specifically, how do you estimate the future development of turbine size: **How much power will newly installed offshore turbines have on average in 2030?**



Current evaluation (Q4/2023)

Specifically, how do you estimate the future development of turbine size: **How much power will newly installed offshore turbines have on average in 2030?**

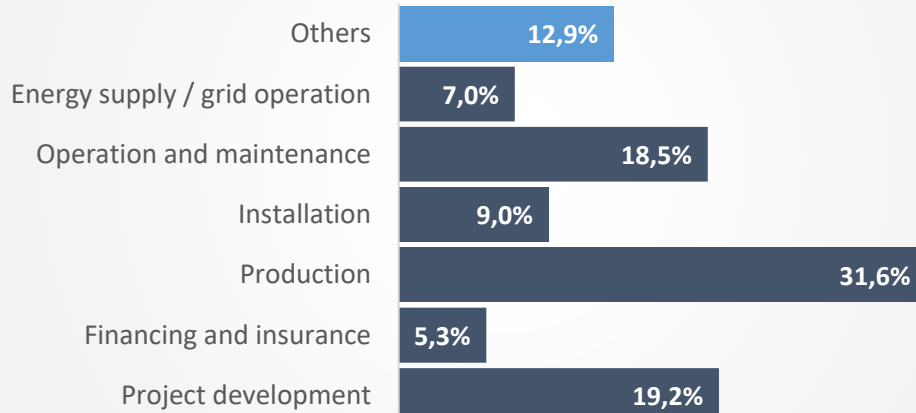


ACTIVITIES WITHIN THE VALUE CHAIN

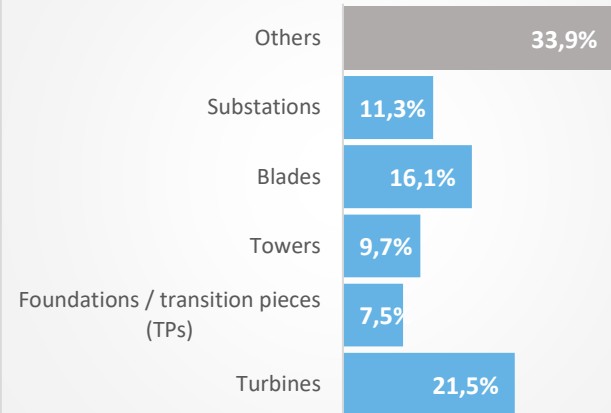
(MULTIPLE RESPONSES ALLOWED)

Many companies from the manufacturing segment took part in this WETix, with more than every third respondent identifying with that segment. The "Others" section of the value chain denotes companies active in fields such as consulting.

On which level of the value chain is your company's activity in the wind energy industry?



Itemization of answer Production

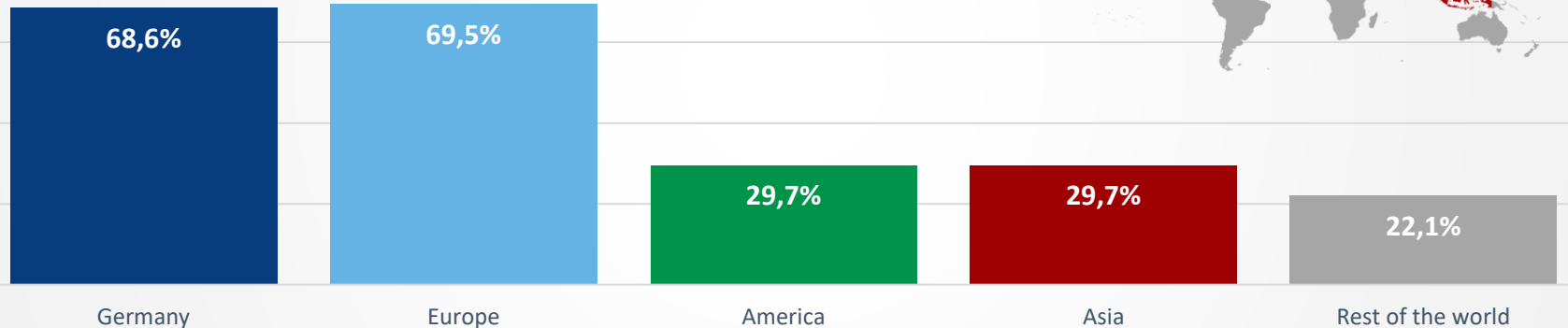
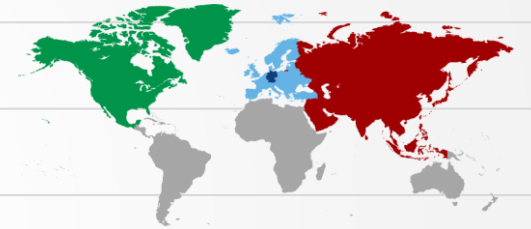


REGIONAL FOCUS

(MULTIPLE RESPONSES ALLOWED)

Slightly more than two thirds of respondents mainly operate in Germany, and nearly 70 per cent in Europe, the latter representing the largest pool of respondents approached for the survey. Surprisingly, the proportions are nearly identical for North America and Asia, with both world regions now contributing about 30 per cent of responses.

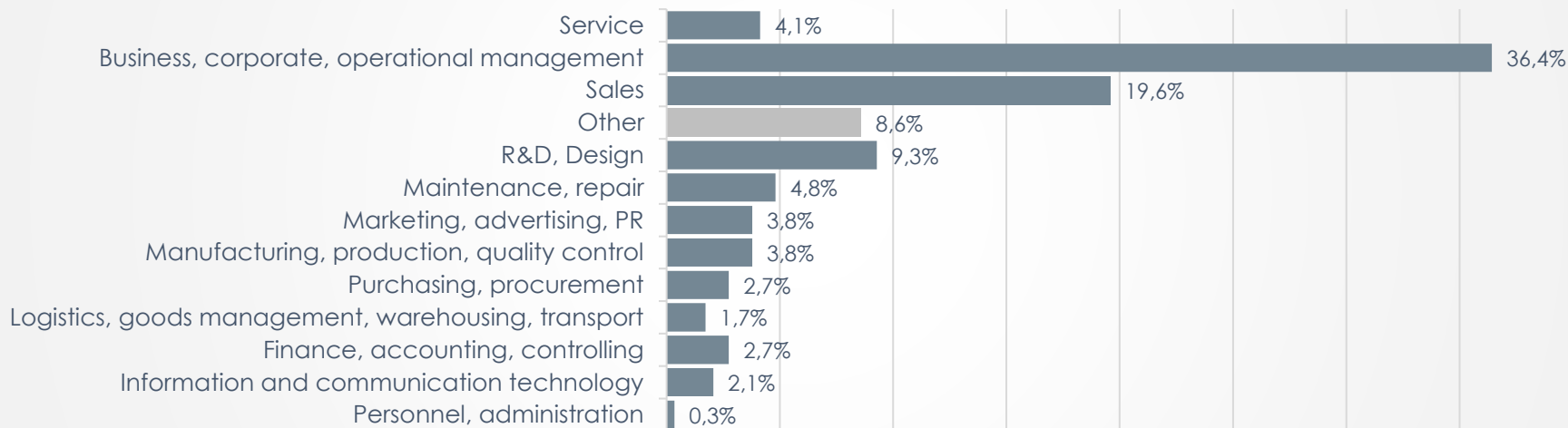
On which countries is your company's focus?



RESPONDENTS' FIELDS OF ACTIVITY

As in earlier editions of the WETix, the largest group of respondents have leadership positions in their companies; this time, around 36 per cent fit this description. Other major groups comprise employees working in sales or research & development, respectively, design.

What is your area of responsibility?



wind:research

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