



RESULTS

WINDENERGY trend:index

MOOD BAROMETER FOR THE
ONSHORE AND OFFSHORE WIND INDUSTRY
SPRING 2021

Organised by:

In cooperation with:



WindEnergy
Hamburg

The global on & offshore event

wind:research

INTRODUCTION

OVERVIEW & PARTICIPATION



For its seventh edition, the industry's mood barometer registered nearly 1400 visitors. This means that a total of more than 14,000 people have visited WEtix since it was first launched. At 67per cent the rate of completed surveys remains at a high level.

#	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)	2,414	1,655	958	69 %	40 %	58 %
3	Q2 2019 (02/04 – 13/05/019)	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)	2,517	1,277	865	51 %	34 %	68 %
7	Q2 2021 (23/03 – 04/05/2021)	1,384	501	334	36 %	24 %	67 %
Total		14,015	8,056	5,142	57 %	37 %	64 %

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.).

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INTRODUCTION

OBJECTIVES, METHOD, PARTICIPANTS (1 OF 2)



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 distribution of response rates (based on IP addresses) across countries and regions largely corresponds to the relevant market volume. 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 also applies to current onshore and offshore wind capacities as well as the importance, or market share, of the individual stages of the industry's value chain (turbines, towers, foundations, projects, development, etc.).
- The survey includes all onshore and offshore 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 & South America.
- In the following diagrams, Germany is represented separately; however, the results for all of Europe include Germany.

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INTRODUCTION

OBJECTIVES, METHOD, PARTICIPANTS (2 OF 2)



Furthermore, the distribution of the market participants' activities and those of the respondents' companies as reflected by the WindEnergy trend:index (WEtix) mood barometer is representative of the market structures.

- Roughly 40per cent of survey participants are primarily active in the onshore segment, and an equal portion serve both, onshore and offshore wind. Nearly 16per cent of respondents work in the offshore segment exclusively. Compared to the last survey, the share of respondents working either in the offshore industry or in both onshore and offshore has increased.
- Nearly half of responding companies engage in operation and maintenance activities. Furthermore, around 40% are active in manufacturing as well as planning and project development, and more than one fifth perform installation-related work. Activities within manufacturing are mostly focused on production of turbines, rotor blades and other components.
- Around 70% of respondents focus on the German and the European market. Significantly more than one third of respondents are also active in the Asian, respectively, the North American markets, and more than 20% operate globally.
- Similar to previous surveys, one third of participants hold managerial positions, followed by respondents from sales, R&D and design as well as maintenance and service.

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SUMMARY

KEY FINDINGS –

COMPARING SURVEYS 1 TO 7



In the seventh issue of WEtix, the current economic conditions for the onshore and offshore wind industry are seeing increasingly positive ratings. Optimism for the onshore wind market is growing: while the current market situation is already seen as positive, expectations for conditions two years from now are often very positive.

- The assessments of the development of the current economic conditions for onshore wind energy by WEtix participants are improving steadily. With many of the statistics for Europe, North America, Asia and the rest of the world (RoW) clearly in the positive quadrant, this is the third survey showing Germany moving away from negative numbers.
- Around the world the current business environment for offshore wind energy is seen in a positive light. Conditions are perceived as very positive especially for Asia, Europe and North America. The responses for Germany are showing a strong upward trend, achieving the highest result in the history of WEtix.
- The current market situation in the onshore wind industry is getting increasingly positive ratings for all regions, with North America and Europe continuing their aggressive upswing. Germany, which saw an all-time low in 2019, is slowly approaching a positive assessment range.
- Expectations for the future onshore wind market are optimistic for all regions: in Asia, the rest of the world, North America, and Europe in particular, the outlook on the market situation has reached all-time top marks in some cases. As for the future of the onshore wind industry in Germany, assessments are now quite optimistic again.

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SUMMARY

KEY FINDINGS –

COMPARING SURVEYS 1 TO 7



The market situation in the offshore wind segment has received positive ratings, as well. In several regions, expectations for the next two years are close to the top rating. Germany has been able to continue the upward trend seen in the last surveys, achieving remarkably positive assessments, especially so for the future.

- The current market situation in the offshore wind segment is receiving more and more positive assessments around the world, in some instances achieving even better results than the onshore segment. North America in particular has markedly improved its result, now setting a new record mark. In Germany, the upward trend seen in the last three surveys continues.
- The future of the offshore wind industry is seen in a very positive light: Asia, Europe and North America are nearly neck-and-neck, inching towards the historic top rating. Germany has further improved its rating, as well, now achieving a markedly positive assessment.
- Since receiving some extremely negative values in November 2019, the mood in the German wind industry has clearly turned. The long-term expectations in particular for both, the onshore and offshore wind segments, are much more optimistic now, delivering the best results since the beginning of WEtix surveys.
- The mood in the European wind industry is now better than it has ever been since the WEtix was first introduced: while the onshore wind market has been receiving positive marks for both the respective current year and the future, the current outlook on the offshore wind market two years from now has reached a near-optimum level.
- North America has improved its results significantly compared to previous years: the assessment of the current situation in the onshore wind market is nearly twice as positive as it was at the end of 2020, while in the offshore wind market the statistical value reflecting the positive outlook has actually tripled. The future of North America's wind industry is likewise seen in a much more positive light.

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SUMMARY

KEY FINDINGS –

COMPARING SURVEYS 1 TO 7



Nearly all regions have improved their ratings for both, the onshore and offshore wind markets, or remain stable at a high level. Expectations for the market situation for onshore and offshore wind two years from now are especially optimistic.

- Compared to the previous survey, the changes for Asia are not quite as pronounced as for other regions. Assessments for both, the onshore and the offshore segment have gained somewhat or remain stable at a very high level. Both markets are seeing similarly positive ratings.
- The feedback on the market situation for the wind industry in the rest of the world is similar to the previous surveys. While the onshore wind markets remain in the intermediate range showing a slight upward trend, the offshore segment is receiving somewhat less optimistic ratings despite slight gains.

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SUMMARY

KEY FINDINGS –

COMPARING SURVEYS 1 TO 7



In addition to the traditional catalogue of questions and the question regarding green hydrogen which was added for the spring 2020 survey, the seventh online survey again included an additional question to address the consequences of the coronavirus pandemic.

- Survey respondents expect consolidation processes in the offshore segment to intensify further. Assessments of the onshore segment remain stable, hovering about the level of the last six surveys.
- Expectations for optimisation potential driven by digitalisation have improved slightly, remaining at a high level for both onshore and offshore wind energy. Within this category, expectations for the offshore segment are significantly more optimistic, leaving the onshore segment further behind.
- The mood in terms of the saving potential inherent in new technologies is almost unchanged, remaining in the medium-to-high range; The saving potential in offshore wind energy has been receiving significantly better ratings than onshore ever since the WETix was first launched.
- About 70% of respondents either believe that the coronavirus pandemic has no effect on the wind industry, or that it actually affects it in a positive or even very positive manner. The share of respondents fearing a negative or very negative impact has decreased since the autumn 2020 survey.
- All in all, more than 70 per cent of respondents see an intermediate to very high likeliness that the production of green hydrogen will play a key role for wind energy over the next three years. This means that green hydrogen is now given somewhat greater importance than in the previous surveys.

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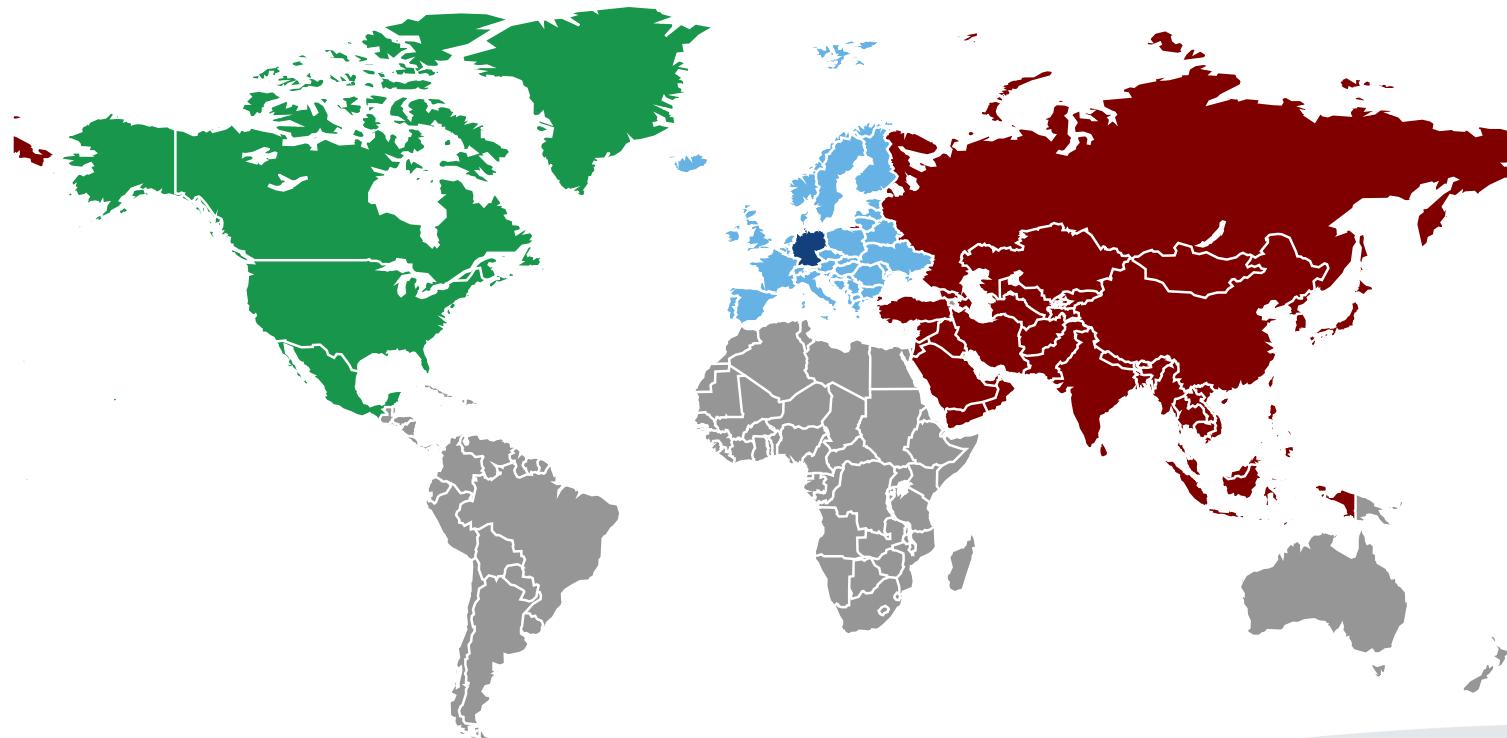
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OVERVIEW OF COUNTRIES STUDIED



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.



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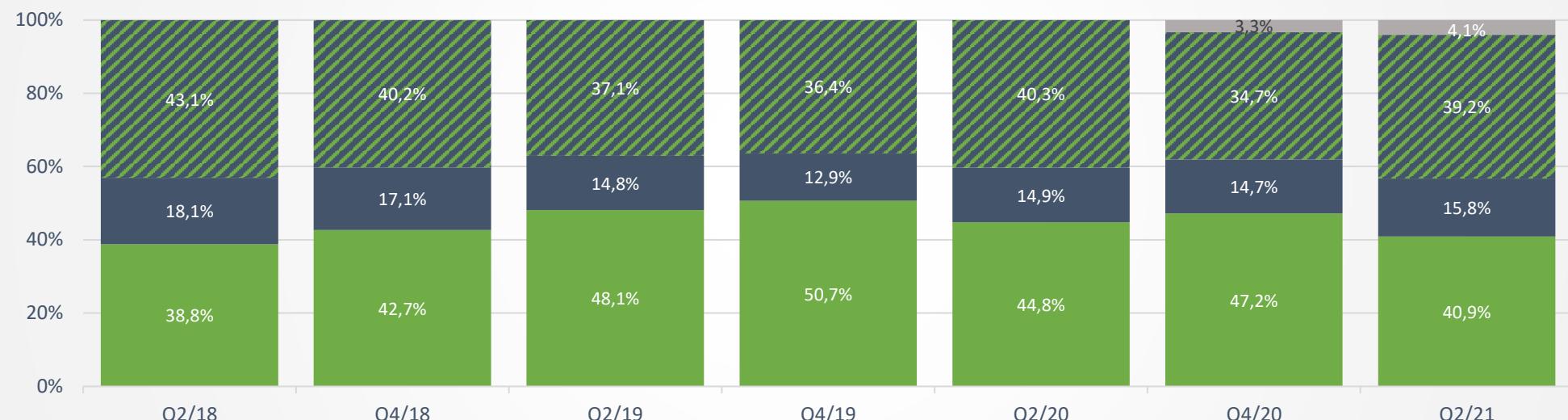
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Roughly 40 per cent of survey participants are primarily active in the onshore segment, and an equal portion serve both, onshore and offshore wind. Nearly 16 per cent of respondents work in the offshore segment exclusively. Compared to the last survey, the share of respondents working either in the offshore industry or in both onshore and offshore has increased.

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

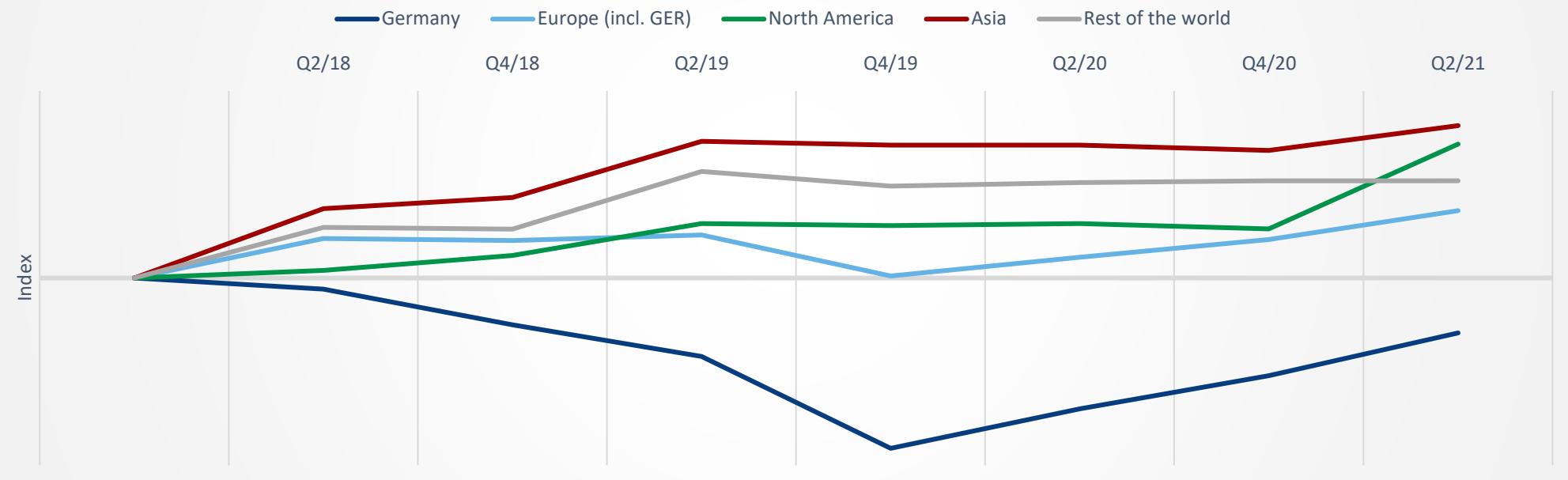
■ Onshore ■ Offshore ■ Both ■ Don't Know (since q4/20)



ASSESSMENT OF THE BUSINESS ENVIRONMENT FOR ONSHORE WIND

The assessments of the development of the current economic conditions for onshore wind energy by WEtix participants are improving steadily. While many of the statistic for Europe, North America, Asia and the rest of the world (RoW) are clearly in the positive quadrant, Germany is moving away from negative numbers for the third time in a row.

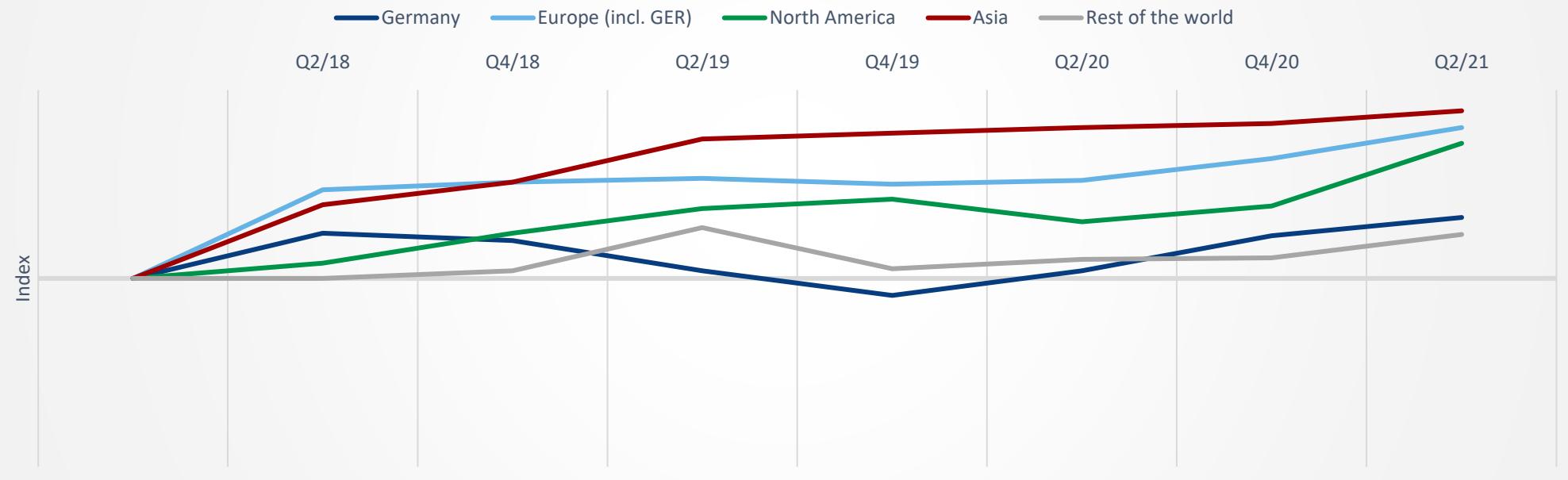
How do you assess the current development of the framework conditions for **onshore wind energy** (overall: legal, political and social)? (n = 288)



ASSESSMENT OF THE BUSINESS ENVIRONMENT FOR OFFSHORE WIND

Around the world the current business environment for offshore wind energy is seen in a positive light. Conditions are perceived as very positive especially for Asia, Europe and North America. The responses for Germany are showing a strong upward trend, achieving the highest result in the history of WEtix.

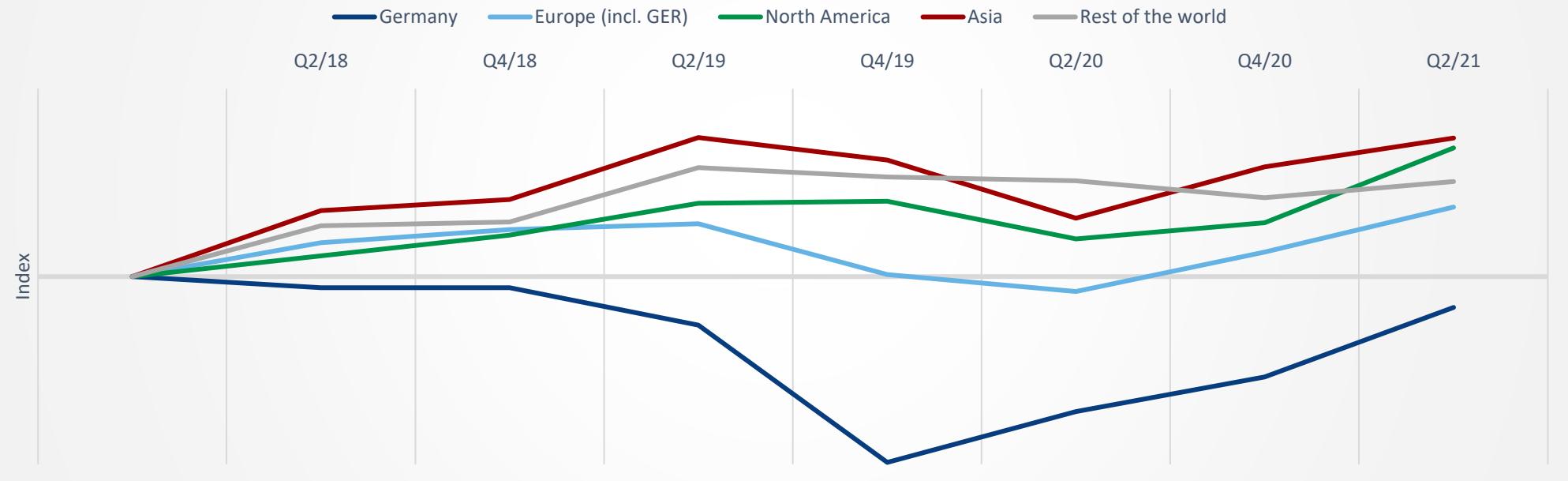
How do you assess the current development of the framework conditions for **offshore wind energy** (overall: legal, political and social)? (n = 185)



ASSESSMENT OF THE GLOBAL ONSHORE WIND MARKET – CURRENT

The current market situation in the onshore wind industry is getting increasingly positive ratings for all regions, with Asia and North America delivering the best results. Germany, which saw an all-time low point in 2019, is slowly approaching a positive assessment.

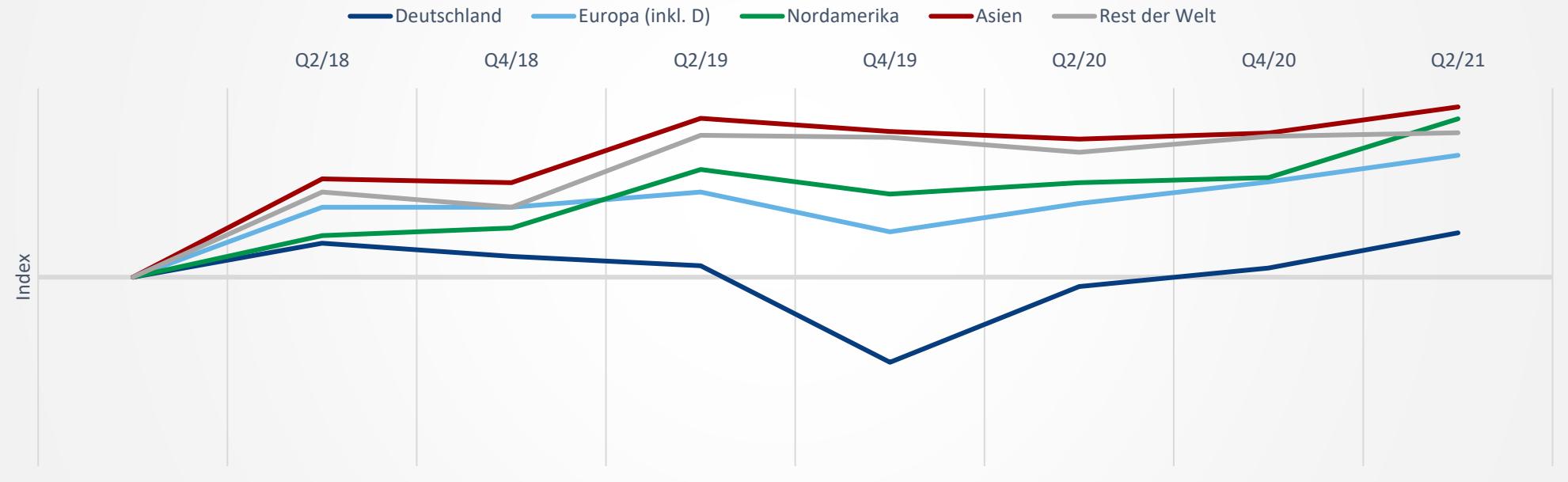
How do you assess the global market for the **onshore wind industry** in the current year? (n = 250)



ASSESSMENT OF THE GLOBAL ONSHORE WIND MARKET – NEXT TWO YEARS

Expectations for the future onshore wind market are optimistic for all regions: in Asia, the rest of the world, North America, and Europe in particular, the outlook on the market situation has reached all-time top marks in some cases. As for the future of the onshore wind industry in Germany, assessments are now quite optimistic again.

How do you assess the global market for the **onshore wind industry**
in two years? (n = 229)

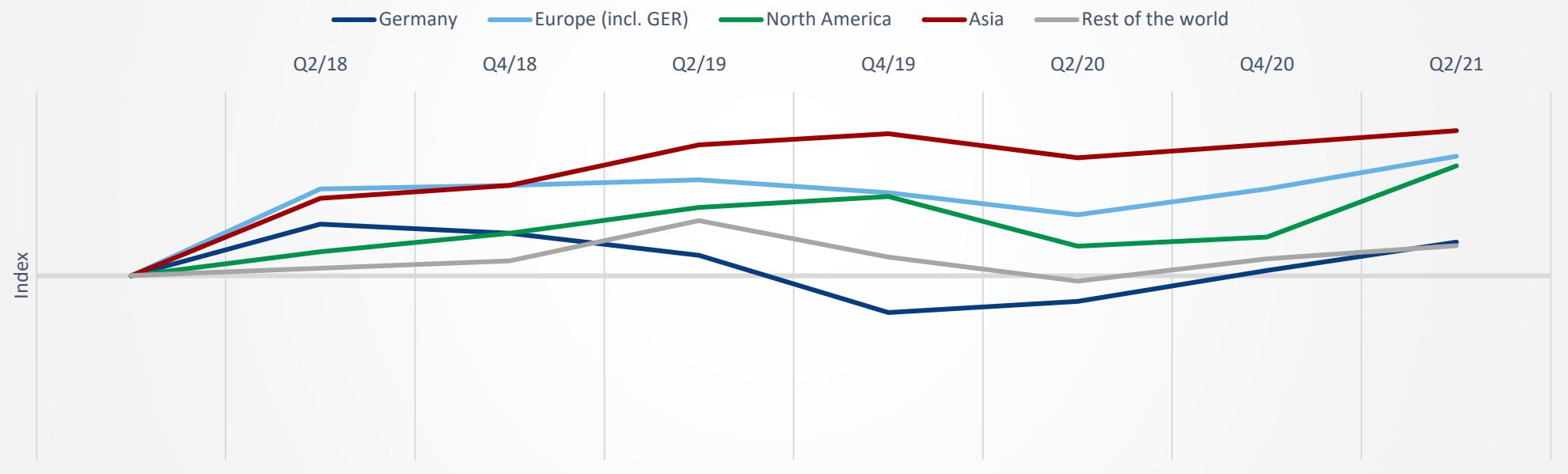


ASSESSMENT OF THE GLOBAL ONSHORE WIND MARKET – CURRENT



The current market situation in the offshore wind segment is receiving more and more positive assessments around the world, in some instances achieving even better results than the onshore segment. North America in particular has markedly improved its rating, now setting a new record mark. In Germany, the upward trend seen in the last three surveys continues.

How do you assess the global market for the **offshore wind industry** in the current year? (n = 163)



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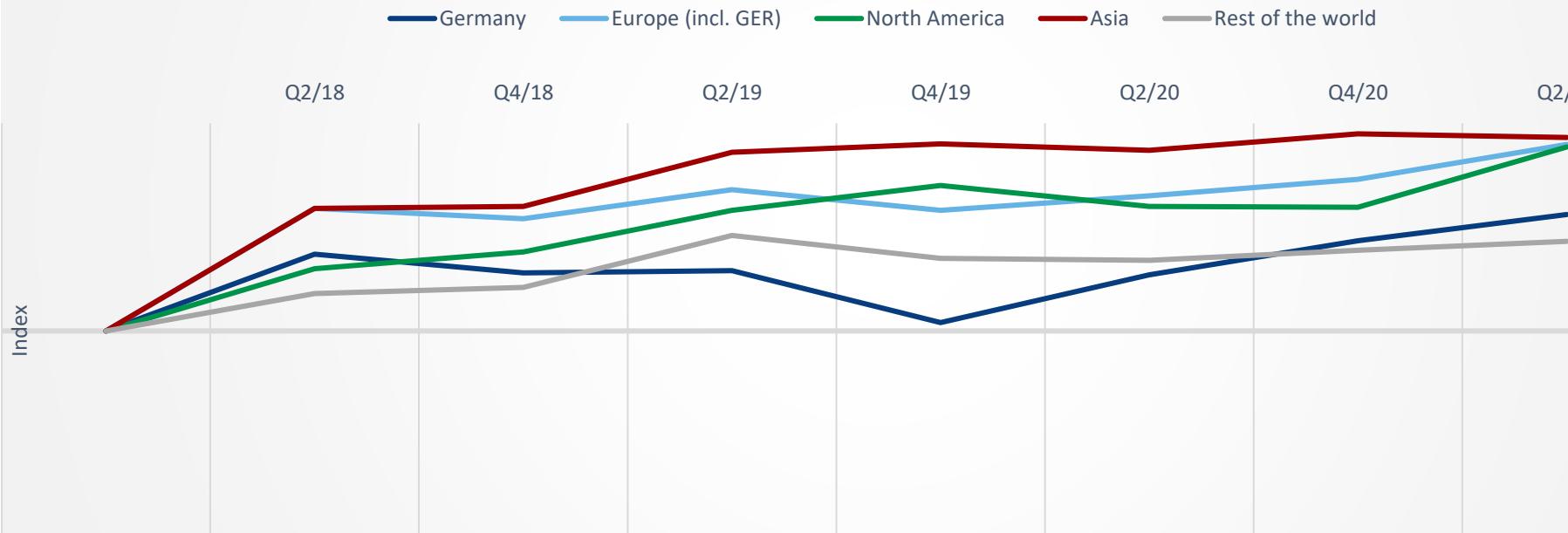


ASSESSMENT OF THE GLOBAL OFFSHORE WIND MARKET – NEXT TWO YEARS



The future of the offshore wind industry is seen in a very positive light: Asia, Europe and North America are nearly neck-and-neck, inching towards the historic top rating. Germany has further improved its rating, as well, now achieving a markedly positive assessment.

How do you assess the global market for the **offshore wind industry**
in two years? (n = 162)



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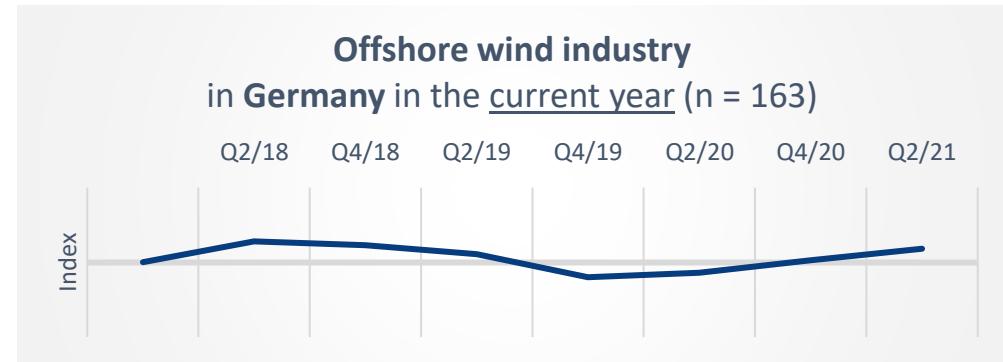
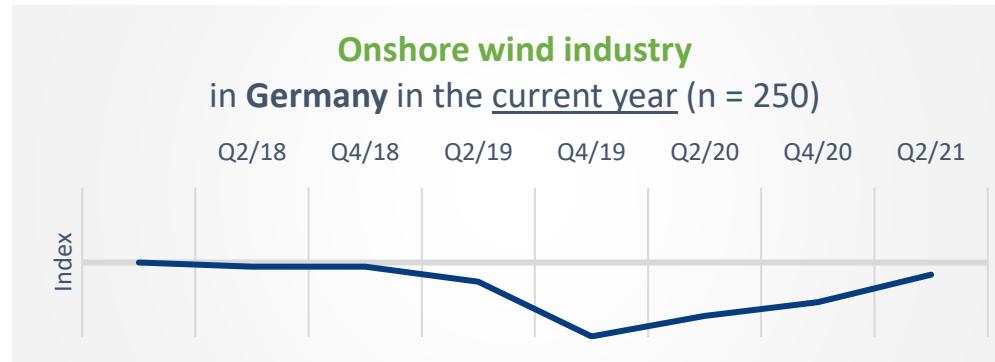
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ASSESSMENT OF THE ONSHORE AND OFFSHORE WIND MARKETS IN **GERMANY**

COMPARISON CURRENT VS. IN TWO YEARS

Since receiving some extremely negative values in November 2019, the mood in the German wind industry has clearly turned. The long-term expectations in particular, both for the onshore and the offshore wind segments, are much more optimistic now, delivering the best results since the beginning of WEtix surveys.



ASSESSMENT OF THE ONSHORE AND OFFSHORE WIND MARKET IN EUROPE (INCL. D) COMPARISON CURRENT VS. IN TWO YEARS

The mood in the European wind industry is now better than it has ever been since the WEtix was first introduced: while the onshore wind market has been receiving positive marks for both the respective current year and the future, the current outlook on the offshore wind market two years from now has reached a near-optimum level.



ASSESSMENT OF THE ONSHORE AND OFFSHORE WIND MARKET IN **NORTH AMERICA**

– COMPARISON CURRENT VS. IN TWO YEARS

North America has improved its results significantly compared to previous years: the assessment of the current situation in the onshore wind market is nearly twice as positive as it was at the end of 2020, while in the offshore wind market the statistical value reflecting the positive outlook has actually tripled. The future of North America's wind industry is likewise seen in a much more positive light.



ASSESSMENT OF THE ONSHORE AND OFFSHORE WIND MARKET IN ASIA

COMPARISON CURRENT VS. IN TWO YEARS

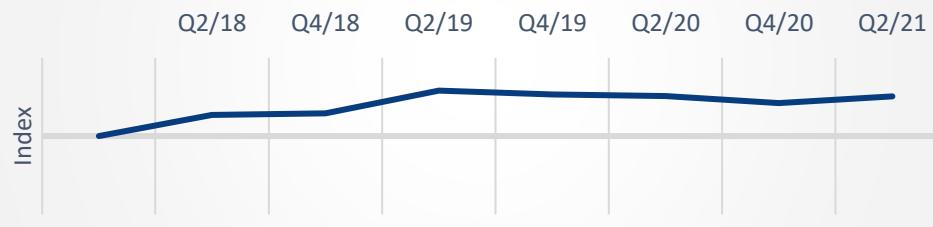
Compared to the previous survey, the changes for Asia are not quite as pronounced as for other regions. Assessments for both, the onshore and the offshore segment have gained somewhat or remain stable at a very high level. Both markets are seeing similarly positive ratings.



ASSESSMENT OF THE ONSHORE AND OFFSHORE WIND MARKET IN ROW COUNTRIES COMPARISON CURRENT VS. IN TWO YEARS

The feedback on the market situation for the wind industry in the rest of the world is similar to the previous surveys. While the onshore wind markets remains in the intermediate range showing a slightly upwards trend, the offshore segment is receiving somewhat less optimistic ratings despite slight gains.

**Onshore wind industry in
the rest of the world in the current year (n = 250)**



**Offshore wind industry in
the rest of the world in the current year (n = 163)**



**Onshore wind industry
in the rest of the world in two years (n = 229)**



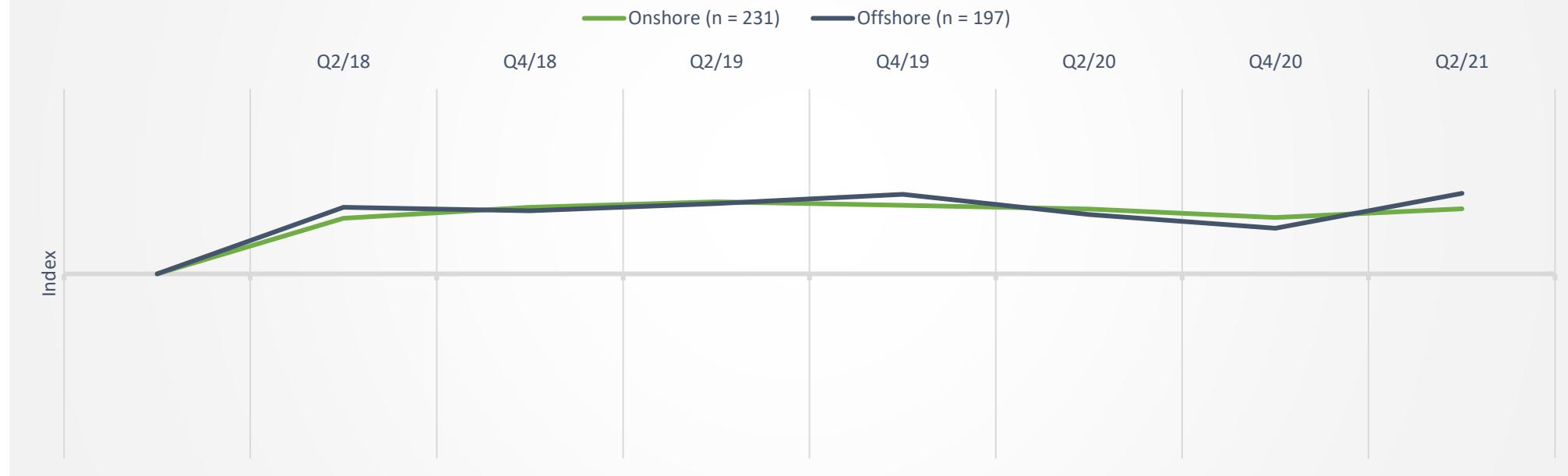
**Offshore wind industry
in the rest of the world in two years (n = 162)**



INTENSITY OF CONSOLIDATION PROCESSES

Survey respondents expect consolidation processes in the offshore segment to intensify further, if only slightly. Assessments of the onshore segment remain stable, maintaining the (high) level of the last six surveys. Quite obviously, the consolidation in the industry experienced in the wake of the crisis years is expected to continue to some extent.

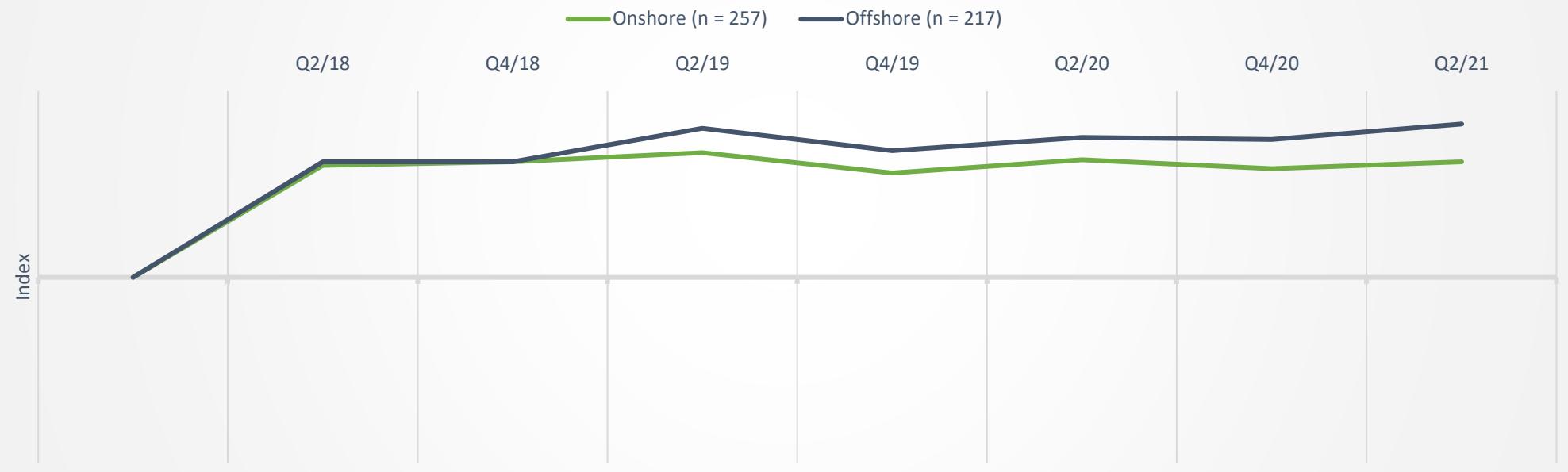
In your opinion, what intensity will consolidation processes have in 2020/2021 (e.g. due to zero bids, lower political goals, lack of projects)?



OPTIMISATION THROUGH DIGITALISATION

Expectations for optimisation potential driven by digitalisation have improved slightly, remaining at a high level for both onshore and offshore wind energy. Within this category, expectations in the offshore segment are more optimistic, leaving the onshore segment further behind.

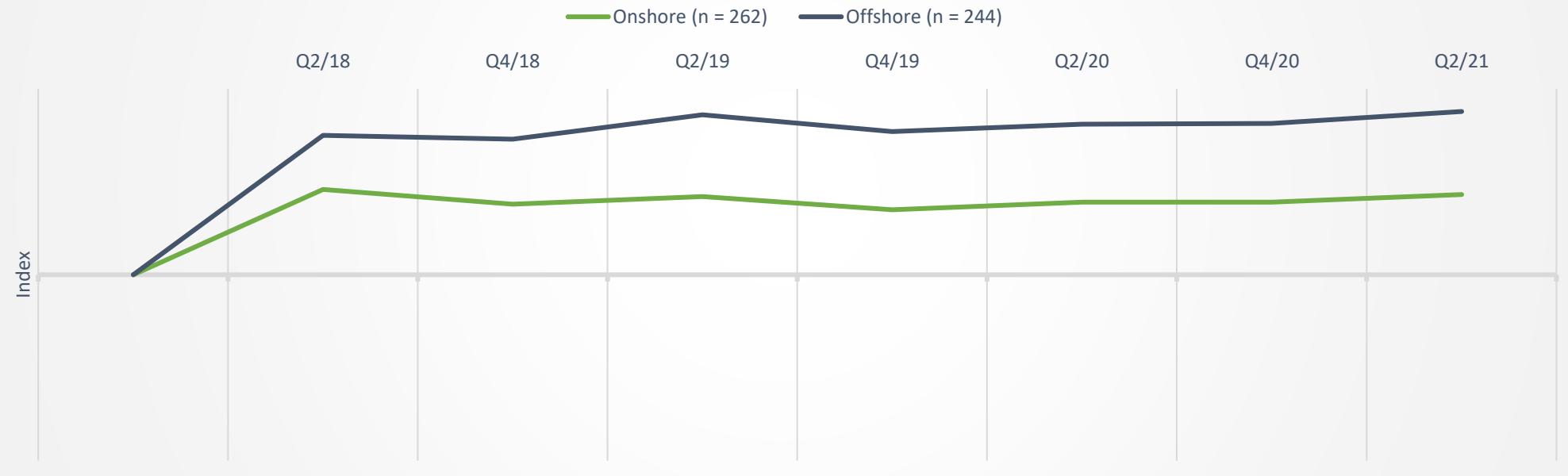
How do you assess further **optimization potentials through digitalization**
(e.g. automation of wind farms, sector coupling, smart grids)?



COST REDUCTION THROUGH NEW TECHNOLOGIES

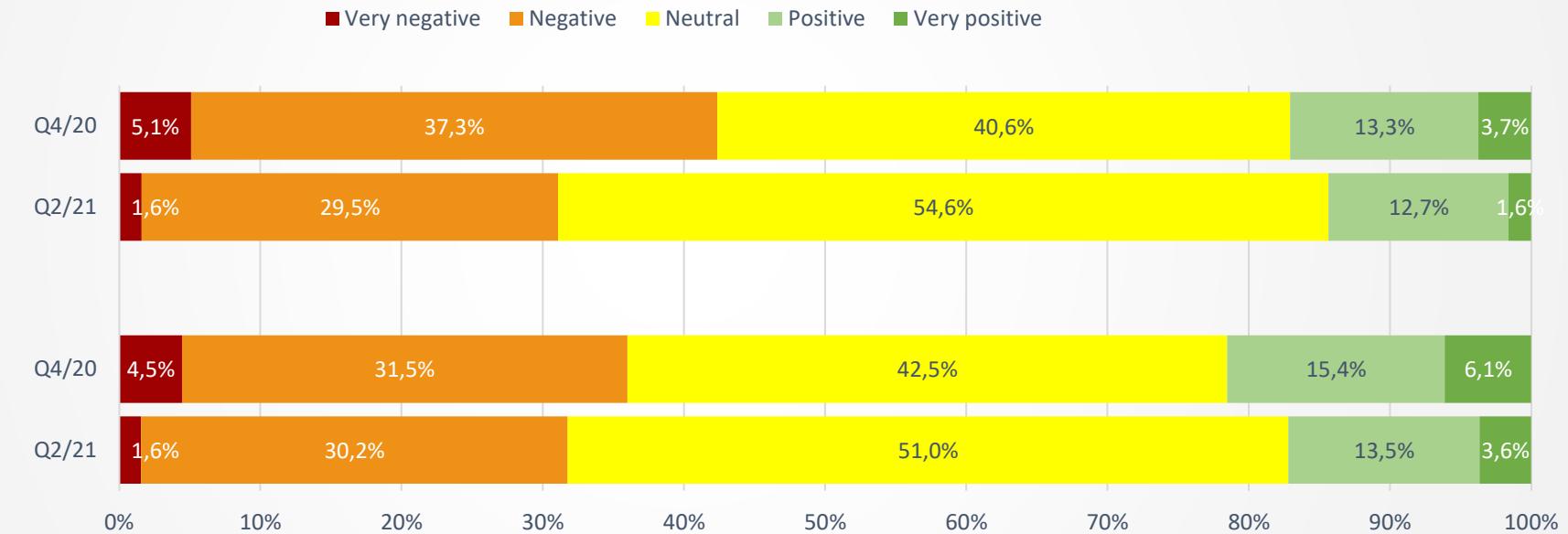
The mood in terms of the saving potential inherent in new technologies is almost unchanged, remaining in the medium-to-high range; The saving potential in offshore wind energy has been receiving significantly better ratings than for onshore ever since the WEtix was first introduced.

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



Around 70 per cent of respondents expect the consequences of the coronavirus pandemic on the wind industry to be either neutral or positive to very positive. The share of respondents fearing a negative or very negative impact has decreased since the autumn 2020 survey.

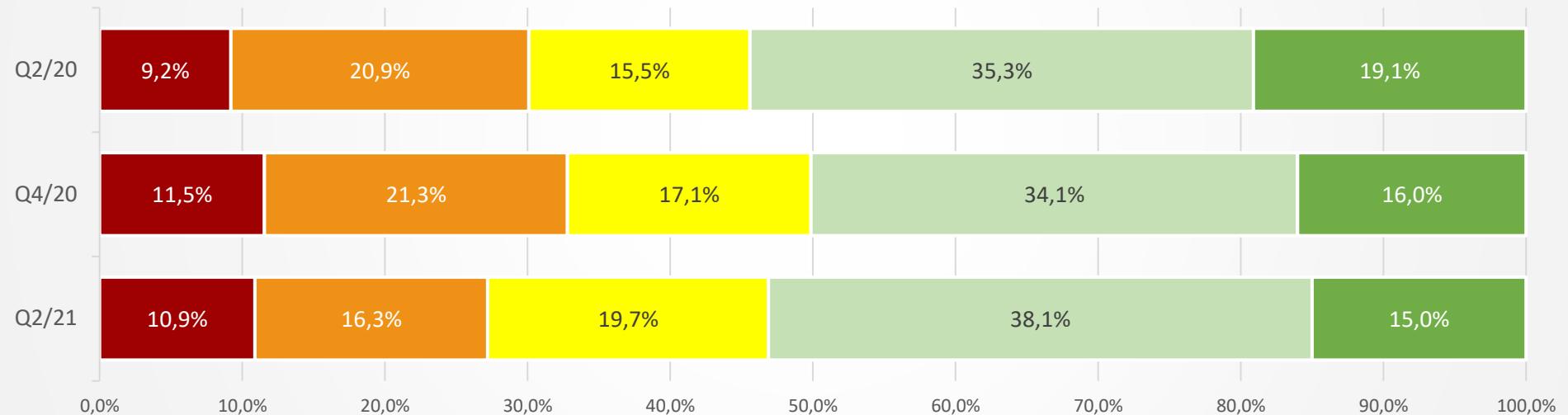
How do you estimate the impact of the **corona pandemic** on the development of wind energy (in the next 2 years)?



Overall more than 70 per cent of respondents see an intermediate to very high likeliness that the production of green hydrogen will play a key role for wind energy over the next three years. This means that green hydrogen is now given somewhat greater importance than in the previous surveys.

How high do you estimate the probability that the production of **green hydrogen** will play a major role for wind energy in the next 3 years? (n = 294)

■ Very low ■ Low ■ Medium ■ High ■ Very high

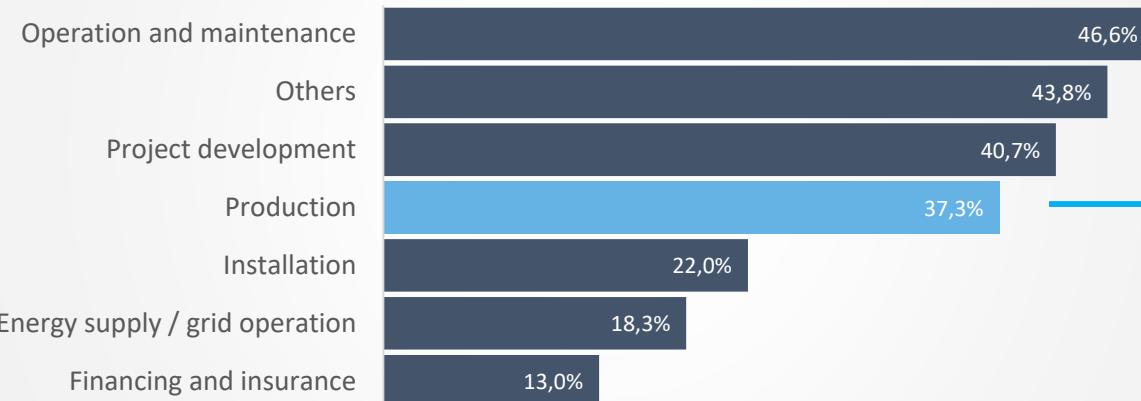


ACTIVITIES WITHIN THE VALUE CHAIN

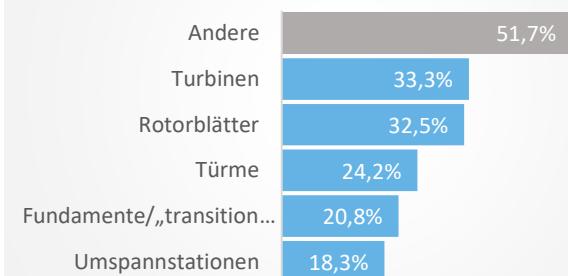
(MULTIPLE RESPONSES ALLOWED)

Nearly half of responding companies engage in operation and maintenance activities. Furthermore, around 40% are active in manufacturing as well as planning and project development, and more than one fifth perform installation work. Activities within manufacturing are mostly focused on production of turbines, rotor blades and other components.

On which level of the value chain is your company's activity in the wind energy industry? (n = 322; N = 714)



Itemization of answer Production
(n = 141; N = 217)

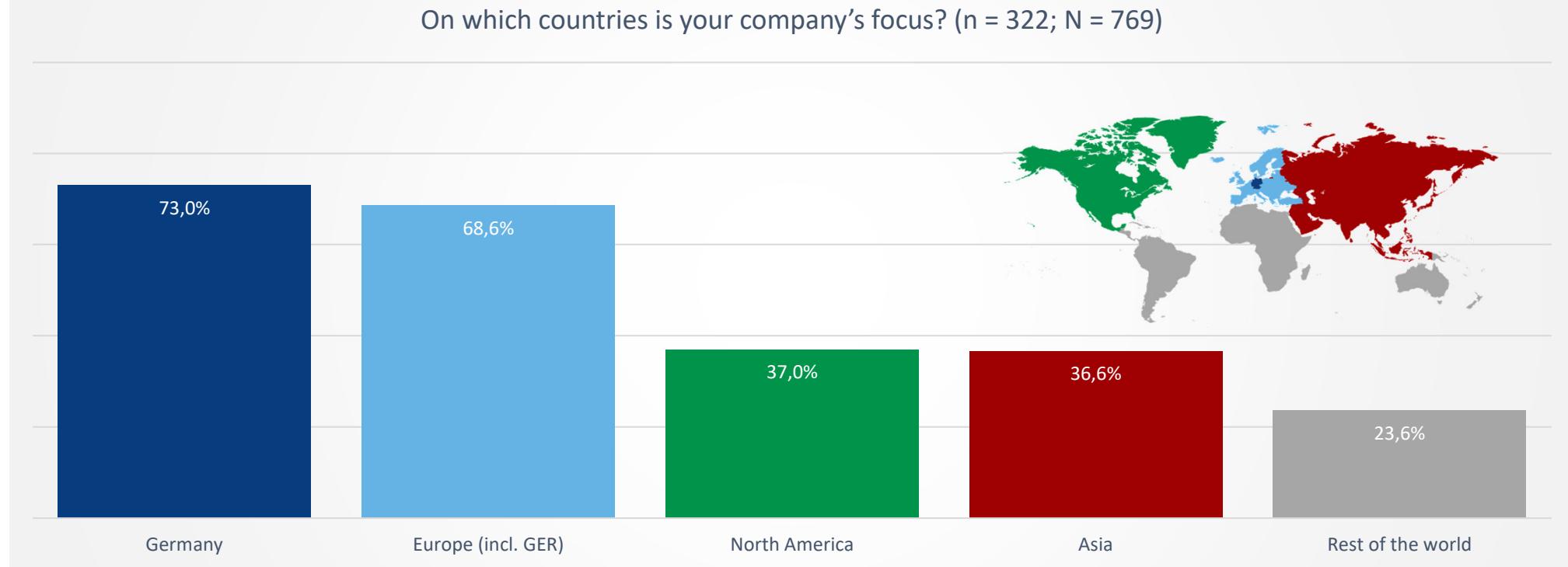


REGIONAL FOCUS

(MULTIPLE RESPONSES ALLOWED)

Around 70% of respondents focus on the German and the European market. Significantly more than one third of respondents are also active in the Asian, respectively, the North American markets, and more than 20% operate globally.

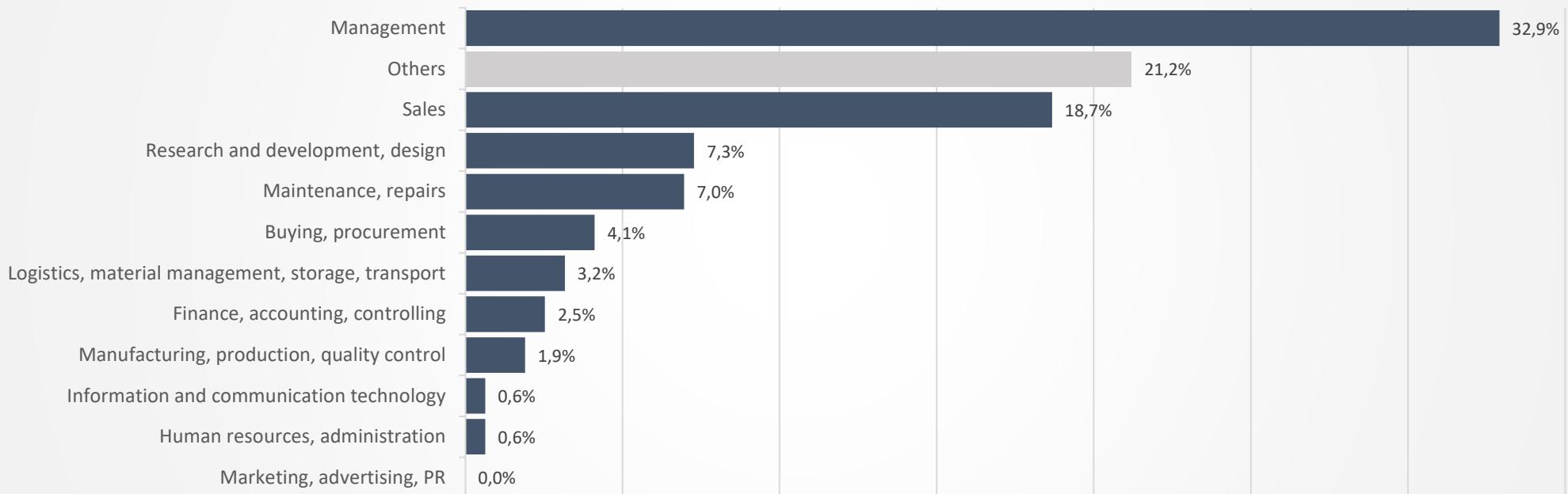
On which countries is your company's focus? (n = 322; N = 769)



RESPONDENT POSITIONS

Similar to previous surveys, one third of participants hold managerial positions, followed by respondents from sales, R&D and design as well as maintenance and service.

What is your area of responsibility? (n = 316)



We look forward to seeing you at
WindEnergy Hamburg
– The global on & offshore event



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