Statistics and forecast - Q1 2024

19/04/2024

swedish wind energy association

Table of contents:

Orders, Commissioning and Deployment 2024 - 2026

swedish wind energy association

The Following Chapters Cover:

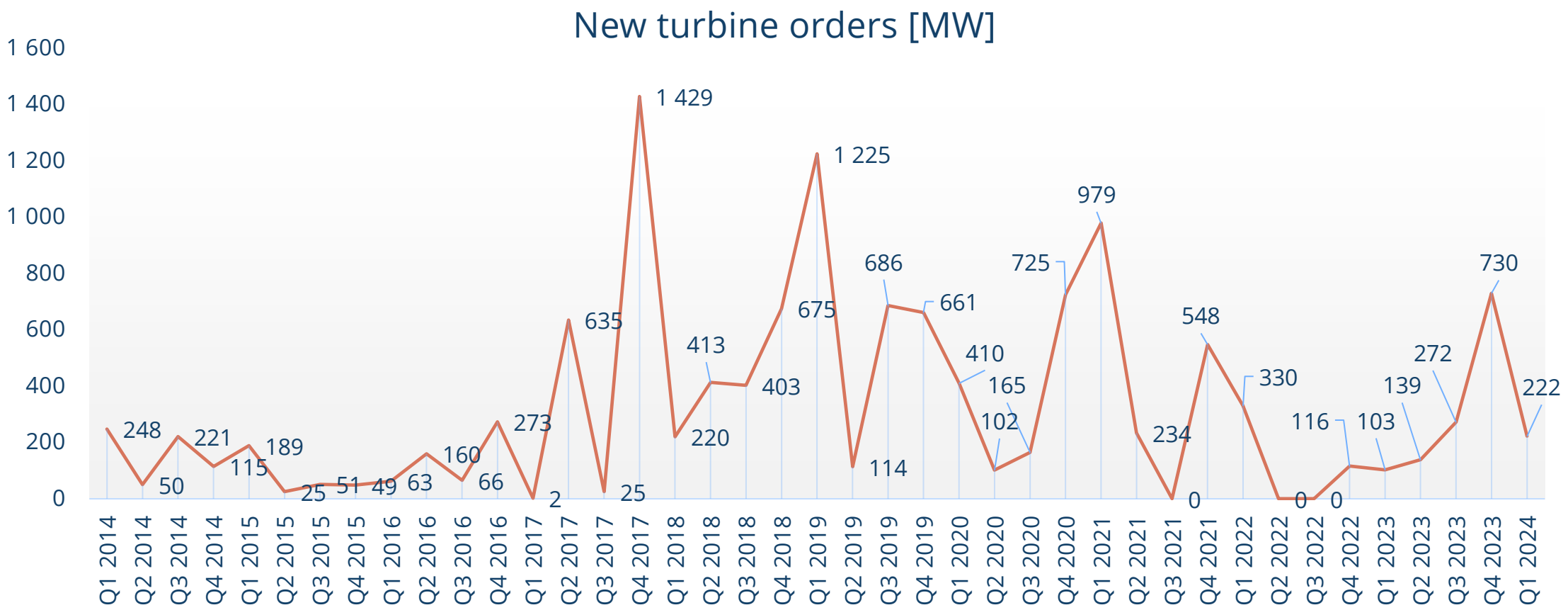
- New turbines ordered and MW
- Number of MW commissioned in the current quarter and reports future commissioning*
- Development of onshore wind power and offshore wind power under development per bidding zone

* The information on future commissioning is based on turbine suppliers' and developers' reporting of project completion dates. Changes may occur that will delay or bring forward commissioning.

Summary:

- During the first quarter of 2024, 222 MW of new turbines were ordered
- By 2023, 16,251 MW have been commissioned
- In 2024 an additional 965 MW and 1,348 MW in 2025 were reported to be commissioned
- Compared to the reporting in Q1 2023, there are 240 MW more in 2024 and 866 MW more than in 2025
- By 2026, it has been reported that there will be 19,515 MW commissioned in Sweden, Bidding Area SE 2 continuing to be dominant
- 106 GW of offshore wind power is planned, of which 2,100 MW has been permitted

Q1 2024: Turbine Orders



Investment Decisions Q1 2024

Project	Developer	Start year	Owner	WTG:s	MW	TWh	Bidding area	County	Municipality
Fågelås	Eolus	2025	Eolus	7	44,8	0,17	SE3	Västra Götaland	Hjo
Boarp	Eolus	2025	Eolus	4	24,8	0,07	SE3	Västra Götaland	Vaggeryd
Dållebo	Eolus	2025	Eolus	4	18	0,59	SE3	Västra Götaland	Ulricehamn
Fröskog	Vasa Vind	2025	Vasa vind	6	36	0.11	SE3	Västra Götaland	Åmål
Blisterliden	Holmen Energi	2026	Holmen	14	98	0.33	SE1	Västerbotten	Skellefteå
				35	**222**	**1,27**			

Commissioning 2024-2026

Commissioning of wind power, megawatts (MW)

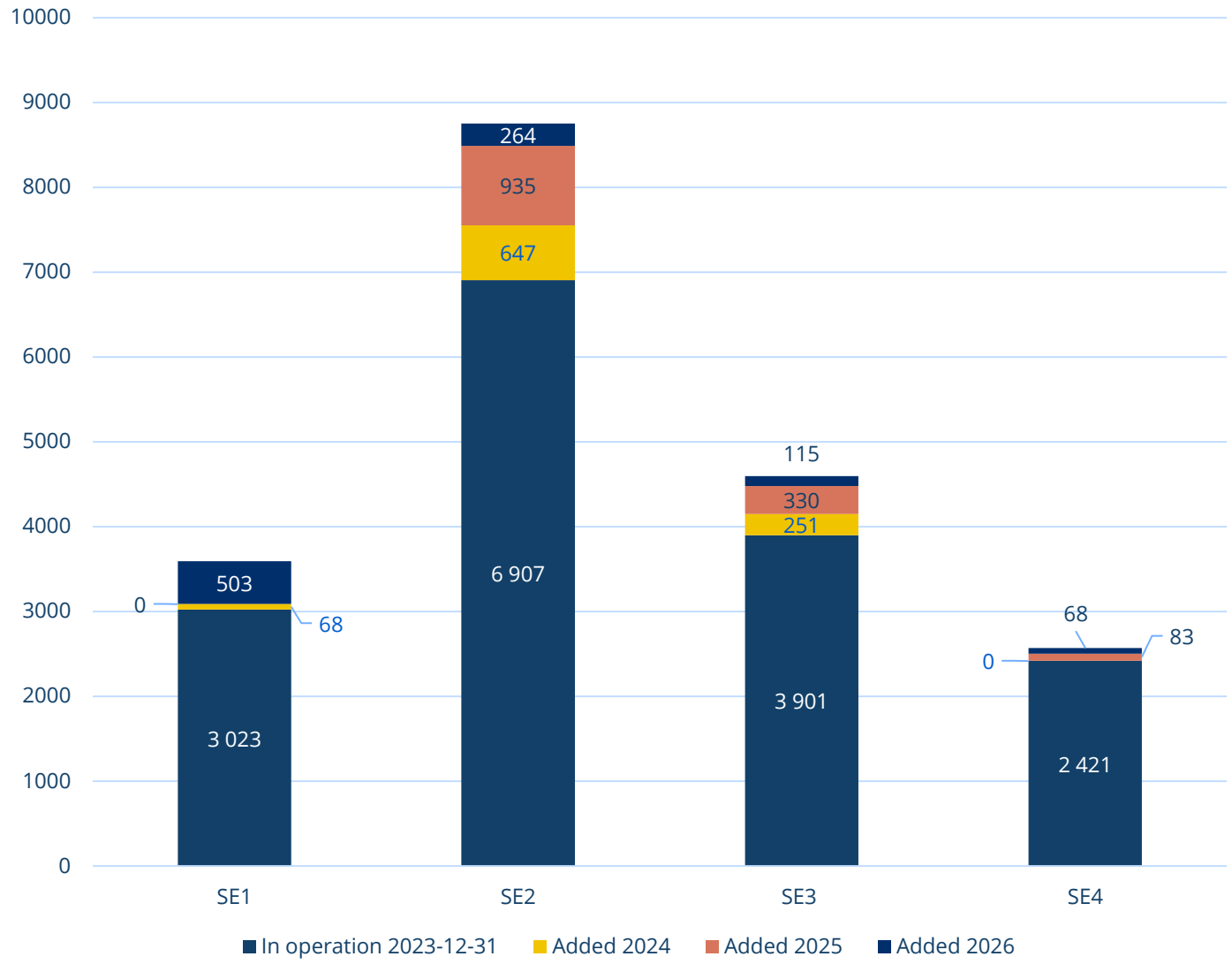
In Commission 2023-12-31	2024 Q1	2024 Q2	2024 Q3	2024 Q4	2024 (Tot)	2025	2026	In Commission 2026-12-31
16 251	77	*649*	*59*	*181*	*965*	*1 348*	*951*	19 515

Comparison Between Q1 2023 and Q1 2024 Showing Continued Investment Decisions

	2024 (MW)	2025 (MW)	2026 (MW)
Q1 2023	725	482	-
Q1 2024	965	1 348	951
	+ 240	+ 866	+ 951

The table shows the comparison between the reporting of commissioning in megawatts (MW) for the first quarter of 2023 and 2024. It is positive that investment decisions continue to be made, but the pace is to slow and volumes are still too low to meet the demand until 2030.

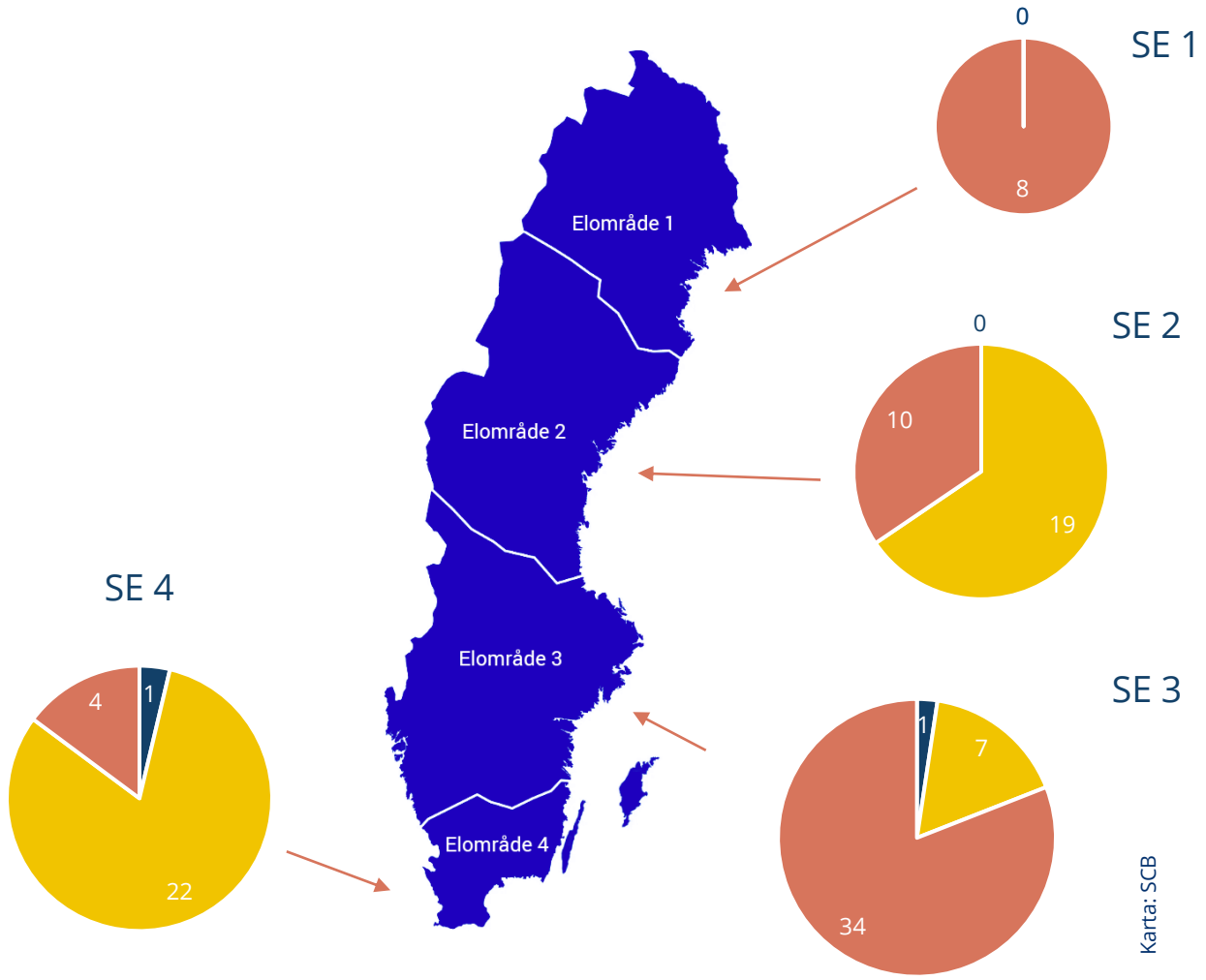
Development of Onshore Wind Power by Bidding Area 2024-2026



Projects with ordered turbines incl. 608 MW in announced projects

Total: 19,930 MW by 2026

Offshore Wind Power Projects



A total of 106 GW of offshore wind power under development*

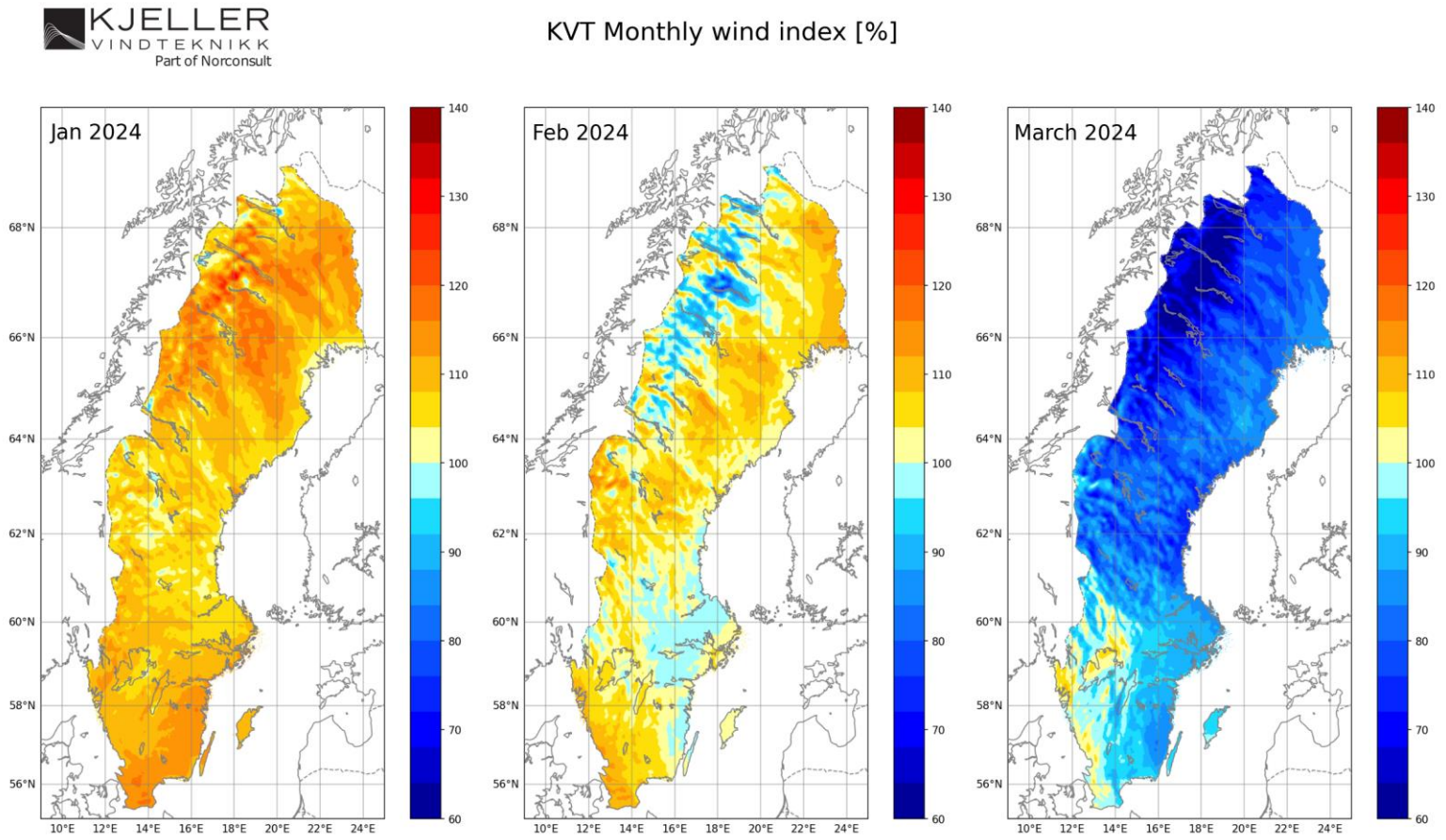
- 2 GW with permits
- 48 GW in the permitting process
- 56 GW in consultation

*In addition, there are more than 43 GW in the early stages

Forecast for Wind Power Development in Sweden

swedish wind energy association

Wind Index January-March 2024



A windy month, a normal month and a calm month - this is how the first three months of 2024 can be broadly summarized.

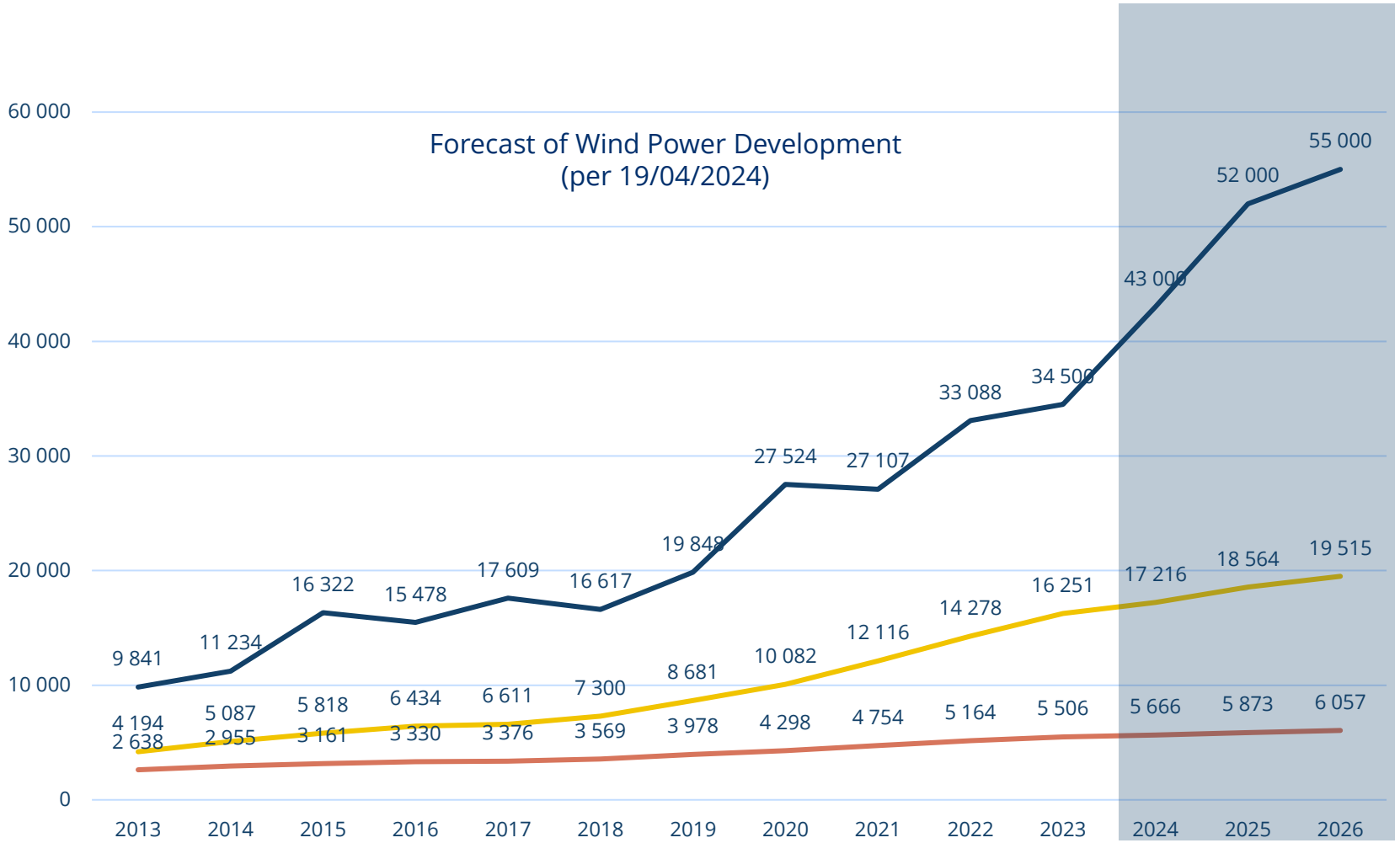
Compared to the reference period 2000-2019, January was windier than normal, especially in central and northern Norrland's inland and mountainous areas where several low-pressure systems passed by.

February provided varying conditions. In February, Storm Ingunn set a new Swedish wind record, with an average wind speed of 51.8 m/s in Stekenjokk in the southern Lapland mountains on February 1.

March was dominated by a weak southern jet stream for much of the month, alternating between high and low pressure. In southwestern Sweden it was slightly windier than normal, but the rest of the country had a relatively calm March.

Kjeller Vindteknik's wind index. Average wind per month in relation to the reference period 2000-2019.
Red colors = higher average wind, blue colors = lower average wind.

Forecast 2024-2026



The graph shows outcomes up to 2023. The forecast (shading) is based on ordered turbines and announced projects.

Factors That May Affect The Forecast Going Forward

- March was a poor wind month which might have an impact on production for the full year 2024.
- Increased difficulties to get a grid connection means that several projects are delayed, creating uncertainty in the forecast over time.
- More/increasing number of hours with negative electricity prices over time may have an impact on production figures. Exactly how big of an impact is hard to determine.
- Continued difficulties in obtaining permits for new parks affects the long-term forecast. Long processing times and the municipal veto are clear risks.

Swedish Wind Power Project Portfolio

Commissioned in 2023	Onshore	Offshore	Total
Project	26	0	26
WTG	342	0	342
Capacity (MW)	1 973	0	1 973
Normal annual production (TWh)	6,50	0,00	6,50

Permit granted	Onshore	Offshore	Total
Project	36	3	39
WTG	653	147	800
Capacity (MW)	3 992	2 154	6 146
Normal annual production (TWh)	12,77	9,44	22,20

Under construction	Onshore	Offshore	Total
Project	29	0	29
WTG	494	0	494
Capacity (MW)	2 921	0	2 921
Normal annual production (TWh)	9,44	0,00	9,44

Permitting process	Onshore	Offshore	Total
Project	56	22	78
WTG	968	2 939	3 907
Capacity (MW)	6 436	47 826	54 262
Normal annual production (TWh)	21,79	209,48	231,27

Announced	Onshore	Offshore	Total
Project	8	0	8
WTG	116	0	116
Capacity (MW)	746	0	746
Normal annual production (TWh)	2,42	0,00	2,42

Consultation	Onshore	Offshore	Total
Project	53	26	79
WTG	1 292	2 834	4 126
Capacity (MW)	10 735	56 442	67 177
Normal annual production (TWh)	36,24	233,55	269,79

Project Portfolio per Bidding Area: Onshore Wind Power

SE1	WTG	MW	TWh
Under construction	121	571	1,87
Announced	0	0	0,00
Permit granted	140	844	2,97
Permitting process	161	1094	3,77
Consultation	429	2988	9,90

SE2	WTG	MW	TWh
Under construction	229	1 501	4,94
Announced	60	366	1,22
Permit granted	456	2 783	8,59
Permitting process	478	3 146	10,70
Consultation	251	1 765	6,06

SE3	WTG	MW	TWh
Under construction	117	698	2,20
Announced	56	379	1,20
Permit granted	39	247	0,80
Permitting process	201	1 364	4,59
Consultation	362	2 533	8,38

SE4	WTG	MW	TWh
Under construction	27	151	0,42
Announced	0	0	0,00
Permit granted	18	117	0,38
Permitting process	128	832	2,73
Consultation	107	751	2,44

Project Portfolio per Bidding Area: Offshore Wind Power

SE1	WTG	MW	TWh
Under construction	0	0	0,00
Announced	0	0	0,00
Permit granted	0	0	0,00
Permitting process	0	0	0,00
Consultation	339	8 060	32,16

SE2	WTG	MW	TWh
Under construction	0	0	0,00
Announced	0	0	0,00
Permit granted	0	0	0,00
Permitting process	1 112	19 115	83,73
Consultation	566	10 435	44,05

SE3	WTG	MW	TWh
Under construction	0	0	0,00
Announced	0	0	0,00
Permit granted	80	1 200	5,26
Permitting process	456	7 115	31,16
Consultation	1 808	33 793	148,67

SE4	WTG	MW	TWh
Under construction	0	0	0,00
Announced	0	0	0,00
Permit granted	67	954	4,18
Permitting process	1 371	21 596	94,59
Consultation	264	4 155	18,12

Swedish Wind Power Project Portfolio Glossary

SWEA presents the project portfolio based on the stage the wind power projects are in.

Under construction: All permits have been granted and tubines have been ordered.

Announced: Projects with permits and ready with investors, but where investment decisions have not yet been taken.

Permit granted: Projects with environmental permits, where the network concession (electricity network licence) remains.

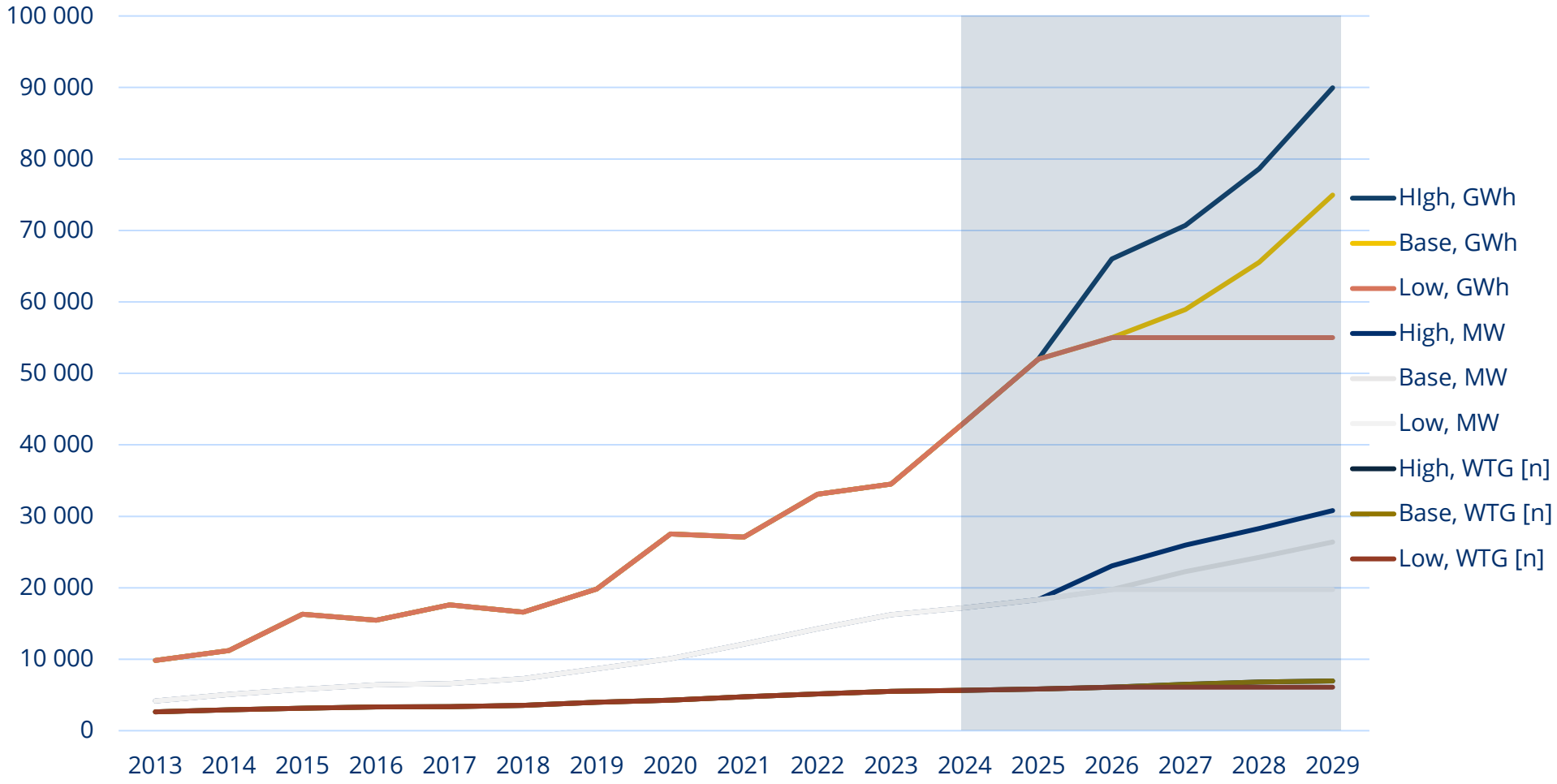
Permitting process: Projects that have applied for an environmental licence to the county council or government.

Consultation: The consultation procedure under the Swedish Environmental Code has been initiated.

Wind Power Development Until 2035

swedish wind energy association

Three Scenarios: Wind Power Development To 2029



High-scenario
- Faster permitting processes
- Investment climate improves
- All permitted onshore projects built
- All permitted offshore projects are built
- New turbine capacity increases and production increases by 20%.
- Announced projects built
- Ordered turbines are delivered

Base-scenario
- Ordered turbines are delivered
- Announced projects are built
- Assumes an attractive investment climate
- 50% of today's permitted onshore projects built
- All permitted offshore projects are built

Low-scenario
- Ordered turbines are delivered
- No new wind power is added after 2026: no permitted projects built, no announced projects built, and no new permits granted.

Deployment 2027-2035 Must Be Secured

- Projects under construction, announced and permitted are today the majority of onshore wind power.
- In permitting and consultation, in terms of both number of WTGs and installed capacity, offshore wind is in the majority.
- With the majority of the permitted projects having been built by the end of the 2020s, the expansion risks becoming a bottleneck if sufficient volumes of potential additional electricity generation do not get through the permitting process as soon as possible.
- Reforms to streamline and speed up the permitting process are needed now to ensure that enough electricity generation is built in the next 10 years.
- There is a risk that the industry's demand for additional electricity generation and the expansion of new electricity production do not go hand in hand. A competitive investment climate for electricity generation is essential to secure the rapidly growing demand from industry.

Reforms For More Efficient Permitting Processes & Attractive Investment Climate

- Implement the time limits for permitting processes under EU legislation (Renewable Energy Directive).
- Create the conditions for more projects to receive municipal approval by:
  - Implementing the proposals on municipal approval and revenue sharing with local residents.
  - Investigate a proposal that the property tax from wind power should remain in the municipalities that contribute to increased electricity production.
- The Government needs to decide on permits for offshore wind farms as soon as possible.
- Strong actions are needed to ensure that future onshore and offshore wind power can connect to the grid.
- Ensure continued favorable investment conditions.

Statistics and Forecast - Q1 2024

19/04/2024

Erik Almqvist
Electricity Grid and Electricity Market
+46 (0)73 025 78 46

swedish wind energy association