

# Statistics and Forecast

Q4 2024

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swedish wind  
energy association 

# A Continued Expansion Requires Better Investment Conditions

- In the fourth quarter of 2024, 224 MW of wind turbines were ordered in Sweden. Throughout the entire year, turbines with a total installed capacity of 446 MW have been ordered.
- The two orders in the last quarter of 2024 break the trend of two consecutive quarters without orders.
- During the final quarter of 2024, 421 MW of wind power was put in operation. Over the whole year, 1,015 MW has been put into operation.
- There are 536 MW of projects with all necessary permits where investment decisions have not yet been made. These could be commissioned soon, but improved market conditions are required.
- In 2024, Swedish wind power produced approximately 40.8 terawatt-hours (TWh), the highest wind power production ever recorded. In December, wind power output exceeded that of both nuclear and hydropower. In the fourth quarter, wind power production was, for the first time, higher than nuclear power production over an entire quarter.
- The expansion of wind power continues, but it is driven by older investment decisions. For sustained growth, continued progress in permitting and strengthened investment conditions are necessary.

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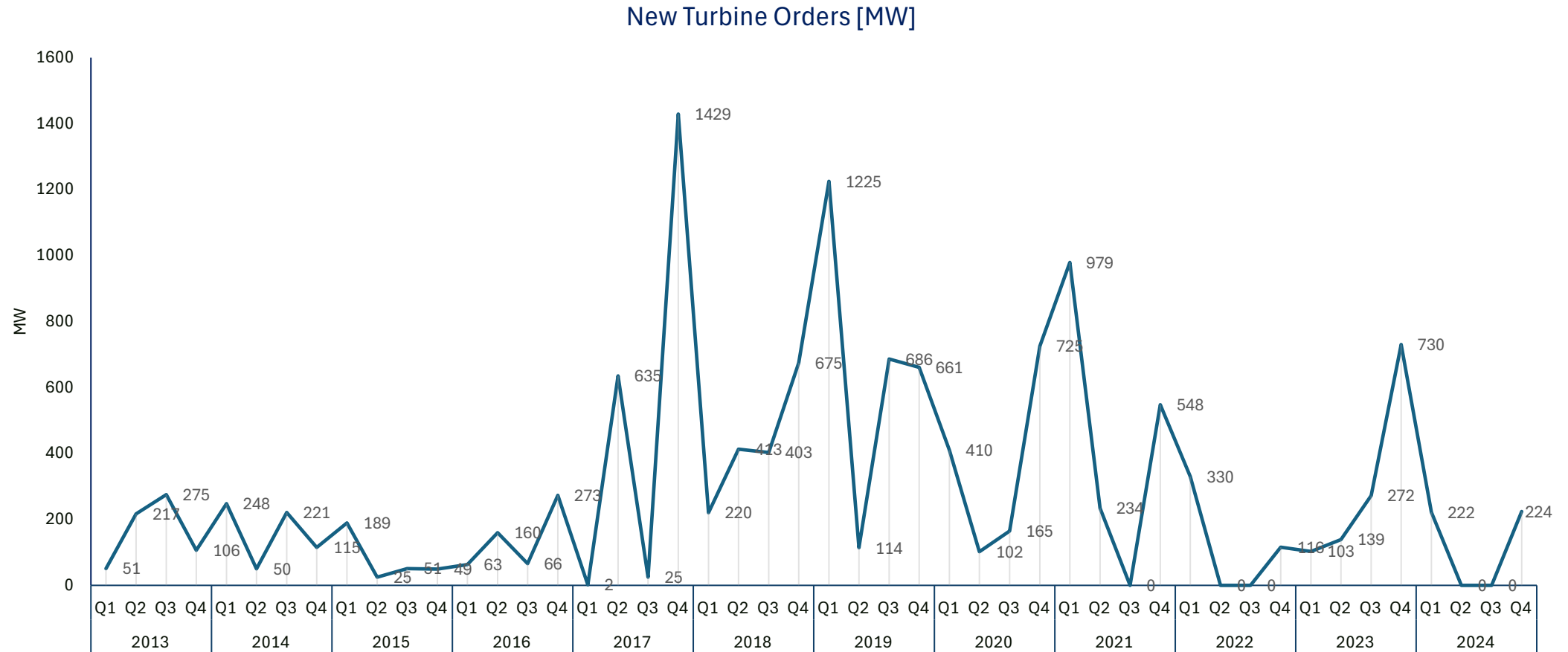
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# Two New Turbine Orders, Q4 2024



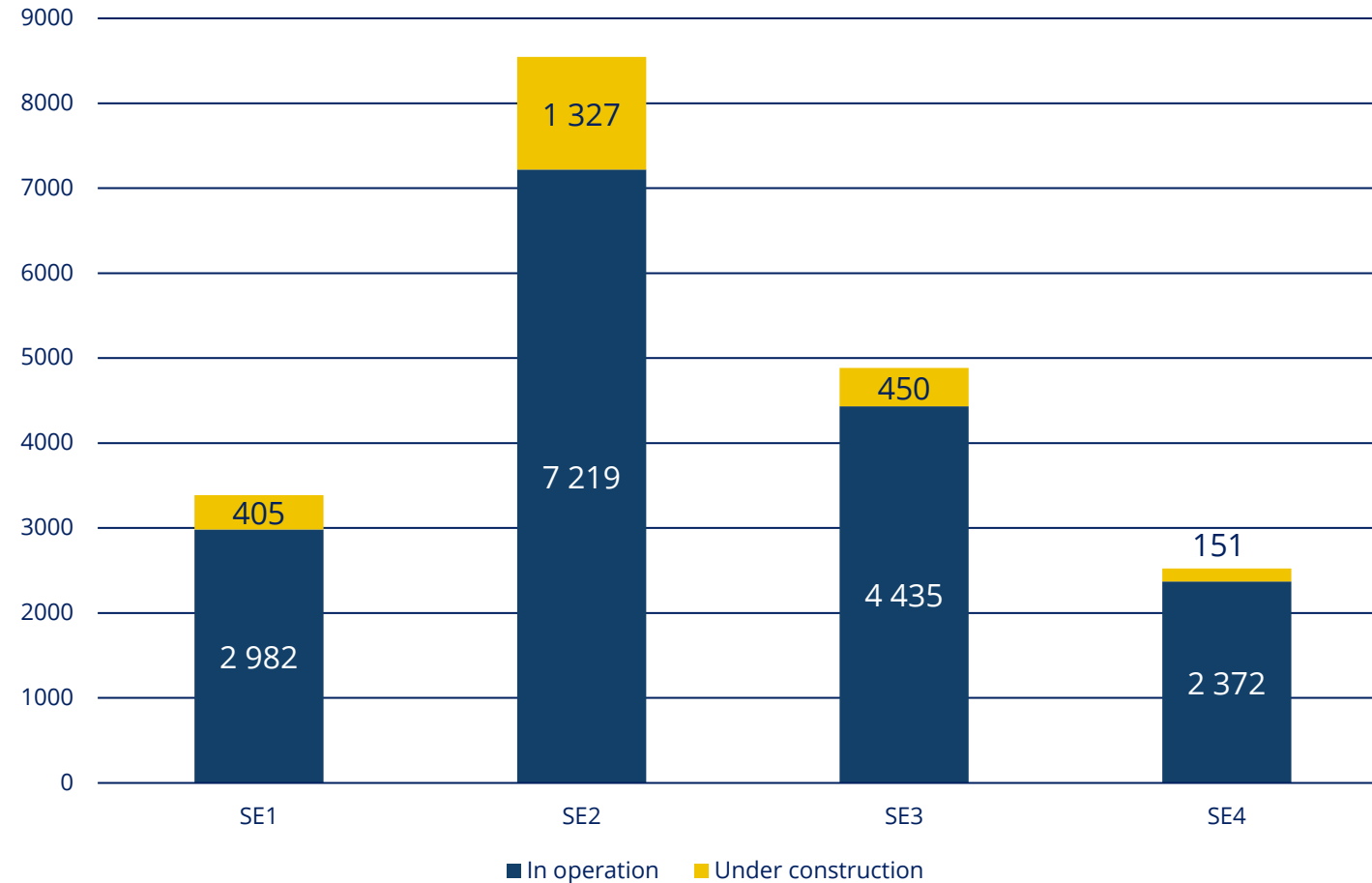
# The Expansion Continues, But At A Slower Pace

Commissioning of wind power 2024–2027, megawatts (MW)

In comission 2023-12-31	2024 Q1	2024 Q2	2024 Q3	2024 Q4	2024 (Tot)	2025	2026	2027	In comission 2027-12-31
16 112	196	340	59	421	1 015	1 442	370	520	19 335

The wind power expansion continues, but at a slower pace. In addition to projects under construction, there are 536 MW in announced projects that could be operational in 2026-2027.

# Expansion Per Bidding Zone Until 2027



The diagram showcases projects in operation and under construction, divided by bidding zone. Projects under construction are estimated to be done by the year 2027.

Apart from projects shown in the diagram there are also 536 MW in announced projects.

# Wind power under construction in Sweden

Project	Starting year	MW	Number of turbines	Bidding zone	County	Municipality
Riberget	2025	70	11	SE2	Gävleborg	Ljusdal
Bäckagård - repowering	2025	4	2	SE3	Halland	Varberg
Kölvallen	2025	277	42	SE2	Gävleborg	Ljusdal
Bruzaholm	2025	139	21	SE3	Jönköping	Eksjö
Knäsjöberget	2025	98	14	SE2	Västernorrland	Kramfors
Sörlidberget	2025	147	21	SE2	Västernorrland	Sollefteå/Kramfors
Vitberget	2025	161	23	SE2	Västernorrland	Kramfors
Storhöjden	2025	149,6	22	SE2	Västernorrland	Kramfors
Blistlerliden	2025	98	14	SE2	Västerbotten	Skellefteå
Fasikan	2025	102	15	SE2	Västernorrland	Sollefteå
Trelleborg	2025	4,7	2	SE4	Skåne	Trelleborg
Boarp	2025	24,8	4	SE3	Västra Götaland	Vaggeryd
Dållebo	2025	18	4	SE3	Västra Götaland	Ulricehamn
Fågelås	2025	44,8	7	SE3	Västra Götaland	Hjo
Velinga	2025	67,2	12	SE3	Västra Götaland	Tidaholm
Fröskog	2025	36,8	6	SE3	Västra Götaland	Åmål
Horshaga	2026	124	20	SE4	Kronoberg	Uppvidinge
Horshaga	2026	22,5	5	SE4	Kronoberg	Uppvidinge
Vinliden	2026	70,4	11	SE2	Västerbotten	Lycksele
Fjällberg	2026	153,6	24	SE2	Västerbotten	Lycksele
MB South	2027	405,3	97	SE1	Norrbottnen	Piteå
Ånglarna	2027	115,2	18	SE3	Dalarna	Falun
		<b>2332,9</b>	<b>395</b>			

# Swedish Wind Power Project Portfolio

**Under construction:** All permits ready, and turbines ordered.

**Announced:** Projects with permits and investors, but where investment decisions have not been made.

**Permitted\*:** Projects with an environmental permit, where the grid concession (electricity grid permit) is pending.

**Under permitting review:** Projects that have applied for an environmental permit to the County Council or the Government.

**Consultation:** The consultation procedure under the Environmental Code is underway.

**"The Swedish Wind Power Project Portfolio" is a weighted assessment based on:**

- Data from Swedish Wind Energy Association's member companies
- Media Reporting
- Vindbrukskollen
- Statistics on Onshore Wind Power 2014-2023 (Westander Klimat & Energi)
- Permitting Time Onshore Wind Power 2014-2023 (Westander Klimat & Energi)
- Status Report Offshore Wind Power 2024 (Westander Klimat & Energi)

\*Although a park has been given an environmental permit there could be other permits missing



# Wind Power Project Portfolio Q4 2024

<b>In Commission 2024</b>	<b>Onshore</b>	<b>Offshore</b>	<b>Total</b>
Projects	12	0	12
WTG	165	0	165
Capacity (MW)	1 015	0	1 015
<b>Under byggnation</b>	<b>Onshore</b>	<b>Offshore</b>	<b>Total</b>
Projects	22	0	22
WTG	395	0	395
Capacity (MW)	2 333	0	2 333
<b>Announced</b>	<b>Onshore</b>	<b>Offshore</b>	<b>Total</b>
Projects	6	0	6
WTG	81	0	81
Capacity (MW)	536	0	536

<b>Permitted</b>	<b>Onshore</b>	<b>Offshore</b>	<b>Total</b>
Projects	27	4	31
WTG	560	222	782
Capacity (MW)	3 518	3 279	6 797
<b>Under permitting review</b>	<b>Onshore</b>	<b>Offshore</b>	<b>Total</b>
Projects	72	15	87
WTG	1 114	1 778	2 892
Capacity (MW)	7 612	27 495	35 107
<b>Consultation</b>	<b>Onshore</b>	<b>Offshore</b>	<b>Total</b>
Projects	48	20	68
WTG	1 223	2 062	3 285
Capacity (MW)	8 641	37 437	46 079

# Wind Power Project Portfolio, Per Bidding Zone Q4 2024

## Onshore

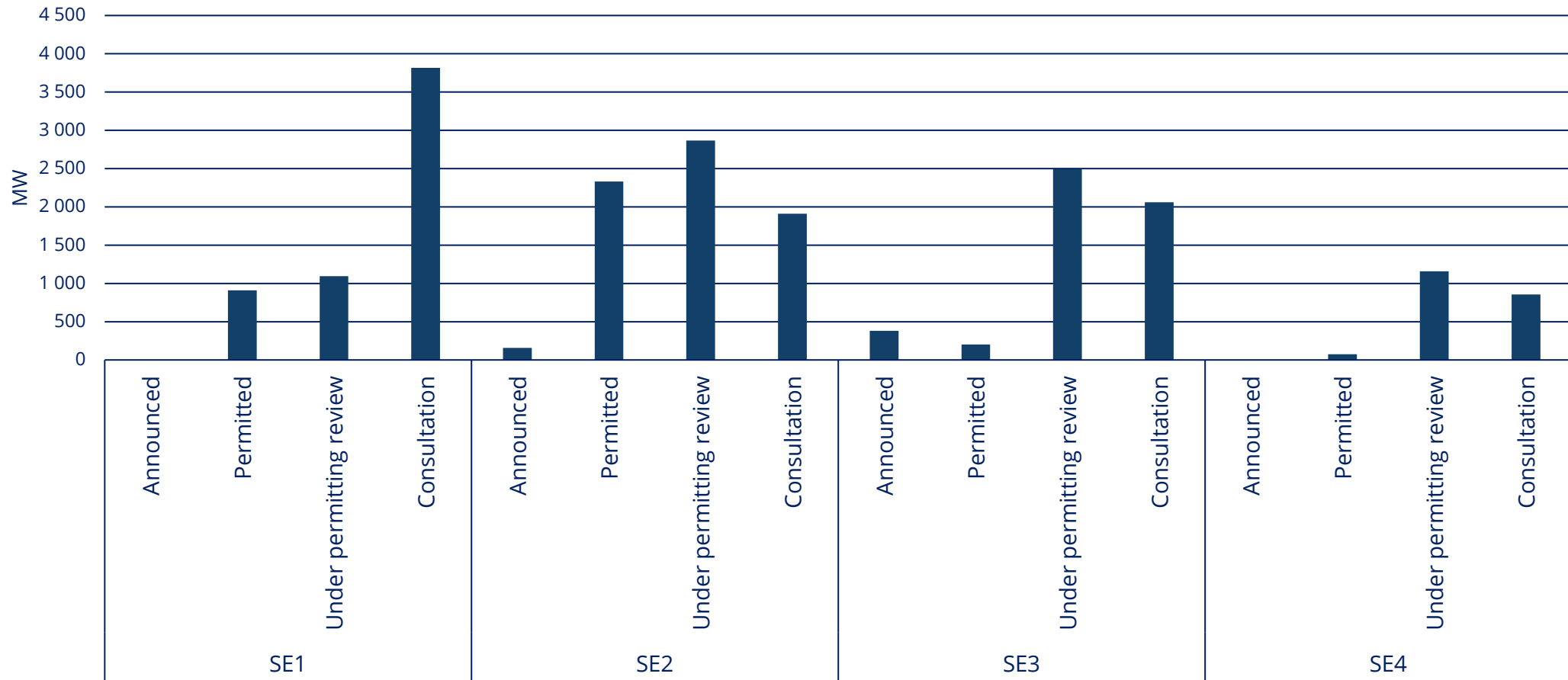
<b>SE1</b>	<b>WTG</b>	<b>MW</b>	<b>SE2</b>	<b>WTG</b>	<b>MW</b>
In Commission 2024	10	68	In Commission 2024	91	559
Under Construction	97	405	Under Construction	197	1 327
Announced	0	0	Announced	25	157
Permitted	136	910	Permitted	377	2 330
Under permitting review	161	1 094	Under permitting review	435	2 866
Consultation	543	3 815	Consultation	256	1 909
<b>SE3</b>	<b>WTG</b>	<b>MW</b>	<b>SE4</b>	<b>WTG</b>	<b>MW</b>
In Commission 2024	64	378	In Commission 2024	0	0
Under Construction	74	450	Under Construction	27	151
Announced	56	380	Announced	0	0
Permitted	34	203	Permitted	13	75
Under permitting review	346	2 495	Under permitting review	172	1 158
Consultation	300	2 061	Consultation	124	856

# Wind Power Project Portfolio, Per Bidding Zone Q4 2024

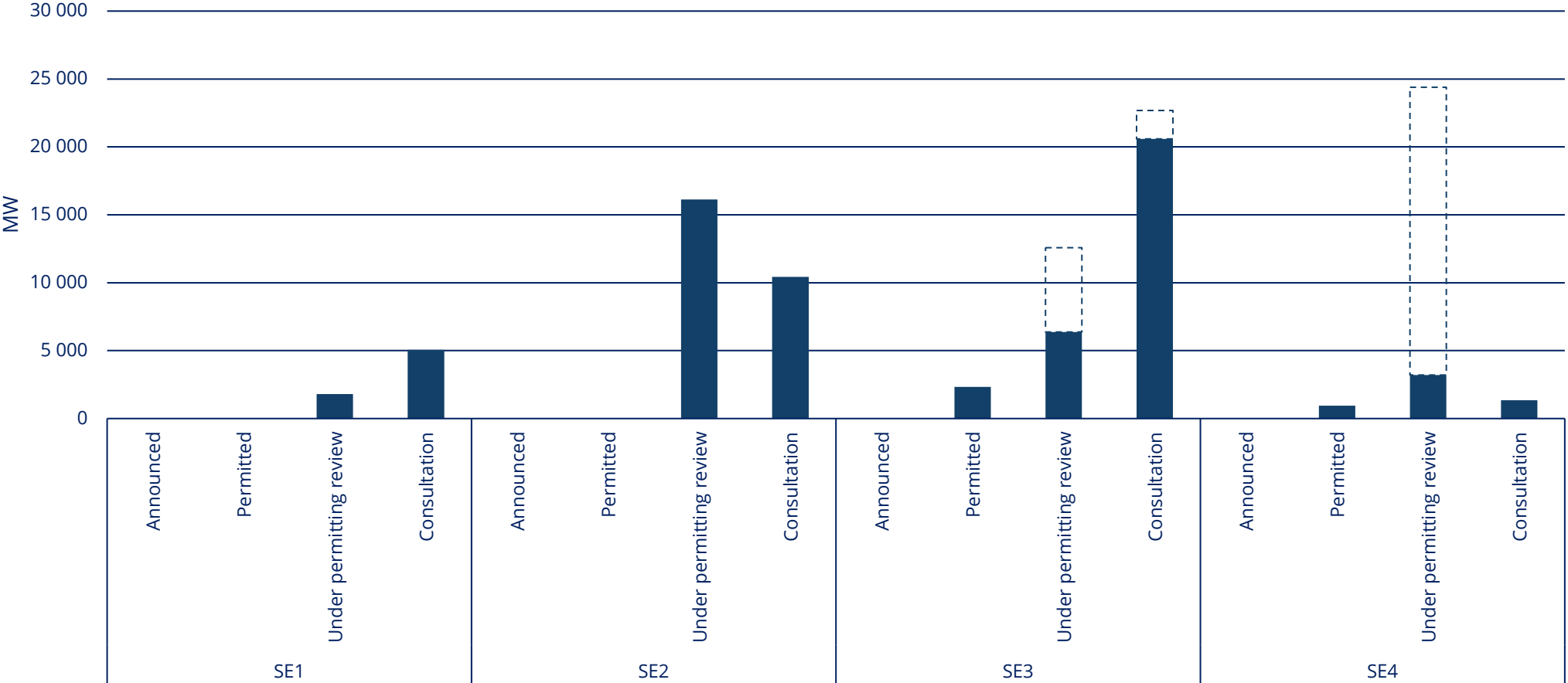
## Offshore

<b>SE1</b>	<b>WTG</b>	<b>MW</b>	<b>SE2</b>	<b>WTG</b>	<b>MW</b>
In Commission 2024	0	0	In Commission 2024	0	0
Under Construction	0	0	Under Construction	0	0
Announced	0	0	Announced	0	0
Permitted	0	0	Permitted	0	0
Under permitting review	120	1 800	Under permitting review	1 042	16 120
Consultation	219	5 060	Consultation	566	10 435
<b>SE3</b>	<b>WTG</b>	<b>MW</b>	<b>SE4</b>	<b>WTG</b>	<b>MW</b>
In Commission 2024	0	0	In Commission 2024	0	0
Under Construction	0	0	Under Construction	0	0
Announced	0	0	Announced	0	0
Permitted	155	2 325	Permitted	67	954
Under permitting review	376	6 375	Under permitting review	240	3 200
Consultation	1 200	20 587	Consultation	77	1 355

# Great Potential For The Expansion of Onshore Windpower, But More Permits Must Be Granted

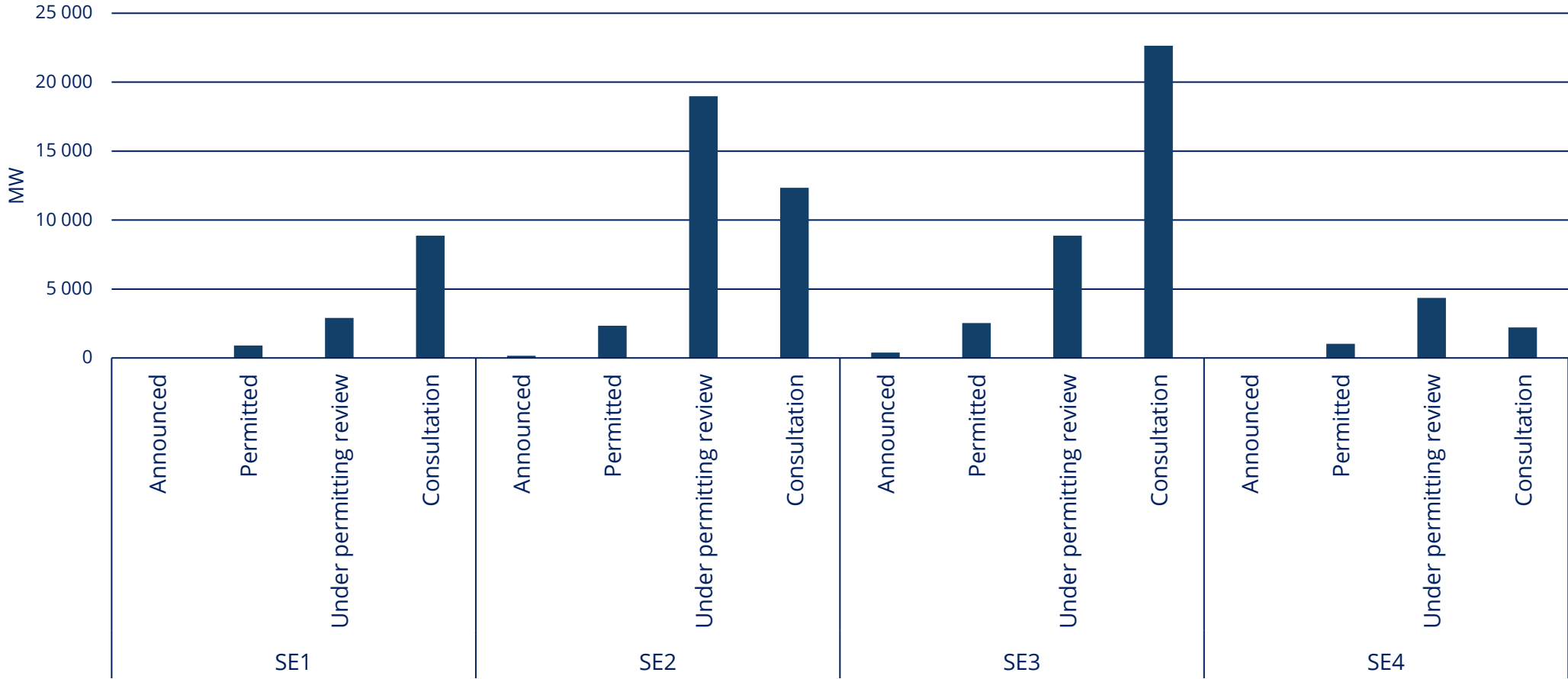


# 2024: Sudden Changes For Offshore Wind Power



Dotted lines represent the governments rejection of 13 offshore projects in Östersjön on 4 November 2024.

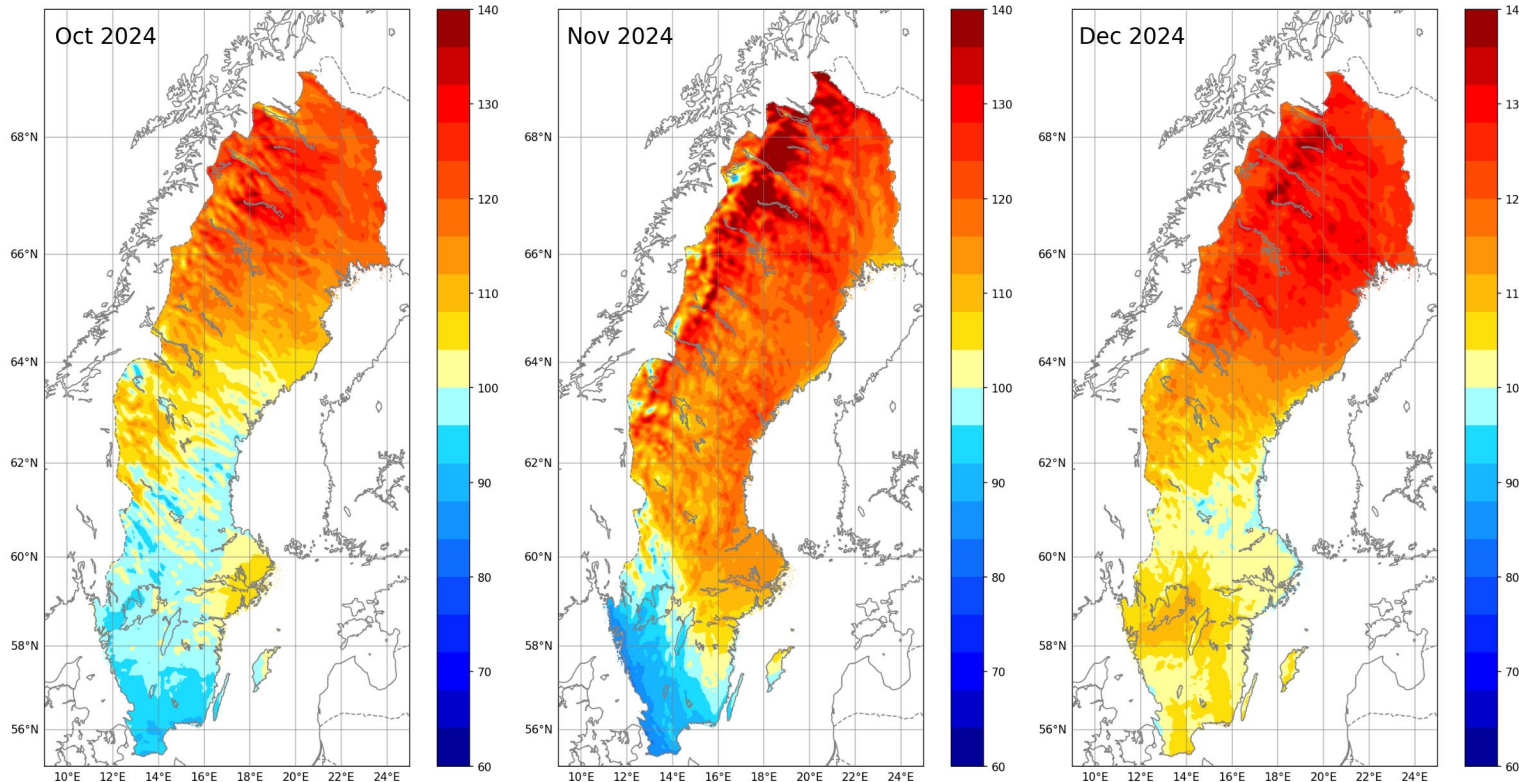
# Project Portfolio, On- And Offshore Wind Power: Q4 2024



# Windindex October–December 2024



KVT Monthly wind index [%]



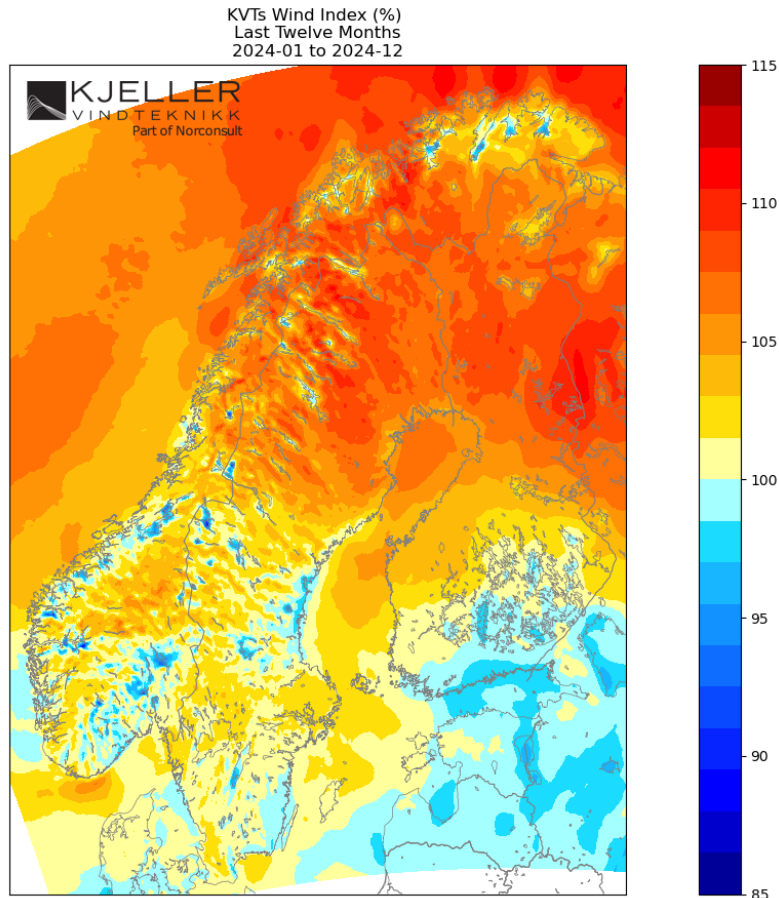
The year 2024 ended with three very windy months, especially in northern Sweden. In the south, winds were initially calmer but picked up, leading to a windy conclusion there as well.

October was characterized by a mix of calm high-pressure systems and windy low-pressure systems alternating. The low-pressure systems mainly moved over northern Sweden, which is reflected in October's weather map.

In November, low-pressure systems continued to pass primarily over the northern parts of the country, with the windiest conditions in the mountainous regions. Locally in the mountains, wind speeds reached up to 140% of normal levels.

December remained windy in the mountains, and during the final week of the year, hurricane-force winds were recorded at Stekenjokk. In southern Sweden, the second half of the month was the windiest, as low-pressure systems bringing rain and snow passed during the Christmas and New Year holidays.

# Good wind conditions during 2024



The most remarkable aspect of the wind year 2024 was the new national wind record set on February 1 during Storm Ingunn. Around Stekenjokk and the weather station, an average wind speed of 51.8 m/s was recorded—the highest ever measured in Sweden. That corresponds to nearly 190 km/h!

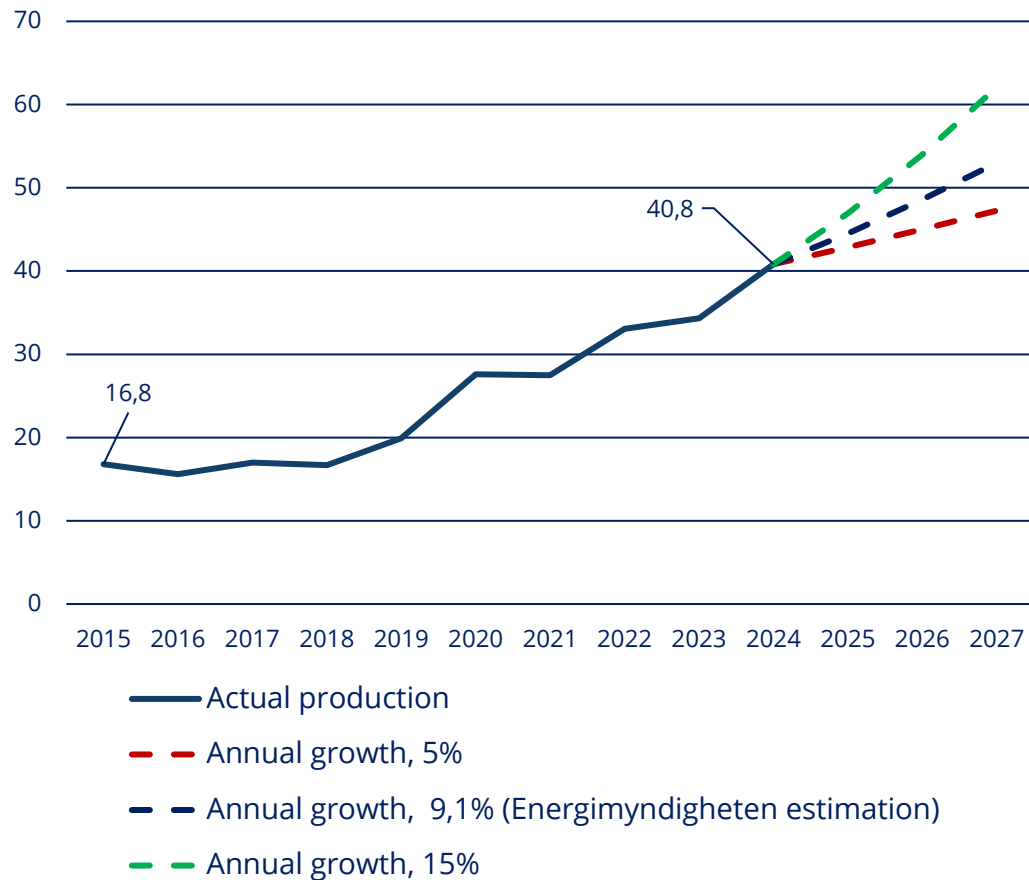
The previous record, also from Stekenjokk, was 47.8 m/s, meaning Ingunn significantly raised the bar. Looking at the year, it was windier than usual, especially in northern Norrland, where several deep low-pressure systems passed through. Average wind speeds were generally 5–15% stronger than during the reference period (2000–2019) across coastal areas, inland regions, and mountain ranges.

In Götaland, Svealand, and southern Norrland, wind conditions were more typical. The year 2024 stands in stark contrast to 2023, when winds were considerably calmer overall, resulting in a national wind deficit.

Time will tell what 2025 has in store!



# Prognosis Electricity Generation From Wind Power Until 2027



- The historical growth rate has been roughly 10,4 percent annually.
- The total growth rate of wind power between 2015-2024 is roughly 143 percent.
- The three differing prognosis points corresponds to different market conditions and therefore different rates of growth.

# The Progression of Electrification – an International Outlook

# The Electrification Status In Bullet Points

- Sweden continues to see a significant need to expand new electricity production.
- By 2035, the industry is expected to increase its consumption from around 40 TWh today to just under 120 TWh – despite delays in several large projects.
- The uncertainty regarding the need for electricity up to 2050 is high, based on current forecasts.
- Several major policy changes in 2024 are affecting wind power in Sweden and could impact the pace of expansion moving forward.
- Electrification continues despite turbulent global conditions.
- The EU, USA, and China continue to expand renewable electricity production and battery storage (albeit at different rates). This expansion is gradually replacing coal and gas dependence.

# Increased electricity consumption in Sweden by 2035

- Despite great uncertainty and postponed projects, industrial electricity consumption is expected to increase significantly by 2035.
- Sweden currently has a large annual electricity surplus. In 2024, Sweden exported electricity on 363 out of 366 days.
- As industrial demand increases, a faster expansion rate will be required. This demands long-term commitment from both the market and policymakers.

Industrins elanvändning per år och sektor

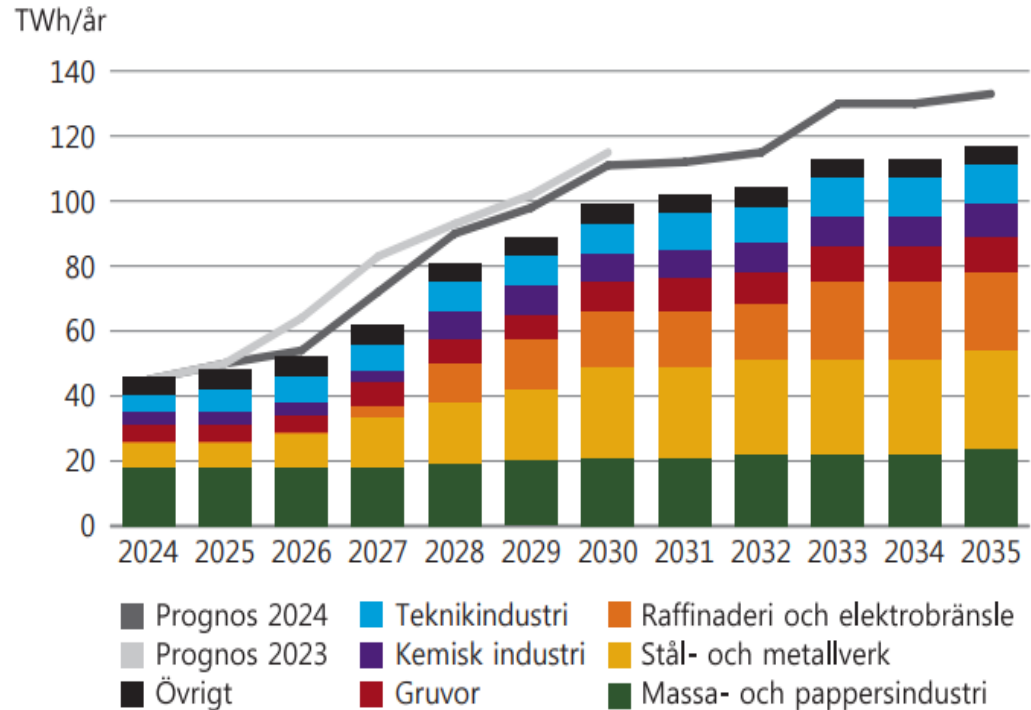


Bild: [SKGS](#)

# Electricity production is crucial to meeting the transition by 2050

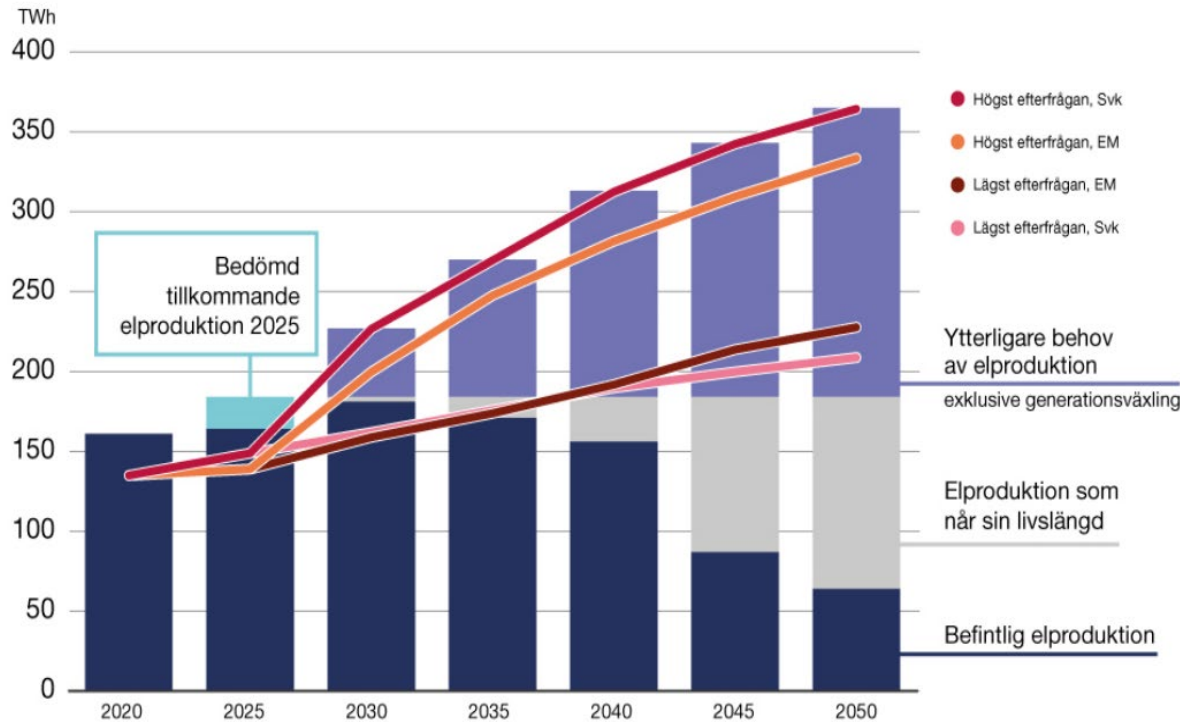
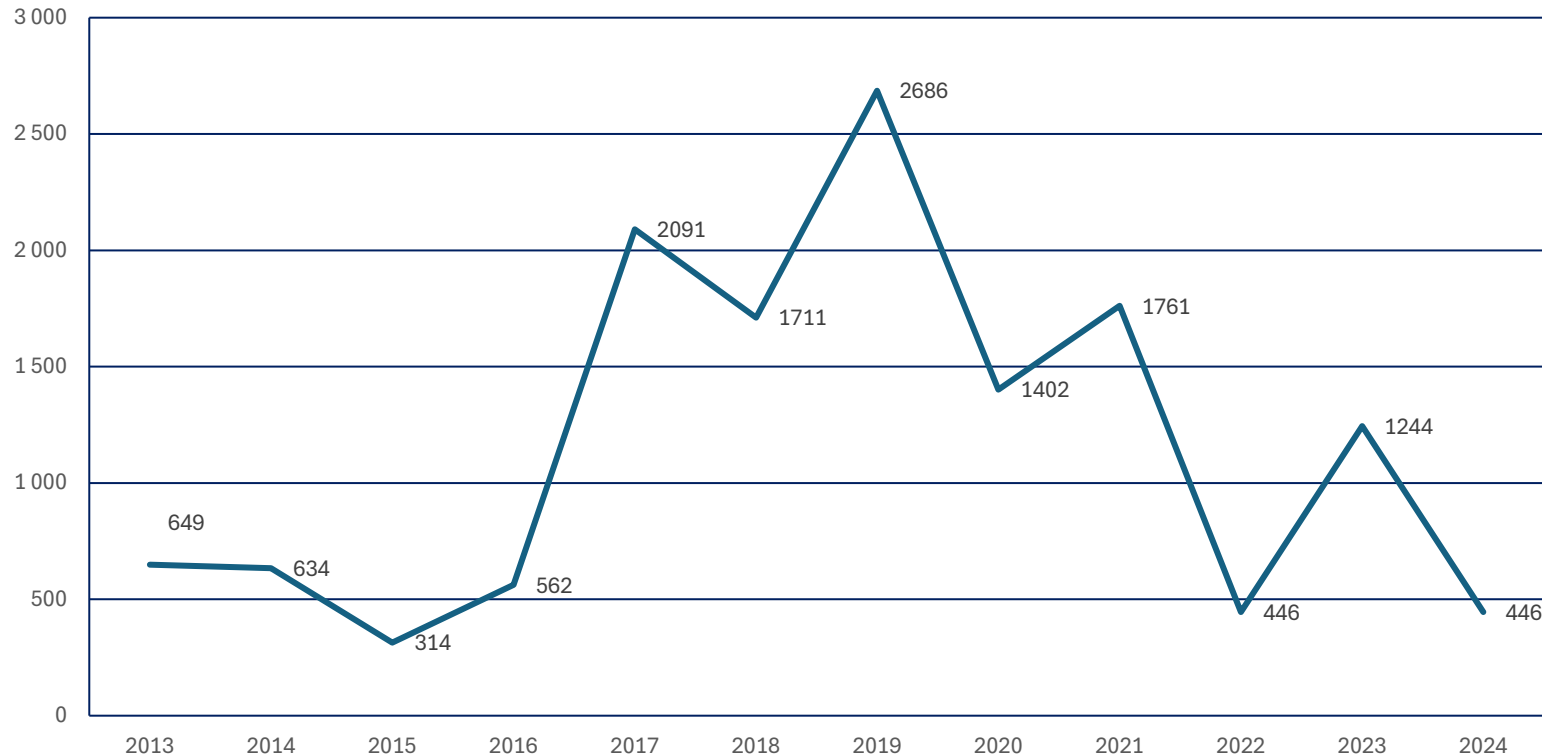


Bild: Myndighetsgemensam uppföljning av samhällets elektrifiering

- Despite an uncertain forecast for future electricity demand, the expansion of current electricity production will be crucial.
- Regardless of future consumption levels, it is important to note the need for reinvestments in new electricity production to maintain today's production levels.
- If expansion comes to a halt, the industry's transition will become impossible.

# Investment decisions are declining – not in line with growing electricity demand

Turbine orders, 2013-2024,  
Megawatts, MW



Period	Investment decisions, MW
2017-2018	3 802
2019-2020	4 088
2021-2022	2 207
2023-2024	1 690

Between 2025 and 2045, 255 terawatt-hours (TWh) of new electricity production needs to be built, averaging 12.8 TWh per year.

1,000 MW of onshore wind power can generate 3.3 TWh.  
1,000 MW of offshore wind power can generate 4.4 TWh.

# An Eventful Policy Year For Wind Power In Sweden In 2024

- The government decided in the [2025 budget proposal](#) on incentives for municipalities to expand wind power. The proposal includes an increased property tax on wind power, compensation for nearby residents, local benefits from wind power, and a fast and efficient permitting process for offshore wind power.
- [The Electricity Market Inquiry](#) continued its work and is now in its final phase. The results are to be presented no later than April 25, 2025.
- The government [rejected 13 offshore wind farms](#) in the Baltic Sea, citing security concerns.
- The inquiry [Offshore Wind Power – A Transition to an Auction System](#) was presented to the government.
- The government announced [two new initiatives to strengthen the role of wind and solar power in the electricity system](#).

# Electrification Is Happening Globally

- In 2023, wind power surpassed gas production in the EU for the first time. In 2024, solar power overtook coal production in the union.
- In 2024, wind power accounted for approximately 20% of Europe's electricity production (25% in Sweden). The goal is to increase the share of wind power to 34% by 2030 and over 50% by 2050.
- The EU installed 13 gigawatts (GW) of wind power in 2024: 11.4 GW of onshore wind and 1.4 GW of offshore wind. To meet its climate targets by 2050, the EU needs to install 30 GW of wind power per year.
- More auctions were awarded in 2024 than ever before, and there was growing interest in power purchase agreements (PPAs) for wind power in Europe.
- The main challenges for wind power in the EU are:
  - Slow grid expansion combined with a slower electrification of the industrial and transport sectors.
  - EU member states have yet to implement new regulations for faster permitting.
  - Increasing difficulty in reaching investment decisions—despite €31 billion being invested in wind power in 2024, more will



# Will USA Electrification Slow Down?

- The USA is facing the same challenges as the EU in electrification, but the new administration is creating significant uncertainty for further development.
- Previous forecasts for the USA have indicated that both coal and natural gas are expected to decline due to fossil-free expansion.
- In 2024, the USA was projected to install 65 gigawatts (GW) of new solar, wind, and battery storage – despite issues with permitting and grid connections. However, uncertainty around new tariffs could slow down the expansion of renewables and storage.
- The future of the USA's stimulus package, IRA, remains uncertain.
- California and Texas are leading the expansion of both renewable electricity generation and storage in the form of batteries.

# China Is Leading Electrification

- While electrification is progressing slowly in the EU and the USA, China has taken the lead. In 2023, China's electricity mix was 35% fossil-free electricity production, of which 16% came from solar and wind power. This is above the global average of 13%.
- In 2023, China generated 37% of all solar and wind power globally.
- By 2030, over 3 terawatts (TW) of renewable electricity production is expected to be built in China. The country is expected to account for 60% of the global new renewable electricity production. China is also expected to build 1 TW of solar power by 2026.
- In the first half of 2024, China approved only steel projects based on electric arc furnaces (EAF), signaling a policy change in the country's steel and iron sector that will eventually reduce China's emissions.
- China's electric vehicle sales rose by 40% in 2024, and now it is estimated that one in two cars sold in the country is electric.
- China now accounts for 85% of global battery production and controls the majority of the necessary metals for green industries.

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