Statistics and Forecast Q3

2024-10-21

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Executive Summary Q3 2024

- No turbine orders in the third quarter, but previous investment decisions mean that the expansion continues.
- There are about 6,400 MW (22 TWh) announced and licensed projects where investment decisions could be made given the right conditions.
- Difficulty to reach investment decisions due to political uncertainty, increased costs, delays in grid connection decisions and postponed electrification/green transistion projects.
- The trend can be reversed with:
  - measures to accelerate electrification in the industrial and transport sectors, and
  - clear messages from the government that wind power must be expanded significantly.

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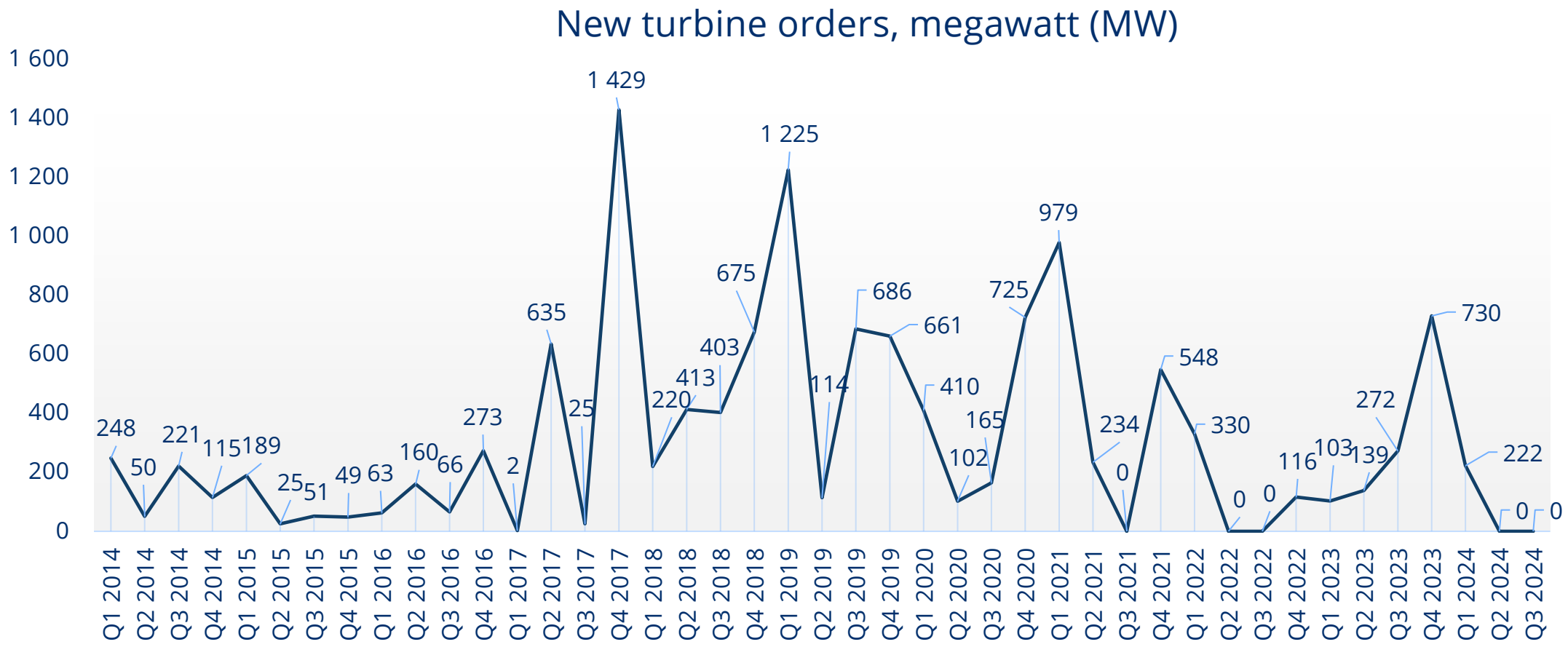
No New Turbine Orders Q3 2024



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Commissioning of Wind Power 2024-2027

Commissioning of wind power, megawatt (MW)

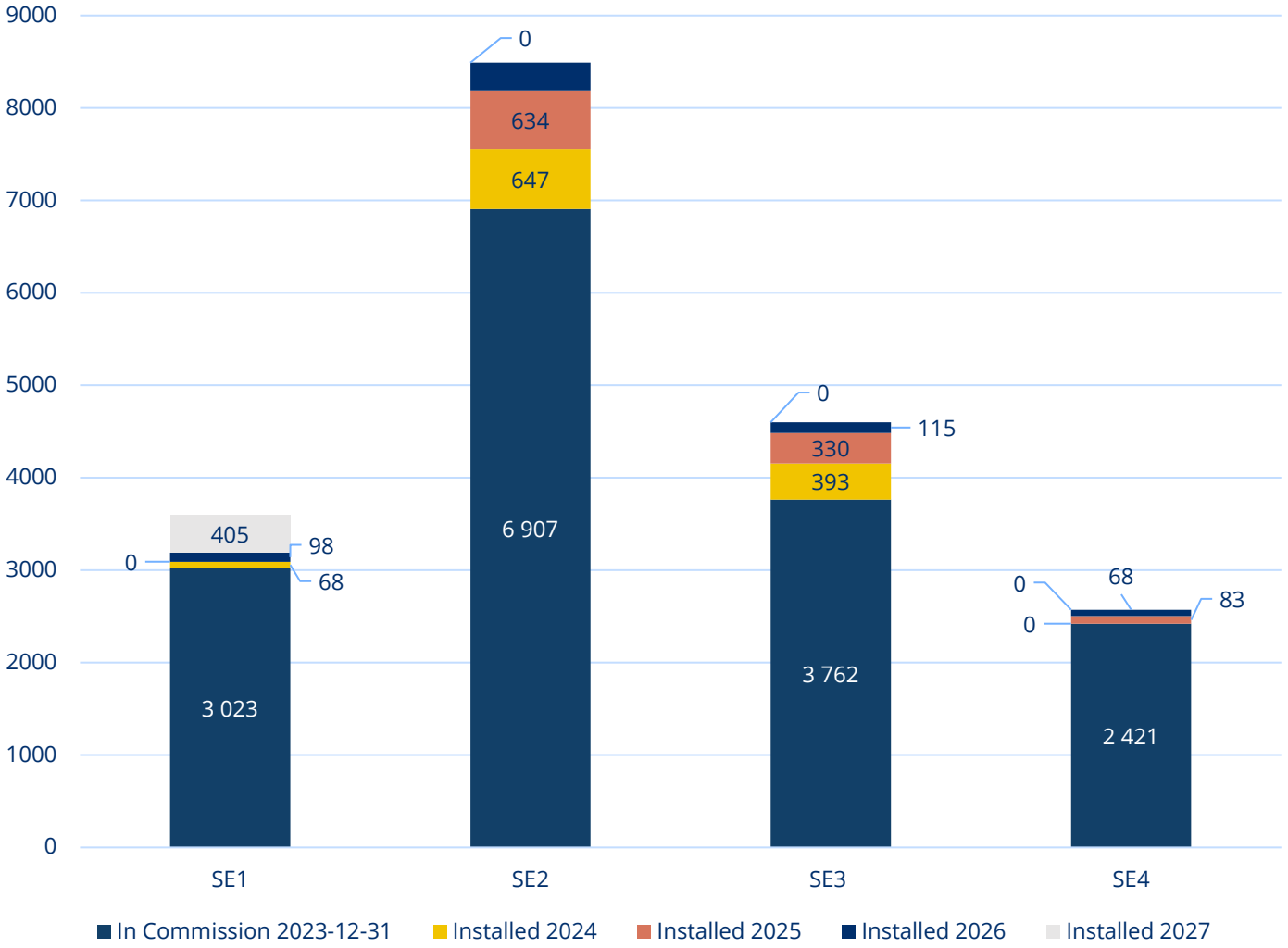
In commisson 2023-12-31	2024 Q1	2024 Q2	2024 Q3	2024 Q4	2024 (Tot)	2025	2026	*2027*	In commission 2027-12-31
16 112	215	*321*	*59*	*513*	*1 108*	*1 047*	*583*	*405*	19 255

Wind power development continues, but at a slower pace. In addition to projects under construction, there are 746 MW in announced projects that could be operational in 2026-2027.

Wind Power Under Construction in Sweden

Projects	Start Year	Owner	WTG	MW	TWh	Bidding Zone	County	Municipality
Tomasliden	2024	wpd Scandinavia	10	68	0,20	SE1	Västerbotten	Norsjö
Bäckagård	2024	Varberg Energi & Wästbygg	2	4	0,01	SE3	Halland	Varberg
Riberget	2024	Fu-Gen Energy	11	70	0,21	SE2	Gävleborg	Ljusdal
Stor-Skälsjön	2024	MEAG & Hydro Rein	42	260	0,81	SE2	Västernorrland	Timrå
Munkhyttan I	2024	Cloudberry Wind	3	18	0,06	SE3	Örebro	Lindesberg
Älgkullen	2024	SR Energy	15	93	0,27	SE3	Dalarna	Smedjebacken
Trelleborgs Hamn	2025	Trelleborgs Kommun	2	5	0,02	SE4	Skåne	Trelleborg
Kölvallen	2025	Foresight & Arise	42	277	0,92	SE2	Gävleborg	Ljusdal
Fröskog	2025	Vasa Vind	6	36	0,11	SE3	Västra Götaland	Åmål
Fasikan	2025	SCA	15	105	0,35	SE2	Västernorrland	Sollefteå
Knäsjöberget	2025	Renewable Power Capital	14	98	0,28	SE2	Västernorrland	Kramfors
Storhöjden	2025	Renewable Power Capital	22	154	0,42	SE2	Västernorrland	Kramfors
Bruzaholm	2025	Vattenfall Vindkraft	21	139	0,46	SE3	Jönköping	Eksjö
Boarp	2025	Eolus Vind	4	25	0,07	SE3	Västra Götaland	Ulricehamn
Dållebo	2025	Eolus Vind	4	18	0,06	SE3	Västra Götaland	Falköping
Fågelås	2025	Eolus Vind	7	45	0,17	SE3	Västra Götaland	Hjo
Rosenholm	2025	SR Energy	5	23	0,06	SE4	Kronoberg	Uppvidinge
Älmedal	2025	SR Energy	9	56	0,15	SE4	Kronoberg	Uppvidinge
Velinga	2025	Vattenfall Vindkraft	12	67	0,18	SE3	Västra Götaland	Tidaholm
Sörlidsberget	2026	Renewable Power Capital	20	140	0,44	SE2	Västernorrland	Sollefteå/Kramfors
Vitberget	2026	Renewable Power Capital	24	161	0,46	SE2	Västernorrland	Kramfors
Horshaga	2026	SR Energy	11	68	0,19	SE4	Kronoberg	Uppvidinge
Blisterliden	2026	Holmen Energi	14	98	0,36	SE1	Västerbotten	Skellefteå
Ånglarna	2026	EWZ	18	115	0,36	SE3	Dalarna	Falun
Maximus, MB South	2027	EPD & EIPP	97	405	1,35	SE1	Norrbotten	Piteå
			430	**2 548**	**7,98**			

19 255 MW Wind Power in 2027



Projects with commissioned turbines to be built until 202.

There are also 746 MW in announced projects.

Total: 19 255 MW

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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)

Swedish Wind Power Project Portfolio

In Commission 2024	Onshore	Offshore	Total
Projects	10	0	10
WTG	100	0	100
Capacity (MW)	595	0	595
Normal annual production (TWh)	1,9	0,0	1,9

Permitted	Onshore	Offshore	Total
Projects	27	3	30
WTG	560	147	707
Capacity (MW)	3 518	2 154	5 672
Normal annual production (TWh)	10,5	9,4	20,0

Under Construction	Onshore	Offshore	Total
Projects	28	0	28
WTG	430	0	430
Capacity (MW)	2 548	0	2 548
Normal annual production (TWh)	8,0	0,0	8,0

Under permitting review	Onshore	Offshore	Total
Projects	72	28	100
WTG	1 114	3 544	4 658
Capacity (MW)	7 612	56 026	63 638
Normal annual production (TWh)	25,0	250,6	275,5

Announced	Onshore	Offshore	Total
Projects	8	0	8
WTG	116	0	116
Capacity (MW)	746	0	746
Normal annual production (TWh)	2,4	0,0	2,4

Consultation	Onshore	Offshore	Total
Projects	48	21	69
WTG	1 223	2 167	3 390
Capacity (MW)	8 642	39 538	48 179
Normal annual production (TWh)	29,3	170,0	199,3

Project Portfolio by Bidding Zone Q3 2024 Onshore Wind Power

SE1	WTG	MW	TWh
In Commission 2024	0	0	0
Under Construction	121	571	1,9
Announced	0	0	0
Permitted	136	910	2,9
Under permitting review	161	1 094	3,8
Consultation	543	3 815	13,0

SE2	WTG	MW	TWh
In Commission 2024	53	317	1,0
Under Construction	190	1 265	3,9
Announced	60	367	1,2
Permitted	377	2 330	6,8
Under permitting review	435	2 866	9,5
Consultation	256	1 909	6,5

SE3	WTG	MW	TWh
In Commission 2024	47	278	0,9
Under Construction	92	560	1,7
Announced	56	380	1,2
Permitted	34	203	0,7
Under permitting review	346	2 495	7,9
Consultation	300	2 061	7,0

SE4	WTG	MW	TWh
In Commission 2024	0	0	0
Under Construction	27	151	0,4
Announced	0	0	0
Permitted	13	75	0,2
Under permitting review	172	1 158	3,8
Consultation	124	856	2,9

Project Portfolio by Bidding Zone Q3 2024 Offshore Wind Power

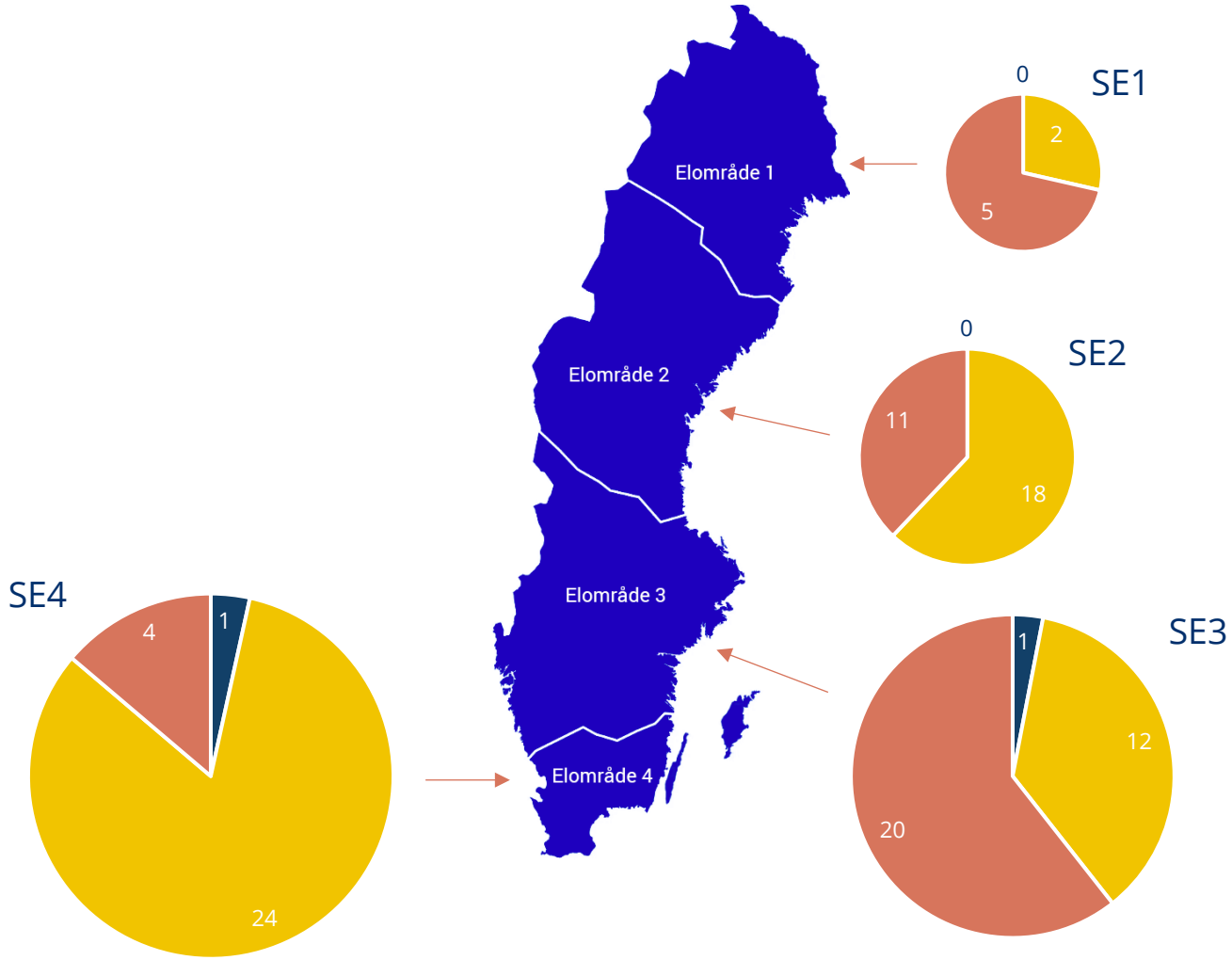
SE1	WTG	MW	TWh
In Commission 2024	0	0	0
Under Construction	0	0	0
Announced	0	0	0
Permitted	0	0	0
Under permitting review	120	1 800	7,6
Consultation	219	5 060	22,2

SE2	WTG	MW	TWh
In Commission 2024	0	0	0
Under Construction	0	0	0
Announced	0	0	0
Permitted	0	0	0
Under permitting review	1 112	17 870	81,7
Consultation	566	10 435	44,0

SE3	WTG	MW	TWh
In Commission 2024	0	0	0
Under Construction	0	0	0
Announced	0	0	0
Permitted	80	1 200	5,3
Under permitting review	754	11 960	54,4
Consultation	1 305	22 687	98,1

SE4	WTG	MW	TWh
In Commission 2024	0	0	0
Under Construction	0	0	0
Announced	0	0	0
Permitted	67	954	4,2
Under permitting review	1 558	24 396	107,0
Consultation	77	1 355	5,7

98 GW offshore Wind in Various Phases

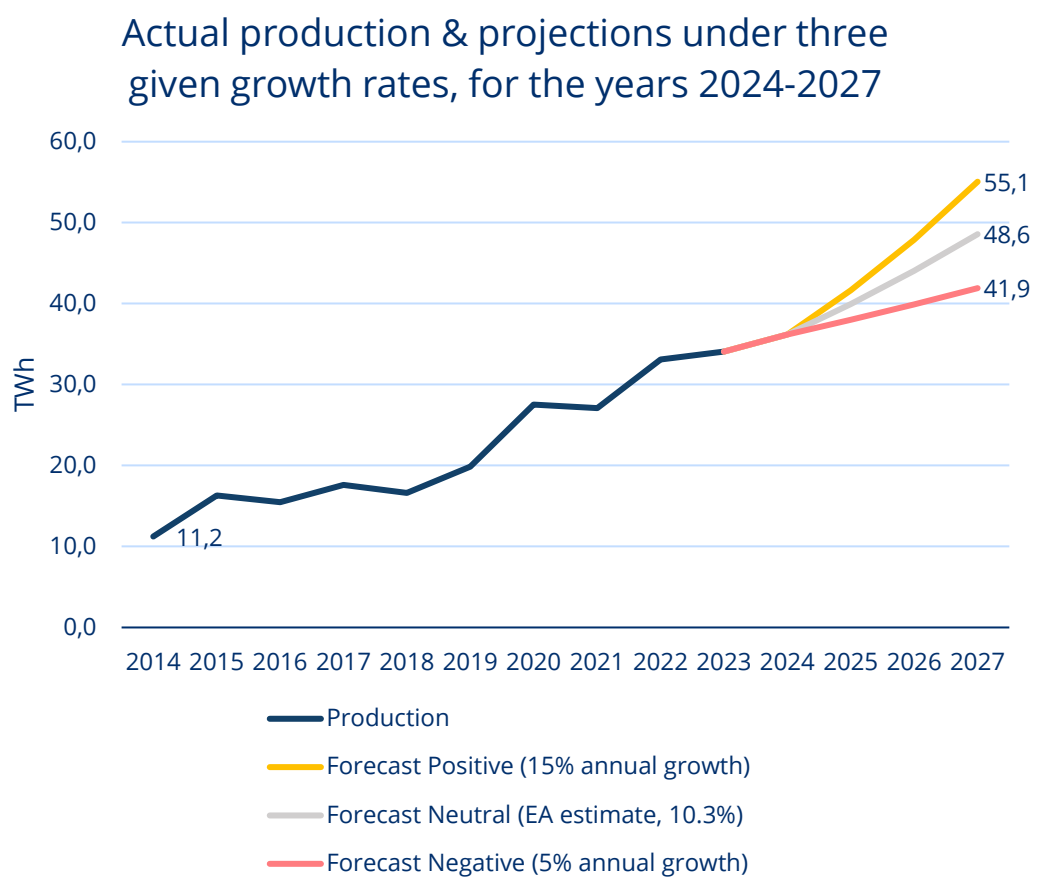


Total* 98 Gigawatts (GW) of offshore wind power under development

- Permitted (total 2 GW)
- Under permitting review (total 56 GW)
- Consulation (total 40 GW)

*In addition, there are over 39 GW in early stage

Production Forecast 2027

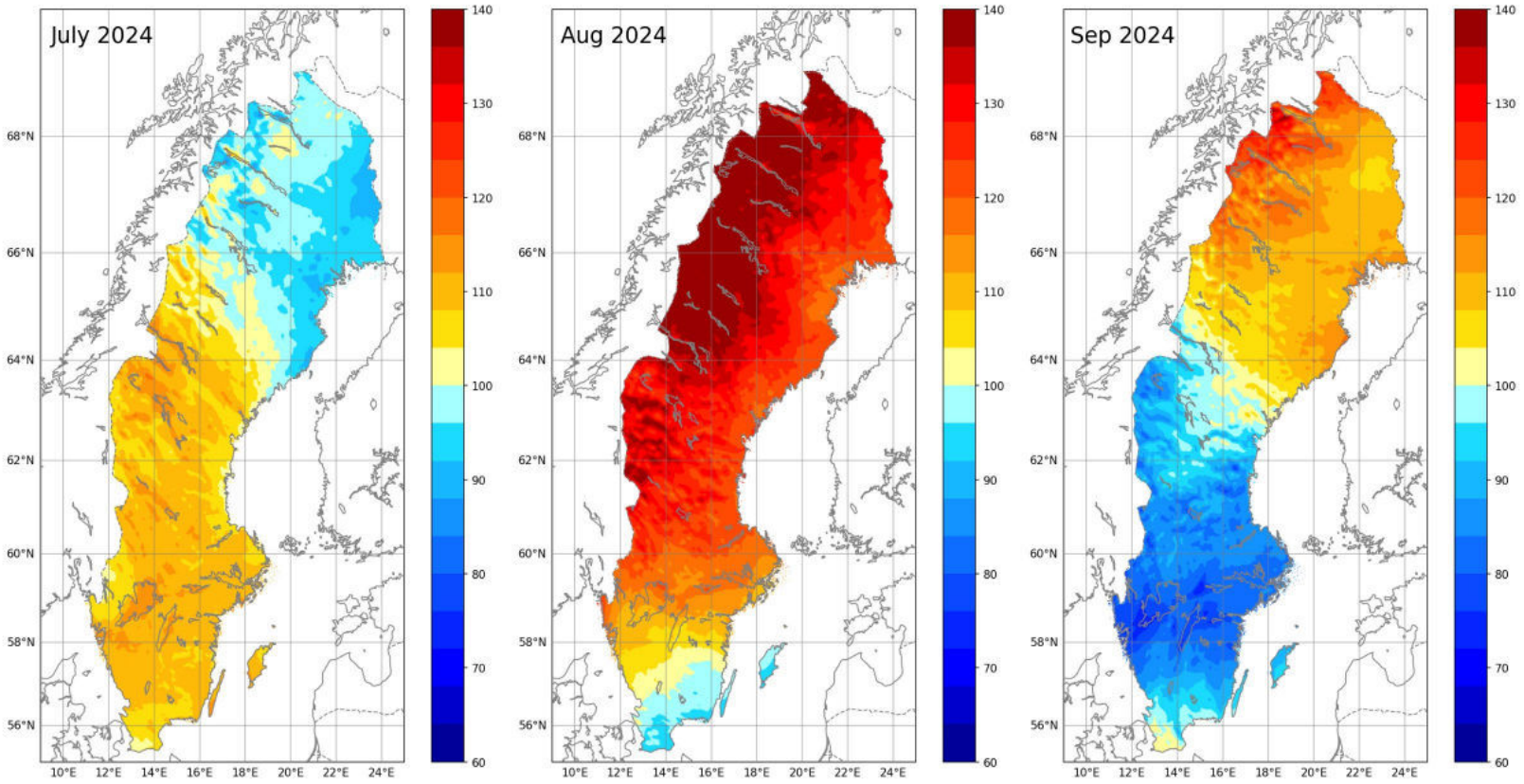


- The production forecasts refer to three different outcomes with varying annual growth rates.
- The range of outcomes depends on how the investment climate develops.
- Historical growth rate (2014-2023) is about 13 % annually.
- To achieve the positive outcome, the investment rate needs to increase compared to today.
- The neutral outcome is slightly lower than in the last ten years.

Wind Index July-September 2024

KJELLER VINDTEKNIKK
Part of Norconsult

KVT Monthly wind index [%]



July this year offered unstable and relatively windy weather in most parts of the country. The only exception was in northern Norrland, where high pressure prevailed, resulting in a lower-than-normal average wind speed.

In August, however, the winds broke loose in earnest in connection with several low-pressure systems that passed over the country. The windiest time was at the end of the month when Storm Lilian passed by. In general, the average wind strength was 100-140 % of normal, except for the south-eastern corner of the country, which was less windy than usual.

In September, the roles were reversed compared with July, with windy weather in northern Norrland and relatively weak winds in other parts of the country. The weak winds in the south were linked to the high pressure and the heat wave that swept up over the country. In the north, on the other hand, there was more low-pressure activity and fresher winds.

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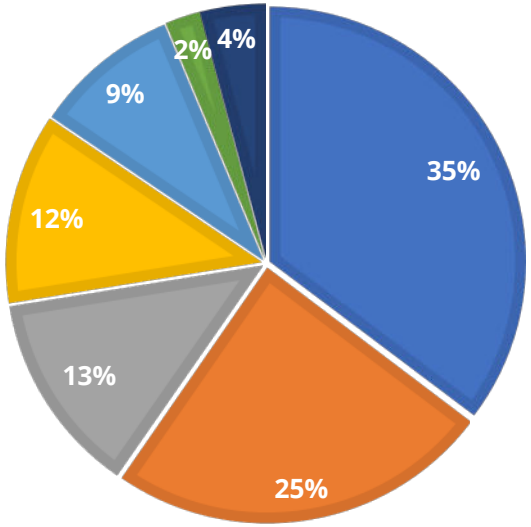
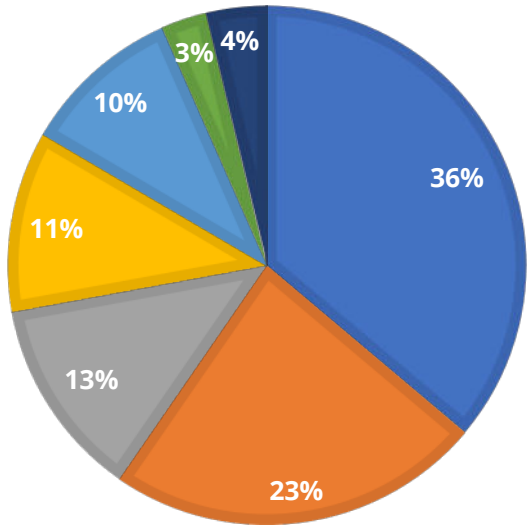
Market shares, turbines, in 2027

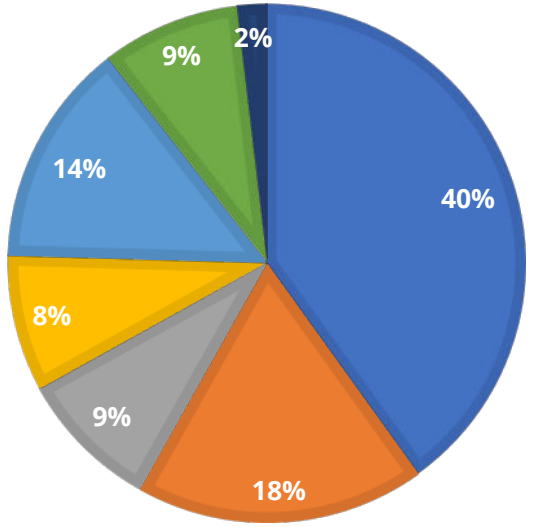
Normal annual production



Installed capacity



WTG

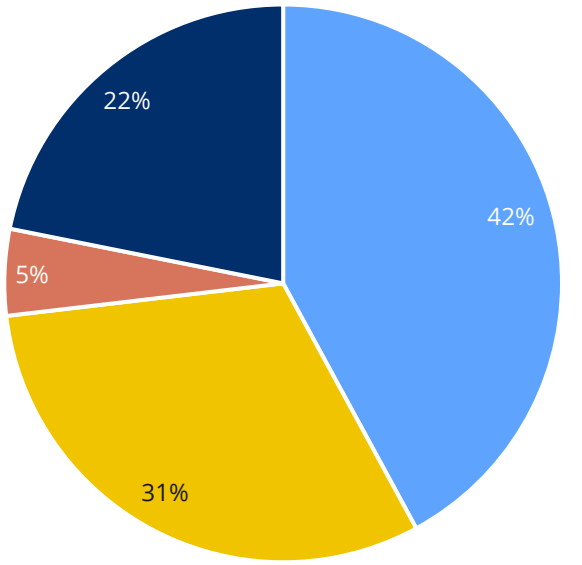


Total 2027
55 TWh (in line with the positive scenario)
19 255 MW
6 015 WTG

Other turbine suppliers:
Dongfang, Windworld, Senvion, NEG Micon, WinWind, Sinovel, Kenersys, Fuhrländer, ENO Energy, Nordic, EWT, Vindsyssel, Vertical Wind, Giraffe, EC Wind etc.

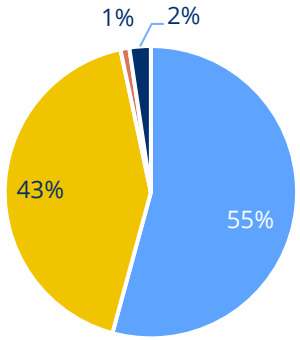
Electricity Generation Owners Q3 2024

Total, 187 TWh

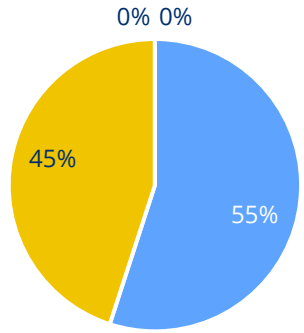


- Swedish state, municipalities, regions
- Foreign state-owned companies
- "Industry" = large electricity consumers
- Private companies

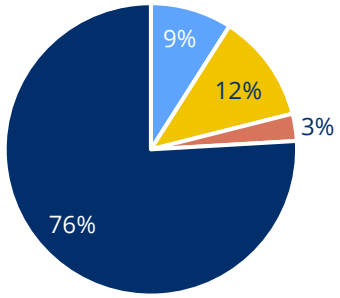
Hydro Power, 68 TWh



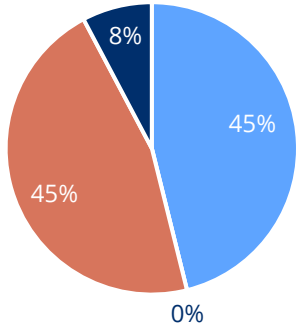
Nuclear Power, 52 TWh



Wind Power, 49 TWh



CHP, 17 TWh



[Swedish Energy Agency – Market statistics guarantees of origin]

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Increased Ownership Dispersion Loosens Market Concentration

- The three largest players in Sweden together owned 90 % of Sweden's electricity production in 1996. Today they own 58 % together.
- The five largest players in Sweden currently own 64 % of electricity production.
- This is due to the expansion of wind power and the decommissioning of nuclear power, where the big players previously dominated. Wind power has been expanded with several new players.

Swedish Energy Agency – Market statistics guarantees of origin

Swedish Competition Authority – Competition in the electricity market 2018

Electricity Generation Owners For All Power Types Q3 2024

	Owner	Share		Owner	Share		Owner	Share
1	Vattenfall	33,1%	14	Vasa Vind	0,9%	27	RWE	0,4%
2	Fortum	12,9%	15	Holmen	0,8%	28	Västerås kommun	0,4%
3	Uniper	11,7%	16	Billerud	0,7%	29	Greencoat Renewables	0,4%
4	Statkraft	4,1%	17	Rabbalshede Kraft	0,7%	30	Orrön Energy	0,4%
5	Skellefteå kommun	2,2%	18	Allianz	0,6%	31	Stora Enso	0,4%
6	CGN	2,0%	19	E.ON	0,6%	32	BlackRock	0,3%
7	Luxcara	1,2%	20	MEAG	0,6%	33	Fred. Olsen Renewables	0,3%
8	Södra	1,1%	21	Ardian	0,5%	34	KGAL	0,3%
9	SR Energy	1,1%	22	Stockholms kommun	0,5%	35	InfraVia	0,3%
10	Östersunds kommun	1,0%	23	Ankhiale	0,5%	36	GE Capital	0,3%
11	EIP	1,0%	24	TRIG	0,5%	37	Foresight	0,3%
12	SCA	0,9%	25	Enlight	0,5%	38	Arise	0,3%
13	Prime Capital	0,9%	26	Linköpings kommun	0,5%	39	Hermes	0,3%

Swedish Energy Agency – Market statistics guarantees of origin

In-depth analysis

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Political Uncertainty

- The proposal for financing and risk sharing of new nuclear reactors in the form of concessional government loans and a strike price of 80 öre/kWh has increased the uncertainty for investments in wind power.
- If the government goes ahead with the proposal without corresponding investments in other power generation that also needs to expand, the conditions for these will deteriorate.
    - The sustainability of both new and existing projects is compromised.
    - Profitability of new projects drops, hampering investment.
    - The profitability of existing projects is also deteriorating.

Permitting Statistics First Half of 2024

Still many consultations and new applications for new wind power

- 26 new consolations (423 WTG)
- 12 new applications for environmental permit (164 WTG)

Ten settled applications for onshore wind power (175 WTG)

- All applications were rejected or withdrawn before rejection. The municipal veto was the reason in six of the cases. 175 plants could have produced 4.2 TWh

One settled application in the territorial sea (167 WTG)

- The government rejected Långgrund because of the veto. The project could have produced 12.5 TWh

No application granted

- A total of 11 application that together could have produced 16.7 TWh

Permitting statistics and the municipal veto, first half of 2024

Municipal Decisions First Half of 2024

- **16 municipal decisions (218 WTG:s) in the first half of 2024 on onshore wind**
  - 12 vetoes (143 WTG:s) and four approvals (75 WTG:s)
  - Of the four projects approved by the municipalities, the Armed Forces stopped three
  - One project has moved forward in the permit process
  - The 12 projects (143 WTG:s) stopped by the municipalities could have produced 3.4 TWh
- **One settled offshore application**
  - The stopped project (167 WTG:s) in the territorial sea could have produced 12.5 TWh. *The government decision was made on 2024-03-21, but the municipalities' veto decision was made in the fall of 2023*
- **Overall picture.**
  - In total, the veto stopped 13 projects (310 WTG:s) that could have produced 15.9 TWh

Permitting statistics and the municipal veto, first half of 2024

Turbulent Market Conditions

- Russia's 2022 war of aggression, with subsequent market changes, created great uncertainty and increased costs for new wind power projects.
- Higher interest rates, higher turbine prices, higher prices for raw materials such as steel and cement have made it more difficult to make the project calculations work.
- A slowdown in the rate of electrification in the industrial and transport sectors means that Sweden's electricity surplus is increasing, resulting in low electricity prices.

Positive News From the Government

- In the budget bill for 2025, the government is clear that wind power, electrification and climate transition are closely linked:

  > ”In the short term, wind power can account for the majority of additional electricity generation. It therefore plays an important role in ensuring that electrification does not lose momentum, in enabling the climate transition and in achieving the goal of net zero emissions by 2045”
  >
  > (The Swedish Governments initiatives on electrification and green transition)

- The government has announced that it is introducing incentives for municipalities and a revenue-sharing model with residents, and that it intends to improve the conditions for expanding offshore wind power.
- ”Kraftlyftet” is 700 million SEK in investment support to increase the capabilities of the electricity system with complementary technologies.

Political Intention and Action Needed

- The government needs to further clarify that the expansion of wind power is needed to strengthen investor confidence.
- The government needs to swiftly put measures into place to accelerate the transition of the industrial and transport sectors.
- The opposition parties also need to be clear that the incentive to municipalities must be long-term.
- The reform of municipal approval, the so-called municipal veto, needs to be implemented quickly to resolve an untenable situation in terms of legal certainty.
- The government needs to make decisions on offshore wind projects awaiting its' decisions.
- The time to connect to the grid needs to be shortened and made more transparent.

10 proposals for electrification and competitiveness

1. Applying EU rules on shorter licensing processes for electricity generation
2. Introduce a maximum one-year rule for power plant upgrading permits and simplify the review of electricity line upgrades
3. Enables applications for grid connection to be made in parallel with the environmental permit process
4. Introduce a time limit for the municipal veto on wind energy
5. Weighing the climate benefits of testing electricity generation that contributes to Sweden's electrification
6. Strengthen incentives for municipalities to approve electricity generation
7. Strengthen ties between the Armed Forces and electricity producers
8. Develop new maritime plans with expanded areas for electricity production
9. Mandate relevant authorities to contribute to the electrification of society
10. Use existing electricity grid more efficiently and enable conditional access contracts

Swedish Wind Energy Association report: Ten Proposals for Electrification and Competitiveness

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