

# Statistics and Forecast Q2

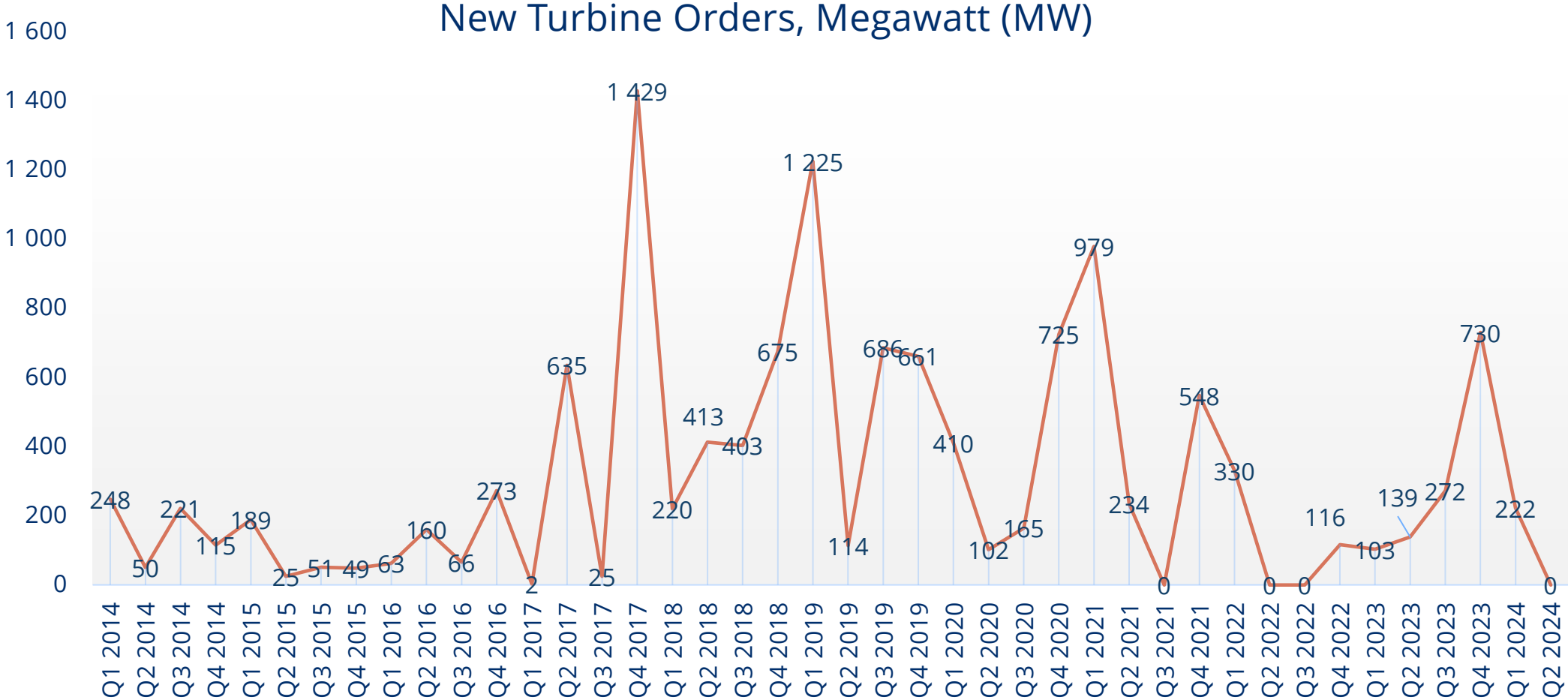
04/07/2024

Erik Almqvist  
Electricity Grid and Market  
[erik.almqvist@svenskvindenergi.org](mailto:erik.almqvist@svenskvindenergi.org)

# Summary Q2 2024

- No new investment decisions were made in the second quarter of 2024
- This is the first time since the energy crisis of 2022 that no new investment decisions have been made in a quarter
- Commissioning continues with small adjustments between quarters
  - 536 megawatts (MW) commissioned in Q1 and Q2 2024
  - 1 104 MW expected to be commissioned in 2024
  - 2,600 MW under construction until 2026
- Over 100 000 MW of offshore wind power under development

# New Turbine Orders Q2 2024



# Commissioning of Wind Power in Sweden 2024-2026

Commissioning of Wind Power, Megawatt (MW)

In commission 2023-12-31	2024 Q1	2024 Q2	2024 Q3	2024 Q4	2024 (Tot)	2025	2026	In commission 2026-12-31
16 112	215	321	319	249	1 104	1 348	951	19 515

# Operational Wind Power the First Six Months (Q1+Q2) 2024

Project	Owner	WTG	MW	TWh	Bidding zone	County	Municipality
Storbrännkullen	Neoen Renewables	10	57	0,16	SE2	Jämtland	Ragunda
Fäbodliden II	Fred. Olsen Renewables	4	17	0,06	SE2	Västerbotten	Vindeln
Blombacka 3	Varberg Energi	1	2	0,01	SE3	Västra Götaland	Skara
Femstenaberg	Rabbalshede Kraft	7	46	0,15	SE3	Västra Götaland	Strömstad
Tormoseröd	Fu-Gen & Alpiq	11	73	0,24	SE3	Västra Götaland	Tanum
Lursäng	Rabbalshede Kraft	3	20	0,07	SE3	Västra Götaland	Tanum
Lebo	Arise	5	33	0,11	SE3	Kalmar	Västervik
Lervik	Eurowind Energy	7	46	0,15	SE3	Kalmar	Västervik
Ranasjö- och Salsjöhöjden	TRIG & InfraRed	39	242	0,81	SE2	Västernorrland	Sollefteå
		<b>87</b>	<b>536</b>	<b>1,75</b>			

# Wind Power Under Construction in Sweden

Project	Start year	Owner	WTG	MW	TWh	Bidding zone	County	Municipality
Tomasliden	2024	wpd Scandinavia	10	68	0,20	SE1	Västerbotten	Norsjö
Stor-Skälsjön	2024	MEAG & Hydro Rein	42	260	0,81	SE2	Västernorrland	Timrå
Hallösa	2024	Prime Capital	13	59	0,19	SE3	Jönköping	Jönköping
Älgkullen	2024	SR Energy	15	93	0,27	SE3	Dalarna	Smedjebacken
Riberget	2024	Fu-Gen Energy	11	70	0,21	SE2	Gävleborg	Ljusdal
Bäckagård	2024	Varberg Energi & Wästbygg	2	4	0,01	SE3	Halland	Varberg
Munkhyttan I	2024	Cloudberry Wind	3	18	0,06	SE3	Örebro	Lindesberg
Kölvallen	2025	Foresight & Arise	42	277	0,92	SE2	Gävleborg	Ljusdal
Kajen	2025	Trelleborgs Kommun	2	5	0,02	SE4	Skåne	Trelleborg
Fasikan	2025	SCA	15	105	0,35	SE2	Västernorrland	Sollefteå
Fröskog	2025	Vasa Vind	6	36	0,11	SE3	Västra Götaland	Åmål
Bruzaholm	2025	Vattenfall Vindkraft	21	139	0,46	SE3	Jönköping	Eksjö
Rosenholm	2025	SR Energy	5	23	0,06	SE4	Kronoberg	Uppvidinge
Älmedal	2025	SR Energy	9	56	0,15	SE4	Kronoberg	Uppvidinge
Knäsjöberget	2025	Renewable Power Capital	14	92	0,31	SE2	Västernorrland	Kramfors
Storhöjden	2025	Renewable Power Capital	22	154	0,51	SE2	Västernorrland	Kramfors
Vitberget	2025	Renewable Power Capital	23	161	0,54	SE2	Västernorrland	Kramfors
Sörlidsberget	2025	Renewable Power Capital	21	140	0,47	SE2	Västernorrland	Sollefteå/Kramfors
Dällebo	2025	Eolus Vind	4	18	0,06	SE3	Västra Götaland	Falköping
Fågelås	2025	Eolus Vind	7	45	0,17	SE3	Västra Götaland	Hjo
Velinga	2025	Vattenfall Vindkraft	12	67	0,18	SE3	Västra Götaland	Tidaholm
Boarp	2025	Eolus Vind	4	25	0,07	SE3	Västra Götaland	Ulricehamn
Horshaga	2026	SR Energy	11	68	0,19	SE4	Kronoberg	Uppvidinge
Ånglarna	2026	EWZ	18	115	0,36	SE3	Dalarna	Falun
MB South	2026	EIPP	97	405	1,35	SE1	Norrbotten	Piteå
Blisterliden	2026	Holmen Energi	14	98	0,36	SE1	Västerbotten	Skellefteå
			<b>443</b>	<b>2 600</b>	<b>8,38</b>			

2024-06-30

# 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 the Swedish Wind Energy Associations member companies
- media data
- 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

## Q2 2024

<b>Commissioned under 2024</b>	<b>Onshore</b>	<b>Offshore</b>	<b>Total</b>
Projects	9	0	9
WTG	87	0	87
MW	536	0	536
Annual Normal Production (TWh)	1,75	0,00	1,75

<b>Permitted</b>	<b>Onshore</b>	<b>Offshore</b>	<b>Total</b>
Projects	27	3	30
WTG	590	147	737
MW	3 623	2 154	5 777
Annual Normal production (TWh)	11,54	9,44	20,97

<b>Under Construction</b>	<b>Onshore</b>	<b>Offshore</b>	<b>Total</b>
Projects	26	0	26
WTG	443	0	443
MW	2 600	0	2 600
Annual Normal Production (TWh)	8,38	0,00	8,38

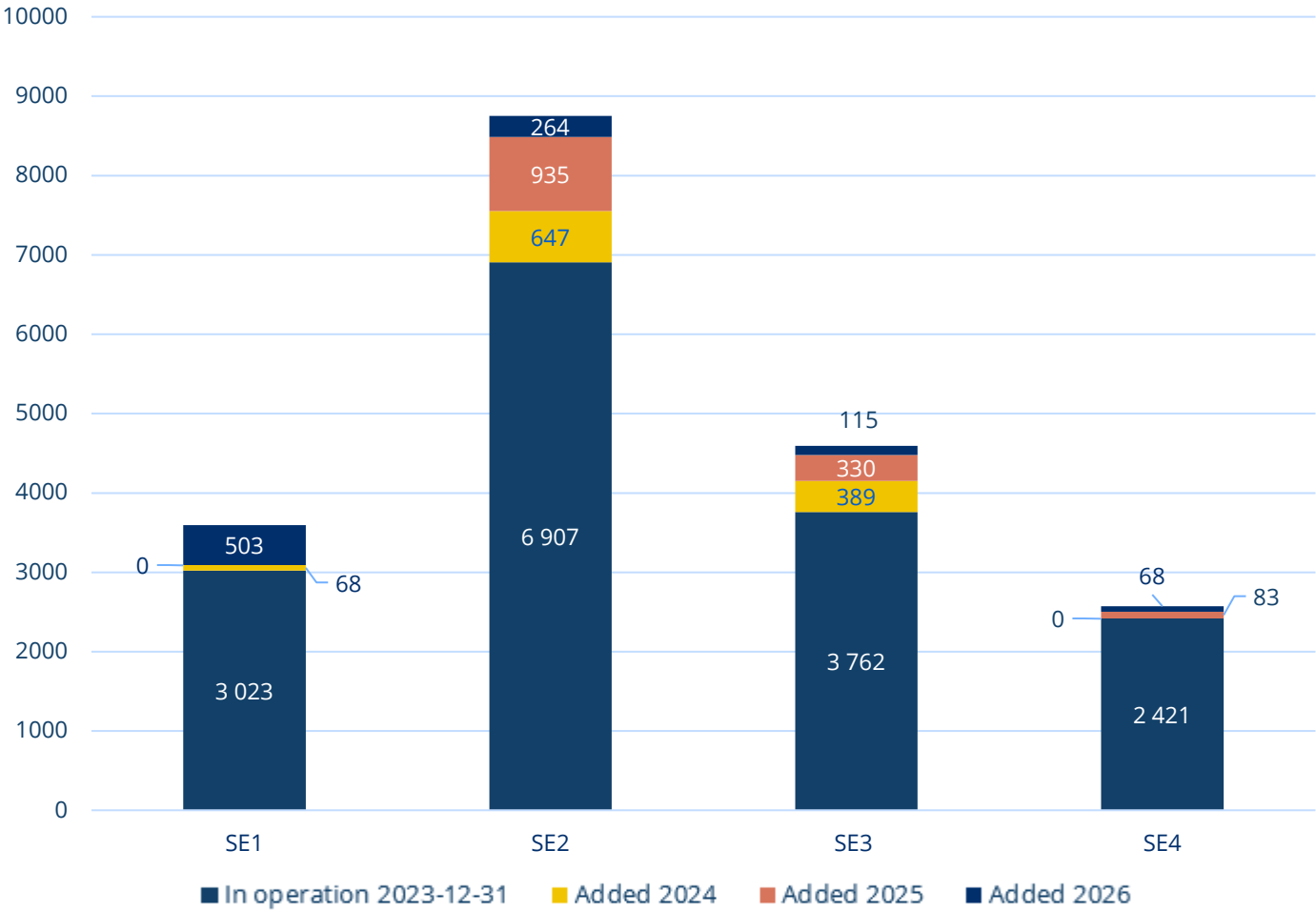
<b>Under Permitting Review</b>	<b>Onshore</b>	<b>Offshore</b>	<b>Total</b>
Projects	64	24	88
WTG	998	3 119	4 117
MW	6 629	52 326	58 955
Annual Normal Production (TWh)	22,31	225,05	247,37

<b>Announced</b>	<b>Onshore</b>	<b>Offshore</b>	<b>Total</b>
Projects	8	0	8
WTG	116	0	116
MW	746	0	746
Annual Normal Production (TWh)	2,42	0,00	2,42

<b>Consultation</b>	<b>Onshore</b>	<b>Offshore</b>	<b>Total</b>
Projects	47	25	72
WTG	1 107	2 557	3 664
MW	7 726	45 943	53 669
Annual Normal Production (TWh)	25,75	200,16	225,91



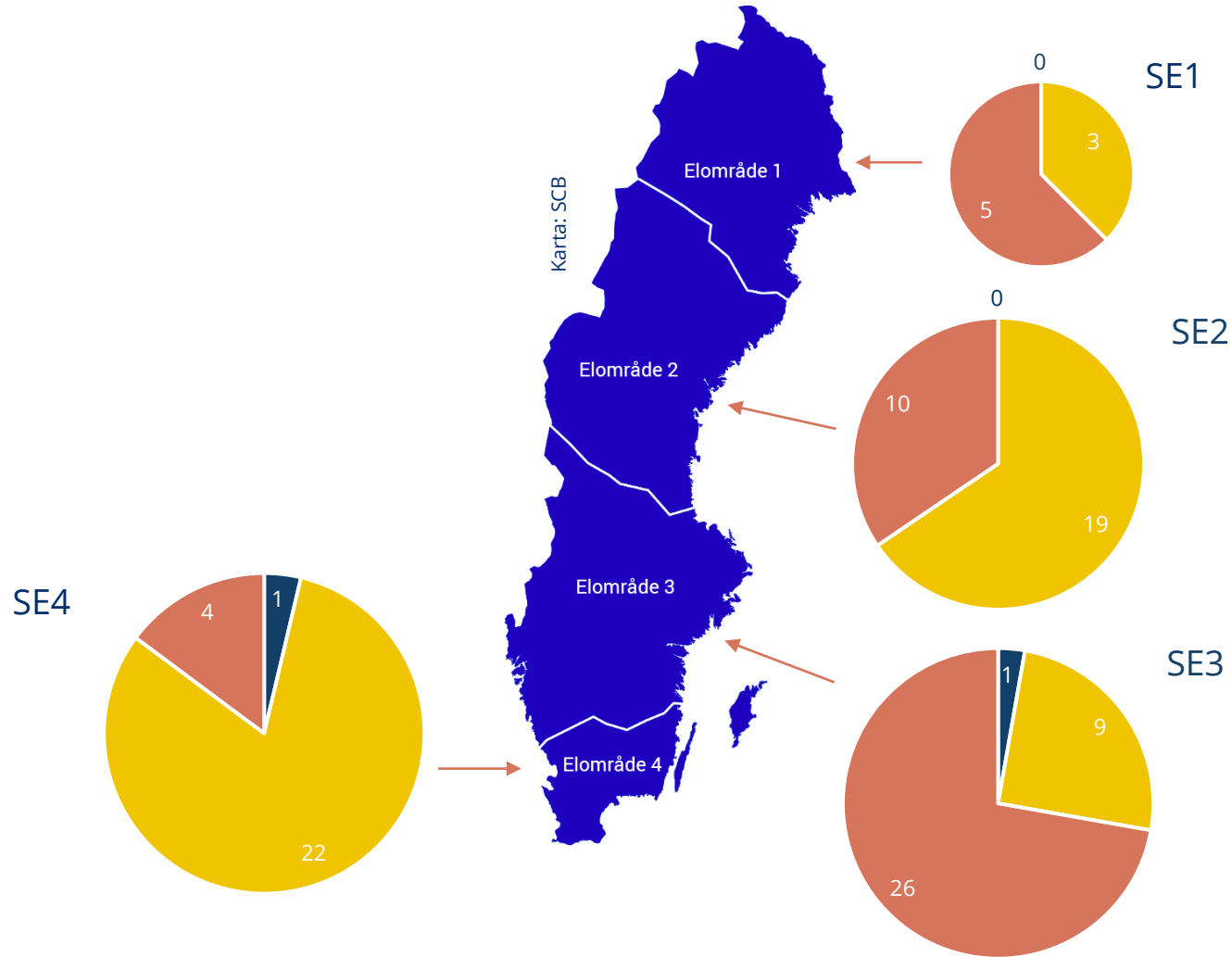
# Onshore Wind Power Development by Bidding Area 2024-2026



Projects with ordered turbines incl. 608 megawatt (MW) in announced projects.

Total: 19,515 MW by 2026

# Offshore Wind Power Projects



**A total of 100 gigawatt (GW) offshore wind power under development\***

- 2 GW with permits
- 52 GW in the permitting process
- 46 GW in consultation

\*In addition, there are more than 42 GW in the early stages.

# Risk of Lower Activity

Government must act to speed up deployment and improve investment climate

# Time for Politics to Remove Political Risks and Deliver Messages

- Several important policy measures and decisions regarding wind power, both onshore and offshore, are being investigated or prepared within the Government Offices.
- The government inquiry “The Value of Wind” ([SOU 2023:18](#)), which made several proposals to increase incentives for new onshore wind power, has been with the government for over a year.
- Other proposals to both incentivize and facilitate wind power deployment have been discussed and the government has stated that such proposals and decisions on offshore wind energy may come in the near future.
- Thirteen lawyers from leading law firms have written an open letter to the Government stating that the municipal approval process for wind energy developments must be reformed to increase predictability and legal certainty. The issue have been investigated by a government inquiry.
- It is important that the Government urgently decides on concrete solutions that promote the expansion of wind power. It is urgent to act quickly and clearly. There is an obvious risk that investments in necessary electricity production will await a decision on how the government will handle these issues, which have been investigated or are under preparation.

# Strong Need for New Electricity Production

- Industry needs additional electricity production in the near future if their transition plans are to be realized.
- SKGS (The Swedish base industry's collaborative body on energy issues) has published an updated report on the electricity needs of industry until 2035, showing that industry needs an additional 88 terawatt hours (TWh).
- Other industry stakeholders have pointed out the need for an expansion of 10 TWh per year to meet demand by 2035.
- To meet this challenge, all energy production must have the best investment conditions. Political uncertainty risks a lack of investment.

# Solutions Already Exist Today 1 (3)

The Swedish Wind Energy Association, Siemens Energy and OX2 have presented a report showing how southern Sweden (SE3 and SE4) can meet a 40% increase in electricity use by the early 2030s.

- The increased demand is met in power and energy, every day, every hour, all year round with renewable technologies.
- The technology already exists today and involves low technical and financial risk.
- The system cost is SEK 54 öre/kWh, with an investment cost of around SEK 430 billion.
- More electricity can stay in northern Sweden, while reducing the need for new transmission grid.
- Means a more decentralized and robust electricity system that is more secure from a total defense perspective.
- Improves and extends the capability for island operation and restarting the grid.

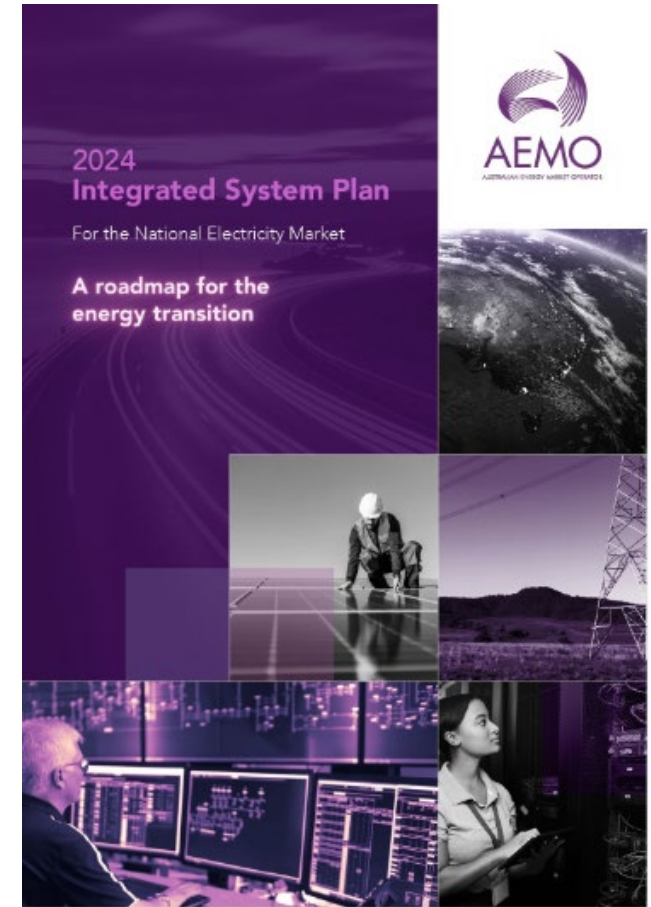


# Solutions Already Exist Today 2 (3)

The Australian Energy Market Operator (AEMO) has developed a long-term national plan for the development of the power system in Australia. It has studied all aspects of the energy transition such as cost, feasibility, social acceptability, adequacy and security of supply.

The solution that provides security of supply at the lowest cost is a power system dominated by renewable electricity production from hydro, solar and wind, with variability managed by energy storage and gas turbines.

- The system can be powered by 100% renewable electricity production.
- Energy storage is a key part of the solution and the component that is growing the most.
- Gas turbines will have a completely new role in the power system as they will only be used for balancing power and thus have a very short operating time and account for 1-3% of electricity production.



# Solutions Already Exist Today 3 (3)

Batteries are one of the technologies that can support the electricity system of the future and provide, among other things, more efficient use of existing grid capacity, increased stability of the electricity grid, less volatile electricity prices, lower imbalance and profile costs. It also contributes to lower costs for electricity consumers.

Bodecker Partners report Battery Storage and the Future of Hybrid Parks shows how much battery capacity is installed in total in Sweden, how much is planned to be installed and how much is installed in connection with wind and solar farms.

- Over 370 megawatt (MW) in operation
- Over 1 400 MW under construction
- Over 8 300 MW in planned projects with at least 5 MW





# Conceptual Confusion

- The Swedish Wind Energy Association has commissioned Sweco to produce an awareness-raising report on the concepts of availability factor and capacity factor that appear in discussions about the electricity system. The terms are often confused and sometimes used for purposes other than those intended.
- The confusion of concepts adds to the power production debate and ultimately risks slowing down the expansion of wind and solar power and may affect the willingness to invest in power production when it is most needed.
- Both availability factor and capacity factor indicate how much of the total installed capacity is available. They differ mainly by the choice of time period.
- The availability factor describes how much of a resource is available in a given situation and is used, among other things, to forecast the risk of power shortages.
- The Swedish TSO (Svenska Kraftnät) estimates that the availability of wind power at the peak load hour is 9% of installed capacity. In recent years, the outcome has been significantly higher.

# Availability at Peak Hour, Forecast vs. Actual

	Hydro	Wind Power	CHP	Nuclear
Actual 2018/2019	76%	37%	-	100%
Actual 2019/2020	70%	45%	41%	87%
Actual 2020/2021	57%	32%	32%	100%
Actual 2021/2022	72%	40%	61%	100%
Actual 2022/2023	66%	21%	48%	64%
<b>Svk's forecast 2023/2024</b>	<b>82%</b>	<b>9%</b>	<b>77%</b>	<b>90%</b>
Actual 2023/2024		19%		

The Swedish TSO (Svk) estimates that the availability of wind power at the peak load hour is 9% of installed capacity.

The forecast is based on the outcome at the tenth percentile of historical output.

# Statistics and Forecast Q2

04/07/2024

Erik Almqvist  
Electricity Grid and Market  
[erik.almqvist@svenskvindenergi.org](mailto:erik.almqvist@svenskvindenergi.org)