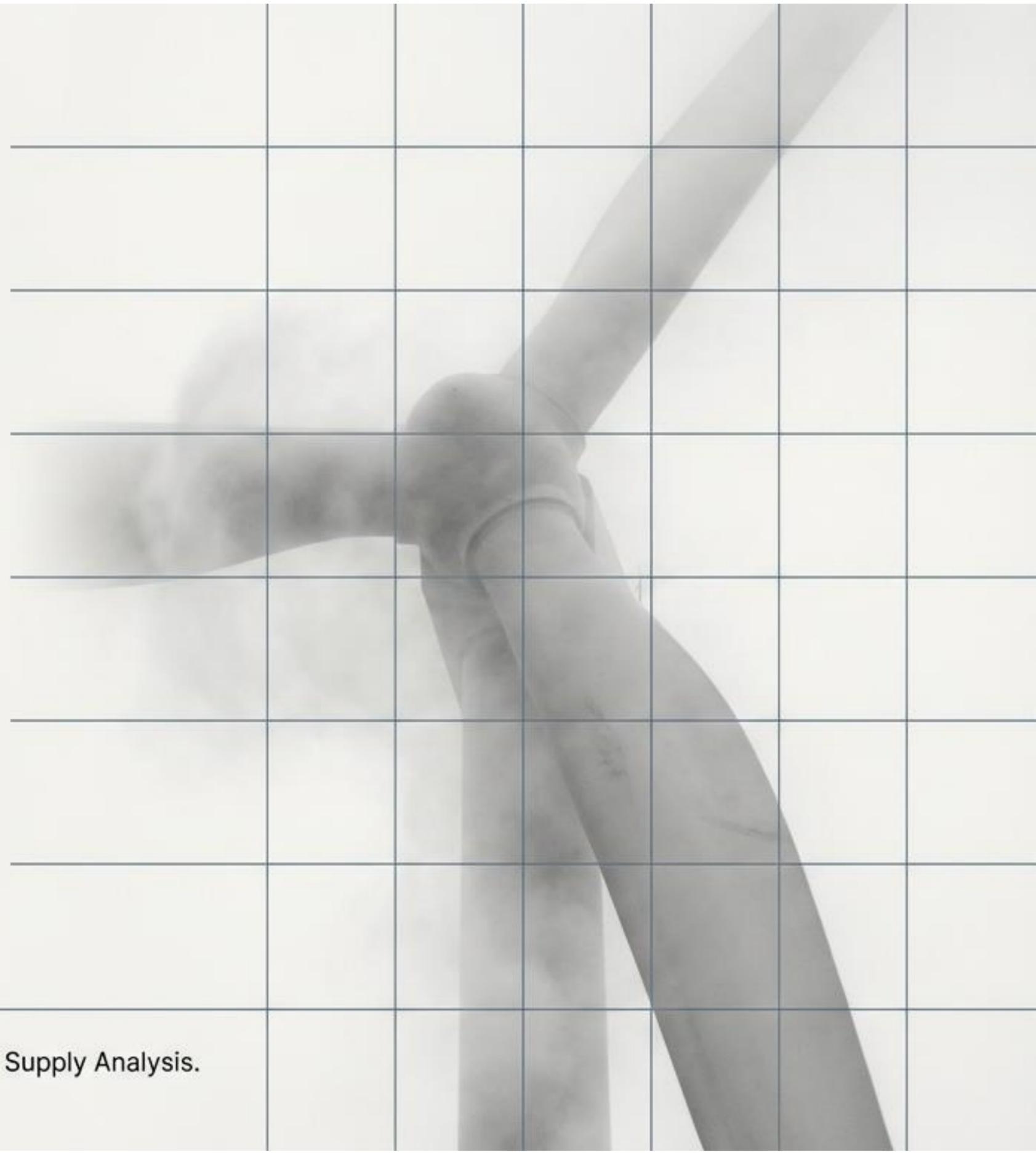


Power, Placement, and Price

A Structural Analysis of Sweden's
19.3 GW Wind Energy Grid.



Module 1: Capacity

19,336.1 MW

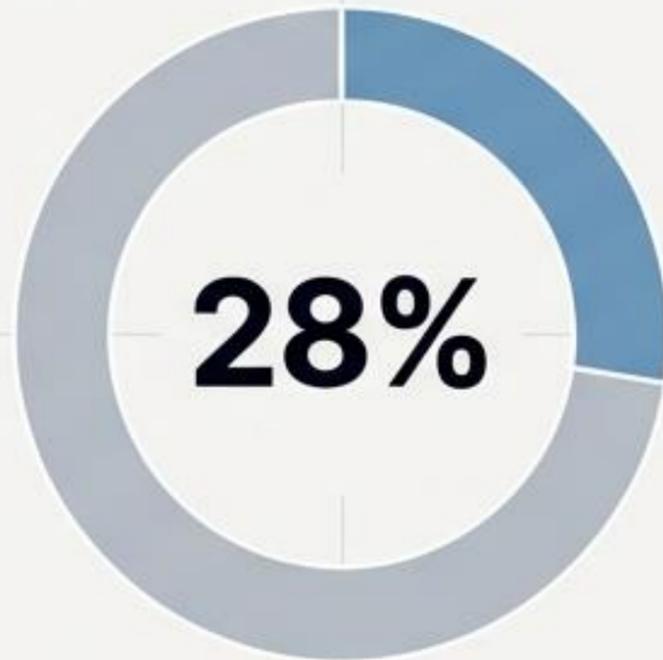
Total installed and committed national wind power capacity.

Module 2: Supply

45,767 GWh

Potential annual energy supply generated by the committed fleet.

Module 3: National Share



Wind power's share of Sweden's total 2023 electricity **production** (163 TWh). A European generation cornerstone.

Installed Capacity
(Maximum Theoretical Output)

17,240 MW
(2024 operating base)



The 27.0%
Capacity Factor

× 8,760 hours/year
at 27.0% efficiency



Actual Energy Supply
(GWh)

40,840 GWh
(Actual 2024 generation)

Power capacity (MW) is instantaneous potential. Energy supply (GWh) is actual power generated. The 27.0% national average is the critical multiplier bridging hardware and reality.

Evolution of Efficiency

Taller hub heights and longer blades capture stronger, consistent wind resources. This technological evolution drastically improves efficiency, cementing wind as the lowest-cost option for new large-scale power generation in Sweden.

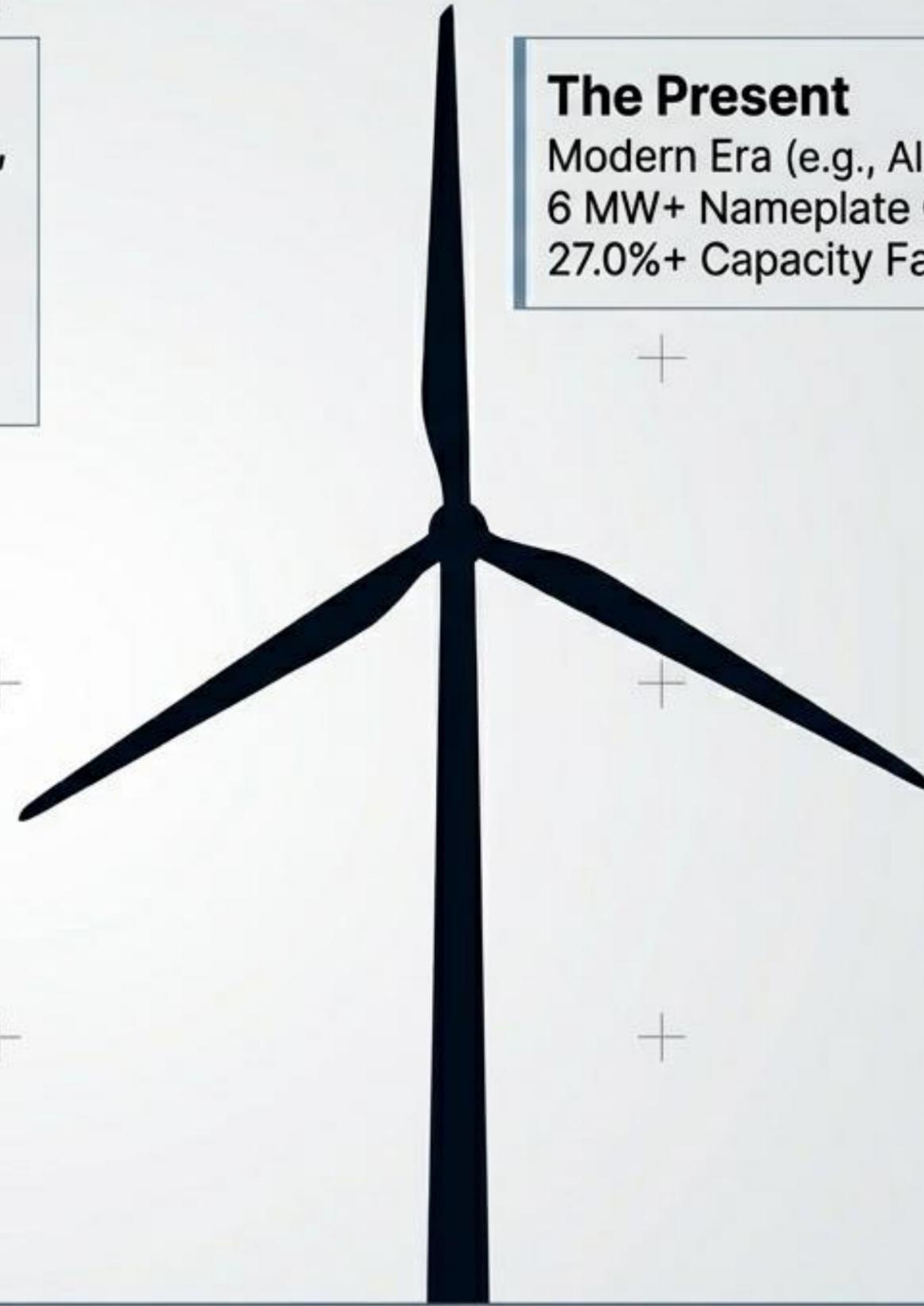
The Past

Early 2000s Era
Sub-1 MW Nameplate Capacity
~21% Historical Capacity Factor



The Present

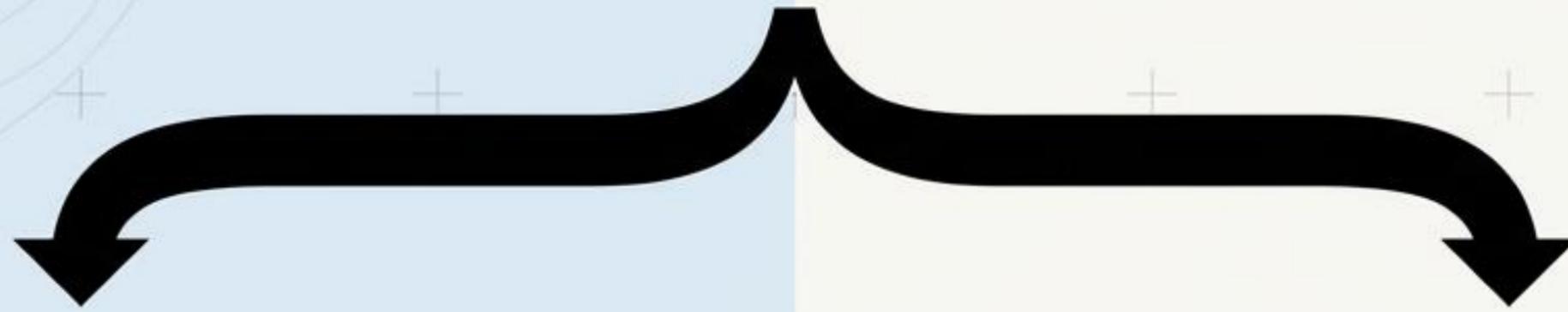
Modern Era (e.g., Algekullen, Boarp)
6 MW+ Nameplate Capacity
27.0%+ Capacity Factor



Market Mechanisms, Not Counties.

Bidding zones are an EU-mandated mechanism to make physical transmission bottlenecks transparent. When grid capacity between zones is exhausted, electricity prices decouple, creating distinct regional market realities.





The North (SE1 & SE2)

64.1% of National Capacity
Primary Production Hubs

The South (SE3 & SE4)

35.9% of National Capacity
Majority of Population & Industry

The defining characteristic of the Swedish electricity market is a structural imbalance: a massive production surplus isolated in the North, opposed by an acute generation deficit in the high-demand South.

The Regional Dynamics Matrix

	Total Capacity (MW)	Potential Annual Supply (GWh)	Share of National Capacity	
SE1 (Luleå)	2,711.9 MW	6,419 GWh	14.0%	Massive Exporter (Markbygden cluster)
SE2 (Sundsvall)	9,692.6 MW	22,943 GWh	50.1%	Epicentre / Exporter (Nysäter, Björnberget)
SE3 (Stockholm)	4,206.5 MW	9,957 GWh	21.8%	Net Importer (High population)
SE4 (Malmö)	2,725.1 MW	6,449 GWh	14.1%	Acute Deficit (Highest prices)

SE1 & SE2: Low-Cost Production Pool

SE1 & SE2: Low-Cost Production Pool

National Grid
Bottlenecks

SE3 & SE4: High-Consumption Centers

Transmission constraints prevent the free flow of cheap northern power. The physical grid chokes the supply, trapping low prices in the North and forcing premium prices onto the heavily reliant South.



The Pipeline Paradox: The near-term development pipeline is exacerbating the North-South divide. Without major north-south grid reinforcement, this widening surplus will exert catastrophic pressure on existing bottlenecks and perpetuate extreme price differentials.

1,000 MW – 5,000 MW

**Individual site capacities for Planned/Approved
Southern Baltic Sea projects.**

The offshore pipeline represents the next major frontier. Developing these mega-projects in SE3 and SE4 is not just a capacity upgrade—it is the vital geographical counterweight required to provide proximal, large-scale power to Sweden's consumption centres and finally bypass internal grid bottlenecks.