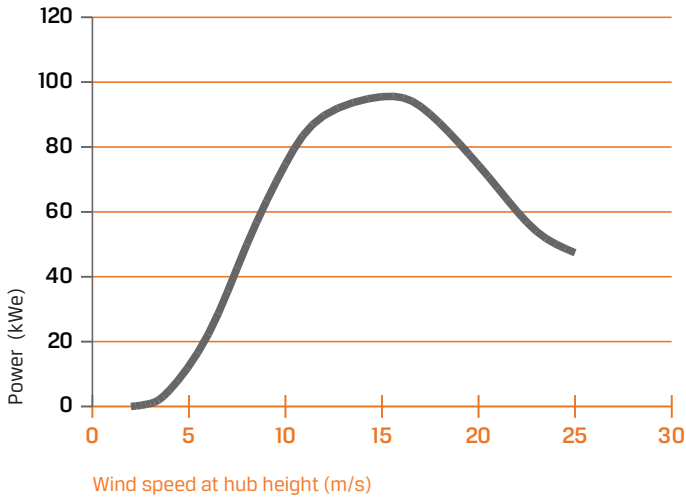


Specifications

NPS 100-24 Class III/S Power Curve

24m Rotor, Standard Air Density

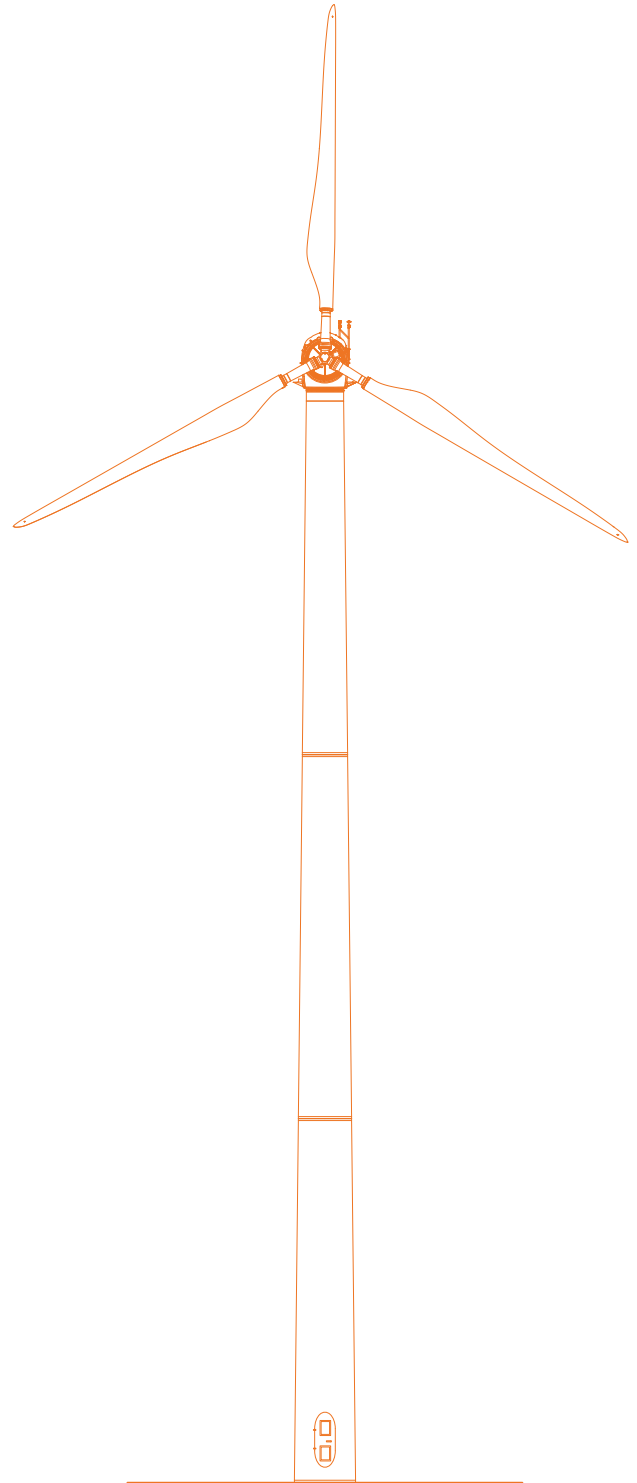
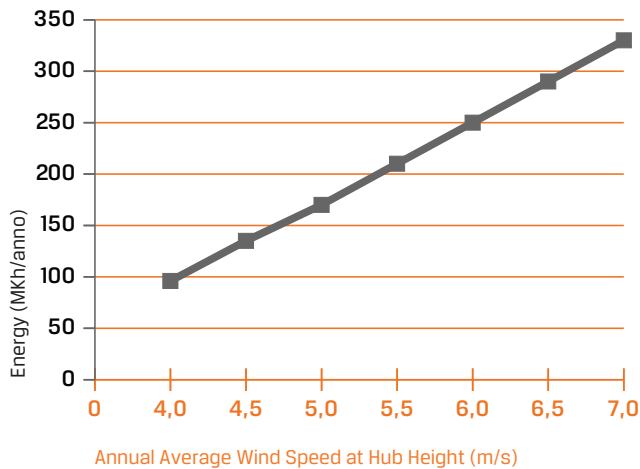
wind speed (m/s)	1	2	3	4	5	6	7	8	9	10					
electric power (kWe)	0	0	0.9	5.0	11.7	22.2	35.5	49.9	63.4	74.7					
	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
	83.5	89.7	93.7	95.5	95.2	92.5	87.7	81.1	73.8	67.3	62.4	57.7	54	50.6	47.4



Annual Energy Production: 24-Meter Rotor

Standard Air Density, Rayleigh Wind Speed Distribution

	(mph)	11	12	13	14	15
Average annual wind speed	(m/s)	5.0	5.5	6.0	6.5	7
Annual energy output	(MWh/yr)	170	210	250	290	330



NPS 100-24

IEC Class III/S



General Configuration

Model	Northern Power® 100-24
Design Class	IEC WTGS III/S air density 1.225 Kg/m ³ , average annual wind below 7.5 m/s (16 mph), 50-yr peak gust below 52.5 m/s (117 mph)
Design Life	20 years
Rotor Diameter	24 m (78 ft)
Tower Types	Tubular steel monopole
Hub Height Options	37 m (121 ft) / 30 m (98 ft) / 23m (75 ft) on tubular monopole
Oriaration	Upwind, 3 blade
Yaw System	Active yaw drive with wind direction/speed sensors and automatic cable unwind
Power Regulation	Variable speed, stall control
Certification	UL1741, UL1004-4, CSA C22.2 No.107.1-01, CSA C22.2 No. 100.04, CE compliant, CEI 0-21

Performance

Rated Wind Speed	14 m/s (31 mph)
Cut-in Wind Speed	3 m/s (7 mph)
Cut-out Wind speed	25 m/s (56 mph)
Extreme Wind Speed	52.5 m/s (117 mph)

Weight

Rotor (24 meter) & Nacelle (standard)	8,000 kg (17,600 lbs)
Tower (37 meter)	14,000 kg (30,800 lbs)

Drive Train

Gearbox Type	No gearbox (direct drive)
Generator Type	Permanent magnet

Braking System

Redundant Braking System (per IEC 61400-1)	Generator dynamic brake and multiple spring-applied calipers
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Control System

Controller Type	DPS-based multiprocessor embedded platform
Converter Type	Pulse-width modulated IGBT frequency converter
Monitoring System	SmartView® remote monitoring system, ModBus TPC over ethernet

Electrical System

Rated Electrical Power	95 kW, 3 Phase, 400 VAC, 50 Hz
Power Factor	Set point adjustable between 0.9 lagging and 0.9 leading
Reactive Power	+/- 45 kVAR
Grid Interconnect	Utility approved protective relay included

Noise

Apparent Noise Level	55 dBA at 40 meters from nacelle (131 ft)
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Environmental Specifications

Temperature Range Operational	-20°C to 50°C (-4°F to 122°F)
Temperature Range Storage	-40°C to 55°C (-40°F to 131°F)
Lightning Protection	Receptors in blades, nacelle lightning rod and electrical surge protection

All specifications subject to change without notice.

* Standard conditions: air density of 1.225 kg/m³, equivalent to 15°C (59°F) at sea level.
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