

APPENDIX C

GE 1.5 MW SLE WIND TURBINE SPECIFICATIONS



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1.5 MW Wind Turbine Technical Specifications

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Operating Data

| | 1.5sle | 1.5sl | 1.5s | 1.5se |
|--------------------------------------|---------------|---------------|--------------------------------------|---------------|
| Rated capacity | 1,500 kW | 1,500 kW | 1,500 kW | 1,500 kW |
| Cut-in wind speed | 3.5 m/s | 3.5 m/s | 4 m/s | 4 m/s |
| Cut-out wind speed 600 s average | 25 m/s | 20 m/s | WZ II: 22 m/s WZ III, IEC II: 25 m/s | 25 m/s |
| Cut-out wind speed 30 s average | IEC s: 28 m/s | WZ II: 23 m/s | WZ II: 25 m/s WZ III, IEC II: 28 m/s | IEC I: 28 m/s |
| Cut-out wind speed 3 s average | IEC s: 30 m/s | WZ II: 25 m/s | WZ II: 27 m/s WZ III, IEC II: 30 m/s | IEC I: 30 m/s |
| Cut-back-in wind speed 300 s average | IEC s: 22 m/s | WZ II: 17 m/s | WZ II: 19 m/s WZ III, IEC II: 22 m/s | IEC I: 22 m/s |
| Rated wind speed | 12 m/s | 12 m/s | 12 m/s | 12 m/s |

Rotor

| | 1.5sle | 1.5sl | 1.5s | 1.5se |
|------------------------|----------------------|----------------------|----------------------|----------------------|
| Number of rotor blades | 3 | 3 | 3 | 3 |
| Rotor diameter | 77 m | 77 m | 70.5 m | 70.5 m |
| Swept area | 4,657 m ² | 4,657 m ² | 3,904 m ² | 3,904 m ² |
| Rotor speed (variable) | 10.1 - 20.4 rpm | 10.1 - 20.4 rpm | 11.1 - 22.2 rpm | 11.1 - 22.2 rpm |

Tower

| | 1.5sle | 1.5sl | 1.5s | 1.5se |
|-----------------|---|--|---|---|
| Hub heights (m) | 61.4 ⁺ / 64.7 ⁺ / 80 ⁺ / 85 ⁺ | 61.4 [*] / 64.7 [*] / 80 [*] / 85 [*] / 100 [*] | 64.7 [*] / ** / 80 [*] / ** / 85 [*] / ** / 100 [*] m | 52.6 ^{***} / 54.7 ^{***} / 64.7 ^{***} |

* for WZ II ** for WZ III/IEC II *** for IEC I + for IEC s

Power Control

| | 1.5sle | 1.5sl | 1.5s | 1.5se |
|---------------|----------------------------|----------------------------|----------------------------|----------------------------|
| Power control | Active blade pitch control |

Operating Limits (outside temperature)

- Cold weather light: -4 to 104 °F (-20 to 40 °C)
- Cold weather extreme: -22 to 104 °F (-30 to 40 °C)/-40 °C to +50 °C survival without operation

Control System

- Programmable logic controller (PLC)

- Remote control and monitoring system

Gearbox

- Three-step planetary spur gear system

Generator

- Doubly-fed three-phase asynchronous generator

Braking System (fail-safe)

- Electromechanical pitch control for each blade (three self-contained systems)
- Hydraulic parking brake

Yaw System

- Electromechanical driven with wind direction sensor and automatic cable unwind

Converter

- Pulse-width modulated IGBT frequency converter

Tower design

- Multi-coated, conical tubular steel tower with safety ladder to the nacelle
- Load lifting system, load-bearing capacity more than 441 lbs (200 kg)
- Service platform for 100 m hub height (service lift optional)

Noise Reduction

- Impact noise insulation of the gearbox and generator
- Sound reduced gearbox
- Noise reduced nacelle
- Rotor blades with minimized noise level

Lightning Protection System

- Lightning receptors installed on blade tips
- Surge protection in electrical components

Note: subject to technical alterations, errors and omissions

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