An aerial photograph of the Windpark Koningspleij. In the foreground, a large array of solar panels is laid out on a flat area. To the right, a tall white wind turbine stands prominently. A multi-lane highway with traffic runs along the right side of the solar array. A river flows through the middle ground, with a bridge crossing it. In the background, there are industrial buildings, green fields, and more wind turbines under a blue sky with scattered white clouds.

Maandelijks technisch operationeel verslag

## Windpark Koningspleij

March 2025

- P1: Management Samenvatting**
- P2: Productie lokatie niveau**
- P3: Productie en Prognose**
- P4: Beschikbaarheid**
- P5: Beschikbaarheid tijdlijn**
- P6: Technische conditie**
- P7: Preventief onderhoud**
- P8: Aanbevelingen voor verbeteringen en VGM**

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**Wind turbines: WTG 1,2 and 4**

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**IEC Referenties and Definitities**

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**Contact**

Dit maandelijks technisch operationeel verslag geeft inzicht in de prestaties van Windpark Koningspleij, gelegen in een lijnopstelling ten noorden van de rijksweg N325 in de gemeente Arnhem, bestaande uit 3 windturbines van het type Enercon E-115 EP3 - 4,2 MW. De nadruk wordt gelegd op de kerncijfers, de doelstellingen van de eigenaren en de relatie daarvan met de historische trends.

Yaar ▼

2022

2023

2024

2025

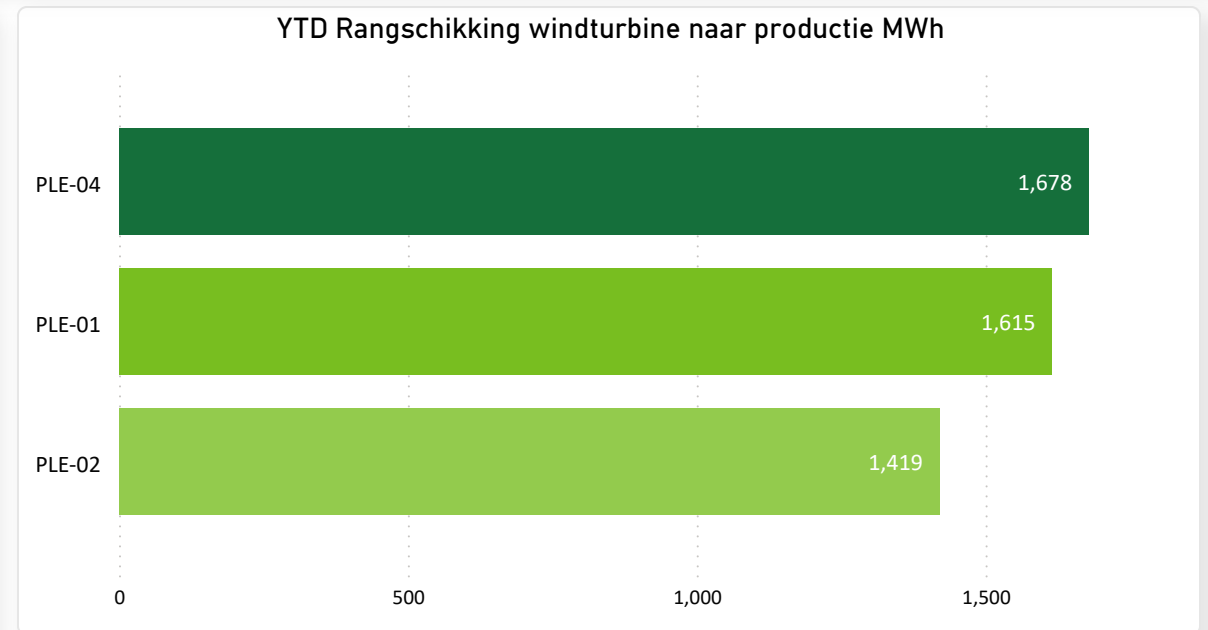
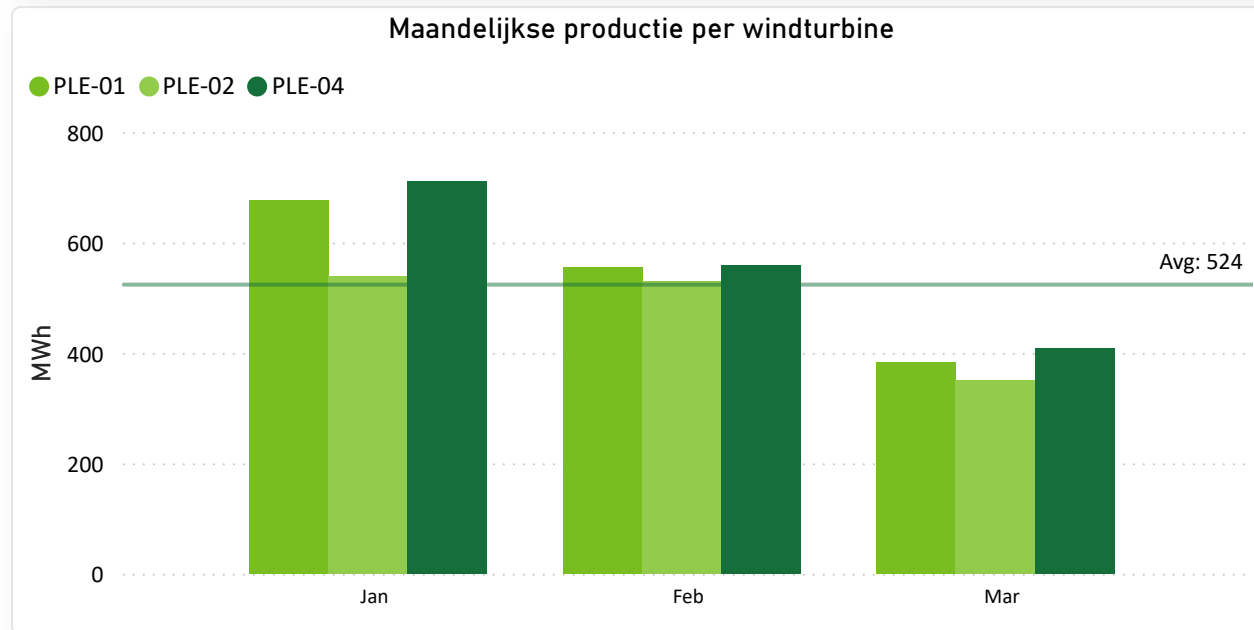
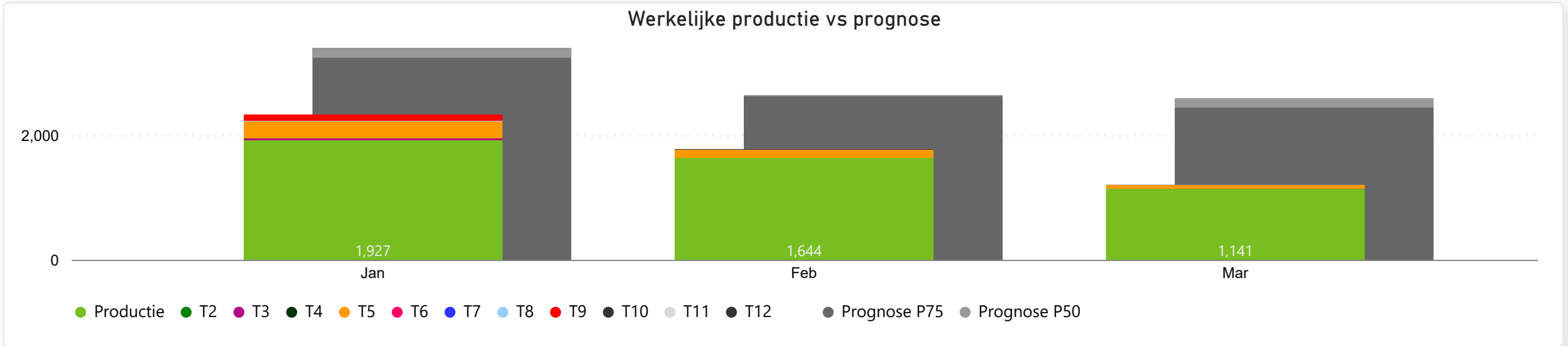
Maand

Jan

Feb

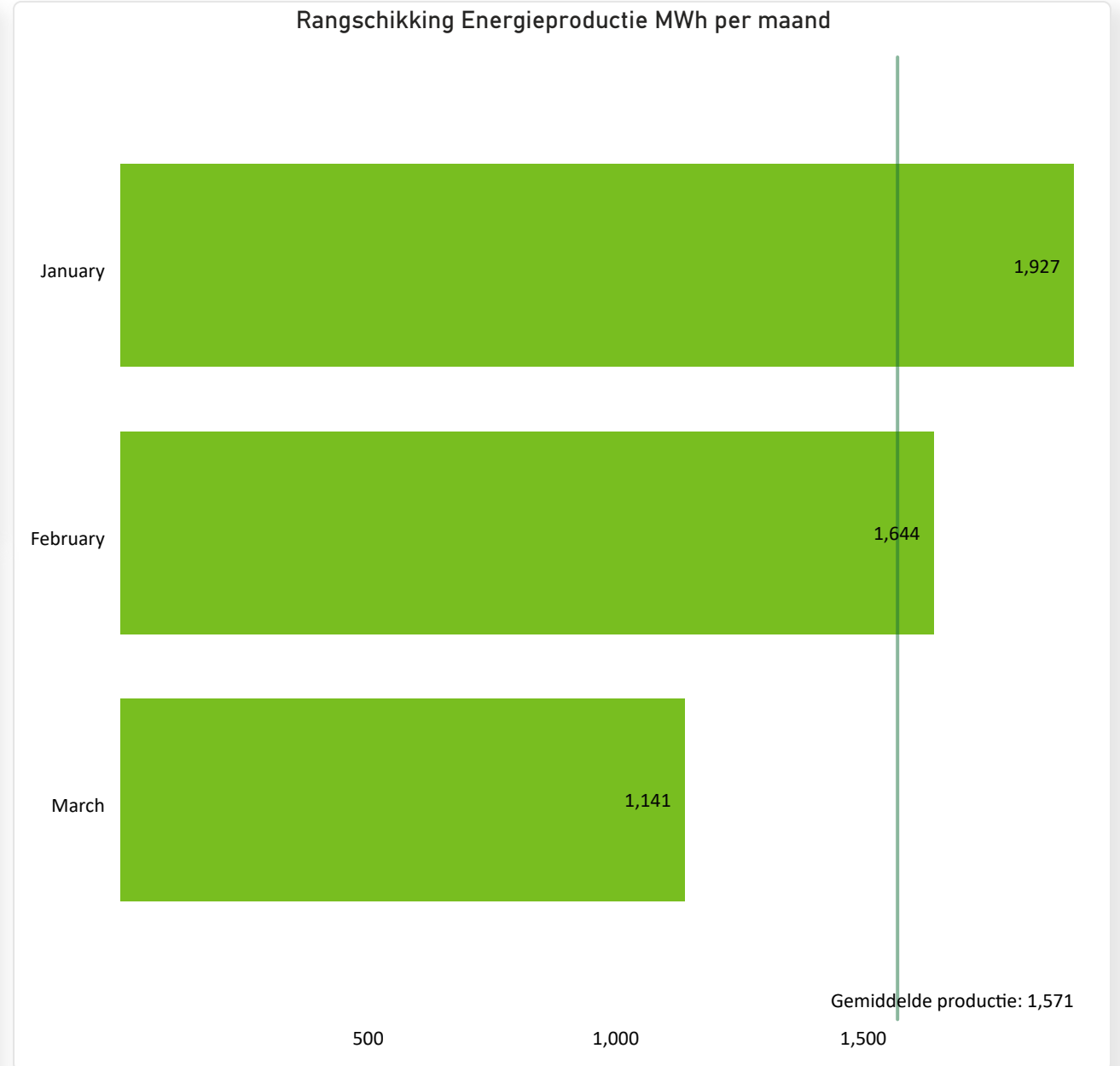
Mar

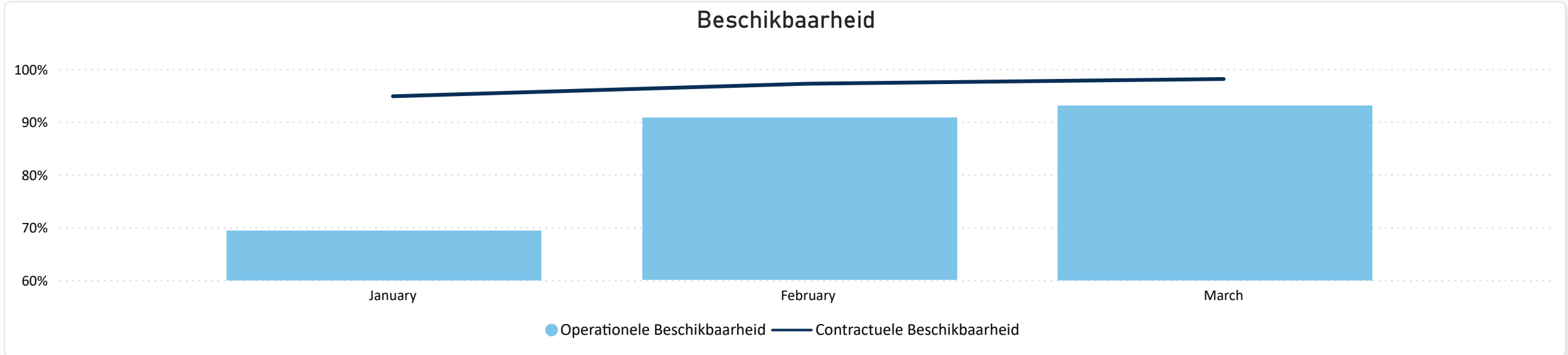
| Maandelijks   |                  |                  |                              |                                 |                              |      |
|---------------|------------------|------------------|------------------------------|---------------------------------|------------------------------|------|
| 1,141         | -53.5%           | --               | 1,141                        | -53.5%                          | 99.3%                        | --   |
| YTD           |                  |                  |                              |                                 |                              |      |
| 4,712         | -43.6%           | --               | 4,712                        | -43.6%                          | 98.2%                        | --   |
| Productie MWh | Productie vs P50 | Curtailement MWh | Productie & Curtailement MWh | Productie & Curtailement vs P50 | Contractuele beschikbaarheid | #VGM |



|              | Energie prod. MWh | Prognose P50 MWh | Energie prod. vs Prognose |
|--------------|-------------------|------------------|---------------------------|
| ▲            |                   |                  |                           |
| January      | 1,927             | 3,250            | -40.7%                    |
| February     | 1,644             | 2,648            | -37.9%                    |
| March        | 1,141             | 2,454            | -53.5%                    |
| <b>Total</b> | <b>4,712</b>      | <b>8,352</b>     | <b>-43.6%</b>             |

|              | Scada prod. MWh | Metering prod. MWh | Productie verschil % |
|--------------|-----------------|--------------------|----------------------|
| January      | 1,927           | 1,899              | 1.4%                 |
| February     | 1,644           | 1,625              | 1.1%                 |
| March        | 1,141           | 1,126              | 1.4%                 |
| <b>Total</b> | <b>4,712</b>    | <b>4,650</b>       | <b>1.3%</b>          |



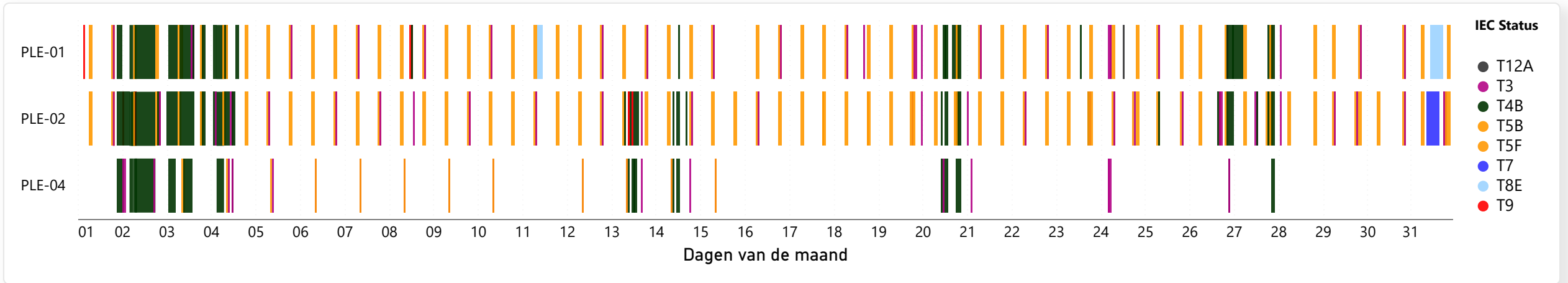


|                                  | Q1    |       |       | Total        |
|----------------------------------|-------|-------|-------|--------------|
|                                  | Jan   | Feb   | Mar   |              |
| Contractuele Beschikbaarheid     | 96.8% | 98.6% | 99.3% | <b>98.2%</b> |
| Contractuele Beschikbaarheid YTD | 96.8% | 97.7% | 98.2% | <b>98.2%</b> |
| Operationele Beschikbaarheid     | 69.4% | 90.7% | 93.1% | <b>84.2%</b> |
| Operationele Beschikbaarheid YTD | 69.4% | 79.7% | 84.2% | <b>84.2%</b> |
| Technische Beschikbaarheid       | 94.9% | 96.3% | 98.9% | <b>96.7%</b> |
| Technische Beschikbaarheid YTD   | 94.9% | 95.6% | 96.7% | <b>96.7%</b> |

Contractuele beschikbaarheid :  $T1 / (T2 - T3 - T4 - T5) \times 100\%$ .  
 De contractuele beschikbaarheid wordt berekend volgens het EPK Contract, echter zonder de contractueel overeengekomen aanpassingen zoals bijvoorbeeld de onderhoudsfactor.

Operationele beschikbaarheid is:  $T_{operationele\ uren} / T2 \times 100\%$   
 De operationele beschikbaarheid omvat alle stilstand, met uitzondering van stilstand als gevolg van omgevingspecificaties zoals weinig wind.

Technische beschikbaarheid is:  $(operationele\ uren + omgevingspecificaties) / T2 \times 100\%$



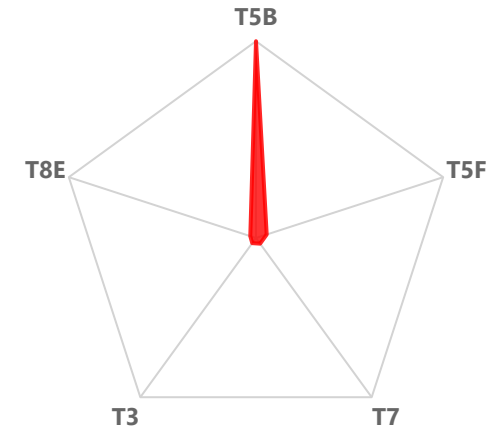
Opmerking : Curtailment (T2D) wordt niet weergegeven in de tijdlijn hierboven, maar is te zien op de WTG-pagina's.

|             |              | Uren stilstand |             |     |               |     |               |     |     |     |              |     |     |     |     |             |     |     |     |     |             |             |     |     |     |     |     |     |     |             |      |
|-------------|--------------|----------------|-------------|-----|---------------|-----|---------------|-----|-----|-----|--------------|-----|-----|-----|-----|-------------|-----|-----|-----|-----|-------------|-------------|-----|-----|-----|-----|-----|-----|-----|-------------|------|
|             | CA           | OA             | T3          | T4A | T4B           | T5A | T5B           | T5C | T5D | T5E | T5F          | T5G | T5H | T6A | T6B | T7          | T8A | T8B | T8C | T8D | T8E         | T9          | T9A | T9B | T9C | T9D | T9E | T10 | T11 | T12A        | T12B |
| PLE-04      | 100.0%       | 98.7%          | 2.89        |     | 31.86         |     |               |     |     |     | 7.02         |     |     |     |     |             |     |     |     |     |             |             |     |     |     |     |     |     |     |             |      |
| PLE-02      | 99.0%        | 89.9%          | 2.97        |     | 43.87         |     | 62.07         |     |     |     | 3.58         |     |     |     |     | 5.96        |     |     |     |     |             | 0.83        |     |     |     |     |     |     |     |             |      |
| PLE-01      | 98.9%        | 90.6%          | 2.71        |     | 42.65         |     | 59.07         |     |     |     | 0.40         |     |     |     |     |             |     |     |     |     | 7.34        | 0.09        |     |     |     |     |     |     |     | 0.05        |      |
| <b>Site</b> | <b>99.3%</b> | <b>93.1%</b>   | <b>8.57</b> |     | <b>118.38</b> |     | <b>121.14</b> |     |     |     | <b>11.00</b> |     |     |     |     | <b>5.96</b> |     |     |     |     | <b>7.34</b> | <b>0.92</b> |     |     |     |     |     |     |     | <b>0.05</b> |      |

Ranglijst 10 gebeurtenissen volgens verloren productie

| IEC Status                                    | Lost Production MWh | Duration hour | Occurances | No of WTG |
|---|---------------------|---------------|------------|-----------|
| T5B Requested shutdown - Owner                | 59.28               | 121.14        | 121        | 2         |
| T4B Out of environmental specification - calm | 0.25                | 118.38        | 86         | 3         |
| T5F Requested shutdown - Shadow               | 3.39                | 11.00         | 24         | 3         |
| T3 Technical standby - Manufacturer           | 1.92                | 8.57          | 79         | 3         |
| T8E Planned corrective action                 | 1.81                | 7.34          | 2          | 1         |
| T7 Scheduled maintenance                      | 2.10                | 5.96          | 1          | 1         |
| T9 Forced outage                              | 0.05                | 0.92          | 7          | 2         |
| T12A Information unavailable - Manufacturer   | 0.01                | 0.05          | 1          | 1         |
| <b>Total</b>                                  | <b>68.80</b>        | <b>273.36</b> | <b>321</b> | <b>3</b>  |

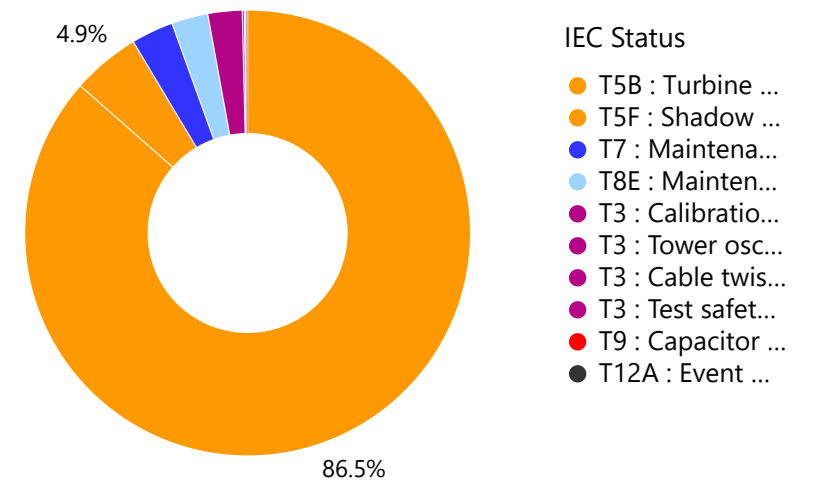
Prestatieverlagers top 5 categorieën



Ranglijst 10 gebeurtenissen volgens verloren productie

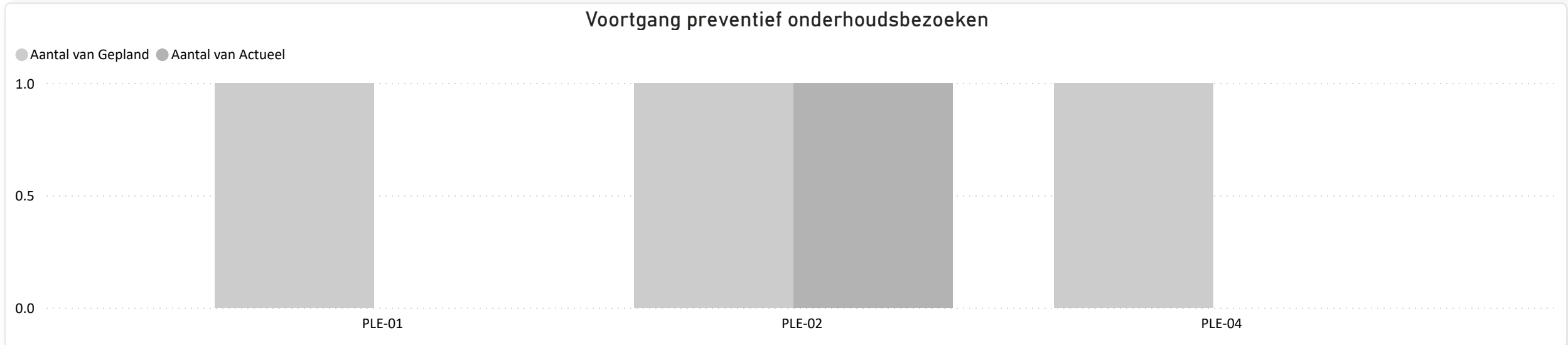
| IEC Status and Event Description   | Lost Production MWh | Duration hour | Occurances | No of WTG |
|--|---------------------|---------------|------------|-----------|
| T5B : Turbine stopped (SCADA (bird and bat protection)) (1)              | 59.28               | 121.14        | 121        | 2         |
| T5F : Shadow shutdown (Active (internal)) (4)                            | 3.39                | 11.00         | 24         | 3         |
| T7 : Maintenance () (8)  | 2.10                | 5.96          | 1          | 1         |
| T8E : Maintenance () (8)   | 1.81                | 7.34          | 2          | 1         |
| T3 : Calibration of load control (0)                                     | 1.71                | 4.44          | 70         | 3         |
| T3 : Tower oscillation monitoring (Resonance frequency measurement) (31) | 0.10                | 0.10          | 1          | 1         |
| T3 : Cable twisted (Right (2-3 turns)) (21)                              | 0.07                | 3.99          | 7          | 3         |
| T3 : Test safety system (-) (17)   | 0.05                | 0.05          | 1          | 1         |
| T9 : Capacitor charging error (No trickle charge 160V capacitor B) (45)  | 0.04                | 0.48          | 1          | 1         |
| T12A : Event management (switched off) (240)                             | 0.01                | 0.05          | 1          | 1         |
| <b>Total</b>   | <b>68.55</b>        | <b>154.53</b> | <b>229</b> | <b>3</b>  |

Top gebeurtenissen naar productieverlies





| Soort Onderhoud | Master maintenance |            |
|-----------------|--------------------|------------|
|                 | Gepland            | Actueel    |
| PLE-01          | Q1                 |            |
| PLE-02          | Q1                 | 2025-03-31 |
| PLE-04          | Q1                 |            |



**Aanbevelingen**

Niets te melden.

**Actielijst**

Niets te melden.

**Gezondheid, Veiligheid & Milieu**

0 nieuwe gebeurtenissen.

**Incident / ongeval**

Geen incidenten/ongevallen te melden.

| WTG          | Date | HSE event | Status YTD | Description |
|--------------|------|-----------|------------|-------------|
| PLE-WTG001   |      | 0         |            |             |
| PLE-WTG002   |      | 0         |            |             |
| PLE-WTG004   |      | 0         |            |             |
| <b>Total</b> |      | <b>0</b>  |            |             |

| IEC Categories                                | IEC Categories Key | Colour     | Enercon EPK |
|---|--------------------|------------|-------------|
| T1 Full performance                           | T1                 |            | T1          |
| T2A Power reduction - Manufacturer            | T2A                | Green      | T1          |
| T2B Power reduction - Owner                   | T2B                | Green      | T1          |
| T2C Power reduction - Grid                    | T2C                | Green      | T1          |
| T2D Power reduction - Curtailment             | T2D                | Green      | T1          |
| T2E Power reduction - Noise                   | T2E                | Green      | T1          |
| T2F Power reduction - Storm control           | T2F                | Green      | T1          |
| T3 Technical standby - Manufacturer           | T3                 | Purple     | T1          |
| T4A Out of environmental specification        | T4A                | Dark Green | T1          |
| T4B Out of environmental specification - calm | T4B                | Dark Green | T1          |
| T5A Requested shutdown - Manufacturer         | T5A                | Orange     | T6          |
| T5B Requested shutdown - Owner                | T5B                | Orange     | T4          |
| T5C Requested shutdown - Grid                 | T5C                | Orange     | T3          |
| T5D Requested shutdown - Curtailment          | T5D                | Orange     | T4          |
| T5E Requested shutdown - Ice                  | T5E                | Orange     | T1          |
| T5F Requested shutdown - Shadow               | T5F                | Orange     | T1          |
| T5G Requested shutdown - Lightning            | T5G                | Orange     | T4          |
| T5H Requested shutdown - Noise                | T5H                | Orange     | T4          |

| IEC Categories                                     | IEC Categories Key | Colour     | Enercon EPK |
|--|--------------------|------------|-------------|
| T6A Out of electrical specification - Manufacturer | T6A                | Pink       | T6          |
| T6B Out of electrical specification - Grid         | T6B                | Pink       | T3          |
| T7 Scheduled maintenance                           | T7                 | Blue       | T6          |
| T8A Planned corrective action - Retrofit           | T8A                | Light Blue | T6          |
| T8B Planned corrective action - Tests              | T8B                | Light Blue | T6          |
| T8C Planned corrective action - Upgrade            | T8C                | Light Blue | T6          |
| T8D Other planned corrective action - Owner order  | T8D                | Light Blue | T4          |
| T8E Planned corrective action                      | T8E                | Light Blue | T6          |
| T9 Forced outage                                   | T9                 | Red        | T6          |
| T9A Forced outage - Response                       | T9A                | Red        | T6          |
| T9B Forced outage - Diagnostics                    | T9B                | Red        | T6          |
| T9C Forced outage - Logistics                      | T9C                | Red        | T6          |
| T9D Forced outage - Failure repair                 | T9D                | Red        | T6          |
| T9E Forced outage - Automatic restart              | T9E                | Red        | T6          |
| T12B Information unavailable - Owner               | T12B               | Dark Grey  | T5          |
| T10 Interruption/suspension                        | T10                | Dark Grey  | T1          |
| T11 Force majeure                                  | T11                | Grey       | T1          |
| T12A Information unavailable - Manufacturer        | T12A               | Dark Grey  | T5          |

## Definities

- CA : Contractual Availability
- OA : Operational Availability
- YTD : Year to Date

**Contact Informatie**

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