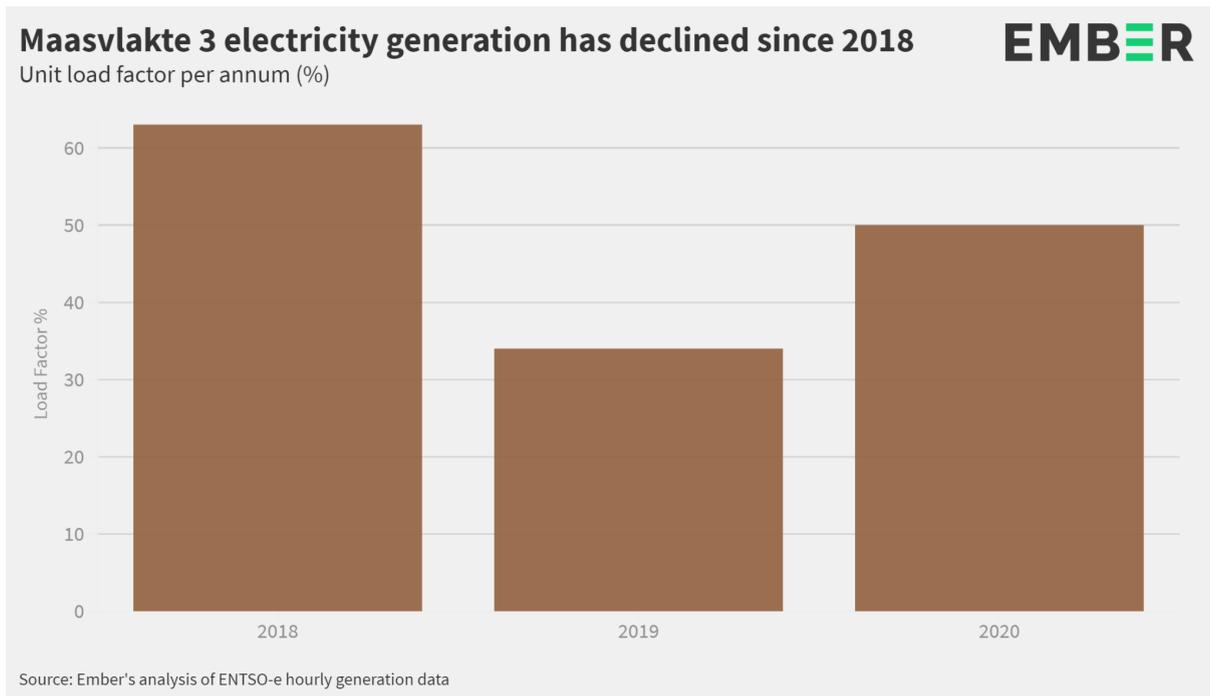


## Uniper Maasvlakte 3 Analysis

### Historic performance and profitability

Uniper's Maasvlakte 3 had an average load factor of 63% in 2018; 34% in 2019; and 50% in 2020. The load factor actually increased in 2020 year-on-year due to a long plant outage from April to Oct 2019.



Revenue has been calculated using ENTSO-e hourly power generation for Maasvlakte 3 and EEX Dutch day ahead power prices.

**Gross profit** = Revenue - [coal costs + CO2 costs + VOM]

VOM = variable operating and maintenance costs = €2 / MWh

Plant efficiency rate = 46%

Carbon intensity = 0.33333

**Net profit/losses** = Gross profit - FOM

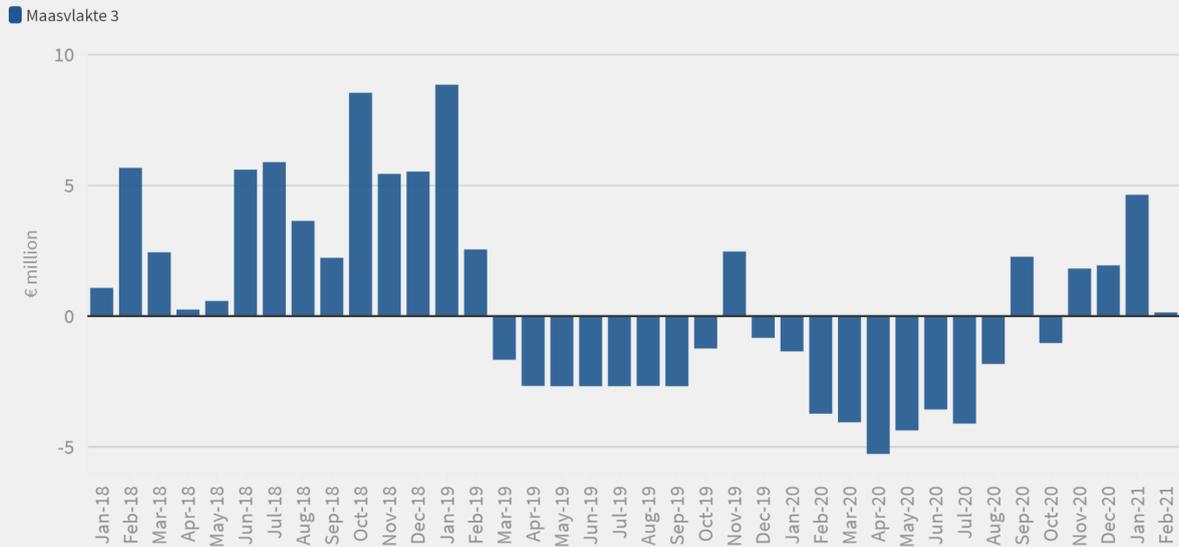
FOM = Fixed Operating and Maintenance costs = €30 / kW / year

For more detailed information on the calculation methodology, please refer to [Annex I](#)

Maasvlakte 3 had net losses of almost €6 million in 2019. This is partly due to the six-month outage from April to October. In 2020, the net losses were over €23 million. Net profits were only achieved in September, November and December in 2020 when the Clean Dark Spread (CDS) was €8.80/MWh, €7.88/MWh and €9.22/MWh respectively.

## Maasvlakte 3 historic net profit/loss

Monthly net profit/loss (€ million)



Net profit calculation = Gross profit - Fixed Operating & Maintenance costs

## Historic clean dark spread for Maasvlakte 3

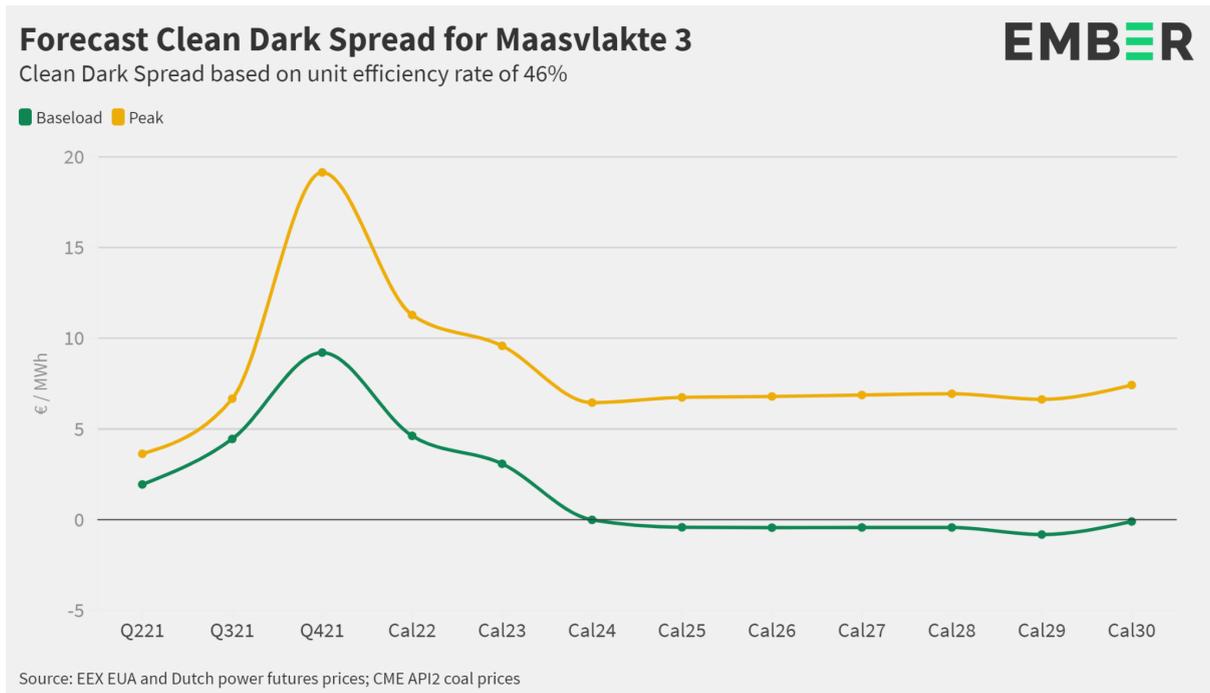
Clean Dark Spread based on unit efficiency rate of 46%



Source: API2 monthly coal prices; EEX Dutch power day ahead prices; ECX EUA front month prices

## Future profitability

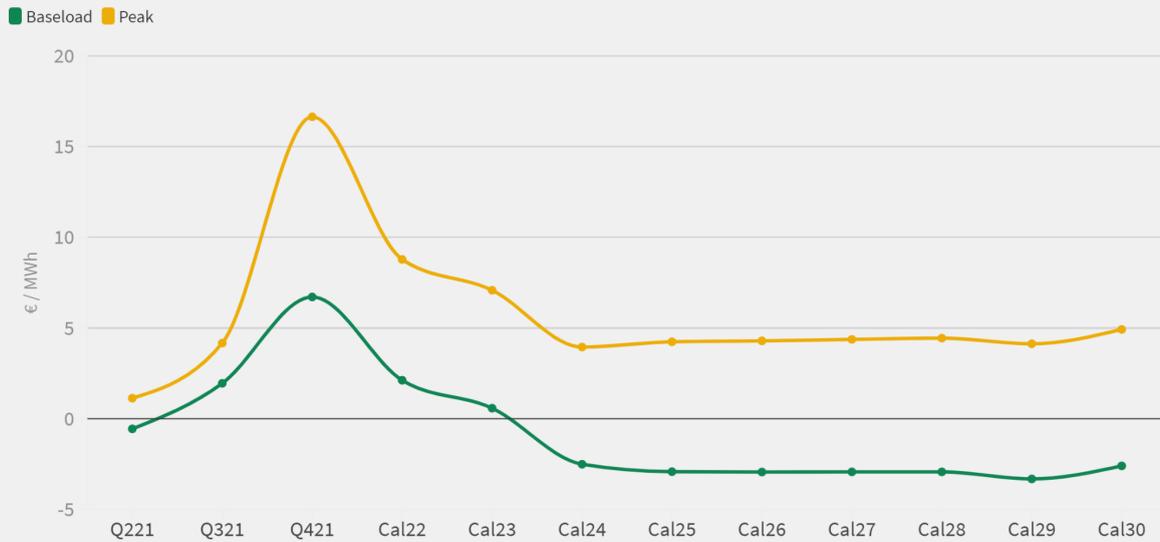
The current Q321 dispatch cost of a hard coal unit with an efficiency rate of 46% is around €49.10. This is calculated using a Dec21 carbon price of €41.85 and a Q321 coal price of €60.20/tonne. This is before any fuel transport costs or non-fuel operating costs are taken into consideration. With Dutch power prices at €53.53/MWh baseload, this equates to a clean dark spread of €4.43/MWh



Variable Operating and Maintenance and coal transport costs have been estimated at €2.5/MWh

## Forecast Clean Dark Spread less VOM for Maasvlakte 3

Clean Dark Spread with VOM costs deducted based on unit efficiency rate of 46%



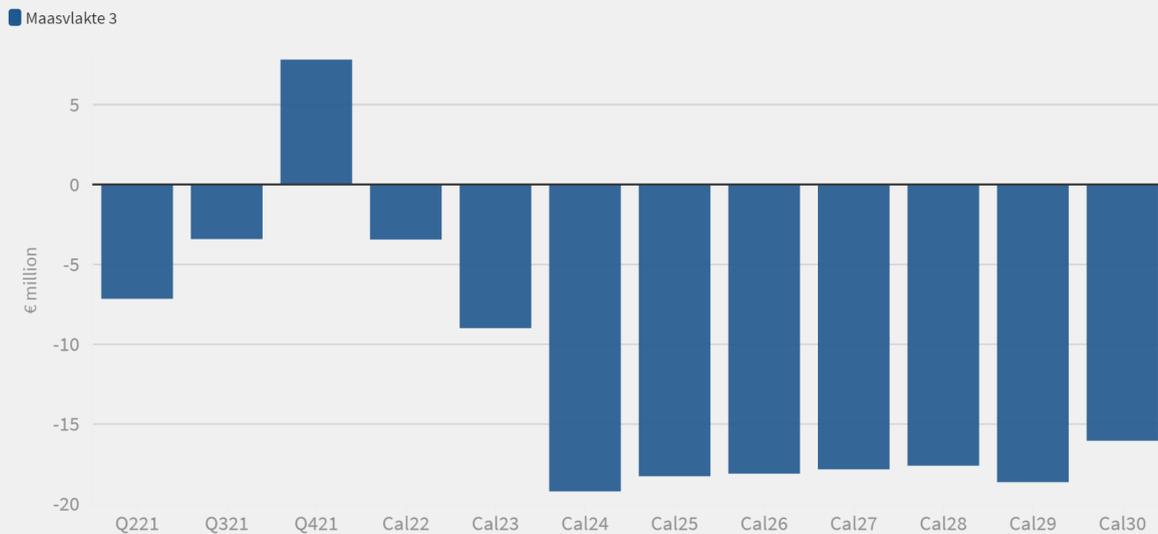
Source: EEX EUA and Dutch power futures prices; CME API2 coal prices

Gross profit calculations have been carried out with assumptions that the units only generate when the CDS less non-fuel variable costs and coal transportation costs (€2.50/MWh) is positive. With the current coal, carbon and power curves, this results in Maasvlakte 3 only running during peak hours beyond calendar year 2023.

For the net profit/loss calculations, Fixed Operating & Maintenance costs of €30/kW/year have been deducted from the gross profits. These are fixed regardless of the number of hours run or volume of power generated. Based on these assumptions, the Maasvlakte 3 plant will be accruing consistent net losses from 2022. Total net losses from now until the end of 2030 equate to over €140 million.

## Maasvlakte 3 forecast net losses of over €140 million by 2030

Net losses in € million



Net profit calculation = Gross profit - Fixed Operating & Maintenance costs

### Biomass subsidies

Biomass subsidy calculations have not been incorporated into the above analysis.

Uniper receives subsidies for co-firing Maasvlakte 3 with biomass. The subsidies compensate utilities for a proportion of their generation and associated costs (fuel, CO<sub>2</sub>, operating and maintenance, and capital costs) if these costs are above the EEX Dutch baseload electricity price (APX).

Maasvlakte 3 power station was converted to co-firing with coal and biomass in October 2019 and Uniper currently receives subsidies for producing up to 25% of the power station's annual electricity generation from biomass.

The Netherlands government intends to end all biomass subsidies in 2027. Consequently, even if the current subsidies are enabling Maasvlakte 3 power station to survive economically, this will not be the case from 2027 onwards and it will be exposed to the full market conditions.

Further information on biomass subsidies can be found in this [report](#).

## Annex I

### *Additional information/caveats:*

- *Generation data = ENTSO-e hourly generation in MWh by unit*
- *Historic power prices = EEX Dutch power day ahead prices*
- *Future power prices = EEX Dutch power futures*
- *Coal price = CME API2 monthly prices*
- *Historic CO2 prices = ECX EUA front month*
- *Forward CO2 prices = EEX EUA futures price (December contract)*
- *Profitability calculations exclude any profit or loss due to forward hedges. Utilities sell electricity and buy carbon permits in advance, so our methodology using day-ahead prices does not include the profit or loss of these forward hedge transactions.*

### *Pricing information*

*Dutch power prices from EEX to Cal-25 then formula used for extrapolation*

*CO2 prices out to Dec-30 from EEX*

*API2 prices out to Cal-25 then formula used for extrapolation*

### *Calculations and assumptions:*

- *Load factor = generation (MWh) / installed capacity (MW)*
- *Hourly revenue (€/MWh) = Hourly generation from ENTSO-e (MWh) x EPEX hourly prices (€)*
- *Gross profitability (€/MWh) = Hourly revenue - ((CO2 cost + Coal cost + Coal transportation cost + VOM) \* hourly generation)*
- *Gross profitability (€/MW) = Gross profitability (€/MWh) / Installed capacity (MW)*
- *Net profitability (€/MW) = Gross profitability - Fixed Operating & Maintenance (FOM) costs (€/MW)*
- *Fixed operating costs (FOM) = €30,000 / MW / year*
- *Annual FOM per unit (€) = FOM (€/MW) x installed capacity (MW)*
- *Variable operating costs (VOM) are averaged at €2/MWh for all units*
- *Coal transportation is averaged at €0.5 / MWh for all units*
- *CO2 cost = CO2 price (€/MWh) / unit efficiency rate*
- *Coal cost = Coal price (€ / MWh / unit efficiency rate)*
- *Unit efficiency rates: 46% for Eemshaven and Maasvlakte 3. 45% for Onyx Power Maasvlakte*
- *Conversion of coal price in tonnes to MWh = Coal price (€/tonne) / 6.97633*
- *Conversion of CO2 price in tonnes to MWh = CO2 price (€/tonne) \* 0.33333*
- *Capital costs are excluded from all calculations*