

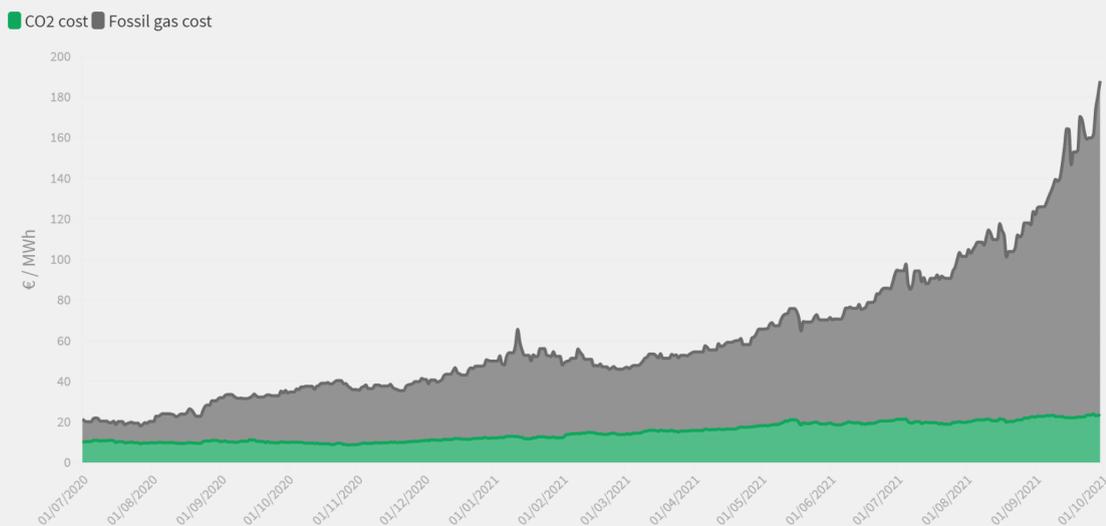
Soaring fossil gas costs drive up Dutch electricity prices

Key findings

- Dutch wholesale electricity prices have more than tripled in the last year, and the majority of this increase can be attributed to soaring gas prices.
- Fossil gas has provided 60% of electricity in the Netherlands during 2021 so far, and prices have more than quadrupled since January.
- Accelerating the transition to clean electricity can avoid the volatility of fossil gas.

Skyrocketing fossil gas prices push up cost of Dutch electricity

Fossil gas costs vs. carbon costs for EU electricity generation from combined cycle gas turbines



Source: Powernext for TTF fossil gas prices (day ahead), EEX for EU-ETS carbon prices (December contract)
 Costs calculated using emissions intensity of 0.37 tCO₂eq / MWh and plant efficiency rate of 55%

Soaring fossil gas costs

Dutch fossil gas prices have skyrocketed since the start of 2021, with the day ahead price more than quadrupling from €19/MWh on 1 January to €90/MWh on 30 September (+€71/MWh / 374%).

Dutch fossil gas prices have more than quadrupled this year

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TTF fossil gas day ahead prices since January 2020



Source: Dutch Title Transfer Facility (TTF) day ahead fossil gas prices

The soaring prices are due to a combination of factors: a cold northern hemisphere winter depleted fossil gas storage levels; increased demand and prices in Asia and Latin America resulted in liquefied natural gas (LNG) shipments being delivered there rather than to Europe; global demand has risen as Covid-19 restrictions have been lifted; fossil gas imports from Russia have not stepped up to meet the increase in European demand. All of these issues highlight the risks associated with continued dependence on volatile imported fossil gas that is highly susceptible to geopolitics and global events.

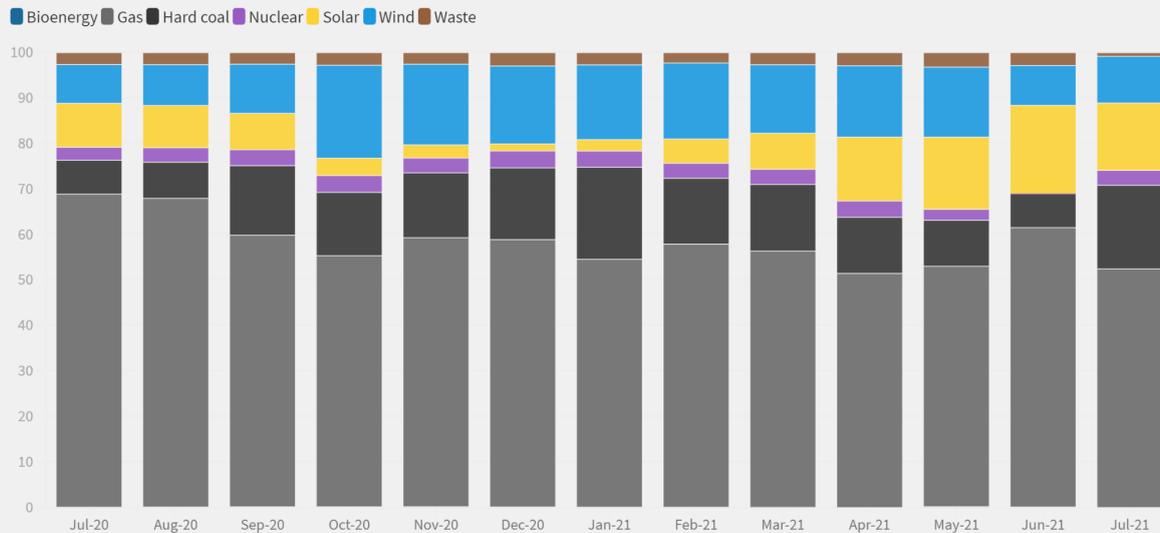
Fossil gas pushes up Dutch electricity prices

In 2020, the Netherlands relied on fossil gas for 55% of its electricity production and so far in 2021 fossil gas has accounted for 60% of the electricity mix.

The Netherlands generates 60% of its electricity from fossil gas

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Proportion of electricity production by fuel type



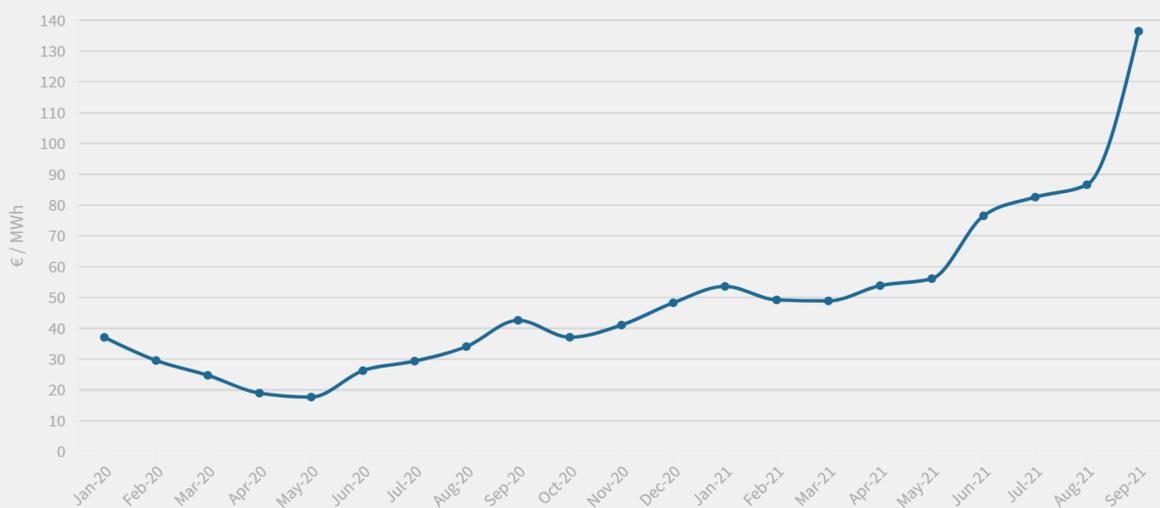
Source: ENTSO-e generation data

It is, therefore, unsurprising that the exponential rise in fossil gas prices has resulted in substantial increases in Dutch electricity prices. Average monthly Dutch wholesale electricity prices more than tripled from September 2020 to September 2021 - increasing by €94/MWh from €42/MWh to €136/MWh. From August to September alone the monthly average price soared by €50/MWh, almost 60%.

Dutch electricity prices have more than tripled in a year

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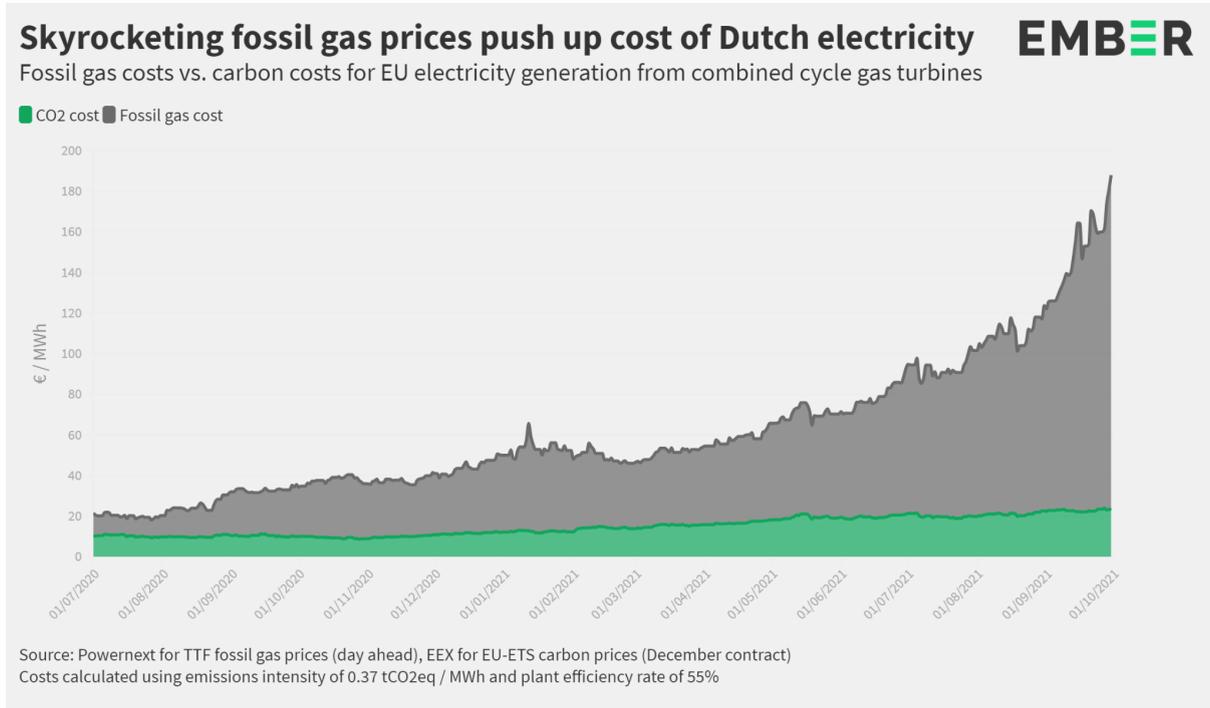
Monthly average of Dutch day ahead electricity prices



Source: ENTSO-e day ahead electricity prices

The cost of generating electricity from fossil gas, including the associated carbon allowance costs, has increased fivefold to €150/MWh (September 2021) from €33/MWh

(September 2020).¹ And while the price of carbon allowances has also risen over the same period from €28/tonne to €61/tonne, its contribution to the increased cost of electricity generation is minimal when compared to the fossil gas price.² Analysing the fossil gas cost component alone, it has surged by €105/MWh (from €23/MWh to €127/MWh).



These extreme fossil gas prices are not expected to subside in the near future with the first quarter of 2022 currently trading at ~€105/MWh.

Renewables are key to lower electricity prices

The way to avoid the volatility of fossil gas is to accelerate the transition to clean electricity. Wind and solar are not exposed to variable fuel prices and the cost of generating electricity from these sources has collapsed in recent years.

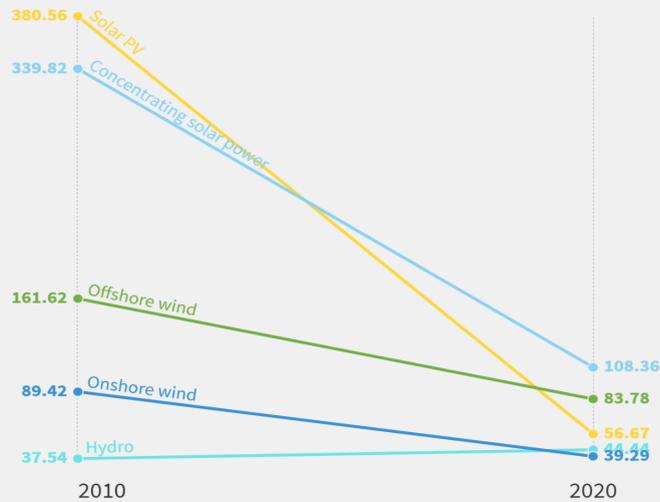
¹ Fossil gas and CO₂ cost calculations based on a carbon intensity factor of 0.37 tCO₂eq / MWh electricity and a fossil gas plant efficiency rate of 55%. They do not include operating and maintenance costs.

² This equates to a carbon cost increase of €12/MWh for a fossil gas plant with carbon intensity factor of 0.37 tCO₂eq / MWh.

Wind & Solar electricity prices have collapsed in a decade

Global average LCOEs for utility-scale renewable power generation 2010-2020 (US\$/MWh)

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Source: IRENA 'Renewable power generations costs 2020'

The National Energy and Climate Plan (NECP) submitted by the Netherlands reveals it intends to still have 33 TWh of fossil gas generation by 2030 - around 25% of total production. On a more positive note, the Netherlands also plans to cover 60% of electricity demand through wind and solar generation by 2030. However, renewable energy deployment and integration needs to be stepped up now to avoid future fossil gas price volatility.

The recent budget for 2022 has allocated €6.8 billion to be invested in cutting greenhouse gas emissions.³ Almost half of this is to be spent on subsidies for green energy investments, sustainability and emissions reduction technologies. €1.3 billion will go towards energy infrastructure, hopefully at least some of this will be used to enhance power system flexibility and enable greater integration of renewables.

With winter approaching and supply issues remaining, the escalation in fossil gas prices looks set to continue. The need to switch from imported fossil gas to domestic renewable generation has never been more apparent or urgent.

About Ember

Ember is an energy think tank that is focused on accelerating the global transition to fossil-free electricity. www.ember-climate.org

³ <https://nltimes.nl/2021/09/21/2022-dutch-budget-nutshell>