

Why Engie Should Close, Not Sell, Its Coal-Fired Power Plants in Germany



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Executive Summary

Engie is a global, Paris-based industrial company specialising in gas, electricity and energy services that was 24.1% owned by the French state as of Dec. 31, 2017. The company has correctly acknowledged a profound change underway in energy markets toward low-carbon sources.

Companies have two broad choices in coal asset divestment: closing and decommissioning, or selling. Recently, Engie has preferred selling over closing. This briefing focuses on Engie's strategy along these lines in Germany, where the company is presently trying to sell three power plants: Farge, Wilhelmshaven and Zolling. Bidders reportedly include two privately-owned, Czech-based investors: EPH and Seven Energy.

Figure 1: Engie's Coal-fired Power Plants in Germany



To underscore the problems facing coal, we use a simplified discounted cash flow (DCF) analysis of available and estimated data for sales and costs at Engie's newest of these three power plants (Wilhelmshaven), which it brought online in 2015. We find that the power plant has a negative present value as measured by EBITDA.

We consider the various outcomes for Engie, between sale and closure of the power plants:

1. Closure would avoid giving rivals a bigger market share in Germany relative to Engie. By contrast, if Engie closed its coal power plants and simultaneously invested in cleaner generation, it might boost its market positioning. Engie itself has noted this as an important motive for closing rather than selling its coal-fired power plants in Chile.
2. Closure would help achieve the company's stated goal to "build a low-carbon world." A sale, by contrast, would most likely be to Czech-based distressed asset specialists EPH and Seven Energy, both of which have publicly stated an ambition to run coal power plants for as long as possible, intent on maximising private profits by capitalising on public incentives for operating them.

3. Closure would allow Engie to engage with the German government's newly formed Coal Exit Committee, which is expected to present a positive economic framework for coal phaseout. By closing its power plants over time, Engie would be part of the solution towards this goal, rather than creating a problem by selling to private buyers. We note that EPH recently mounted a legal challenge to new European Union air pollution emissions limits, an indication of its attitude toward environmental regulation.
4. Sale would align with Engie's 2016-2018 divestment plan to reduce net debt associated with merchant assets, including coal power plants, but we note that Engie has already almost met these targets.
5. Sale might make the company's income statement look better to analysts and the market as a result of commonly used "big bath accounting" techniques that exclude large one-off cost items associated with disposals, while reaping the benefit of lower costs going forward.

We conclude that Engie should reconsider its plan to sell its German assets. We find that benefits from closing the power plants— living up to corporate responsibility standards, preventing rivals from gaining market share and embracing the Coal Exit Commission— outweigh the benefits of selling.

Introduction

This study explores Engie's options regarding divesting its coal power assets in Germany, focusing specifically on the choice between power plant sale and closure.

The three relevant coal power plants are Farge, Wilhelmshaven and Zolling, all of which Engie is presently planning to sell.¹ We note that Engie has a 52% holding in Wilhelmshaven, and so would require the consent of its co-owners to close the asset rather than simply to sell its stake.²

Given the economic and regulatory headwinds facing coal in Germany, we expect that these assets will fetch a low price. We expect that Engie's motives for selling include off-loading associated debt, writing down the assets in a way that has minimal impact on the company's income statement, and eliminating a source of future O&M and decommissioning costs.

Likely bidders include specialist acquirers of distressed assets, including EPH or Seven Energy Group, both of which are owned by Czech billionaires.³ Based on their public statements and/or their past behaviour, these companies would most likely run the power plants for as long as possible, lobby for reliability or capacity payments, and additionally seek as much "compensation" as possible in exchange for ultimately closing them and undertaking site rehabilitation. Such reliability, capacity and compensatory payments would be funded by German taxpayers and/or energy consumers.

We note that to date Engie does not appear to be considering the main alternative strategic option for the three power plants: to retain, wind down and close them itself, or sell them to a decommissioning specialist. This strategy would minimise the plants' impact on the environment by ensuring a responsible site decontamination and clean-up as well as limiting emissions of carbon dioxide and air pollutants by assuring a firm end-date for their operation.

We characterise these two choices as follows:

(1) Responsible closure, which would entail continued operation of the three power plants in preparation for an orderly mothballing and ultimate closure. Under this scenario, Engie might close the two older power plants (Farge and Zolling) by 2020 or so, and the newer, more modern plant (Wilhelmshaven) around 2030.

Such an approach would:

- Demonstrate leadership in corporate responsibility;
- Reduce carbon emissions, by avoiding a sale that would in continued operation over the medium term;
- Achieve continued cash flows from sales of electricity, depending on power, carbon and coal prices, until closure in the near term;

¹ <https://www.reuters.com/article/us-engie-germany/frances-engie-exploring-sale-of-german-power-plants-sources-idUSKCN1GJ20Y>

² Switzerland's BKW Energie AG has a 33% stake and local municipal utility WSW Energie & Wasser AG a 15% stake

³ <https://uk.reuters.com/article/uk-utilities-m-a-czech/czech-firms-look-to-sweep-up-profits-from-dirty-power-idUKKCN1I11NJ>

- Create additional potential value from the sale of ancillary services and heat;
- Retain option value for alternative uses of the sites; and
- End with final sale of the site and related scrap to a decommissioning specialist and/or real estate developer.

This approach would also give clarity and certainty to the Engie workforce, ensuring that its members and the communities they live in are responsibly served by their corporate parent.

(2) Hasty abandonment, which would entail immediate sale to a specialist acquirer of distressed assets.

Such an approach would:

- Create immediate cash proceeds and reduced net debt for re-investment in growth;
- Present a strategic opportunity to turn over a new leaf by off-loading difficult assets that impact corporate reputation; and
- Create an accounting opportunity to take one-off impairments on the assets, while eliminating future depreciation and other expenses associated with retaining and closing the plants.

Coal Divestment

Coal Power Headwinds

Forward-looking electric utilities in Europe, such as Italy's Enel, and similarly progressive utilities further afield, such as NextEra Energy in the U.S., are increasingly keen to transition toward a greener, low-carbon energy mix.

This shift is being driven by both regulatory change and economics.

Regarding European regulatory headwinds, the EU is aiming to cut carbon emissions by 80% by 2050, decarbonise the power sector and regularly upgrade air pollutant emissions reduction targets. Meanwhile, the global Paris Agreement on climate change in 2015 set a global aspiration to limit global average warming to well below 2 degrees Celsius, implying an end to coal generation in developed economies such as the EU by around 2030.

Regarding economic drivers, the profitability of so-called "merchant" thermal coal (and gas) generation has been hurt by a combination of low demand for power, weak power prices and rising commodity prices, especially compared to regulated renewable energy generation, much of which has historically achieved fixed long-term power purchase agreements or feed-in tariffs, and whose cost has fallen precipitously, making renewables broadly competitive with fossil fuels.

Engie's German Coal Power Plants

A Discounted Cash Flow Analysis

We illustrate the impact of coal power headwinds on Engie's most modern power German plant, Wilhelmshaven, using a discounted cash flow (DCF) model. DCF models value an asset according to its capacity to generate future cash flows. We use EBITDA (earnings before interest, tax, depreciation and amortisation) as a measure of cash flow. EBITDA is a function of sales minus fixed and variable operation and maintenance (O&M) costs. A key assumption in our model regards the capacity factor of the power plant. We generously assume that Wilhelmshaven would be available 90% of the time and would be economically dispatched 75% of the time. This equates to about 6,000 operating hours per year. Further details of the DCF methodology are provided in the appendix.

Key Finding: Negative Present Value

Based on current forward curves for coal, carbon and power, we find that Wilhelmshaven would have a negative EBITDA in 2019 and 2020. Since we do not rely on bespoke forecasts of fuel, carbon and electricity prices, we are reluctant to extend our cash flow estimates beyond the market "liquidity period" (2019-2020). While our DCF model is a simplified one, it is clear that the current combination of electricity prices, carbon and coal costs does not allow Wilhelmshaven (or Farge or Zolling, for that matter) to generate positive cash flows as measured by EBITDA. We note that the evolution of coal versus gas prices could additionally drive down asset values. Cheaper gas prices (relative to coal) further squeeze coal generation cash flows by lowering coal plant capacity factors, as is occurring presently. While operational margins are on the rise for gas-fired power plants, they are falling for coal-fired ones as coal prices hit six-year highs.

Against this backdrop, Engie has recorded large impairments against its German coal-fired power plants. A company should recognise an impairment loss when the “fair value” of an asset is less than the value booked on its balance sheet.⁴ In 2017, Engie reported impairment losses against its assets in Germany of €184 million. This amounts to nearly 60% of the €317 million impairments recorded by Engie for its “Generation Europe” CGU (cash generating units).⁵

We note that a coal power plant may have a negative EBITDA but still dispatch electricity to the grid, provided sales exceed short-term variable costs, such as the cost of coal and carbon allowances. Further, we note that while an asset may have a negative present value according to a particular DCF model, that does not mean that a buyer may not still see value, depending on the price, site and scrap values, portfolio effects and their particular view of the market outlook.

Close or Sell?

As a result of economic and regulatory headwinds, electric utilities are increasingly moving away from coal-fired power. Such divestment involves a strategic choice between sale and closure of assets. Sale often comprises selling old coal power plants to distressed-asset buyers.

In 2017, Engie preferred the sale route over closure in a major divestment programme of largely gas and coal generation assets. In total, the utility divested 14.1 GW of gas, coal and biomass generation, of which 12.2 GW were sold and 1.9 GW closed. Some 3.7 GW of these assets were coal-fired, of which 1.6 GW were closed (in Brazil and Australia) and 2.1 GW sold (in Poland and the U.S.)

Other European utilities have pursued a sale-at-any-cost strategy, perhaps seen most notably in a deal by Vattenfall, in which it *paid* EPH to take its German lignite (brown coal) assets in 2016. The assets included mines with a total annual output exceeding 60 million tonnes and four lignite power plants with a combined capacity of 7.6 GW.

Two Specialists in Distressed Coal Asset Acquisitions

Two potential buyers of distressed coal assets are EPH and Seven Energy, both privately owned by Czech billionaires who see an investment opportunity in buying out-of-favour assets. Both potential buyers would most likely run the plants for as long as possible, counting on continued demand to help balance the grid during a low-carbon transition.

EPH states that it is using distressed coal asset acquisitions as a strategy to enter advanced Western European markets, especially markets with a low reserve margin. A low reserve margin enhances the prospects for a higher power price environment, and for additional public incentives for the operation of thermal power plants, for example through a capacity market.

Seven Energy Group is a newcomer in the coal asset acquisition market. Owned by the

⁴ <https://www.ifrs.org/issued-standards/list-of-standards/ias-36-impairment-of-assets/>

⁵ https://www.engie.com/wp-content/uploads/2018/03/engie_2017-management-report-and-annual-consolidated-financial-statements-2.pdf -- note 8.2, pp. 95-96

Czech tycoon Pavel Tykac, the company states that it has €1 billion to spend on ageing coal and gas assets, and sees potential for acquisitions in Germany, Italy and the U.K.⁶

Other buyers of coal power plants have included more mainstream utilities with expertise in operating coal-fired power plants, such as PGE in Poland and RWE in Germany.⁷

⁶ https://www.bloomberg.com/news/articles/2018-03-15/czech-tycoon-earmarks-1-2-billion-to-buy-europe-s-old-coal?utm_source=POLITICO.EU&utm_campaign=d857131670-EMAIL_CAMPAIGN_2018_03_15&utm_medium=email&utm_term=0_10959edeb5-d857131670-189835081

⁷ In this context we note that there are utilities that can be considered expert at shutting down power plants and redeveloping sites. Uniper, for example, has retired nearly 15 GW of conventional thermal capacity since 2012.

Comparing Outcomes for Engie: Sale Versus Closure of Power Plants

Outcomes That Support Closure

Better Power Market Positioning

Inevitably, an important outcome from Engie selling its coal power plants would be to boost the relative market share of rivals, and especially the acquirer.

Engie expressed this point itself in making the case earlier this year for coal power plant closure over sales in Chile. The utility stated that it had decided to close the coal power plants rather than sell them, preferring to replace closed coal capacity with renewables. In Chile, Engie has thus prioritised its own power market positioning over selling assets to competitors, as stated by the company's CEO for Latin America:

"If you sell something, you lose your customers, contacts. We don't want to lose importance in Chile. Our customers are also interested in moving to green energy."
(Philip De Cnudde)⁸

Building a Low-Carbon Energy World

Engie states that it is a "world leader in the energy transition" toward low-carbon generation, which it defines as that fueled by natural gas and renewables.⁹

The company states that it wants "to help build a low-carbon energy world," and that its "actions to fight against global warming" show that it is a committed and responsible global player."

At first sight, Engie appears to be executing these objectives. Renewables accounted for 23% of its total generation in 2017, compared with 20% in 2016. Installed coal generating capacity had fallen to 6.1 GW as of 2017, from 15.1 GW two years earlier. However, we note that Engie is still building new coal power generation, including some 1.25 GW due to come online this year and next in Chile, Brazil and Morocco, while noting that the company's coal-fired Brazil Pampa Sul power plant is up for sale.¹⁰

Engie's recent divestment from coal has come largely through power plant sales rather than closures, as noted above. Divestments in 2017 comprised 14.1 GW of generating capacity, of which 12.2 GW were sold (including 2.1 GW of coal) and 1.9 GW closed (including 1.6 GW of coal— but none of it in Europe). As we have discussed, European buyers are emerging that are committed to continued coal power generation.

Engie's public statements suggest that it is unaware of any contradiction between coal asset sales and building a low-carbon world. For example, regarding its sale last year of its most

⁸ <https://www.bloomberg.com/news/articles/2018-03-27/engie-to-close-coal-plants-in-chile-after-mulling-potential-sale>

⁹ From the company's 2017 Registration Document; <https://www.engie.com/wp-content/uploads/2018/06/registration-document-2017.pdf>

¹⁰ <https://www.reuters.com/article/us-engie-brazil-ceo-idUSKBN1782F2>

polluting generation asset, the Polaniec Power Station in Poland, to Polish state-backed utility Enea, Engie congratulated itself on reducing its carbon footprint.

“(Engie aims to) be a sustainable complement to renewables by decreasing its environmental footprint e.g., the sale in March 2017 of the coal-fired power plant “Polaniec” in Poland which led to a reduction of ENGIE’s CO2 emissions by 6.2%.”¹¹

Alignment with Germany’s Coal Exit Commission

The German government this year appointed a panel to advise on phasing out coal power, called the Commission on Growth, Structural Change and Employment.¹² Also known as the Coal Exit Commission, the panel is tasked with investigating how to reconcile concerns of workers in coal mining regions, as well as concerns over national energy security, with a coal exit that meets Germany’s national targets for climate action. It is expected to develop transition plans for coal and lignite mining regions and a road map for coal power plant closure. The panel is tasked with naming an end date for coal-fired power generation by the end of this year.

By closing its coal power plants, Engie would be seen to be engaging with the German government and being part of a policy solution. By selling them, on the other hand, it may be creating a problem— especially if the acquirers are Czech distressed-asset specialists that oppose a coal exit. We note that within months of acquiring Vattenfall’s German coal mining and generation assets in 2016, EPH had initiated a legal challenge to new European standards for emissions of air pollutants from large combustion power plants.¹³

Outcomes That Support Sales

Execution of Engie’s 2016-2018 Plan

Engie is nearing the end of a three-year “strategic transformation plan” (2016-2018) meant to orient the company toward three core themes: first, low-carbon generation; second, services to customers including households, businesses, cities and regions; and third, lower exposure to commodity prices (for example, by prioritising regulated gas infrastructure).

The plan sets a target for disposals, closures and partnerships that reduce associated net debt worth €15 billion, while aiming to invest €14.3 billion in growth themes that include gas networks and regulated or contracted renewables and thermal generation.

In March 2018, Engie updated the market on its progress toward these goals. Regarding its €15 billion net debt divestment target, Engie stated it had booked disposals of assets with net debt of €13.2 billion. Regarding growth capital expenditure, the company had already invested €13.9 billion in growth areas, including €7.1 billion in low-carbon generation, of which €4.5 billion was in renewables.

“Big Bath Accounting”

Another possible motive to sell rather than close coal power plants is to please markets and analysts with a “big bath accounting” technique that gets rid of failing assets in a way that

¹¹ <https://www.engie.com/wp-content/uploads/2018/06/registration-document-2017.pdf>

¹² <https://www.cleanenergywire.org/factsheets/germanys-coal-exit-commission>

¹³ <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:62017TN0739&from=EN>

does not impact analyst measures of company value, while reducing costs and thus boosting earnings going forward. These costs associated with retaining and closing the power plants include decommissioning costs and compensation for staff redundancies. To illustrate, we briefly describe two common measures of company value.

Especially important measures of value, as used by companies and market analysts, are EBITDA and enterprise value (EV) multiples of EBITDA. EBITDA is often a preferred indicator for utilities, for example, over net income, because it focuses on cash and excludes depreciation. Excluding depreciation makes sense for utilities with highly capital-intensive assets, where a utility with a newer power plant fleet would have higher depreciation costs and lower net income, even though it may have a better outlook.

Regarding EBITDA, impairments are excluded as “below the line” items, i.e., they are not accounted for. As a result, a utility can make a large write-down of an asset as a result of a fire sale and still see no measurable impact on its EBITDA. Meanwhile, the utility would then see an uplift in EBITDA going forward, having eliminated “above the line” costs had it continued to operate and decommission the power plant. Impairments are made when a company reduces the value of an asset as booked on its balance sheet; an asset sale that values the asset below book value would be an example of that.

Net income is another common metric for analysts, which is used, for example, to calculate earnings per share (EPS). Net income includes depreciation and impairment costs. However, even in the case of net income, impairments may be excluded in the case of asset sales as non-recurring, one-off items, which are therefore again “below the line.” Non-recurring expenses are one-time, non-repeatable expenses incurred by a company. By contrast, O&M, decommissioning and depreciation costs associated with retaining and closing coal power plants would be included in net income going forward as “above the line” items, thus providing an accounting incentive to sell.

Selling a power plant may provide an additional balance sheet benefit by removing net debt associated with the asset. In the sale of its former Polaniec coal power plant in Poland, for example, Engie achieved a net debt reduction of €240 million.

Conclusion: Close Not Sell

Economic and regulatory headwinds are precipitating coal divestment among forward-looking electric utilities including Engie, which is presently trying to sell its three coal-fired power plants in Germany.

Illustrating these headwinds, we use a simplified discounted cash flow model to find that even the most modern of the three power plants has a negative present value as measured by EBITDA.

Having weighed the outcomes of coal power plant closure versus sale, we recommend that Engie reconsiders its plan to sell its German coal power plants.

We conclude that closure would be the better course— for three reasons.

First, Engie itself has already argued that power plant closure holds market positioning benefits over selling to competitors, as described in the company's plans to close its coal plants in Chile.

Second, Engie has publicly committed to a low-carbon transition that may not be advanced— and may even be slowed— by selling coal assets to private buyers committed to the continued operation of those assets.

Third, closing the coal power plants would allow Engie to be part of an energy market solution, to be outlined by the German government's Coal Exit Commission, rather than creating a problem by selling to distressed asset buyers determined to keep the plants in operation.

While selling could help Engie fulfil its 2016-2018 plan for merchant asset disposals and reinvestment, that plan is already all but fully achieved. Engie may also achieve some short-term, accounting presentation benefits from selling versus closing, but prioritising such an outcome would not be seen as responsible behaviour by a company committed to accepting the consequences for its past mistakes, which include the commissioning of a brand-new coal power plant in Germany long after the market headwinds discussed in this briefing were evident.

Appendix: DCF Methodology

Estimation of Prices for Coal, Wholesale Power and EUAs

According to Engie, the recoverable amount of cash generating units (CGUs) is determined by reference to value in use that is calculated using cash flow projections drawn up on the basis of the 2018 budget and the 2019-2020 medium-term business plan, as approved by the Executive Committee and the Board of Directors, and on extrapolated cash flows beyond that time frame. Cash flow projections are determined on the basis of macroeconomic assumptions (inflation, exchange rates and growth rates) and price forecasts resulting from the Group's reference scenario for 2021-2040. The forecasts that feature in the reference scenario were approved by the Executive Committee in December 2017.

The forecasts and projections included in the reference scenario were determined on the basis of the following inputs:

- Forward market prices over the liquidity period for fuel (coal, oil and gas), CO₂ and electricity on each market; and
- Beyond this period, medium- and long-term energy prices were determined by the Group based on macroeconomic assumptions and fundamental supply and demand equilibrium models [...]."¹⁴

In our simplified DCF model, we use forward curve values for prices for German power (2020-2023), coal (2020) and EUAs (2020-21), as of July 2 2018. These are roughly equivalent to Engie's "liquidity period". Foreign currency exchange values are required for a USD/ Euro conversion since coal is quoted in USD. We used spot FX values as of July 2 2018. As a caveat, it should be noted that our DCF calculations represent a static, single-date value (based on forward curves from July 2 2018). For comparison purposes, and only for the year 2019, we use values from forward curves as of March 5 2018. We find that these values can change significantly over a short period of time. In addition to yearly cost and revenue values expressed in million Euros, we provide values expressed in Euro/MWh.

Forward curve values beyond 2021 should be approached with caution, especially for coal, due to low liquidity. In the DCF model, values for power prices, fuel and emission costs beyond 2023 (power), beyond 2021 (EUAs) and beyond 2020 (coal) are simply assumed to escalate by 1% per year. Similarly, the relationship between coal, power and EUA prices is "locked" as of 2021, when in reality it might change. In other words, values beyond 2021 for these variables are close to being simply "illustrative", as are the resulting, calculated cash flows. Only 2019 and 2020 DCF numbers, based on forward curves as of July 2 2018, should be relied upon. Perhaps more importantly, it should be noted that actual asset values would also be driven by the evolution of coal vs. gas prices, where cheaper gas prices relative to coal would squeeze coal generation cash flows by lowering coal plant capacity factors.

¹⁴ https://www.engie.com/wp-content/uploads/2018/03/engie_2017-management-report-and-annual-consolidated-financial-statements-2.pdf

Table 1: DCF Model Assumed Values for Wilhelmshaven Power Plant

Plant name	Engie	Engie	Contractual		Efficiency	Comments	Capacity (MW)
	Ownership	Position	Fuel	Technology			
Wilhelmshaven	52%	Merchant	Coal	Steam turbine	46%	Commissioned in 2015, FID in mid 2008	726

Key DCF Assumptions

Discount rate = 2%; Availability = 90%; Capacity Factor = 75%; VOM costs = 5,5 EUR/MWh; Fixed O&M costs = 40.000 EUR/MW-yr

Sources: Engie (Analyst Pack, FY 2017); Bundesnetzagentur; IEEFA; Acousmatics.

Notes: Please see Appendix for full sources and methodology details

Calculation Method

We used a discounted cash flow (DCF) approach to value Engie's power plants in Germany, focusing on the most modern— Wilhelmshaven— as the asset likely to operate for the longest period, into the 2020s. According to a standard DCF methodology, the value of an asset is determined by its capacity to generate future cash flows for the company. Within the DCF methodology, the net cash flow generated by the firm's assets is generally referred to as free cash flow (FCF). So, in a given year, the FCF represents the cash generated from the firm's asset-based activities— namely, the operating and investing (but not financing) activities for any given asset. In turn, this can be stated as net operating cash flow (NOCF).

For our valuation of Engie's Wilhelmshaven power plant, we focused on EBITDA (earnings before interest, tax, depreciation and amortisation) as an estimate of free cash flow. That is, we did not consider depreciation expenses, tax expenses or changes in working capital requirements. We discounted yearly EBITDA values at a rate of 2% to assess the power plant in present value terms. EBITDA is a function of sales minus variable operating and maintenance costs and contributions to fixed costs, briefly summarised:

- Sales– Key relevant variables include: power and heat sales; grid support services (such as reserve capacity and frequency response); and additional revenues, for example biomass co-firing. In practice, in this study we focused on power sales, as the main determinant of power plant revenues. We acknowledge that Engie would undoubtedly be able to generate revenues from the sale of other services.
- Variable operating costs– Key relevant variables include: fuel cost; related fuel cost (eg fuel transport cost); cost of carbon emissions permits called EU allowances (EUAs); and other variable costs including the cost of equipment operation and maintenance (O&M). In this study, we focused on coal and EUA prices, and used a proxy for O&M costs derived from EIA estimates.¹⁵
- Fixed operating costs– Relevant variables include IT and personnel costs. We used a proxy for fixed costs, also derived from EIA values.

¹⁵ https://www.eia.gov/analysis/studies/powerplants/capitalcost/pdf/capcost_assumption.pdf

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