

Fortum/Uniper

A briefing for investors, insurers and banks

This briefing paper presents analysis and recommendations to assist investors, insurers and banks in achieving a coal phase-out from Fortum and Uniper in line with the climate targets of the UN Paris Climate Agreement and protecting citizen's health.

The two utilities are addressed together because Fortum has a major influence (47,35% ownership) over how Uniper's coal fleet will evolve. Fortum must therefore ensure that both companies embark on a socially just and managed coal phase-out in the nearest possible term, and refrain from selling coal assets to other companies.

The briefing gives an overview of the two utilities' power mix and existing coal plant fleet, the financial risks facing these power assets, pathways for how those utilities might re-align its coal plant fleet to the Paris Agreement, and the actions being taken already or recommended to investors, insurers and banks.

Fortum and Uniper at a Glance:

- The two companies' strategies differ: Uniper's business model largely revolves around fossil-based energy. Fortum's company strategy, on the other hand, is mostly based on a low-carbon energy system. However, despite of this, Fortum still has an operational coal fleet.
- Both companies lack explicit decarbonisation or coal phase-out plans.
- National coal phase-out commitments of the UK, Netherlands, France and Finland are determining the future of Uniper's and Fortum's coal fleet in those countries.
- Political discussions in Germany about a coal phase-out will have consequences for Uniper's operating plants and their plant under construction (Datteln IV).
- The possible continued increase of the EU ETS CO₂ price might further negatively influence the profitability of their coal power plants.

Investors, insurers and banks should require Fortum/Uniper to:

- Commit to align their business models with the UN Paris Climate Agreement and, more concretely, to adopt a time-bound climate science-based target built on a forward-looking climate-scenario analysis. We recommend the sectoral decarbonisation approach developed by Ecofys to set these targets.
- Put an immediate end to capital expenditure for new coal plants – notably Datteln IV, which is meant to go into commercial operation in 2020. Avoid any purchase of coal plants and any retrofitting of existing coal plants that leads to life extensions. Datteln IV should not be brought online anymore.
- Publish a clearly articulated roadmap for the gradual closure (not sale) of existing coal plants, ending at the latest in 2030 in EU/OECD countries and in 2040 globally, taking into account national phase-out plans and building on forward-looking climate scenario analysis.
- Join and report according to the TCFD guidelines.
- Investors, insurers and banks should also adopt 'no coal policies' along the lines of the 'principles and approaches for impactful public coal policies' that were developed by the Europe Beyond Coal campaign.



Table of Contents

1. Introduction.....	4
2. Power mix and coal plant fleet of Fortum/Uniper.....	5
3. Policy, financial and legal risks.....	8
4. Fortum/Uniper’s alignment with the Paris Agreement.....	12
5. Investor, insurer and bank action	18
6. Recommendations.....	21

1. Introduction

In the UN Paris Climate Agreement, 195 countries committed to curb the current emissions trajectory in accordance with climate science. This commitment translated into an objective to ‘hold the increase in the global average temperature to well below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5°C,’ and ‘make finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development’.

The implications of the Paris Agreement for coal and renewable power are clear. Investors have recently acknowledged climate science research that supports the need to phase out coal by 2030 within member countries of the Organisation for Economic Co-operation and Development (OECD) and the European Union; by 2040, in China; and by 2050, in the rest of the world. More recent analysis by the International Energy Agency (IEA) ‘beyond 2°C scenario’ indicates that non-OECD countries should phase out production from coal power even earlier, by 2040. Investment in renewable power has to increase drastically.

There is a growing consensus amongst leading financial institutions globally that the world is moving towards a low carbon economy, and that as a result, coal power assets will be stranded, and constitute growing financial and reputational risks.

The recent Intergovernmental Panel on Climate Change (IPCC) report reminded us that there is no time to waste if we want to stop runaway climate change and that significant efforts are required if we are serious about limiting global warming to 1.5°. According to the report, the primary energy from coal must be reduced by 61-78 % globally in 2030 (% rel. to 2010) globally in the scenarios with limited or no overshoot

Furthermore, the Finnish government has announced a 2029 deadline for coal in domestic energy use.¹ As a state-owned company, Fortum is under increased pressure to demonstrate consistency. Similarly, the German government recognises the need to phase out coal and is in the process of identifying the necessary steps to achieve this.

¹ Finnish ministry of economic affairs and employment (10 April 2018), Minister Tiilikainen: Finland to ban coal in 2029 – incentives package for faster phase-out.

2. Power mix and coal plant fleet of Fortum/Uniper

Fortum/Uniper's strategic plans

Fortum operates in Finland, Sweden, Norway, the Russian Federation, Poland, Lithuania, Latvia, Estonia, India and the United Kingdom, among others. Fortum is engaged in the generation and sale of electricity and heat, and operation and maintenance of power plants, as well as energy-related services. The company operates, along with its subsidiaries, in four business segments:

- Generation: Power, physical operation and trading, as well as expert services for power producers;
- City Solutions: Heat, consisting of combined heat and power generation (CHP), district heating and cooling activities and business-to-business heating solutions; Recycling and Waste Solution services
- Russia: power and heat generation and sales in Russia,
- Consumer Solutions: responsible for Fortum's electricity sales and other solutions to consumers, for example EV charging services²

Uniper is a leading energy company that was spun off from E.ON in 2016. Of the total Uniper stock, 53.35 % was transferred to E.ON shareholders.

- The company has inherited all of E.ON's fossil fuel assets as well as its nuclear and hydro capacity in Sweden.³
- Uniper's regional focus thus far is Europe (including Russia), but it aims to expand activities to the US and Asia.
- Uniper is active in the production and distribution of power and heat, as well as transport of gas (e.g. Nordstream 2). It is also active in research into new forms of battery storage and power to gas.

In February 2018, **Fortum acquired a 47.35% ownership in Uniper**, falling short of the controlling stake. The companies' strategies differ considerably:

Fortum's company strategy states the following: *our vision "for a cleaner world" reflects our ambition to drive the transformation towards a low-emissions energy system and optimal resource efficiency. Our mission is to engage our customers and society to drive the change towards a cleaner world. Our role is to accelerate this change by reshaping the energy system, improving resource efficiency and providing smart solutions".*

Uniper's business model largely revolves around fossil-based energy production. To support the energy transition it counts on expanding its gas activities. It has no public phase-out plan for its

² <https://www.reuters.com/finance/stocks/company-profile/FORTUM.HE>

³ Uniper was also supposed to take over E.ON's nuclear assets in Germany. However, the nuclear phase-out in Germany required owners of nuclear power plants to remain in charge of their assets and dismantling. As a result, E.ON retained its German nuclear assets and transferred only Swedish nuclear plants to Uniper.

existing coal assets, and is even planning to bring additional coal capacity online with the Datteln IV plant. The construction of this plant began in 2007 and it was supposed to go online in 2011. It has been plagued by construction defects and rising development costs (currently €1.5 billion), and will very likely not be connected to the grid before 2020⁴ – generating write-down of a further €270 million. With discussions on a German coal phase-out ongoing (see below), it is very unlikely that Uniper will be able to amortise the Datteln IV coal plant.

Fortum’s acquisition of a large share in Uniper’s high-carbon fleet requires considerable action from the company to abide with its own strategic vision. Fortum is a listed company with the Finnish government being the largest owner with 50.76% share. As a consequence, the company has to abide by the Finnish Government’s Resolution on State-Ownership Policy that states: *in its decision-making, a company must take into account the economic factors and the social and environmental impacts of its activities. Representation of the personnel in the company’s administrative bodies must be secured in a way that enables company level agreement.*⁵ Additionally, several large Finnish pension funds and banks, all of which have their own climate policies, are significant shareholders in Fortum.

Fortum/Uniper’s power mix and coal plant fleet

Table 1: Fortum power mix and capital expenditure plans (Source: figures from 2017 Fortum sustainability Report)⁶

	Coal	Renewables (incl. small hydro)	Large hydro	Gas	Nuclear	Total
Capacity (GW, %)	N/A	N/A	4.7	N/A	2.8	13.7
Generation (TWh, %)	2.6 4%	1.3 2%	20.7 28%	25.3 35%	23.0 31%	73.2

Table 2: Uniper power mix and capital expenditure plans (Source: Uniper, List of Assets 2017)⁷

	Coal	Renewables (incl. small hydro)	Large hydro	Gas	Nuclear	Total
Capacity (GW, %)	7.2 28%	3.1 12%	3.6 14%	10.4 40%	1.4 5%	25.7
Generation (TWh, %)	24.3 33%	5.1 7%	11.8 16%	20.1 28%	11.1 15%	72.4

Table 3: Fortum and Uniper combined coal plant fleet (Source: Fortum – all figures refer to 2017)

Plant name	Utility	Capacity (MW)	Commissioning year of first unit	Country	CO ₂ (tonnes, 2017, estimate)
Apatity TETS power station	Fortum	415	1959	Russia	1.981.299
Argayash power station	Fortum	195 MWel + 670 MWheat	1954	Russia	1.247.400
Czestochowa	Fortum	68 MWel + 129 MWheat	2010	Poland	249.647

⁴https://www.bundesnetzagentur.de/SharedDocs/Downloads/DE/Sachgebiete/Energie/Unternehmen_Institutionen/Versorgungssicherheit/Erzeugungskapazitaeten/Kraftwerksliste/Veroeff_ZuUndRueckbau_2018_3.xlsx

⁵ Finnish government (2016), Government resolution on state-ownership policy.

⁶ Fortum (2018), Fortum – For a cleaner world.

⁷ Uniper (2017), List of Assets.

Meri-Pori ⁸	Fortum	614	1994	Finland	510.761
Miechowice 1, 2, 3	Fortum	55 MWel + 294 MWheat	1955	Poland	194.276
Naantali-1	Fortum	366	1960	Finland	1.142.106
Petrozavodsk power station	Fortum	260	1977	Russia	1.000.000
Suomenoja	Fortum	156 MWel + 154 MWheat (coal use)	1977	Finland	805.224 (in coal use: 702.607)
Vaerta CHP-6	Fortum	141	1990	Sweden	456.204
Zabrze	Fortum	63 MWel + 174 MWheat	1976	Poland	158.817
Zabrze II	Fortum	75 MWel + 145 MWheat	2018	Poland	Commissioned in 10/2018
Datteln IV	Uniper	Under construction	2020	Germany	Under construction
Emile-Houchet	Uniper	647	1981	France	3.699.604
Grosskrotzenburg Staudinger	Uniper	553	1992	Germany	1.889.339
Kiel East	Uniper	354	1970	Germany	1.116.575
Maasvlakte 3	Uniper	1.196	2016	Netherlands	4.306.500
Petershagen Heyden	Uniper	923	1987	Germany	1.977.821
Provence	Uniper	625	1984	France	1.367.140
Ratcliffe	Uniper	2.174	1968	United Kingdom	2.448.594
Schkopau ⁹	Uniper	980	1996	Germany	5.502.113
Scholven/Buer	Uniper	816	1968	Germany	4.300.742
Tufanbeyli ¹⁰	Uniper	489	2016	Turkey	2.302.992
Wilhelmshaven	Uniper	788	1976	Germany	1.322.071,00
TOTAL¹¹		11.220			34.012.285

⁸ 308 MW megawatts as peak load moved to reserve capacity for the period 1 July 2017 - 30 June 2020. Access at <https://www.energiavirasto.fi/web/energy-authority/-/the-energy-authority-is-purchasing-729-mw-as-reserve-capacity>

⁹ Uniper has a 55.6% ownership share in the Schkopau coal plant, with the remaining 44.4% under ownership of EPH. Hence, while the capacity and CO2 emissions are presented for the whole coal plant, only 55.6% of this can actually be attributed to Fortum/Uniper's total capacity and CO2 emissions.

¹⁰ Uniper has a 40% ownership share in the Tufanbeyli coal plant, with the remainder owned by Sabanci (40%) and free float (20%). Hence, while the capacity and CO2 emissions are presented for the whole coal plant, only 40% of this can be attributed to Fortum/Uniper's total capacity and CO2 emissions.

¹¹ Taking in account that Uniper owns 55.6% of the Schkopau coal plant and 40% of the Tufanbeyli coal plant, the corresponding share of the plant's power capacity and CO2 emissions are included in the group's total power capacity and CO2-emissions.

3. Policy, financial and legal risks

The risk taxonomy

The industry-led Financial Stability Board (FSB) Task Force on Climate-related Financial Disclosures (TCFD) has forged unprecedented convergence across industry and G20 governments on climate-related financial risks. The coal power sector is particularly sensitive to risk that arises from the transition to a low-carbon economy – which is defined by the FSB TCFD in terms of policy changes, legal challenges, technology shifts, market developments and reputation. The paragraphs below highlight how Fortum and Uniper’s coal fleet is subject to such risks.

National coal phase-out commitments constitute policy risk

Fortum and Uniper have seven coal plants (approximately 7GW) in four European countries that have committed to phase out coal (Finland, France, Netherlands and UK), and six coal plants (approximately 5GW) in one (Germany) that is formally discussing a coal phase-out, having put in place a coal exit commission.

Table 4: Overview of coal phase-out plans by European governments and impacts on Fortum/Uniper coal power plants (Source: Europe Beyond Coal Campaign)

2021	2025	2029/30	Under discussion
France	UK	Finland	Germany
	Italy	Netherlands	Spain
	Austria	Portugal	Slovakia
	Ireland	Denmark	Hungary

The growing number of national (and subnational) coal phase out commitments constitutes a growing policy risk for Fortum/Uniper. The Dutch case presents a compelling example of such risk. In October 2017, the incoming Dutch government announced in its coalition pact that all coal plants would shut by 2030. Three of the five remaining plants in the country have only recently been completed, meaning that they will operate for less than half of their expected lifetime. Uniper is one of three power utilities (besides Engie and RWE) affected by this decision: it will not make money on the investments in question and will suffer write-downs.

Neither company is indicating if and when it will close down its coal fleet capacities. The database of Europe Beyond Coal indicates three announced closures: Kiel East (Uniper) in 2019, Scholven/Buer (Uniper) between 2018-2020 and Vaerta (Fortum) in 2020.

Rising carbon prices increase climate-related financial risks

The profitability of hard coal plants has been collapsing as coal and carbon prices have risen faster than the cost of electricity.

Carbon prices have quadrupled from about €5/tonne in May 2017 to over €20/tonne in October 2018. Uniper and Fortum emitted 34 million tonnes of CO₂ in 2017. Based on carbon price rising from €5/t to €20/t, this means Uniper-Fortum's annual carbon bill will have increased from €170m to €680m.

They receive less than 3% of their permits for free – fewer than 1 million tonnes in 2017 – and this will fall further every year.

The pass-through of the carbon price into electricity will fall through time as renewable electricity penetration increases, and electricity price is increasingly set by cheaper non-carbon sources.

What's more, the CO₂ price could rise even further. A report, *Carbon Countdown*, released on 21 August 2018 by Carbon Tracker forecasts that the CO₂ price will rise to €25 by year-end, and €40 by 2020. With high ETS costs, the transition will pave the way for a faster development of renewable sources.

Another report by Carbon Tracker looked at the profitability of coal plants in Europe: the double impact of a higher carbon price and higher air pollution costs shows Uniper's coal portfolio – which is already facing losses in 2017 – would be facing significant losses by 2030.

Health impacts from coal burning

Toxic pollutants from the burning of coal such as sulphur oxides (SO_x), nitrogen oxides (NO_x), and particulate matter (PM) have detrimental effects on public health. Modelling with 2016 pollution data has shown, that the Fortum and Uniper coal plants in the EU caused an estimated 555 premature deaths in that year.

Table 5: Modelled health impacts from Fortum/Uniper coal plants in 2016 (Source: Last Gasp report, 2018, www.beyond-coal.eu)

Plant name	Company	Premature deaths (modelled, 2016 emissions)	Health costs (modelled, 2016 emissions, median, euro)
Czestochowa	Fortum	4	6
Meri-Pori	Fortum	4	6
Miechowice	Fortum	10	16
Naantali-1	Fortum	16	24
Suomenoja	Fortum	12	18
Vaerta CHP-6	Fortum	1	2
Zabrze	Fortum	9	14
Maasvlakte	Uniper	83	124

Datteln IV	Uniper	2	3
Emile-Houchet	Uniper	37	54
Grosskrotzenburg Staudinger	Uniper	36	52
Kiel East	Uniper	16	23
Maasvlakte 3	Uniper	25	37
Petershagen Heyden	Uniper	59	88
Provence	Uniper	29	46
Ratcliffe	Uniper	61	91
Schkopau (co-owned)	Uniper	75	115
Scholven/Buer	Uniper	78	115
Wilhelmshaven	Uniper	54	81

EU air pollution standards

In April 2017, European Union member states agreed to a Best Available Techniques (BAT) Reference Document (BREF) that imposes revised pollution controls on large combustion plants – including power plants larger than 50MW. The underlying goal of these pollution controls is to improve air quality by cutting emissions of toxic pollutants.

EU member states must incorporate the new, stricter pollution rules into their permit criteria for new and existing power plants, with full implementation no later than 2021. The installation time of the relevant technologies is up to 45 months. Electric power utilities will therefore need to assess immediately if it makes financial and strategic sense to upgrade coal power plants to comply with BREF.

DNV-GL has analysed the impact of BREF on the EU coal fleet. It finds that 82% of operational coal plants in 2021 would not comply with pollutant controls for SO_x, NO_x and PM. The share of non-compliant lignite plants (89%) would be significantly higher than the share of hard coal plants (78%). The total capital expenditure required to make these coal plants compliant with BREF would amount to €14.6 billion.¹²

Liability and reputational risks

Uniper's plans to open a newly constructed coal unit in Datteln IV constitute a major liability and reputational risk:

- Datteln IV was challenged in court because of construction defects and poor environmental audits. When the emission plan was revoked in 2012, construction was halted for 4 years. As a result of the legal process the whole land-use plan had to be amended. This plan is still the subject of ongoing court cases that may require Uniper to dismantle the plant and restore the site at its own expense.¹³
- The delay in construction led Uniper client RWE to launch further lawsuits over the lack of fulfilment of supply agreements.¹⁴

¹² <https://europeanclimate.org/wp-content/uploads/2017/06/16-1213-rev2-DNV-GL-report-ECF-BREF-LCP2.pdf>

¹³ Bund, Uniper-Kohlekraftwerk Datteln IV.

¹⁴ Handelsblatt (26 May 2017), Uniper reicht Klage gegen RWE ein. Uniper (2018) Annual report 2017.

- Civil society groups are advocating for Datteln IV to not be completed, as bringing a coal plant online is at odds with German climate goals and the energy transition.¹⁵
- The 1.1 GW plant is the only coal-fired power station under construction in Western Europe. Construction has been delayed due to boiler damage and will likely be finished only in 2020¹⁶.

Uniper is dependent on coal imports for its activities:

- Hard coal importers have been challenged over human rights violations and environmental disasters, notably in Colombia. Europe is Colombia's largest customer and Germany is the biggest coal importer in Europe. The Dutch peace organization PAX reported¹⁷, that according to testimonies under oath coal-mining companies in the Cesar coal-mining region have been involved in financing and supporting paramilitary units, which are responsible for the killing of more than 3,100 and the forced displacement of more than 55,000 people.
- Uniper has referred to the 'Bettercoal Initiative's' (widely criticised) mine audits instead of addressing the pressing issues related to their coal suppliers. Recently the company acknowledged a need to be more pro-active.¹⁸ Nevertheless, if Uniper continues its business relationships with the accused companies, it will be exposed to serious reputational risks.

¹⁵ Umweltbundesamt (2017), Kohleverstromung und Klimaschutz bis 2030: Diskussionsbeitrag des Umweltbundesamts zur Erreichung der Klimaziele in Deutschland

¹⁶ <https://www.spglobal.com/platts/en/market-insights/latest-news/coal/050818-boiler-damage-delays-germanys-11-gw-datteln-4-coal-plant-to-2020>

¹⁷ <https://www.paxforpeace.nl/media/files/pax-dark-side-of-coal-final-version-web.pdf>

¹⁸ Uniper (2018) Annual report 2017.

4. Fortum/Uniper's alignment with the Paris Agreement

FSB TCFD: the case for forward-looking climate assessments

The FSB TCFD provides important guidance on how companies and investors can assess and disclose climate-related financial risks. It notably recommends companies to undertake and disclose forward-looking climate scenario analysis, which it considers instrumental to understand the extent to which organisations are vulnerable to climate-related financial risks, and how these vulnerabilities might be addressed.

Finnish companies have been at the forefront of reporting their CO₂ emissions, but neither Fortum nor Uniper have reported against the more comprehensive TCFD guidelines. The following paragraphs present the impacts of climate science for coal, as well as tools that provide forward-looking analysis for Fortum/Uniper's coal plants.

What climate science means for coal power globally and in Europe

According to the latest climate science, limiting warming to 2°C by 2100 means that the net emissions of greenhouse gases need to be reduced by 40-70% by the time we reach 2050, and brought to zero by the end of the century.¹⁹ Respecting the more stringent limit of 1.5°C will require reducing emissions of greenhouse gases even more rapidly in the coming years and decades, and bring them to zero around mid-century.²⁰

This has two implications for coal power. First, research has shown that no new investments in fossil electricity infrastructure – notably coal – are feasible from 2017 at the latest.²¹ Second, existing coal infrastructure needs to retire early: even with no new coal plant construction, emissions from coal power generation in 2030 would still be 150% higher than what is consistent with the well below 2°C target.²²

The implications of the Paris Agreement for coal and renewable power are clear. Investors have recently acknowledged climate science research that supports the need to phase out coal by 2030 within member countries of the Organisation for Economic Co-operation and Development (OECD) and the European Union; by 2040, in China; and by 2050, in the rest of the world. More recent analysis by the International Energy Agency (IEA) 'beyond 2°C scenario' indicates that non-OECD countries should phase out production from coal power even earlier, by 2040. In the European Union, a quarter of the coal plants already in operation will need to be switched off before 2020, and a further 47% should go offline by 2025.²³

¹⁹ IPCC (2014), AR5

²⁰ Climate Action Tracker (Climate Analytics, Ecofys, NewClimate Institute, Potsdam Institute for Climate Impact Research)

²¹ Pfeiffer, Millar, Hepburn, Beinhooker (2016), The '2°C capital stock' for electricity generation: Committed cumulative carbon emissions from the electricity generation sector and the transition to a green economy, in Nature.

²² ClimateAnalytics (2016), Implication of the Paris Agreement for coal use in the power sector.

²³ ClimateAnalytics (2017), A stress test for coal in Europe under the Paris Agreement: scientific goalposts for a coordinated phase-out and divestment.

The analysis above underscores how ambitious climate action is incompatible with continued coal-fired power generation in developed economies. That in turn illustrates the risk of investing in new coal plants or upgrading existing coal plants – which run a risk of becoming stranded assets. Investors, insurers and banks that wish to minimise financial risks and maximise returns must therefore require Fortum/Uniper to develop and implement a business strategy that is aligned with the Paris Agreement.

‘Well below 2°C’ pathways for Fortum/Uniper: planning the coal phase-out

Carbon Tracker Initiative (CTI)

CTI has taken the coal-fired generation trajectory in the IEA ‘Beyond 2°C scenario’ (B2DS), under which coal power generation in the EU is phased out by 2030, and developed a model to determine which units should close, based on the profitability and location of the unit.²⁴ Its scenario aims to replicate a phase-out from the perspective of a utility interested in maximising free cash flow.

CTI has modelled the operating cost and gross profitability of every operating coal unit in the EU and found that 54% were cash flow negative as of 2017, which could increase by 2030 to 97%. The analysis also finds that utilities would avoid losing money by phasing out coal in a manner consistent with the Paris Agreement. Uniper, for instance, would gain €1.7 billion by phasing out coal by 2030 – the second largest gain in Europe after RWE (€5.3 billion). Fortum would gain €238 million.

The table below provides an overview of the closure date for Fortum/Uniper’s coal units following the IEA B2DS, and avoided stranded value if coal units are phased out in line with the ‘well below 2°C’ compared to a business as usual scenario.²⁵

Table 6: Fortum/Uniper avoided stranded value in 2030 coal phase-out compared to BAU

Coal unit	Company	Country	Opening year	Closure Date	Avoided stranded value compared to BAU (EUR m)
Czestochowa	Fortum	Poland	2010	2021	-5,5
Meri-Pori 1	Fortum	Finland	1994	2017	-44,7
Miechowice	Fortum	Poland	1955	2023	-17,3
Miechowice 2	Fortum	Poland	1955	2024	-17,3
Miechowice 3	Fortum	Poland	1998	2019	-2,4
Naantali-1 1	Fortum	Finland	1960	2021	-1,4
Naantali-1 2	Fortum	Finland	1964	2028	-39,2
Naantali-1 3	Fortum	Finland	1972	2018	-58,9
Suomenoja 1	Fortum	Finland	1977	2022	-3,2

²⁴ Carbon Tracker Initiative (2017), Lignite of the living dead – Below 2°C scenario and strategy analysis for EU coal power investors. The IEA beyond 2°C scenario provides a 50% chance to keep global warming below 1.75°C.

²⁵ A positive value means that Fortum/Uniper loses value from closing coal plants in line with the IEA well below 2°C scenario, a negative value means that Fortum/Uniper avoids stranded assets by closing the coal plants.

Suomenoja 2	Fortum	Finland	1986	2026	-31,1
Vaertaverket CHP6	Fortum	Sweden	1990	2020	0
Zabrze 1	Fortum	Poland	1976	2020	-17,1
Buer	Uniper	Germany	1985	2021	-42
Emile-Huchet 6	Uniper	France	1981	2028	-15
Gelsenkirchen-Scholven B	Uniper	Germany	1968	2023	-158,2
Gelsenkirchen-Scholven C	Uniper	Germany	1969	2022	-176,5
Grosskrotzenburg Staudinger 5	Uniper	Germany	1992	2018	-193,3
Kiel East	Uniper	Germany	1970	2025	-113,1
Maasvlakte 3	Uniper	Netherlands	2016	2019	-214,4
Petershagen Heyden 4	Uniper	Germany	1987	2021	-202
Provence 5	Uniper	France	1984	2030	0
Ratcliffe 1	Uniper	UK	1968	2020	-72,5
Ratcliffe 2	Uniper	UK	1968	2024	-81,3
Ratcliffe 3	Uniper	UK	1968	2023	-77,6
Ratcliffe 4	Uniper	UK	1968	2018	-9,6
Schkopau A	Uniper	Germany	1996	2020	-46,7
Schkopau B	Uniper	Germany	1996	2018	-52,3
Wilhelmshaven 1	Uniper	Germany	1976	2018	-281,2

Climate Analytics

Climate Analytics developed a methodology to determine a phase-out schedule for coal power units in the European Union.²⁶ It builds on a well below 2°C pathway consistent with the Paris Agreement. The research provides two closure dates for each coal unit based on two perspectives: the regulators perspective prioritises shutting down the most carbon intensive plants first, while the markets perspective prioritises shutting down the least valuable plants in terms of revenue generation potential. Both methods evaluate units on emissions performance and profit generation potential.²⁷

The table below provides an overview of Fortum/Uniper's coal unit closure dates under both perspectives. This analysis does not take into account national coal phase-out plans, as for instance in France: the actual phase-out timeline will thus be more stringent than that presented by the modelling. The closure dates of coal plants that are not compliant with national phase-out commitments are indicated in red. The announced closure date of 2018-2020 for Schkopau made public through the German federal grid agency in November 2018 is also ahead of the schedule outlined below.²⁸

²⁶ ClimateAnalytics (2017), Coal Phase Out in the EU - Detailed Information.

²⁷ ClimateAnalytics (2017), A stress test for coal in Europe under the Paris Agreement.

²⁸ https://www.bundesnetzagentur.de/SharedDocs/Downloads/DE/Sachgebiete/Energie/Unternehmen_Institutionen/Versorgungs_sicherheit/Erzeugungskapazitaeten/Kraftwerksliste/Veroeff_ZuUndRueckbau_2018_3.xlsx (retrieved 28 Nov 2018)

Table 7: Fortum/Uniper coal phase out timeline according to Climate Analytics research coupled with Fortum's plant level corrections

Coal unit	Company	Country	Opening year	Regulator perspective	Market perspective
Meri-Pori 1	Fortum	Finland	1994	2020	2019
Naantali CHP power station Unit 1	Fortum	Finland	1960	2017	2017
Naantali CHP power station Unit 2	Fortum	Finland	1964	2017	2017
Naantali CHP power station Unit 3	Fortum	Finland	1972	2017	2017
Suomenoja 1	Fortum	Finland	1977	2020	2020
Suomenoja 3	Fortum	Finland	1986	2020	2020
Emile-Huchet power station Unit 6	Uniper	France	1981	2024	2025
Provence power station Unit 5	Uniper	France	1984	2027	2025
Datteln Unit 4	Uniper	Germany	2018	2029	2027
Staudinger power station Unit 5	Uniper	Germany	1992	2028	2023
Kiel-A power station	Uniper	Germany	1970	2018	2018
Kiel-Wik 2	Uniper	Germany	1970	2021	2021
Heyden power station Unit 4	Uniper	Germany	1987	2025	2026
Schkopau A	Uniper	Germany	1996	2027	2028
Schkopau B	Uniper	Germany	1996	2027	2028
Scholven power station Unit B	Uniper	Germany	1968	2021	2021
Scholven power station Unit C	Uniper	Germany	1969	2021	2021
Wilhelmshaven power station Unit 1	Uniper	Germany	1976	2019	2019
Maasvlakte Power Station 3	Uniper	Netherlands	2016	2030	2028
Czestochowa Chp 1	Fortum	Poland	2010	2027	2017
Miechowice power station Unit 1	Fortum	Poland	1955	2021	2021
Miechowice power station Unit 2	Fortum	Poland	1955	2021	2021
Zabrze power station Unit 2	Fortum	Poland	1953	2018	2018
Zabrze power station Unit 3	Fortum	Poland	1952	2018	2018
Värtaverket-2 power station Unit 1	Fortum	Sweden	1990	2025	2023
Ratcliffe power station Unit 1	Uniper	UK	1968	2025	2025
Ratcliffe power station Unit 2	Uniper	UK	1968	2025	2025
Ratcliffe power station Unit 3	Uniper	UK	1968	2025	2025
Ratcliffe power station Unit 4	Uniper	UK	1968	2025	2025

The analyses of Climate Analytics uses the information provided in the June 2016 version of the Global Coal Plant Tracker (GCPT). For additional characteristics of the units such as the observed historical load factors and fuel use, which allow for a more accurate estimation of the emissions produced by each plant, the GCPT data was merged with information provided by the 2016 version of the European database for coal power plants hosted and coordinated by Climate Action

Network (CAN) Europe.²⁹ Ownership for some units may have changed and/or some of the units may have been retired since the analysis was undertaken.

Analysis commissioned by German non-governmental organisations

A number of German non-governmental organisations have published studies that model the evolution of coal-fired power generation in line with a 2030 phase out.

The Greenpeace study from 2017 finds that an essential lever to reach Germany’s goals of a 40% reduction in GHG emissions by 2020 (relative to 1990) and a 60-62% reduction of CO2 emissions in the energy sector (relative to 1990) is to increase the share of renewables in the electricity sector and to swiftly reduce generation from coal and lignite power plants.³⁰ Its study showcases a roadmap for decarbonisation assuming a coal and lignite phase-out and a share of 80% renewables in the electricity sector by 2030, while also taking into account the effects on the heating sector through combined heat and power from coal. Consequently, a yearly list for the decommissioning of coal and lignite power plants has been originated. Within this decade 17.8 GW of overall 46.6 GW can be decommissioned without harming security of energy supply.

Table 8: Uniper coal phase out timeline according to Greenpeace research

Plant name	Commissioning year	Retirement data
Datteln	Not included	Not included
Grosskrotzenburg Staudinger	1992	2025
Kiel East	1970	2019
Petershagen Heyden	1987	2026
Schkopau	1996	2025
Scholven/Buer	1968	2019
Wilhelmshaven	1976	2024

In 2018 Greenpeace published study done by Fraunhofer-Institut für Energiewirtschaft und Energiesystemtechnik called “Energieszenario: 2030 coal-free”³¹. The paper is also showing a concrete pathway of how Germany could phase out coal until 2030 and when the biggest power plants should go out of the grid.

BUND states that reducing Germany's coal plant capacity to 20GW by 2020 is essential to reach the reduction target set by the German government (-40% GHG emissions relative to 1990.³² The BUND shutdown plan shows that significantly more coal-fired power plants can be taken off the grid at short notice than has been discussed so far. Under its modelling, the cumulative capacity of lignite-fired power plants falls from 20GW to 10GW (2020) and 7GW (2023), the capacity of hard coal falls from 22.7GW (2017) to 10GW (2020) and 7GW (2023) respectively. Starting in 2024, a further 2GW of coal capacity is to be taken off the grid each year. As a result, CO2 emissions from German coal-fired power plants fall from 224 million tonnes of CO2 (2017) to 84 million tonnes of CO2 in 2023, while emissions from gas-fired power plants will increase only moderately thanks to a simultaneous acceleration in the expansion of renewable energies. Overall,

²⁹ now called the Europe Beyond Coal database

³⁰ Greenpeace (2017), Klimaschutz durch Kohleausstieg.

³¹ https://www.greenpeace.de/sites/www.greenpeace.de/files/publications/2030_kohlefrei_fraunhofer_iee_greenpeace.pdf

³² Bund (2018) https://www.bund.net/fileadmin/user_upload_bund/publikationen/kohle/kohle_bund_abschaltplan_kohle_atom.pdf.

the annual CO₂ emissions of the electricity sector decrease by 122 million tonnes of CO₂ and thus make an important contribution to closing the expected gap (155 million tonnes of CO₂). BUND is proposing the introduction of an additional coal phase-out reserve of 6 GW as a new measure to enable a socially acceptable phase-out of coal and to safeguard security of supply in extreme situations.

Table 9: Uniper coal plants that need to retire by 2020 according to BUND research

Plant name	Commissioning year	Retirement by 2020?
Datteln IV	Assumed not to go online	Assumed not to go online
Grosskrotzenburg Staudinger	1992	No
Kiel East	1970	Yes
Petershagen Heyden	1987	No
Schkopau	1996	No
Scholven/Buer	1968	Yes
Wilhelmshaven	1976	Yes

5. Investor, insurer and bank action

There is a growing consensus amongst leading financial institutions globally that as the world is moving irreversibly towards a low carbon economy, coal power assets are going to be stranded, and hence constitute growing financial and reputational risks. Hence, many investors, insurers and banks have adopted coal policies that have started to affect the access to financing for Fortum and Uniper.

The below gives an overview of these impacts, but also highlights additional action that investors, insurers and banks would need to undertake to bring Fortum and Uniper's business model fully in line with the Paris Agreement.

Tool: the Global Coal Exit List (GCEL)

The 'Global Coal Exit List' (GCEL) is the world's largest coal company database, providing key statistics on 775 companies and their subsidiaries. The database was developed by Urgewald, is open-source, free and can be consulted on <https://coalexit.org/>.

The GCEL includes three categories of coal companies: mining, utility and service companies (i.e. companies that provide services throughout the coal value chain such as dedicated trade, infrastructure, port terminals, finance, etc.). It provides data, key statistics and identifiers (ISIN codes, if available) for each company.

The GCEL includes utilities that qualify for one or more of the 3 following criteria:

- They are planning coal power expansion;
- They have a coal share of revenue/power generation above 30%;
- They operate more than 10 gigawatt of coal capacity.

Uniper is included in the GCEL because its coal share of power production is above 30% (32%), and it has 1 gigawatt of coal expansion plans. Hence, it can be considered a company that deserves higher scrutiny from investors, insurers and banks. This should be of concern to Fortum, given its large ownership share in Uniper.

Impact of investor policies on Fortum and Uniper

A significant number of mainstream European investors have adopted public coal divestment policies. The majority of these policies identify thresholds for revenues or power production from coal.

- Fortum's power production share of coal (4%) is below the two most commonly used thresholds of 30% and 50%. Hence, the company will remain largely unaffected.
- Uniper's power production share of coal (33%) is below the threshold of 50% but above the most commonly used threshold of 30%. Hence, Uniper will be affected by most investor coal policies, including by those adopted by the Norwegian Sovereign Wealth Fund, Allianz, AXA, Generali, Hannover Re, Lloyd's, Munich Re, SCOR, Swiss Re, and Norwegian asset manager Storebrand.

- In addition to identifying companies based on their relative exposure to the coal sector, Axa, Allianz, Candriam, Generali, Storebrand and a growing number of smaller investors also screen companies that are planning new coal plants. This would cover Uniper (i.e. Datteln).

Coal policies of investors are getting more stringent over time, so it can be expected that they will increasingly affect Fortum and Uniper going forward. Investors are also adding pressure through public engagement – as opposed to only engaging in dialogues behind closed doors. Fortum is listed as one of the target companies of the **Climate Action 100+ Coalition** that asks companies (amongst others) to ‘take action to reduce greenhouse gas emissions across their value chain, consistent with the Paris Agreement’s goal of limiting global average temperature increase to well below 2-degrees Celsius above pre-industrial levels’.³³

Impact of insurer policies on Fortum and Uniper

Within a very short period of time, all leading European coal underwriters, except for Hannover Re, Mapfre and the Lloyd’s insurance market, have adopted public criteria restricting their insurance coverage to the coal sector.

- **Allianz, AXA, Generali, Swiss Re and Zurich** have ended underwriting support to stand-alone new coal plants and mines. **Munich Re** has ended similar support in industrialized countries.
- **Swiss Re** and **Zurich** are committed to not provide coverage to companies generating more than 30% or 50% of their power production from coal.
- **Generali** will not provide coverage to new clients that generate more than 30% of their revenues or power production from coal, produce more than 20 million tonnes of coal a year, or are planning new coal plants. Generali is also engaging with existing clients, “monitoring their plans to reduce environmental impacts, their strategy to shift to low-carbon activities and the measures envisaged for protecting the community and citizens”³⁴. Depending on the outcomes of the engagement dialogues in Q1 2019, Generali will decide to either end the property coverage for coal-related activities of these companies or to renew them.
- **Allianz** has committed to fully phase out coal-based business models across its property and casualty portfolios by 2040. This implies that the insurer will have to reduce its exposure to coal companies over time and that clients will have to demonstrate their capacity to fully phase out their coal assets by 2040 or will lose Allianz underwriting support.

Impact of bank policies on Fortum and Uniper

15 European banks have ended direct finance to new coal plants, which to date has been the main focus of banks’ coal policies.³⁵ Policies that restrict corporate loans and shares and bonds underwriting are less developed, but 11 banks have adopted such policies.

To date, the authors of this briefing have not mapped the above-mentioned banks’ involvement in Fortum. However, several banks that are among the top financiers of **Uniper** have adopted policies that are relevant to its activities:

³³ <http://www.climateaction100.org/>

³⁴ Generali’s coal policy can be accessed from this page: <https://www.generali.com/our-responsibilities/our-commitment-to-the-environment-and-climate>

³⁵ Banktrack provides an overview of commercial banks’ coal policies on their website.

- **ING** has committed to ‘by 2025 no longer finance new and existing clients in the utilities sector that are over 5% reliant on coal’.
- **Société Générale** has committed to ‘limit the coal-fuelled part of its financed energy mix (installed MW) at 19% at the end of 2020, in consistency with the IEA 2°C scenario’.³⁶ This implies that the bank has an internal decreasing ‘coal budget’ for new transactions with clients, and that either clients must change their share of energy mix by then or see their financing come to an end.
- **BNP Paribas** conditions its support on the adoption of a “diversification strategy to reduce the share of coal in its power generation”. This could impact companies, such as Uniper, that are still expanding their activity in the coal sector.
- The German bank **Commerzbank** expects clients in Germany in the energy supply sector to limit the share of electricity generated from coal (based on their production performance) to below 30% by the end of 2021. This could impact Uniper, as its coal expansion plans could prevent it from meeting this threshold.

³⁶ Société Générale (2016), Coal-Fuelled Power Sector Policy.

6. Recommendations

Investors, insurers and banks should require Fortum/Uniper to:

- Commit to align their business models with the Paris Agreement and, more concretely, to adopt a time-bound climate science-based target built on a forward-looking climate-scenario analysis.
- Put an immediate end to capital expenditure for new coal plants – notably Datteln IV, which is meant to go into commercial operation in 2020, but also any purchase of coal plants and any retrofitting of existing coal plants that leads to life extensions. Datteln IV should not be brought online anymore.
- Publish a clearly articulated roadmap for the gradual closure (not sale) of existing coal plants, ending at the latest in 2030 in EU/OECD countries and in 2040 globally, taking in account national phase-out plans and building on forward-looking climate scenario and incorporating just transition plans for the affected communities and workers.
- The roadmap should take into account that Fortum and Uniper have approx.. 7GW in 4 European countries that have committed to phase out coal (Finland, France, Netherlands and UK) and approximately 5GW in one country (Germany) that is discussing a coal phase-out. Fortum/Uniper can also draw on granular analysis provided by Carbon Tracker Initiative, Climate Analytics, Fraunhofer Institute and non-governmental organisations (Greenpeace, BUND)

Investors, insurers and banks should also adopt ‘no coal policies’ along the lines of the ‘principles and approaches for impactful public coal policies’ that were developed by the Europe Beyond Coal campaign (see box below).

Europe Beyond Coal’s principles and approaches for impactful and meaningful public coal policies for financial actors

In order to meet the UN Paris Climate Agreement goals of limiting “global average temperature to well below 2 °C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5 °C”, no new coal power capacity may be built and coal power will need to be phased out in the coming years. Investors have recently acknowledged climate science research that supports the need to phase out coal by 2030 in the European Union and in Organisation for Economic Co-operation and Development (OECD) countries; by 2040, in China; and by 2050, in the rest of the world. More recent analysis by the IEA ‘beyond 2°C scenario’ indicates that non-OECD countries should phase out production from coal power even earlier, by 2040.

A. Overall commitment: to mitigate climate and financial risks associated with the coal sector, finance actors* should adopt a public “no coal policy”, which supports the alignment of their business models with climate science-based targets that are consistent with the goals of the UN Paris Climate Agreement. This implies that finance actors should commit to over time (2030 in OECD/Europe, 2040 globally) eliminate coal assets from all business lines,

and that all coal companies in which they are involved should either be actively engaged with or divested from.

B. Exclusion criteria for coal projects: as a consequence, finance actors should not provide or renew direct support to coal plants/mines/infrastructures worldwide - including project finance and other dedicated finance support, advisory mandates, insurance underwriting, investment.

C. Assessment criteria for exclusion of coal companies: the criteria below capture companies that are currently either expanding or are highly exposed to coal, in relative as well as absolute terms:

- Companies with coal expansion plans, including the construction/development/expansion of coal plant/mine/infrastructure, and life extension of existing coal plants through retrofit, acquisition of existing coal assets;
- Companies producing more than 20 Mt of coal per year, or with over 10 GW of coal power capacity;
- Companies that generate more than 30% of revenues from coal mining or produce more than 30% of power from coal.

By applying these criteria to their financial universe, finance actors can identify which companies are currently unlikely to be able or be unwilling to transition rapidly enough to a 100% renewables-based energy system, and reconsider financial support** accordingly. These criteria should become stricter over time, as the deadline for a complete coal phase-out is approaching.

D. Criteria for engagement with coal companies: additional criteria need to apply to companies that own coal assets, but are considered to still have an opportunity to transition rapidly enough to a 100% renewables-based energy system. By applying targeted and impactful engagement*** finance actors should ask those respective companies to:

- Adopt, within one year maximum, a decarbonisation target to gradually align their business model with the UN Paris Climate Agreement.
- Publish, within two years maximum, a clearly articulated and detailed implementation plan for the gradual closure (not sale) of existing coal plants and mines, exiting coal at the latest in 2030 in the OECD and in Europe, and in 2040 in the rest of the world.

By applying these four recommendations, a finance actor will achieve zero coal exposure within the respective decarbonisation timeframes.

*Finance actors include banks, insurers and investors.

**Financial services include lending, underwriting, advisory, insurance coverage and investment with regards to own accounts as well as third parties.

***Financial institutions must gradually reduce/remove financial support within set timeframes (6, 12, 18, 24 months) if the engagement process does not lead to significant results.

This paper was issued **by the Europe Beyond Coal campaign in December 2018.**

Europe Beyond Coal is an alliance of civil society groups working to catalyse the closures of coal mines and power plants, to prevent the building of any new coal projects and hasten the just transition to clean, renewable energy and energy efficiency. Our groups are devoting their time, energy and resources to this independent campaign to make Europe coal free by 2030 or sooner. beyond-coal.eu

These organisations have contributed to the development of the paper:

- Banktrack
- Sandbag
- The Sunrise Project
- Urgewald
- WWF European Policy Office
- WWF Finland

Disclaimer

This publication and related materials are not intended to provide and do not constitute financial or investment advice. Europe Beyond Coal campaign or the organizations that have contributed to the development of this briefing make no representation regarding the advisability or suitability of investing in or divesting any particular company, investment fund or other vehicle or of using the services of any particular entity, pension provider or other service provider for the provision of investment services. A decision to invest in or to divest should not be made in reliance on any of the statements set forth in this publication. Whilst every effort has been made to ensure the information in this publication is correct, we cannot guarantee its accuracy and Europe Beyond Coal campaign or the organizations that have contributed to the development of this briefing shall not be liable for any claims or losses of any nature in connection with information contained in this document, including (but not limited to) lost profits or punitive or consequential damages or claims in negligence.