The energy management system is being switched stepwise to a uniform digital basis for all sites, supporting all steps from energy data capture through data analysis to monitoring the action taken. The benefits of the digital energy management system (DEnMS) are increased global data transparency and, in particular, faster, automated availability of real-time data at plant level.

Regular exchange formats ensure that the specialists for production, sustainability, and energy efficiency at our sites and in the divisions, functions, and regions share experience to strengthen the global best practice network. Networking is supported by the continuous expansion of our global knowledge platform on the energy management system. 302-1, 302-4

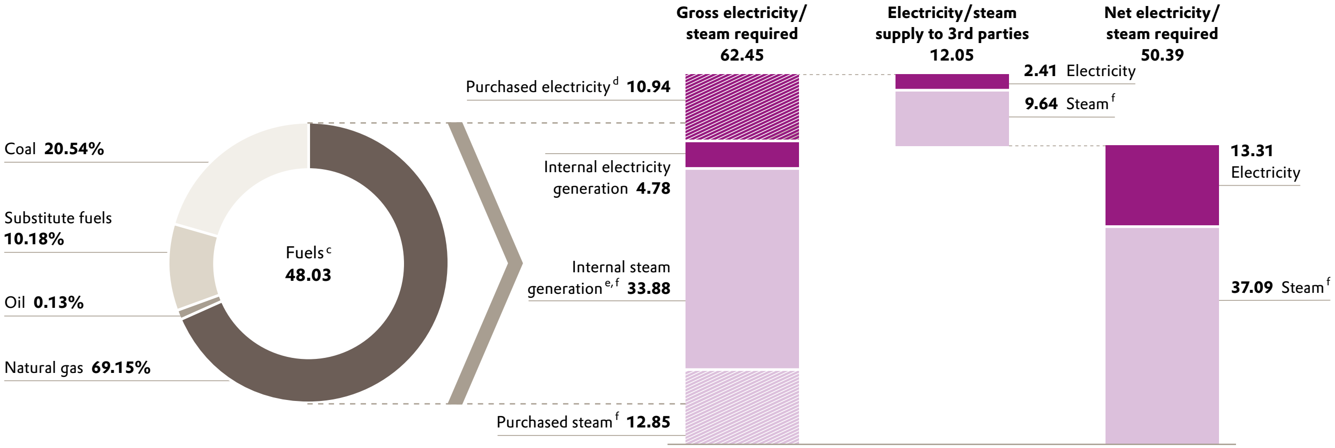
Energy data

In our energy reporting, we distinguish between primary energy inputs, generally fossil fuels used to generate electricity and steam, and secondary energy inputs. These mainly comprise purchased electricity and steam. We also use substitute fuels such as thermal processing of by-products, waste, and sewage sludge.

At present, natural gas and coal are Evonik's main fuels. The coal-fired power plant in Marl (Germany) will be decommissioned at the end of March 2024. That will end coal-fired power generation by Evonik worldwide. Coal will then be a negligible component of our energy mix.

In addition to natural gas-fired generation of electricity and steam for captive use, large amounts of process heat from exothermic reactions, for example, from the production of acrolein, are used in integrated heating systems.

Evonik's energy data 2023 [a, b] 302-1, 302-4 C15



[a] In petajoules.
[b] Contains the energy required to generate refrigerants. Does not include cooling energy sold to third parties.
[c] Fossil fuels and substitute fuels used by Evonik for internal energy generation.
[d] Excluding trading and excluding supply of purchased electricity to third parties in Germany.
[e] Including process heat, e.g., from acrolein production.
[f] Conversion factor: 2.8 * 10^{-6} PJ per metric ton steam.

Thanks to the coordinated operation of the power plants in Marl, there was a stronger shift in our energy mix towards natural gas in 2023. Increased use was made of the new, highly efficient gas and steam turbine power plants. Together with the higher availability of the power plants and the actual market prices, there was a significant rise in power sold to third parties. There was a significant reduction in the availability of substitute fuels due to the substantial drop in production activity. Heating oil now only plays an insignificant role in the energy mix. It is only used for auxiliary firing systems in the coal-fired power plant I in Marl. Moreover, insignificant amounts are required for emergency generators at some sites. The change in absolute and specific net energy input versus 2020 mainly reflects the trend in production.

Energy inputs 302-1, 302-3, 302-4, 302-5 **T08**

in petajoules	2020	2022	**2023**
Total fuels	54.59	50.49	48.03
Natural gas	*30.42*	*33.12*	*33.21*
Coal	*15.97*	*11.22*	*9.86*
Substitute fuels	*8.11*	*6.06*	*4.89*
Oil	*0.09*	*0.08*	*0.06*
Purchased electricity	9.17	10.70	10.94
Electricity sold	1.59	0.83	2.41
Purchased steam	12.84	13.78	12.85
Steam sold	10.10	9.51	9.64
Gross energy input[a]	76.59	74.96	71.82
Net energy input[b]	64.90	64.63	59.77
Change in net energy input versus 2020 in %	**0**	**0**	**–8**
Production in million metric tons	8.93	8.38	7.50
Specific net energy input in petajoules per million metric tons production	7.27	7.71	7.97
Change in specific net energy input versus 2020 in %	**0**	**6**	**10**

[a] Fuel inputs plus purchased electricity and steam.
[b] Fuel inputs plus purchased electricity and steam less electricity and steam supplied to third parties.

Water management

Strategy and management

We save water wherever possible and endeavor to achieve a further reduction in our emissions. In the reporting period, Evonik adopted a water policy and published it on its website. **More**. Our aim is to reduce specific freshwater intake by 3 percent relative to production volume between 2021 and 2030. This is to be achieved by a wide range of measures at our production sites. These measures were identified as part of the EAGER project p. 49. Integrated heat management measures can reduce the demand for cooling water, which in turn reduces the demand for freshwater. For example, our Active Oxygens business line has planned power-to-heat (PtH) projects for the period up to 2030. These include, for example, installing heat pumps in Europe, which should avoid around 35,000 metric tons of CO_2 and save more than 3 million m^3 of water a year. Process improvements help reduce freshwater intake. For instance, the Animal Nutrition business line has reduced water consumption by about 40 percent per metric ton of methionine at its facility in Mobile (Alabama, USA) by improving resource management at the site. In Antwerp (Belgium), Evonik is planning to use treated municipal wastewater instead of drinking water for its cooling towers in the future. Furthermore, there are plans to use the treated wastewater for steam generation, chemical processes, and in the desalination plants at this site. Based on full capacity utilization, this should allow savings of around 2.5 million m^3 of drinking water a year at this site from 2026 and reduce freshwater requirements by a further 10 percent. In view of this, the municipal water utility in Antwerp is planning to build a cooling water factory with several technology companies in the next three years to recycle and treat municipal wastewater.

We are also continuing our work on established water management topics, including monitoring our sites in water stress areas. Adequate availability of water for cooling and production processes plays a key role in our production activities. We therefore regularly analyze the short-, medium-, and long-term water risks at our sites. In the reporting period, we therefore widened our analysis of water stress at our sites to encompass a holistic assessment of water risks. We use the WWF[1] Water Risk Filter to analyze various physical risk aspects such as water stress, flooding, and water quality. In addition, we evaluate reputational risks, such as water conflicts and media scrutiny, and regulatory risks. Another focus is on the 2030 and 2050 time horizons, based on the TNFD[2] climate scenarios. The AWARE[3] method,

[1] World Wide Fund For Nature.
[2] TNFD = Task Force on Nature-related Financial Disclosures.
[3] AWARE = Available WAter REmaining.