We inspire
with energy.

Sustainability Report 2022

Our future:
#climatepositive

Contents

MVV at a Glance

ADJUSTED SALES

4.2 Euro billion

ADJUSTED EBIT EXCLUDING DISPOSAL GAINS

298 Euro million

INVESTMENTS

335 Euro million

EMPLOYEES

6,556

DIRECT CO_2 EMISSIONS (SCOPE 1)

3,647 tonnes 000s

INDIRECT CO_2 EMISSIONS (SCOPES 2 AND 3)

5,219 tonnes 000s

RENEWABLE ELECTRICITY GENERATION CAPACITY

614 MW_e

RENEWABLE ELECTRICITY GENERATION VOLUMES

1,295 kWh million

GREEN HEAT GENERATION CAPACITY

861 MW_t

GREEN HEAT GENERATION VOLUMES

2,662 kWh million

COMPLETED DEVELOPMENT OF NEW RENEWABLE ENERGIES PLANTS

476 MW_e

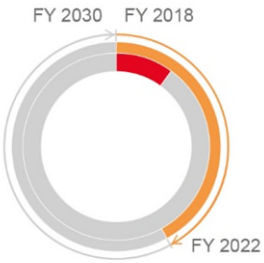
OPERATIONS MANAGEMENT FOR RENEWABLE ENERGIES PLANTS

3,779 MW_e

Target achievement for our sustainability and decarbonisation targets FY 2022

REDUCTION IN ENERGY INDUSTRY CO_2 (SCOPE 1)

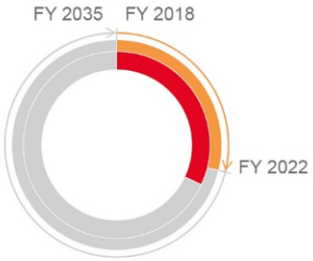
Shares (%)



	FY 2022
Time passed	42
Target share reached	10

REDUCTION IN CO_2 (SCOPES 2 AND 3)

Shares (%)



	FY 2022
Time passed	29
Target share reached	32

RENEWABLE ENERGIES ELECTRICITY GENERATION CAPACITY

Shares (%)

	FY 2022
Time passed	60
Target share reached	43

COMPLETED DEVELOPMENT OF NEW RENEWABLE ENERGIES PLANTS

Shares (%)

	FY 2022
Time passed	60
Target share reached	32

INVESTMENTS

Shares (%)

	FY 2022
Time passed	60
Target share reached	59

2022

MVV in Figures

	FY 2022	FY 2021	% change
Financial key figures			
Sales and earnings			
Adjusted sales excluding energy taxes (Euro million)	4,199	4,131	+ 2
Adjusted EBITDA [1] (Euro million)	564	482	+ 17
Adjusted EBITDA excluding disposal gains	509	479	+ 6
Adjusted EBIT [1] (Euro million)	353	278	+ 27
Adjusted EBIT excluding disposal gains	298	275	+ 8
Adjusted annual net income [1] (Euro million)	249	177	+ 41
Adjusted annual net income after minority interests [1] (Euro million)	176	150	+ 17
Capital structure			
Adjusted total assets at 30 September [2] (Euro million)	6,888	5,815	+ 18
Adjusted total assets excluding margins at 30 September [2, 3] (Euro million)	5,434	4,994	+ 9
Adjusted equity at 30 September [2] (Euro million)	1,863	1,662	+ 12
Adjusted equity ratio at 30 September [2] (%)	27.1	28.6	– 5
Adjusted equity ratio excluding margins at 30 September [2, 3] (%)	34.3	33.3	+ 3
Net financial debt at 30 September (Euro million)	32	628	– 95
Net financial debt excluding margins at 30 September [3] (Euro million)	1,449	1,450	0
Cash flow and investments			
Cash flow from operating activities (Euro million)	952	1,203	– 21
Cash flow from operating activities excluding margins [3] (Euro million)	357	360	– 1
Investments (Euro million)	335	306	+ 9
Value performance			
ROCE (%)	16.2	10.2	+ 59
ROCE excluding disposal gains (%)	13.7	10.1	+ 36
ROCE excluding margins [3] (%)	10.7	8.9	+ 20
ROCE excluding disposal gains and excluding margins (%)	9.0	8.8	+ 2
WACC (%)	6.6	5.9	+ 12
Value spread (%)	9.6	4.3	>+ 100
Value spread excluding disposal gains (%)	7.1	4.2	+ 69
Value spread excluding margins [3] (%)	4.1	3.0	+ 37
Value spread excluding disposal gains and excluding margins (%)	2.4	2.9	– 17
Capital employed (Euro million)	2,178	2,715	– 20
Capital employed excluding margins [3] (Euro million)	3,298	3,115	+ 6
Share			
Dividend per share [4] (Euro)	1.05	1.05	0
Adjusted earnings per share [1] (Euro)	2.67	2.28	+ 17

1 Excluding non-operating measurement items for financial derivatives, excluding structural adjustment for part-time early retirement and including interest income from finance leases

2 Excluding non-operating measurement items for financial derivatives

3 Excluding collateral deposited at MVV for counterparty default risks (margins)

4 Subject to approval by Annual General Meeting on 10 March 2023

	FY 2022	FY 2021	% change
Non-financial key figures			
Direct CO_2 emissions (Scope 1) [1, 2] (tonnes 000s)	3,647	3,510	+ 4
Indirect CO_2 emissions (Scope 2) [1, 2] (tonnes 000s)	147	115	+ 28
Indirect CO_2 emissions (Scope 3) [1, 2] (tonnes 000s)	5,072	5,310	– 4
Electricity generation capacity from renewable energies [1, 3] (MW_e)	614	564	+ 9
Renewable energies as share of proprietary electricity generation [1] (%)	32	32	0
Electricity generation volumes from renewable energies [1, 4] (kWh million)	1,295	1,217	+ 6
Green heat generation capacity [1] (MW_t)	861	793	+ 9
Green heat as share of proprietary heat generation [1, 5] (%)	39	36	+ 8
Green heat generation volumes [1, 2, 5] (kWh million)	2,662	2,561	+ 4
Completed development of new renewable energies plants (MW_e)	476	610	– 22
Operations management for renewable energies plants (MW_e)	3,779	3,811	– 1
Number of employees at 30 September (headcount)	6,556	6,470	+ 1
of which women	1,864	1,825	+ 2
of which men	4,692	4,645	+ 1
of which full-time employees	5,529	5,513	–
of which part-time employees	1,027	957	+ 7
Number of trainees at 30 September (headcount)	335	340	– 1
Share of female managers at 30 September (%)	16	14	+ 14
Accident frequency rate (LTIF) [6] (number of accidents per 1,000,000 hours of work)	3.7	4.1	– 10

1 Fully consolidated and at-equity companies

2 Previous year's figure adjusted

3 Including electricity generation capacity from wind turbines for repowering at 30 September 2022 (30 MW)/30 September 2021 (20 MW)

4 Including electricity generation volumes from wind turbines for repowering at 30 September 2022 (21 million kWh)/ 30 September 2021 (14 million kWh)

5 Heat from biomass, biogas and energy from waste plants, including RDF plants

6 Figures for 2021 and 2020 calendar years

Foreword

Dr. Georg Müller
CEO of
MVV Energie AG

DEAR LADIES AND GENTLEMEN,

Since Russia invaded Ukraine, it may seem that the target set out in the Paris Climate Agreement of limiting global warming to 1.5 degrees has receded into the background – whether among lawmakers, in public discourse or in the minds of each and every one of us. It is a fact: The strict pursuit of climate protection targets has been impeded in the short term by the urgent need to uphold supply reliability, restabilise energy markets and ease the burden both on consumers and on industry. However, this short-term reprioritisation has in no way changed Germany's fundamental long-term course towards a modern, forward-looking and climate-neutral energy supply. Energy policy remains clearly focused on significantly accelerating the expansion in renewable energies, providing targeted support for the green heat supply and further reducing CO_2 emissions.

That also holds true for MVV. National and international climate protection efforts and legal initiatives confirm us on this strategic course. After all, we set clear principles for our future many years ago already: With our Mannheim Model and its three aspects of heat transition, electricity transition and green customer solutions, we will become #climate-positive by 2040 at the latest. Given the events of the past year and the associated energy crisis, this course appears more appropriate and important than ever. We report on our Mannheim Model, to which our large municipal utility shareholdings in Kiel and Offenbach are of course also contributing, under **GRI 2-22, Page 18,** as well as in the Corporate Strategy chapter of our 2022 Annual Report **www.mvv.de/AR2022, Page 21 onwards.**

MVV is not only contributing to meeting the 1.5-degree target in the Paris Climate Agreement, but will also achieve climate neutrality. We received confirmation of this from the Science Based Targets initiative (SBTi) in autumn 2022. Based on the strictest level of science-based corporate climate protection in Germany and internationally, the SBTi validated our plans as being "net zero compatible". This independent assessment certifies that we actually can reduce our CO_2 emissions to net zero, and that both in our own operations and in our supply chains, i.e. at our customers and suppliers. And we will achieve this without offsetting residual CO_2 emissions!

To continuously implement the energy transition at MVV while upholding supply reliability, we are investing a total of Euro 3 billion in the period between 2016 and 2026. In the 2022 financial year, we invested Euro 335 million – the highest volume of investment in the past six years. One major milestone as we head for green heat, for example, is the construction of an innovative river heat pump on the Rhine. With a thermal capacity of around 20 megawatts and electrical capacity of 7 megawatts, this will help to make Mannheim's district heat green. We plan to launch operations officially before the end of 2023. 💻 **MVV Flusswärmepumpe Mannheim.** Furthermore, we are refitting our biomass power plant to use waste heat and will also be connecting this to the district heat grid, in this case during 2024. A further component in decarbonising our district heat is deep geothermal energy. The Upper Rhine Rift Valley is thought to be one of the most productive regions in Europe. To this end, we have founded the joint venture GeoHardt together with EnBW. GeoHardt is investigating preferred areas for geothermal energy facilities to the south of Mannheim and has identified a potential site of around 7,000 hectares. Initial 3D seismic measurements have been performed. Moreover, in spring 2022 we concluded a cooperation agreement with Vulcan Energy. Assuming it successfully identifies sources, starting in 2025 Vulcan will be able to supply renewable heat from a geothermal CHP plant it intends to build close to Mannheim.

To promote the electricity transition, in summer 2022 we merged Juwi and its associate Windwärts to form an effective unit – the new Juwi – under the auspices of MVV. Furthermore, we extended our proprietary generation portfolio by several solar plants and a further windfarm in the year under report.

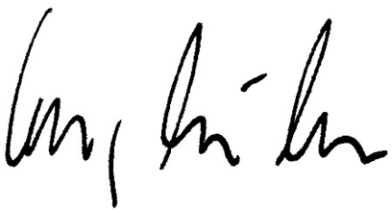
This brings me to the third pillar of our Mannheim Model: green products and solutions for our customers. Since the start of the 2022 financial year, MVV has owned Avantag, a company which specialises in developing large-scale rooftop photovoltaics systems, particularly for industrial roofs. We have thus supplemented our range of solutions for B2B customers. And we are also continually extending our product portfolio enabling retail and business customers to implement their own energy transitions.

Our non-recyclable waste and biomass incineration plants also form part of our Mannheim Model and contribute to the three aspects. At our combined heat and power plant in Mannheim, we are currently integrating a phosphorous recycling facility that will enable us to recover the phosphorous contained in sewage sludge. We expect to ignite the fire in the first rotary furnace in spring 2023. The official launch of operations at the plant is scheduled for summer 2023. From then on, it will efficiently treat sewage sludge from the region and recover 90 percent of the valuable resource of phosphorous. In Saxony-Anhalt, we launched our second bio-waste anaerobic digestion plant in the year under report. This feeds the biomethane it generates into the regional gas grid.

You can see: We are channelling all our energies into becoming #climatepositive from 2040 at the latest. #climatepositive means we will remove greenhouse gases from the atmosphere. Biomass plants and energy from waste plants can both make a contribution here: By adding carbon capture technologies and storing the CO_2 on a long-term basis, or putting it to other use, these plants can become large-scale industrial CO_2 sinks. We will start building a first pilot carbon capture plant in Mannheim before the end of the 2023 financial year. We owe the fact that these and other innovative solutions can actually be turned into reality to our 6,500 employees. With their commitment and a great deal of team spirit, they are all working together to promote decarbonisation. On behalf of the entire Executive Board, I would like to thank them for this!

We would also like to thank you, our readers, for your interest in our Sustainability Report. This report includes information based on the TCFD transparency recommendations, our contribution to the Sustainable Development Goals and our progress report to the UN Global Compact. We signed the UN Global Compact because we are committed to human rights, fair working conditions and environmental protection and absolutely reject corruption and bribery. You can find our reporting on the EU Taxonomy in the Combined Non-Financial Declaration in our Annual Report 💻 **www.mvv.de/AR2022, Page 87 onwards.**

Yours faithfully,



Dr. Georg Müller
CEO

About This Report

In this Sustainability Report, we document information about sustainability at MVV in accordance with the Sustainability Reporting Standards of the Global Reporting Initiative (GRI). The GRI Content Index on 🗋 **Page 68** provides an overview of the material topics for our Group, the related GRI topic standards and the disclosures on topics of importance to MVV. We identified these topics by means of a materiality analysis that we describe under **GRI 3-1,** 🗋 **Page 23.** With the publication of this Sustainability Report, we have met the transparency requirements of our stakeholders in customary form and exceeded our statutory reporting obligations. We present all data for the Group, i.e. for all fully consolidated companies and companies recognised at equity. We additionally state part of the data without including companies recognised at equity. Any data that we exclusively collect and publish on a calendar-year basis is correspondingly indicated. Individual items of data to which we refer for comparative purposes and which are based on external sources are not collected each year. This report presents significant sections of our Progress Report pursuant to the UN Global Compact, 🗋 **Page 72,** and shows how we are contributing to the UN Sustainable Development Goals, further details on 🗋 **Page 73.** In this report, we have newly included an overview of the transparency recommendations of the Task Force on Climate-related Financial Disclosures (TCFD), 🗋 **Page 74.**

The Sustainability Report has been published in German and in English. It is published in electronic form on our website at 💻 **www.mvv.de**. Furthermore, all of MVV's financial reports can be downloaded from our website. We meet the obligation imposed on us by the German Commercial Code (HGB) to publish a Combined Non-Financial Declaration (NFD) in our Annual Report 💻 **www.mvv.de/AR2022, Page 50 onwards.**

Editorial notes

Within this report, we denote indications and references as follows:

💻 Reference to other information on the internet

🗋 Reference to other information in this report

The page references in the tables in the GRI Content Index on 🗋 **Page 68** also refer to this Sustainability Report.

All references to people in this report denote people of all gender identities.

Forward-looking statements are based on current assumptions and assessments made on the basis of the information available to us. Although the Executive Board is convinced that the assumptions made and the budgets are accurate, the high volume of current uncertainties and numerous internal and external factors mean that actual developments and actual results in future may deviate from the forward-looking statements.

GRI 2: General Disclosures

1. Organisation and Reporting Practices

GRI 2-1 Organisational details

MVV Energie AG, Mannheim, Germany, is a publicly listed stock corporation and the parent company of the MVV Group. The City of Mannheim indirectly holds 50.1 % of the shares in the company, while First Sentier Investors owns a 45.1 % stake; the other shares (4.8 %) are in free float.

The largest locations of our group of companies are in Germany (Mannheim, Kiel, Offenbach and Wörrstadt) and the UK (Plymouth and Dundee). An overview of all countries in which we are present can be found in the list of shareholdings in the Annual Report **www.mvv.de/AR2022, Page 199 onwards.** This list of shareholdings also includes our former Czech subsidiary MVV Energie CZ and its shareholdings. We sold these to Cube Infrastructure Managers and completed the transaction on 9 December 2022.

GRI 2-2 Entities included in the organisation's sustainability reporting

As the publicly listed parent company of the MVV Group, MVV Energie AG directly or indirectly owns shares in the companies which form part of the Group and also has its own operations. An overview of all companies in which we held shareholdings as of the balance sheet date can be found in the list of shareholdings in our Annual Report **www.mvv.de/AR2022, Page 199 onwards.** We outline our approach to consolidation in the notes to the consolidated financial statements **www.mvv.de/AR2022, Page 133 onwards.**

Our reporting basically refers to MVV and to all subsidiaries consolidated either in full or at equity in the consolidated financial statements. In addition, in this Sustainability Report we also publish data on specific topics from the perspective of "fully consolidated companies".

GRI 2-3 Reporting period, frequency and contact point

Unless otherwise indicated, the information we provide in this Sustainability Report refers to our most recently concluded financial year (1 October to 30 September). The balance sheet date is 30 September of the respective financial year. This reporting period corresponds to that in our Annual Report. In individual cases, we report data based on the calendar year; where applicable, we have indicated this in the relevant tables. More up-to-date information was not available as of the publication date. That is due, for example, to the fact that certain technical parameters are only collected on a calendar-year basis. Our Sustainability Report is published on an annual basis. The contact point for questions regarding the report is:

Dr. Mathias Onischka
Head of Sustainability Department
mathias.onischka@mvv.de.

GRI 2-4 Restatements of information

We have adjusted previous year's figures to account, for example, for changes in specialist allocations; we denote such adjustments by adding footnotes to the relevant tables.

GRI 2-5 External assurance

This Sustainability Report was not subject to any external assurance in the year under report. The Combined Non-Financial Declaration (NFD) published in our Annual Report was subject to a limited assurance engagement conducted by PricewaterhouseCoopers GmbH Wirtschaftsprüfungsgesellschaft (PwC), Munich. The information provided in the NFD **www.mvv.de/AR2022, Page 50 onwards,** on sustainability aspects requiring consideration pursuant to the German Commercial Code (HGB) has been included in this Sustainability Report.

2. Activities and Workers

GRI 2-6 Activities, value chain and other business relationships

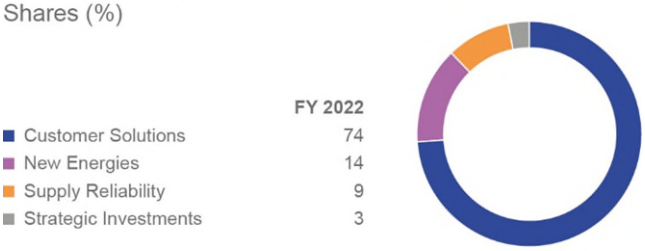
We cover all key stages of the energy industry value chain and, based on calculations compiled by the Association of the German Energy and Water Industries (BDEW), are one of Germany's leading energy companies. We are active in the energy generation, energy supply and renewable energies sectors in Germany and abroad. We explain MVV's business model in the chapter **Business Model**
www.mvv.de/AR2022, Page 20.

MVV's value creation covers the following main activities, products and services:

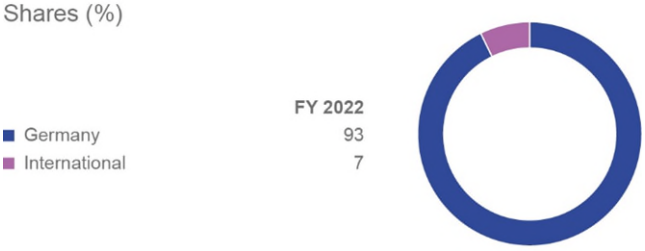
- Procuring, processing and marketing electricity and natural gas in the international wholesale business and marketing electricity generated from renewable energies on a decentralised basis
- Procuring waste, biomass and, to a minor extent, coal
- Generating electricity, heat and biomethane
- Developing new generation plants, especially onshore wind turbines and photovoltaics systems, for proprietary operation and on behalf of third parties
- Operating and maintaining electricity, natural gas, district heat and water grids, as well as energy storage facilities
- Supplying electricity, gas, heat and water to end customers and secondary distributors
- Producing and processing drinking water and supplying it to retail, business and industrial customers, as well as to other municipal water suppliers
- Incinerating and recovering resources from waste, including planning, building, operating and maintaining suitable plants
- Planning and building IT data centres and providing digital and other services to industrial customers, SMEs and IT companies
- Providing energy-related services for buildings, retail, SME and industrial customers.

We did not sell any products or services that are prohibited in the respective markets in the period under report.

ADJUSTED SALES EXCLUDING ENERGY TAXES BY REPORTING SEGMENT
Shares (%)



ADJUSTED SALES EXCLUDING ENERGY TAXES BY REGION
Shares (%)



MVV's supply chain

We exercise influence on topics relating to sustainability along our upstream and downstream supply chains as well. In the upstream supply chain, for example, we can decide who we wish to do business with and which minimum requirements we place in our suppliers. Key factors influencing our supplier selection from a non-financial perspective include the topics of anticorruption measures, human rights, employee rights, including work safety, and environmental protection. We aim to avoid any situation in which activities along our value chain have or favour any harmful impacts on human rights or the environment. In our Annual Report, we describe our procurement and business terms for suppliers in the chapter **Combined Non-Financial Declaration** **www.mvv.de/AR2022, Page 83**.

Material factor: commodities
The energy industry supply chain is greatly influenced by fuel trading, which is handled on energy exchanges or in bilateral agreements. The majority of our procurement volumes involve energy carriers such as electricity and natural gas. We typically hedge these by way of financial transactions but do not physically procure them. In recent years, there has been increasing public interest in the greenhouse gas emissions resulting from the production and transport of natural gas. This relates in particular to natural gas from Russia and to liquefied natural gas (LNG) from overseas. The topic of energy security also became more important in the year under report. Due to the discontinuation of Russian gas supplies, Germany is obliged to draw on alternative sources of natural gas, including liquefied natural gas (LNG) in particular. Depending on the procurement source, this may give rise to new ecological issues, ranging from local environmental protection to increased CO_2 emissions in the upstream supply chain. MVV does not procure the natural gas volumes it needs from the respective source countries itself, but rather from importers. We analyse the issues involved very closely but cannot influence these directly. Furthermore, we procure agricultural and forest biomass in accordance with the criteria set out in Article 29 of Directive (EU) 2018/2001, as well as biomass meeting the concept of waste and old timber in Classes I to IV. We occasionally receive enquires as to the origin of the hard coal used at power plants and whether we exert influence on production conditions at the coal mines. The only coal-fired plant we operate ourselves is the CHP plant in Offenbach. For this, we directly procured around 125 thousand tonnes of hard coal in the year under report. Until the outbreak of the war in Ukraine, most of this hard coal came from Russia. Since then, this fuel has mainly been procured from South Africa and Latin America. We do not have any direct contractual relationships to mine operators but, given the low volumes involved, procure the fuels via intermediaries. Not only that, our very low volume of demand means that we have hardly any possibility of exerting influence on location. The power plant Grosskraftwerk Mannheim AG (GKM), where we are minority shareholders, also makes use of hard coal. Here, we have no direct influence on business activities and fuel procurement, as we ourselves are not the operators of the plant. We are nevertheless aware of our responsibility and endeavour to ensure that the coal industry respects human rights and makes a positive contribution to the social and economic livelihoods of workers, producers and communities by discussing sustainability topics closely with GKM and requesting information. GKM has been a member of the Better Coal Initiative since March 2021.

Low volume of non-commodities
Apart from energy procurement our other procurement volumes are comparatively low, corresponding to only around one fifth of commodity procurement. They mostly involve procuring goods, construction services and highly qualified services from contract partners often known to us for many years. Based on separate analysis, we also address the major potential risks further upstream in our supply chain. In this, we also perform detailed analyses of the CO_2 footprints of the products and solutions we procure and account for these in our climate balance sheet. The cross-location team of experts we have established for this purpose acts early to assess the respectively valid legal requirements, discusses these and current developments in central procurement and implements measures to shape further developments. This team of experts includes procurement staff, legal experts, our Human Rights Officer and our sustainability management. In a process managed by this expert team, during the 2023 financial year our suppliers will be subject to an automated risk review that will compile individual sustainability risk profiles. Since the beginning of 2023, we have actively contributed as a founding member to the "Energy Industry Sector Dialogue". Together with non-government organisations (NGOs), this group discusses and addresses human rights-related and environmental topics along global supply and value chains.

In terms of our downstream supply chain, our products and services enable our customers to analyse and reduce their energy consumption. One key focus in the current situation is energy saving. With our #MonnemSpartEnergie (Mannheim saves energy) campaign, for example, we are working together with the Mannheim Climate Protection Agency. We were also one of the first energy companies to introduce a bonus campaign providing people living in the region covered by MVV Netze with rewards for saving gas. We ourselves are investing in climate-neutral decentralised energy solutions and drawing on a variety of measures to save energy at our own business locations.

Other relevant business relationships

There were no significant changes to the organisation, the sector, the supply chain and relevant business relationships in the year under report compared with the previous year.

GRI 2-7 Employees

As of the balance sheet date, we had a groupwide total of 6,556 employees, of which 1,004 abroad. Of these, 502 employees worked at the Czech subgroup now sold, 305 at Juwi's shareholdings and 159 at the UK subsidiaries of MVV Umwelt. The growth in the workforce is due above all to increased numbers of employees in our growth fields. The data we provide on our employees refers to the balance sheet date. The respective headcounts are recorded and processed on a decentralised basis. We then centrally aggregate and evaluate the data.

Where possible and depending on the tasks involved, we offer a variety of working hours models to our employees. These include part-time employment, flexible working hours and job sharing, thus enabling employees to combine their working life with their personal needs. At just under 16 %, the share of part-time employees at our companies rose by around 7 % compared with the previous year. At MVV, trainees and interns, for example, also count as temporary employees. Apart from these, the number of temporary employees is negligible. The same applies to the number of employees without a fixed number of hours. As in the previous year, there were no significant fluctuations in our employee key figures in or during the year under report. We report extensively on the concerns of our employees from **Page 60 onwards.**

GRI 2-8 Workers who are not employees

We only draw on temporary employees to a minor extent. This is the case, for example, when temporary support is required because of employees being absent due to parental leave or illness.

Employee key figures

	Women	Men	**FY 2022**	FY 2021
Number of employees	1,864	4,692	**6,556**	6,470
Germany	1,649	3,903	5,552	5,520
AMERICAS region	9	33	42	59
APAC region	36	72	108	102
EMEA region	170	684	854	789
of which part-time employees	724	303	**1,027**	957
Germany	705	287	992	935
AMERICAS region	–	–	–	–
APAC region	1	1	2	1
EMEA region	18	15	33	21
of which permanent employees	1,654	4,242	**5,896**	5,793
Germany	1,450	3,483	4,933	4,898
AMERICAS region	9	33	42	59
APAC region	36	69	105	91
EMEA region	159	657	816	745
of which trainees [1]	85	250	**335**	340
Average age (years)	42.7	44.3	**43.8**	43.9
Average length of service (years)	11.9	12.8	**12.6**	12.9
Number of employees on parental leave [2]	90	116	**206**	200
Staff turnover rate [2] **(%)**			**11.5**	8.9
Share of employees with severe disabilities [2] **(%)**			**4.3**	4.3

1 Including students at Baden-Württemberg Cooperative State University (DHBW)

2 In Germany

3. Governance

GRI 2-9 Governance structure and composition

As a publicly listed stock corporation, MVV Energie AG has three governing bodies: the Annual General Meeting, its Supervisory Board and its Executive Board.

In the Corporate Governance Declaration in our Annual Report, we report extensively on shareholders' rights of involvement and supervision, **www.mvv.de/AR2022, Page 102.** We also report there on the dual management system required by law and the composition and mode of operation of the Executive Board **www.mvv.de/AR2022, Page 105.** As sustainability is the key focus of our strategy, the Executive Board is continually involved in decision-making processes relating to and monitoring the impacts of the organisation on the economy, environment and people.

The composition and mode of operation of the Supervisory Board, the diversity concepts for the Executive and Supervisory Boards and the work performed by Supervisory Board committees are also described in detail in the **Corporate Governance Declaration www.mvv.de/AR2022, Page 106 onwards.** Information about the independence and competencies of our Supervisory Board members is also provided there **www.mvv.de/AR 2022, Page 107 onwards.** The Supervisory Board Report in our Annual Report provides information about the work performed by the Supervisory Board **www.mvv.de/AR2022, Page 10 onwards.** At its meetings, the Supervisory Board is involved in issues and decisions relating to sustainability. In the Directors and Officers chapter in our Annual Report **www.mvv.de/AR 2022, Page 209 onwards,** we have listed the other major positions held by and obligations incumbent on the members of our Executive and Supervisory Boards. On our homepage, we provide information about the professional careers and terms in office of the members of our Executive Board **www.mvv.de/executive-board** and our Supervisory Board **www.mvv.de/supervisory-board.**

GRI 2-10 Nomination and selection of the highest governance body

In our Annual Report, we outline the procedure governing the nomination and election of our Executive and Supervisory Board members, as well as the underlying diversity concepts, in the chapter **Corporate Governance Declaration www.mvv.de/AR2022, Page 105 onwards.** The processes we use enable us to ensure that the views both of our largest shareholders and of our employees are accounted for in the selection process. In our Annual Report, we comment on the independence of Supervisory Board members in the chapter **Corporate Governance Declaration www.mvv.de/AR2022, Page 109.**

GRI 2-11 Chair of the highest governance body

As a publicly listed stock corporation, MVV Energie AG is governed by the requirements of German stock corporation law. One basic principle set out therein is the dual management system, which requires strict separation between the Executive and Supervisory Boards in terms of their composition and function. The Executive Board is responsible for managing the company and conducting its business, while the Supervisory Board is entrusted with advising and monitoring the Executive Board. The Executive and Supervisory Boards of MVV Energie AG work together closely and on a basis of trust in the interests of the company.

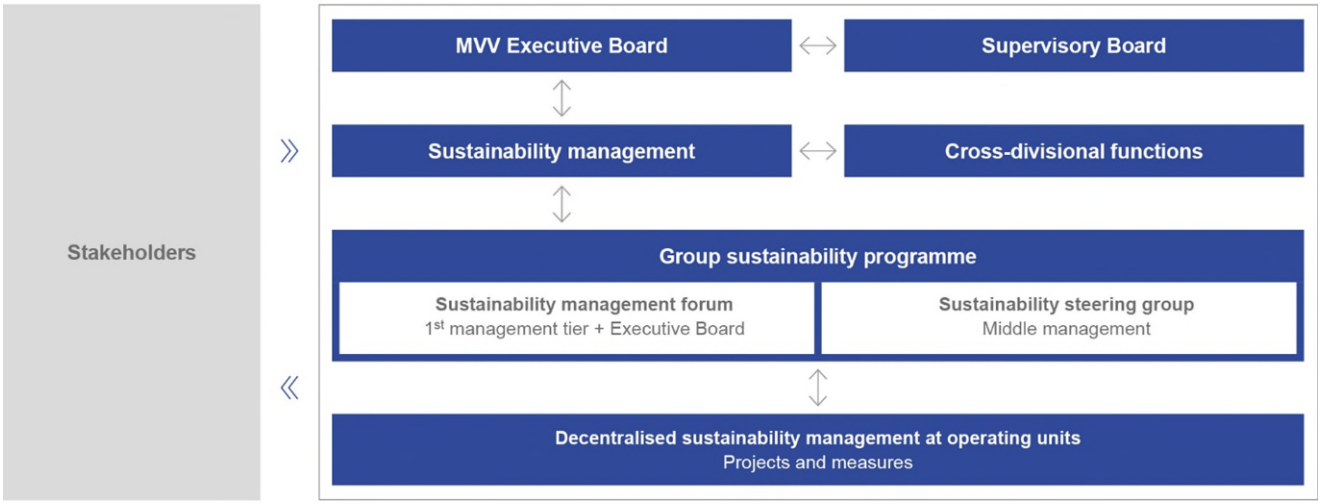
GRI 2-12 Role of the highest governance body in overseeing the management of impacts

The Executive and Supervisory Boards actively address the impacts of MVV's business activities and its sustainability management. The key focus of our sustainability management is on topics, processes and measures that we view as forming part of our core business. This is presented in our Annual Report in the chapter **Business Model** **www.mvv.de/AR2022, Page 20 onwards,** and is in turn based on our corporate strategy, which is also explained there **www.mvv.de/AR2022, Page 21 onwards.** Our climate protection strategy and our strategic decarbonisation and sustainability targets, which are presented on **Page 4,** were adopted by the Executive Board and discussed by the Supervisory Board and form a fixed component of our corporate strategy and of the strategies for individual business fields compiled on this basis. Furthermore, the Executive Board bears overall responsibility for managing significant climate and sustainability risks. Since 1 January 2023, MVV has been subject to the scope of application of the German Supply Chain Due Diligence Act (LkSG). We report on this under **GRI 2-23, Page 18 and GRI 2-24, Page 19.**

GRI 2-13 Delegation of responsibility for managing impacts

Our sustainability management is anchored on various levels of the Group. The Executive Board bears overall strategic responsibility. The sustainability department, which is located in organisational terms in our group strategy and energy industry department, coordinates the sustainability strategy, reports to the Executive Board and relevant internal management and sustainability bodies on a regular basis and whenever required by specific developments and manages the groupwide sustainability programme. As well as sharing information across business fields, this department also plans and implements projects and measures, such as those relating to the EU Taxonomy and the future Corporate Sustainability Reporting Directive. Moreover, sustainability management is responsible for major aspects of MVV's stakeholder management. The specialist departments continually review, evaluate and manage MVV's performance based on sustainability indicators and medium-term targets. We have for many years already evaluated investment projects by reference to sustainability criteria and based on their contribution to our decarbonisation and sustainability targets. On an operative level, the relevant measures and management systems are implemented by the business fields acting under their own responsibility.

SUSTAINABILITY ORGANISATIONAL STRUCTURE



GRI 2-14 Role of the highest governance body in sustainability reporting

The Executive Board bears overall strategic responsibility. It reviews the results of the materiality process each year. In the year under report, it approved these both in terms of their relevance and of their prioritisation. The Executive Board also issues its approval for the Sustainability Report, which is subsequently forwarded to the Supervisory Board for informational purposes.

GRI 2-15 Conflicts of interest

All members of our Executive and Supervisory Boards are obliged to disclose any conflicts of interest to the Supervisory Board immediately. In its report to the Annual General Meeting, the Supervisory Board also provides information as to whether any such conflicts arose and, if so, how these were addressed. No conflicts of interest arose in the year under report. Furthermore, we have performed a review and ascertained that all members of our body are independent pursuant to the definition provided in the German Corporate Governance Code (DCGK). Further information about the independence of the Supervisory Board members can be found in the disclosures provided on **GRI 2-10, Page 14.**

In our Annual Report, we disclose the positions held by members of our Executive and Supervisory Boards on other statutory supervisory boards of German companies and their memberships of comparable German and foreign company supervisory boards in the chapter Directors and Officers **www.mvv.de/AR2022, Page 209 onwards.**

We provide information about our shareholder structure on our website **www.mvv.de/shareholder-structure.** Our majority shareholder is the City of Mannheim with an (indirect) shareholding of 50.1%.

We also publish related party disclosures in our Annual Report **www.mvv.de/AR2022, Page 197 onwards, Note 39.**

GRI 2-16 Communication of critical concerns

In our Annual Report, we provide extensive information on the respect for human rights aspect, on measures to combat corruption and bribery and on our compliance management system (CMS) in the chapter **Combined Non-Financial Declaration www.mvv.de/AR2022, Page 82 onwards.** We also report on compliance and risk management in our Corporate Governance Declaration **www.mvv.de/en/CGD2022.**

We have structured our CMS in such a way that any breaches are avoided on a preventative basis, particularly by implementing preventative measures in the respective business processes (systemic compliance). Stakeholders can report any potential misconduct or infringements of laws either directly to our compliance officer or anonymously to an external confidence lawyer via our “whistle-blower hotline” **GRI 2-25, Page 19.**

In our Annual Report, we disclosed that, apart from a low number of minor incidents, no compliance-related infringements were detected in the period under report. **www.mvv.de/AR 2022, Page 104.**

One relevant topic again in the past financial year involved potential human rights violations in the photovoltaics supply chain. Public reporting has drawn attention to potential forced labour in select Chinese provinces where most of the global production of silicon is located. This risk is not specific to photovoltaics supply chains but rather constitutes a cross-industry risk involved in trading with China. We have longstanding supply relationships with module manufacturers, particularly via our Juwi subsidiary. We are in close contact with our suppliers with regard to these topics, although we have yet to gain awareness of any specific violations within our supply chains.

Furthermore, our reporting on the EU Taxonomy in our Annual Report also includes information about minimum safeguards pursuant to Article 18 of the EU Taxonomy. These cover the topics of human rights (including worker and consumer rights), corruption and bribery, taxation and fair competition. **www.mvv.de/AR2022, Page 87.**

GRI 2-17 Collective knowledge of the highest governance body

Sustainability is at the core of MVV's corporate strategy. By 2030, we will reduce our direct CO_2 emissions by more than 80 %. We will be climate neutral by 2040 and climate positive from 2040 at the latest. For our Executive Board, the topic of sustainability is therefore a regular component of its day-to-day business and a key factor in our Group's strategic planning. In the context of Supervisory Board meetings, one training session addressed sustainability once again in the year under report. In Our Annual Report, we disclose the competency requirements for the Supervisory Board in the form of a qualification matrix **www.mvv.de/AR2022, Page 108.**

GRI 2-18 Evaluation of the performance of the highest governance body

Our Supervisory Board performed the self-assessment recommended by the German Corporate Governance Code, which we generally conduct every two years, with the assistance of an external consultant in the year under report. The relevant information was collected by way of an extensive questionnaire, as well as by holding interviews with several select Supervisory Board members. The findings of the evaluation were presented to and discussed in the full Supervisory Board. Overall, members assessed the work performed by the full Supervisory Board and its committees as highly efficient. The feedback received concerning measures to optimise the onboarding process for new Supervisory Board members has been acted on and implemented.

GRI 2-19 Remuneration policies

In our Annual Report, we provide a detailed description of MVV's remuneration policies in the chapter **Remuneration Report www.mvv.de/AR2022, Page 224 onwards,** and describe the process used to nominate and select the highest governance body in the chapter **Corporate Governance Declaration www.mvv.de/AR2022, Page 105 onwards.**

GRI 2-20 Process to determine remuneration

We describe the process used to determine remuneration in our Annual Report **www.mvv.de/AR2022, Page 224 onwards.**

GRI 2-21 Annual total compensation ratio

In our Annual Report, we provide a comparative presentation of the remuneration paid to the Executive Board, Supervisory Board and employees at MVV Energie AG in the chapter **Remuneration Report www.mvv.de/AR2022**, **Page 224 onwards.** Deviating from the GRI requirement, we base this comparison on a five-year period and, for this presentation, select the remuneration components of employees in such a way that they correspond with total Executive Board remuneration. These components comprise monthly remuneration pursuant to the relevant tables, fixed allowances, one-off payments, variable remuneration and any benefits in kind arising from the use of company cars.

4. Strategy, Policies and Practices

GRI 2-22 Statement on sustainable development strategy

With regard to our statement on our sustainable development strategy, we refer to the comments made by our Chief Executive Officer from 🗋 **Page 7 onwards.** We are working consistently to minimise potential negative impacts of our business activities and to make a measurable contribution to transforming the energy supply and to climate and environmental protection. In our Annual Report, we provide an overview of these activities in the chapters **Business Model and Corporate Strategy 💻 www.mvv.de/AR2022, Page 20 onwards.** For many years now, we have provided information in our Annual Report and on our website about the challenges we face and the progress we have made as a company focused on sustainability.

We report on developments in energy policy and on our market and competitive climate in the Annual Report in the chapter **Business Framework 💻 www.mvv.de/AR2022, Page 32 onwards.** We comment on current developments during the reporting period under **Material Topics from 🗋 Page 35 onwards.** An overview of the target achievement status for our sustainability and decarbonisation targets can be found on 🗋 **Page 4.**

GRI 2-23 Policy commitments

As part of society, we believe we are obliged to adhere consistently to all requirements and laws applicable to MVV and to report transparently on the management and supervision of our company. We meet our responsibility to the public – our shareholders, customers, business partners and employees – by ensuring high-quality compliance and corporate governance. In our Annual Report, we published our Declaration of Compliance with the German Corporate Governance Code pursuant to § 161 of the German Stock Corporation Act (AktG) in the chapter **Corporate Governance Declaration 💻 www.mvv.de/AR2022, Page 101 onwards.**

Respect for human rights is a fixed component of our compliance management system (CMS) and of the risk analyses we perform each year and whenever specific developments require. We report in greater detail on this under **GRI 2-24, 🗋 Page 19.**

In our human rights policy 💻 **www.mvv.de/humanrights,** we underline our commitment to internationally recognised standards, conventions, principles and guidelines on human rights. Among others, these include the International Bill of Human Rights of the United Nations (UN), the OECD Guidelines for Multinational Enterprises, the Ten Principles of the UN Global Compact, the Guiding Principles on Business and Human Rights of the United Nations and the Core Labour Standards of the International Labour Organization (ILO). These also form constituent components of our Suppliers Code of Conduct and our Compliance Code of Conduct, which our suppliers are obliged to comply with. We have published both codes on our website at 💻 **www.mvv.de/zentraleinkauf.**

Our human rights policy was adopted by our Executive Board. The managers of our companies and at our locations are responsible for compliance with these requirements. With our commitment, we also take due account of the German Supply Chain Due Diligence Act (LkSG). In our analysis of human rights-related risks, we account for the interests of our employees and all stakeholders in the “protected legal positions” defined in the LkSG who may be directly affected by our business activities. The vulnerable groups we currently see relate to human rights abuses in individual Chinese provinces or production sites at which most of the global production of silicon for photovoltaics modules is located.

MVV Energie AG has high standards when it comes to producing, treating and distributing water. The targets and management approach for the supply of drinking water are laid down in a water policy 💻 **www.mvv.de/wasser-policy.**

We are currently preparing an environmental policy that will be valid throughout the Group.

We provide additional guidance to our employees with further internal policies.

GRI 2-24 Embedding policy commitments

Our compliance management system (CMS) supports us in safeguarding compliance with applicable laws, as well as with internal company policies and the ethical standards to which we are committed. Our Compliance Officer reports to the Executive Board regularly and whenever otherwise required by specific developments, as well as to one meeting of the Executive Board each year and to one meeting of the Audit Committee in connection with the annual financial statements. Our Compliance Officer is also responsible for meeting the requirements of the German Supply Chain Due Diligence Act (LkSG) and reports on this directly to the Executive Board.

In our Annual Report, we describe our CMS in detail in the chapter **Corporate Governance Declaration** **www.mvv.de/AR2022, Page 101 onwards,** and in the chapter **Combined Non-Financial Declaration, Page 84 onwards.** We also report on our approach of recording potential negative impacts in our risk management system at an early stage, thus meeting our obligation to take suitable precautions, in the chapter **Opportunity and Risk Report** **www.mvv.de/AR2022, Page 113.**

GRI 2-25 Processes to remediate negative impacts

One important component of our CMS is the whistle-blower hotline. With this, we have established an early warning system facilitating the early detection of any risks to people, the environment and our company. Via this hotline, our employees, third parties and suppliers can contact either our Compliance Officer directly or an external confidence lawyer anonymously, if preferred, and report potential misconduct or breaches of the law. The utmost priority is accorded to protecting the whistle-blower. We are committed to protecting whistle-blowers from any disadvantages or disciplinary measures due to any such notification. We also do not tolerate and consistently follow up any retaliatory measures or reprisals resulting from such reports or tip-offs. We provide information about our whistle-blower hotline in German and English at our website **www.mvv.de/en/whistleblower.** Here, anyone wishing to submit a notification will also find further information in the relevant procedural guidelines.

Our customers can contact us directly by telephone using various service and emergency hotlines, via online forms, by e-mail, by post or on location in our customer service centres. We also publish our contact details on our homepage. We answer customer enquiries about data protection and process the rights provided by data protection law to the individual concerned without delay. Whenever a breach of data protection law is suspected, the relevant data protection officer is immediately informed. This way, we can ensure that the breach is promptly and carefully evaluated and reviewed and implement any remedial measures required.

By integrating the internal complaints office pursuant to § 13 of the German General Equal Treatment Act (AGG) in organisational terms into our Diversity and Prevention department, we have created a central point of contact in Mannheim. The complaints office advises and supports employees who feel that they have been disadvantaged due to their ethnic background, gender, religion or world-view, disability, age or sexual identity.

GRI 2-26 Mechanisms for seeking advice and raising concerns

We describe the processes used to accept and process concerns, suggestions and complaints received from our stakeholders under **GRI 2-16,** **Page 16,** and **GRI 2-25,** **Page 19.** These channels are also available to individual persons.

GRI 2-27 Compliance with laws and regulations

We have set ourselves the standard of working together with all our stakeholders on a basis of transparency, trust, fairness and integrity. In the Annual Report, we provide details of our compliance management system in the chapter **Corporate Governance Declaration** **www.mvv.de/AR2022, Page 101 onwards.** We have implemented a group tax policy and suitable internal checks to safeguard compliance with key requirements of tax law. As in the previous financial year, we did not gain awareness of any material breaches of laws and/or regulations in the period under report. The same applies to tax offences. Similarly, no fines were imposed on MVV due to any failure to comply with laws and regulations. Neither the company nor its senior management have been finally convicted either of violating competition laws or of corruption.

GRI 2-28 Membership of associations

Via our membership in industry associations, we participate in energy policy and energy industry discussions.

In the Association of the German Energy and Water Industries (BDEW), our CEO Dr. Georg Müller is a member of the Association's Board. Moreover, senior MVV employees are involved in the BDEW Steering Committees for Energy and Environmental Policy, Sales and District Heat. Our Executive Board member Dr. Hansjörg Roll is the President of the German Energy Efficiency Association for Heating, Cooling and CHP (AGFW). Experts from MVV are involved in the specialist and management boards, and thus in the respective opinion-forming processes, at AGFW and in the associations and stakeholder groups listed below: Federation of the German Waste, Water and Raw Materials Management Industry (BDE), the German Energy Storage Systems Association (BVES), the German Geothermal Association (BVG), the German Association of Energy Market Innovators (bne), the German Wind Energy Association (BWE), the German Association of Waste-to-Energy Plants (ITAD), the German Association for Electrical, Electronic and Information Technologies (VDE), the Baden-Württemberg Association of the Energy and Water Industries (VfEW), the German Association of Public Utilities (VKU), and the Technical Association for the Generation and Storage of Electricity and Heat (vgbe).

Furthermore, MVV is a member in the 8KU Group, in which eight large municipal utility companies in Germany have joined forces to communicate their specific concerns in the political arena. Dr. Georg Müller has been entrusted with coordinating the activities of 8KU in 2023.

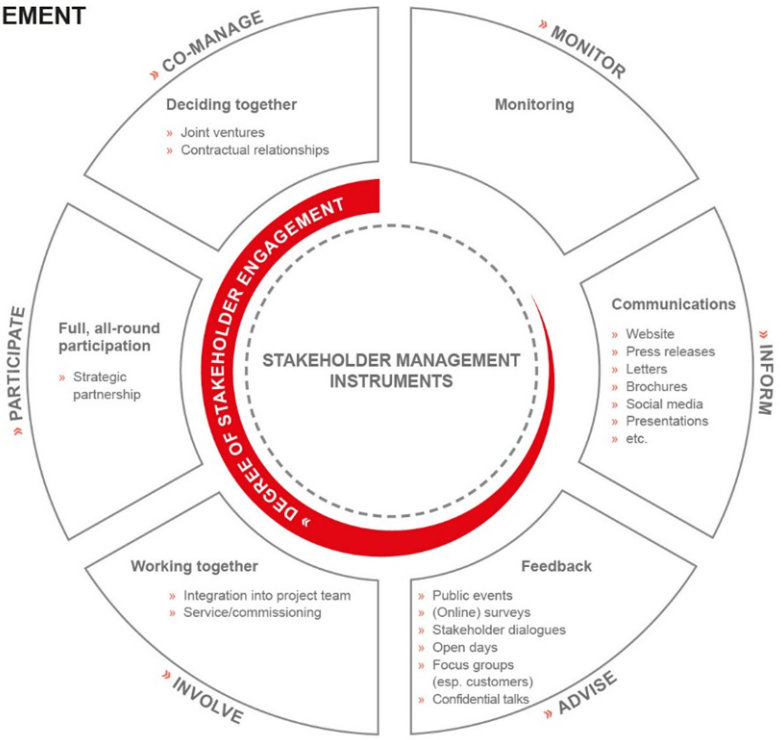
5. Stakeholder Engagement

GRI 2-29 Approach to stakeholder engagement

We operate at a variety of locations and in diverse business fields and therefore come into contact with the interests of numerous, often heterogeneous groups of stakeholders. Our shareholders, employees and customers are among our most important stakeholders, as are government and political representatives. Other major stakeholders include non-government organisations (NGOs), analysts, local residents at our locations, media, associations and suppliers. These are joined by cooperation partners, business partners and research institutes. We aim to communicate transparently and openly with our stakeholders. This makes it possible for us to assess a variety of perspectives and concerns more closely and to factor these into our company's activities. We identified and determined our groups of stakeholders when preparing the first GRI report in the 2015 financial year. These decisions were based on the varied forms of exchange previously maintained with the stakeholders. We review the relevance of the respective concerns in the materiality analysis.

MVV's stakeholder management is coordinated by the sustainability department. We take our discussions and interviews with stakeholders as an opportunity to review our material topics. In this, we also actively contact the various groups of stakeholders listed above. We use AI-based approaches to review our findings. Together with MVV's specialist departments and companies, we assess how far and in which ways we can account for specific concerns. The findings are then discussed and implemented by our experts in the sustainability programme. We attach great value to maintaining an open and transparent dialogue with our stakeholder groups, and that both in our one-to-one contacts and via our websites, press releases, social media networks and specialist formats, such as analysts' or press conferences. We take part in public discussions and other events, such as specialist energy industry conferences and public information events. We play an active role in the relevant bodies, associations and networks, participate in research projects and take part in the public debate and focus here on the energy system transformation. Via our membership in industry associations, we participate in energy policy and energy industry discussions.

STAKEHOLDER ENGAGEMENT



In select areas, we involve stakeholder groups in our materiality analysis. We note their feedback, particularly on our Sustainability Report, in order to factor this into the subsequent report. We usually hold a Sustainability Day for all our internal stakeholders once a year and enter into close dialogue with them concerning current sustainability topics. We have also launched a new programme of action to inspire our employees to work towards achieving even greater sustainability.

We aim both to attract new customers and to retain existing customers in the long term. The exceptional energy market situation also shaped customer satisfaction topics in the 2022 financial year. Public discussions surrounding price rises, a possible gas levy, price caps and other issues worried many customers and led to a large increase in the number of customers contacting us. One particular focus was therefore on helping to address these customer concerns by offering easily accessible and competent customer service. The measures taken to enhance tools used to measure customer satisfaction, quality assurance and continuous improvement, all of which we reported on in the past, were therefore particularly valuable in this period. Both internal and external assessments indicated positive customer feedback overall. In 2022, we again took part in the BDEW service monitor for some of our locations. Here, we significantly improved our position in the competition benchmark. This confirms the effectiveness of the measures we have taken to continually increase customer satisfaction. Alongside the measurement points in the traditional mass retail and business customer business, we have implemented further measurement points in our solutions business. These apply both to retail customers, for example after the installation of photovoltaics systems, and to business customers. We will further enhance and extend the existing customer satisfaction measurement system. On this basis, we aim to bring about targeted optimisations to our processes and systems.

We aim to be a reliable partner to our customers in future as well when it comes to pricing and supplying our services and products. The past year in particular showed us just how important that is to our customers. In cases where customers face difficulties paying their energy bills due to the development in prices, we offer individual advice to find suitable solutions. In cases of dire need, we also provide financial assistance via our Emergency Fund in cooperation with the charitable organisations Diakonie and Caritas. In the 2023 financial year, we will be further expanding the holistic advice we provide on innovative energy solutions in the interests of our customers and, to this end, will be increasing the range of one-to-one advice offered at our customer service centres on location. By organising customer initiatives, such as our “Customer Atelier”, we find out more about the interests and wishes of customers who would like to actively help shape new products and services **www.mvv.de/kundenatelier.**

We exchange expert opinions and views with the City of Mannheim for specific projects, such as for the application to “100 climate neutral cities” in January 2022. Moreover, we accompany the city as a reliable partner in its climate protection action plan and offer solutions to local industry enabling it to map its own course to climate neutrality. In the Annual Report, we provide information about this in the chapter **Corporate Strategy www.mvv.de/AR2022, Page 21.**

In the light of the coronavirus pandemic, most stakeholder activities were again held on a virtual basis in the year under report. The most important concerns raised by our stakeholder groups in the year under report included topics relating to the development in energy prices, supply reliability, climate protection, possibilities for carbon capture and the long-term role of natural gas. We analysed and accounted for the concerns of our stakeholders when performing our materiality analysis **GRI 3-1, Page 23.**

Since 2020, we have been entered in the Transparency Register of the European Commission. We organised our entry in the lobby register for the representation of interests to the German Federal Parliament and the German Federal Government within the relevant deadline in the 2022 financial year. One aspect of our internal compliance regulations is that donations and payments to parties and political organisations are strictly prohibited.

GRI 2-30 Collective bargaining agreements

A 70 % share of our employees in Germany work at companies that have concluded collective pay agreements. In Germany, the principle of employee codetermination is legally enshrined both in the German Codetermination Act (MitbestG) and in the German Works Constitution Act (BetrVG). As a member of the UN Global Compact, we also believe we are obliged to uphold the freedom of association and effective recognition of the right to collective bargaining. We commit ourselves to this in our human rights policy **www.mvv.de/humanrights.** Contracts for employees in Germany who are not covered by a collective pay agreement are based neither on the collective agreements in place at MVV nor on those at other companies. We currently do not yet report any data on the numbers of our employees abroad who are bound by collective agreements. These are employed at small units and the regulations vary between individual locations.

GRI 3: Disclosures and Guidance on Material Topics

GRI 3-1 Process to determine material topics

The contents of this Sustainability Report are determined on the basis of our materiality analysis. To this end, we continually monitor public discussions and the positions of our stakeholders to identify actual and potential negative and positive impacts that MVV may have on the economy, environment and people. Here, we regularly assess whether and to what extent the relevance of the material topics has changed. This multistage process involves:

- Desk research and internal analyses
- Surveys of those specialist departments which have interfaces with our external stakeholder groups
- Workshops and interviews with select stakeholders
- External online surveys of MVV's stakeholders and customers
- Use of external AI-based data providers.

We review all aspects of the materiality process every three to four years; the most recent review was performed in the 2021 financial year. Moreover, we also update the main characteristics and prioritisations on an annual basis. In terms of its contents, the materiality analysis also accounts for global challenges and megatrends, the Sustainable Development Goals **Page 73,** industry and technology-related trends and the expectations of our internal and external stakeholders.

Our materiality analysis comprises three content-based perspectives: stakeholder relevance, business relevance and impacts of our business activities. By analysing these dimensions, we are able to meet the various expectations placed in the materiality analysis by different sets of reporting standards.

In the year under report, we performed a materiality analysis in accordance with GRI Standards. We prioritise the impacts in terms of their significance by evaluating and weighting the respective impact and comparing this with the stakeholder perspective. The methods we apply for this purpose include assessing the severity of negative impacts based on their probabilities of occurrence.

Climate protection is a topic that is of very great significance not only in the context of sustainability, but also on a strategic level. When it comes to the topic of climate risks, regulatory risks are particularly significant for us, as the decarbonisation of the energy industry is being shaped by the political framework. Other types of risk, such as physical, legal or reputational risks are only of subordinate significance. We present changes in climate and energy policy by working with long-term scenarios that provide a binding foundation for quantifying our strategy on a long-term basis or for growth investments. These also include different developments in CO_2 or commodity prices. The scenarios enable us to portray the robustness and climate resilience of current and future business models at MVV in quantitative terms.

Our risk management records and continually assesses financial and non-financial risks. We report on this in the chapter **Opportunity and Risk Report** **www.mvv.de/AR2022, Page 113 onwards.** The results of this process were discussed on Executive Board level and confirmed in terms both of their relevance and of their prioritisation. Under GRI – in which materiality is evaluated in respect of relevance to stakeholders and impacts of our business activities – more topics are reported as material than are relevant for our non-financial declaration. When assessing materiality for the Combined Non-Financial Declaration in our Annual Report, we based our evaluation on an analysis of all three perspectives.

Furthermore, we draw on an AI-based application to validate our materiality analysis and to identify future topics at an early stage and discuss these with our internal experts, external experts and stakeholders. The materiality analysis performed in the year under report confirmed the topics reported on in previous years and thus also our course towards climate neutrality. The table below contains an overview of the topics retained without amendment, our targets and the milestones we have already reached.

GRI 3-2 List of material topics

List of material topics

Material topic/ topic standard	What we aim to achieve	What we achieved in the 2022 financial year
Economic Performance		
GRI 201 Economic performance 2016	We aim to increase our value added.	We achieved a significant increase in our net value added, which rose year-on-year by Euro 115 million to Euro 1,145 million.
GRI 203 Indirect economic impacts 2016	We will invest a further total of Euro 3 billion in the energy transition in the years ahead. (basis: start of 2017 financial year)	Since the 2017 financial year, we have invested a total of Euro 1,757 million; in the year under report we invested Euro 335 million.
Energy and Environment		
GRI 301 Materials 2016	We will increase the efficiency of our plants and reduce emissions from our proprietary generation and at our customers. We will reduce our ecological footprint by expanding green heat, scaling back fossil-based generation and this way reducing the use of non-renewable fuels.	At our Mannheim location, construction work is progressing on our phosphorous recycling plant. Moreover, planning is underway for further efficiency projects in our energy and recycling park at Friesenheimer Insel in Mannheim. The fuel efficiency rate at our fully consolidated companies amounted to 66 % in the year under report.
GRI 302 Energy 2016	We will double our proprietary electricity generation from renewable energies by the end of the 2026 financial year. (basis: start of 2017 financial year: 430 MW) We aim to reduce grid losses in our electricity and heat grids.	Electricity generation capacities from renewable energies and the biogenic share of waste/RDF at our fully consolidated companies and the companies we recognise at equity amounted to 614 MW at the end of the year under report, 50 MW more than a year earlier. Grid losses rose year-on-year by 5 % for our electricity grids and by 1 % for our heat grids.
MVV topic: Renewable energies	We will connect 10,000 MW of renewable energies to the grid by the end of the 2026 financial year. (basis: start of 2017 financial year: 0 MW)	Since the beginning of the 2017 financial year, we have connected renewable energies plants with capacities of 3,229 MW to the grid; in the year under report, we connected capacities of 476 MW.
GRI 305 Emissions 2016	We will reduce our energy industry Scope 1 emissions by more than 80 % by 2030. This corresponds to an emissions level of less than 0.5 million tonnes in 2030 (Scope 1). We will become climate neutral by 2040 and climate positive at the latest from 2040 onwards.	Our climate protection targets have been certified by the SBTi as compatible with the net zero standard. Direct Scope 1 emissions showed a year-on-year increase of 4 % in the year under report. This was mainly due to increased generation volumes at coal-fired CHP plants due to the changed market situation given the geopolitical implications of the war in Ukraine.
System Transformation		
MVV topic: Sector coupling	We actively contribute to sector coupling.	In Brandenburg, we launched operations at Germany's first "wind power and storage facility" project.
MVV topic: Supply reliability	We are smartly combining renewable and highly efficient conventional energies and contributing to supply reliability. We aim to minimise interruption-induced failure in the electricity supply.	Construction work on the backup facilities at the Mannheim location has reached a very advanced stage. These will contribute to heat supply reliability after the coal exit. We were able to ensure a largely interruption-free supply of electricity. The SAIDI key figure for electricity in our grid regions amounted to 10 minutes/year in the 2021 calendar year.
MVV topic: Changed energy demand	We are preparing our supply grids for changes in energy demand in the electricity and heat sectors as a result of energy system conversion or energy efficiency measures.	As well as systematically accounting for this factor in our strategic investment planning, we also initiated and/or continued with innovation projects. We are actively making preparations to counter any potential shortage of gas.
MVV topic: Changed infrastructures and smart cities	We are contributing our expertise to make municipal infrastructures and services fit for the future on behalf of local authorities and companies.	We convinced the municipalities of Schwetzingen, Plankstadt, Oftersheim, Ketsch and Eppelheim with the performance of our Climap service; drawing on thermal imaging of existing buildings, we will be supporting the renovation of real estate in these areas in order to improve energy efficiency.

Material topic/ topic standard	What we aim to achieve	What we achieved in the 2022 financial year
System Transformation		
MVV topic: Innovation	As a partner for decarbonisation and the energy transition, we aim to convince customers with continuously new and innovative products and services that make a major contribution towards sustainable development.	We were involved in numerous technical, product-related and process-related innovations in the year under report. We launched "Take-Off", our MVV-internal innovation programme with a new focus on climate positivity. This way, we are actively involving all employees in the development of products, business models and customer solutions.
MVV topic: Digital transformation	By promoting digitalisation and networking in our own processes, at our customers and in our products, we safeguard our future performance capacity.	In our digitalisation programme, we further automated our internal processes and boosted our digital cooperation. Furthermore, we promoted the digital dialogue with our customers.
	As a competent partner, we offer all our customers – from private households to industrial players – the products and services they need to implement their own energy transitions.	We supplemented our portfolio of solutions with newly developed services and products relating to the energy transition and climate neutrality.
	We work with an extensive range of technical and organisational security measures to ensure information security and data protection.	We are continually improving the processes used to protect information and personal data.
Employees and Society		
GRI 403 Occupational health and safety 2018	We support our employees in remaining healthy.	We extended our range of services for employees, particularly those relating to management and cooperation, as well as those promoting the physical and mental health of employees working from home.
	We aim to avoid any accidents arising at all in future.	The lost time injury frequency rate (LTIF) rate amounted to 3.7, compared with 4.1 in the previous year. We thus maintained the positive trend seen in recent years.
GRI 404 Training and education 2016	With our broad range of training programmes, we aim to present to young people the whole variety of career options available at the company.	We employed 335 trainees as of 30 September 2022.
	We aim to further develop our employees' potential.	Our employees took part in a variety of internal and external training and development programmes; due to the coronavirus pandemic, we extended our digital programmes.
GRI 405 Diversity and equal opportunity 2016	By 30 September 2026, we aim to raise the share of female employees at our Group to 35 % and the share of management positions held by women to 25 %. (basis 30 September 2021: 28 % and 14 %)	Women accounted for 28 % of the Group's workforce as of 30 September 2022, while the share of women managers stood at 16 %.
GRI 413 Local communities 2016	We aim to communicate transparently and openly with our stakeholders and are available to speak to all of our stakeholders.	We upheld our various reporting and communications formats.
MVV topic: Society	We aim to show our commitment to the society in which we operate.	We continued our targeted sponsoring and support measures.

GRI 3-3 Management of material topics

For all of the material topics outlined below, it is equally applicable that their actual and potential negative and positive impacts on the economy, environment and people are recorded and analysed in our central risk management. In this, the consequences of the respective matters are presented; for potential impacts, information such as the scope of such impacts, the consequences for stakeholders and the environment and the estimated probabilities of occurrence are recorded and assessed.

We initiate, monitor and regularly review the effectiveness of all measures stated for individual material topics by working with traditional plan-do-check-act management processes. We account for the resultant conclusions in respect of their actual effectiveness when devising follow-up measures.

Material topic: Economic Performance (GRI 201 Economic performance, GRI 203 Indirect economic impacts)

Background

Given the requirements posed by climate protection, advancing digitalisation and the associated fundamental restructuring of the energy system, the energy industry has been undergoing a long-term transformation for years now. As a commercial enterprise, we can only shape this change process actively if our operations are sustainably profitable.

As a company with regional roots, we are part of society at the locations and in the regions in which we operate. We are aware of and actively embrace this role. With our sustainability management **GRI 2-13, Page 15,** we assume responsibility for our decisions and actions, as well as for our products and services, and that towards our customers and capital providers, as well as towards the environment and the society in which we live.

Impacts, measures and effectiveness

Given the value created on site, MVV has clearly positive impacts on our locations. We make investments, award contracts to local or regional businesses where possible, thus securing jobs, offer high-quality training over and above our own requirements and pay taxes and duties. It goes without saying that we do not use any questionable measures to avoid taxes or move profits across borders. Our business activities could also potentially have negative impacts, for example on local tax revenues, if we were no longer to operate profitably in the long term.

We provide a detailed explanation of our treatment of the material topic of Economic Performance and of the measures we take to manage and control effectiveness in the Group Management Report in our Annual Report. Information about this can be found in, among others, the chapters **Group Structure, Business Model, Corporate Strategy** and **Value-Based Corporate Management www.mvv.de/AR2022, Page 19 onwards.** We also provide extensive information there on our business framework **www.mvv.de/AR2022, Page 32 onwards.** We account for our entrepreneurial responsibility by continually observing, analysing and assessing opportunities and risks and by taking measures to minimise risks. In our Annual Report, we report on this in the chapter **Opportunity and Risk Report www.mvv.de/AR2022, Page 113 onwards.**

In our input/output balance sheet on **Page 40,** we present all significant flows of materials, energy, goods and money that are associated with our business activities and report on changes compared with the previous year. We report on the policies applicable at MVV under **GRI 2-23, Page 18.**

Material topic: Energy and Environment (GRI 301 Materials, GRI 302 Energy, MVV topic: Renewable energies, GRI 305 Emissions)

Background

Due to population growth and increasing prosperity, the volume of resources we consume has risen more than ten times in just over a century. Less than half of our current volume of resource consumption would be just about sustainable. The consequences of this situation are apparent in much-discussed issues such as biodiversity, resource scarcity or emissions of pollutants. Climate change offers the most striking example of these effects.

The final section of the Sixth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) made it clear that stricter climate protection measures are required both globally and nationally as the remaining CO_2 budget has decreased. Published at the beginning of 2022, this IPCC report underlines the need to limit the rise in global temperatures to 1.5 degrees Celsius, as the overall ecosystem risks passing irreversible tipping points. Moreover, the level of vulnerability, i.e. the extent to which a system such as an ecosystem, economic system or social system is threatened by changes in the climate, will otherwise increase disproportionately. As temperatures rise, the frequency and intensity of extreme weather events will significantly increase. This will also be the case in Germany.

For example, extended periods of heat and drought such as those in summer 2022 will occur ever more frequently. According to the IPCC, it is still possible to limit global warming to 1.5 degrees Celsius, but only if a significant portion of the required reduction in CO_2 is achieved in the current decade already. Here, industrial countries, and the EU in particular, will have a key role to play as they can demonstrate the compatibility of economic growth, prosperity and climate protection.

In the EU, climate neutrality is to be achieved by 2050 at the latest. In the German Climate Protection Act (KSG), the Federal Government stipulated in 2021 that Germany should become climate neutral by 2045 already. It will be necessary to achieve negative emissions from the 2040s onwards in order to offset unavoidable emissions, such as those from agriculture. We describe the associated developments in energy policy in our Annual Report in the chapter **Business Framework www.mvv.de/AR2022, Page 32 onwards.** MVV has accorded great importance to climate protection, decarbonisation and renewable energies for many years already.

The great challenge is still the European goal of becoming climate neutral across all sectors by 2050. To achieve climate neutrality, the energy industry has to completely avoid any release of direct emissions. This means doing entirely without fossil fuels. The great challenges for the 2020s involve rapidly exiting from coal-based power generation and the use of heating oil, and that in parallel with the completion of the nuclear energy exit. At the same time, it will be necessary to build or modernise the infrastructures needed to safeguard a fully climate-neutral energy supply by 2040 at the latest. This involves the accelerated expansion in renewable energies and the infrastructures needed to generate, transport and use climate-neutral gases. These are the technical preconditions enabling the use of fossil-based natural gas to be gradually phased out in the 2030s while simultaneously upholding supply reliability. Due to the complexity involved and the pace required, the installation of a new energy infrastructure in less than a generation also represents a challenge for society as a whole.

Like all other sectors, the energy industry will also have to reduce its indirect emissions to zero. These are emissions arising at upstream suppliers and end customers. In this regard, full climate neutrality will only be achieved when other economic sectors also succeed in protecting the climate. Our climate balance sheet, in which we also explain our direct and indirect CO_2 emissions in Scopes 1, 2 and 3, can be found on **Page 45 onwards.**

Our energy generation and our products and services are still not fully compatible with these long-term ecological sustainability targets. We record our environmental impacts each year in our input/output balance sheet, which we present on **Page 40,** report on our climate balance sheet from **Page 45 onwards,** present an overview of our sustainability and decarbonisation targets on **Page 4,** and describe the policies applicable at MVV under **GRI 2-23, Page 18.**

Impacts, measures and effectiveness

The impacts of our material topic of Energy and Environment are manifold and mutually conditional. One material positive impact of our business activities is the expansion in renewable energies and the increase in energy efficiency at our company and our customers. Both factors are enabling us to gradually reduce emissions. Moreover, we provide energy at competitive prices, are committed to upholding a high level of supply reliability and use waste to generate energy. In the areas covered by the grid companies MVV Netze and SW Kiel Netze, we supply the local population with drinking water, protect groundwater and implement water conservation measures. One negative impact of our business activities is that we use limited natural resources. Given the high efficiency levels at our plants and the use of waste as a resource, however, this impact is limited in scope. The procurement, transmission, generation and use of energy give rise to emissions. Furthermore, energy transmission may result in grid losses. Moreover, our land use and water consumption have an adverse impact on the environment and people. In individual cases, procurement of the resources and plant components we use may potentially have negative impacts in respect of human rights; we comment on this under **GRI 2-16, Page 16.** We assess the effectiveness of our measures by reference to the degree of target achievement for our sustainability and decarbonisation targets, which are presented on **Page 4.**

Our groupwide decarbonisation targets set within the Mannheim Model go well beyond the decarbonisation trajectory set out in the KSG legislation. While the KSG provides for a 64 % reduction in CO_2 emissions in the energy industry between 2018 and 2030 and calls for climate neutrality by 2045, we aim to be notably more ambitious in implementing climate protection and reduce our CO_2 emissions significantly faster than the sector. To achieve this, we are pressing ahead with the electricity transition and associated expansion in renewable energies, as well as supporting our customers in their own decarbonisation; above all, we are promoting the heat transition. We aim to be one of the first climate-positive energy companies in Germany.

From 2040 at the latest, we will not only be net zero in terms of all our direct and indirect emissions sources; we will actually be climate positive. We aim to achieve this on the one hand by deploying suitable technologies to remove greenhouse gases from the atmosphere on a permanent basis. On the other hand, with our services and green products we will support our customers, whether they are private households, companies or local authorities, to become climate neutral themselves. To this end, we are gradually expanding our portfolio of climate-neutral products and services.

In autumn 2022, MVV was the first energy company in Germany, and only the third worldwide, to comply with the challenging new net zero standard of the Science Based Targets initiative (SBTi) and to be certified accordingly. We have thus documented once again that our medium and long-term sustainability and decarbonisation targets meet the strictest requirements. The targets within our Mannheim Model form the basis for our strategic group planning, which we operationalise within the company with further detailed and interim targets. Our corporate strategy is specified in greater detail on a decentralised basis by the managers responsible for our business fields, who take due account of local conditions. On group level, we assess the investments made by all business fields in terms of their contribution to #climatepositive.

We compile our greenhouse gas balance sheet in accordance with the Greenhouse Gas Protocol. The overwhelming share of the direct CO_2 emissions which we report comes from plants that are governed by the emission trading system (ETS) and therefore certified. We use various internal and external systems to collect further data on sustainability; among others, these include energy audits (DIN EN 16247) and energy management systems (ISO 50001), work safety management systems (ISO 45001), environmental management systems such as EMAS and compliance management systems.

Resource efficiency, local environmental protection and circular economy

We use natural resources to generate energy. Our conventional generation plants also use finite resources such as natural gas and hard coal as fuels. We accord great importance to very high resource efficiency. One key indicator of efficient use involves the highest fuel efficiency rates resulting from optimised use of the energy contained in the fuel. This means we minimise the energy losses arising when the fuels are converted into end energy, such as electricity or heat. It also means we consistently invest in enhancing the energy efficiency of our generation plants and expanding green heat in conjunction with highly efficient combined heat and power generation.

Wherever technically possible, we are increasingly relying on recycled products and input materials; see **GRI 301-1,** **Page 37.**

Local environmental protection is a further firm aspect of our management systems, into which quality and compliance aspects are also integrated. For us, environmental protection on both national and local levels is closely based on legal requirements. The approvals granted and legal requirements form the basis for our activities, and that both when we build or modernise plants and in our day-to-day operations. Compliance, particularly with the prescribed threshold values, is monitored by the relevant authorities. Certain aspects of our operations, such as plant-specific emissions at large combustion plants, are subject to reporting requirements. Our subsidiaries and shareholdings are responsible for the operative management of environmental concerns on a decentralised basis.

We work with decentralised environmental and energy management systems for the control and operative implementation of environmental protection measures. Where possible, we avoid other harmful environmental effects resulting from the generation and provision of our products and services or reduce these to a minimum. We pay attention, for example, to reducing other air pollutants. We treat the pollutants incurred very carefully. In the interests of a circular economy, unavoidable waste from energy generation and waste incineration, such as ash, metals and slag – so-called by-products – is turned wherever possible into products for other companies. Where this is not possible, the waste is disposed of correctly.

Using the materials and energy contained in waste makes a major contribution towards reaching the target of building an economy that is as circular as possible. The best solution should always be to design products in such a way that they can remain in the cycle on a permanent basis, for example due to recycling, and do not become non-recyclable waste. In our environmental energy, business customer and strategic investments business fields, we make a major contribution to saving resources and the circular economy.

Renewable energies, energy transition and climate neutrality

We are convinced that climate neutrality can only be achieved by working with a long-term programme that covers all business activities along the value chain. This also means reducing the transmission losses in the grids we operate. To become climate positive, we intend to create proprietary CO_2 sinks for unavoidable residual emissions or facilitate the permanent and secure storage or utilisation of the greenhouse gases (BECCUS). With our strategic sustainability targets, we have set ourselves clear and measurable milestones as we head for climate neutrality, in this case for the period from 2016 to 2026.

- We will connect 10,000 megawatts of new renewable energies capacities to the grid.
- We will double our proprietary electricity generation from renewable energies.
- The energy system of the future remains our key investment focus. In the years ahead, we will invest a total of three billion euros in the energy transition and decarbonisation.
- As a competent partner, we offer all customers – from private households to industrial players – the products and services they need to implement their own energy transitions and achieve climate neutrality.

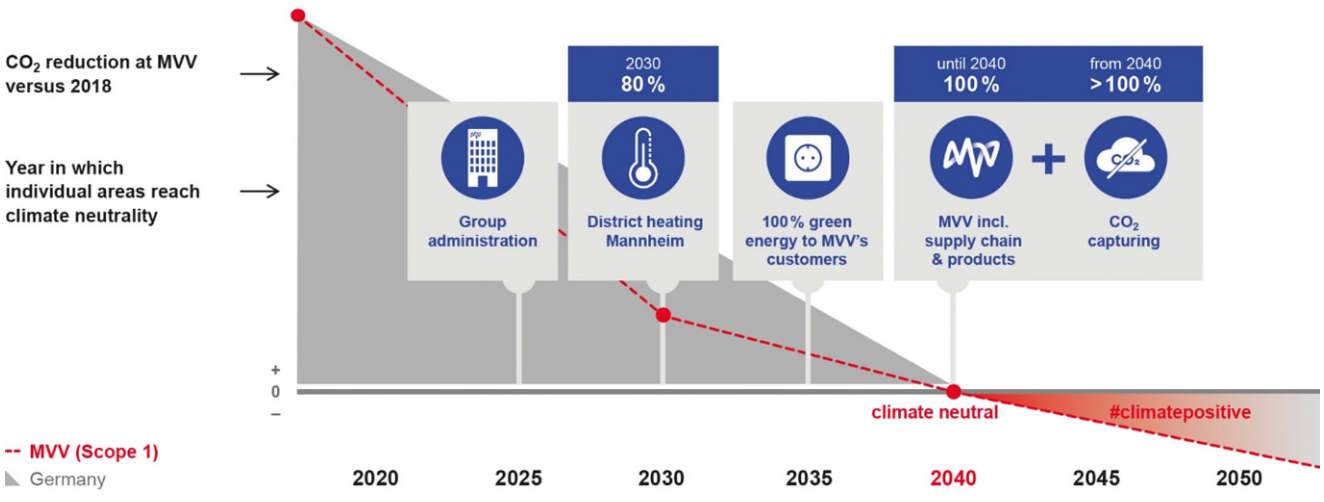
We will step up our efforts to save CO_2 in our proprietary energy generation (Scope 1) by 2030.

When it comes to reducing our direct emissions, we are guided by the decarbonisation trajectory for the overall energy sector in Germany, and that despite our young power plant portfolio. The latest basis for the path taken to limit global warming to 1.5 degrees is the IPCC Status Report published in 2022. For our company-specific decarbonisation targets, we continue to take 2018 as our base and reference year and set milestone year-based targets to document our progress in public. At the same time, on a company-internal basis we are also guided by budget-based analyses even though neither the European nor the national climate legislation include cumulative emission budgets for the energy industry sector.

For indirect greenhouse gas emissions (Scopes 2 and 3), existing norms do not permit the derivation of any suitable decarbonisation trajectory, not least due to the highly heterogenous structure of our international value chain. For Scopes 2 and 3, we refer to the 1.5-degree decarbonisation trajectory recommended by the Science Based Target initiative for the energy industry sector.

In our decarbonisation strategy, we do not exclude any sources of emissions, but rather account for all indirect emissions at our customers and suppliers, as well as the emissions from our waste incineration activities.

OVERVIEW OF MVV'S DECARBONISATION TARGETS



By 2030, we will reduce our energy industry Scope 1 emissions by more than 80 % compared with 2018.

This corresponds to emissions of less than 0.5 million tonnes in 2030 (Scope 1). Key decarbonisation measures for direct emissions (Scope 1) are:

- We will maintain a high pace of expansion for renewable energies to generate electricity and green heat with the aim of offering our customers a fully climate-neutral and affordable energy supply.
- We will convert our district heat supply for Mannheim and the region to 100 % green energy sources by 2030 at the latest.
- We will consistently press ahead with the coal exit decided by lawmakers, see **Page 38.**
- We are reducing the use of fossil-based natural gas at existing plants by adding renewable energies and using green gases.
- We will not build any new (CHP) power plants fired by fossil-based natural gas for the general public supply, i.e. electricity and district heat.

By 2035, we will reduce indirect greenhouse gases (Scopes 2 and 3) by more than 80 % compared with 2018.

This corresponds to emissions of less than 1.5 million tonnes (Scope 3) by 2035. Key decarbonisation measures for indirect emissions (Scopes 2 and 3) are:

- We support our customers in achieving their own climate neutrality by promoting the procurement and supply of green energy and offering services and solutions for their own energy transitions and energy efficiency.
- We are gradually making our products and services 100 % climate neutral. When it comes to supplying green energy to our customers, we are already able to offer all necessary products and services.
- From 2035, we will no longer offer any fossil-based energy forms for sale, but then rather supply our customers exclusively with green energy.
- In our procurement of goods and services right through to plant components, we ensure that our suppliers aim for ambitious reductions in their CO_2 footprints.
- We are enhancing our own energy efficiency and using green energies in our own buildings and to operate our grids.

In our Annual Report, we report in detail on how we intend to deal with unavoidable residual emissions in the chapter **Combined Non-Financial Declaration**
www.mvv.de/AR2022, Page 54 onwards.

Material topic: System Transformation (MVV topics: Sector coupling, Supply reliability, Changed energy demand, Changed infrastructures and smart cities, Innovation, Digital transformation)

Background

The energy system transformation comprises numerous different aspects that are interconnected and interact with one another. Energy companies play a key role by investing in the energy infrastructure to prepare this for the energy transition and make it fit for the future. At the same time, they perform what is for society the important task of upholding supply reliability. The supply of electricity, gas, heat and water has to remain reliable and stable. The advancing energy transition raises new questions, as the volume of electricity fed in from wind turbines or photovoltaics fluctuates in line with weather conditions and the time of day. For the energy transition to succeed, the transport and heat sectors will also have to use electricity from environmentally-friendly generation – and these developments will lead to changes in energy demand. One consequence of the war in Ukraine involved disruptions on the European energy markets. The topic of supply reliability was particularly in focus, as high energy prices indicated shortages on electricity and gas markets. In the short to medium term, the loss of Russian gas deliveries is to be replaced by global LNG supplies. Reducing end demand for energy, and especially for natural gas, is another topic that is increasingly in the foreground. Sharply accelerating the heat transition should on the one hand cut demand for natural gas more quickly while on the other hand mitigating the adverse effects of significantly higher energy prices. Since 2022, it has been necessary to make greater use of coal-fired power plants in the electricity market again in order to safeguard supply reliability. By further stepping up the expansion of wind turbines and photovoltaic systems, the government aims to bring forward the date of the coal exit to 2030.

The ongoing development in energy demand impacts on strategic planning in all of MVV's business fields and on our decisions about future growth investments. Transforming the energy supply system will require numerous individual projects to be conducted on a decentralised basis. There is a need for end-to-end concepts for urban districts and quarters, for example, as the ongoing trend towards urbanisation is creating substantial environmental burdens. Growing populations in large built-up areas make it necessary to further develop towns and cities into "smart cities", to further develop their infrastructures and their environmental and climate protection measures, while also offering an opportunity to implement sustainable forward-looking plans. Alongside these developments, the digitalisation of the energy industry is making further advances, and with this the networking and automation of business processes. Moreover, digitalisation always involves focusing on the security of information and data. We report on the policies applicable at MVV under **GRI 2-23, Page 18.**

Impacts, measures and effectiveness

The impacts relating to our material topic of System Transformation are also highly diverse and interconnected. One material positive impact of our business activity involves supply reliability, which we are also upholding for our customers during the period of transformation. By pressing ahead with this transformation in the energy system, with the associated expansion in the supply of renewables energies, we are building an increasingly environmentally-friendly energy supply. We safeguard grid stability on behalf of our customers. We are additionally contributing to this transformation by making electricity generated from renewable energies usable in the heat and transport sectors. We are reducing the environmental burden on cities by developing and implementing innovative concepts for smart cities. Although the renewable share of our energy generation volumes is rising, the emissions resulting from the procurement, transmission, generation and use of energy are still one of the negative impacts of our business activities. We report on these in our climate balance sheet, **Page 45.** We also use limited natural resources. Furthermore, energy transmission may result in grid losses. Moreover, our land use and water consumption have an adverse impact on the environment and people. In individual cases, procurement of the resources and plant components we use may potentially have negative impacts in respect of human rights; we comment on this under **GRI 2-16**, **Page 16.** The various challenges and aspects associated with the energy system transformation form part of our business activities. The Executive Board develops and adopts the corporate strategy, which we present in detail in our Annual Report **www.mvv.de/AR2022, Page 21 onwards,** and monitors the resultant measures and their implementation. With an extensive investment programme that has a long-term focus and is based on our sustainability and decarbonisation targets, we are promoting the energy system transformation, largely on a project-by-project basis. Our measures cannot be viewed in isolation and allocated to just one business or organisational unit, as they involve topics that affect the whole of MVV. Here, the business fields also bear responsibility for the topics on a decentralised basis. We observe, analyse and assess the development in our market climate and carefully weigh up the opportunities and risks involved in entrepreneurial decisions. We assess the effectiveness of our measures by reference to the degree of target achievement for our sustainability and decarbonisation targets, which are presented on **Page 4.**

Supply reliability
As an energy company and distribution grid operator, we ensure that we provide our customers with a secure and reliable supply of energy. During the conversion in the energy system it will therefore still be necessary to smartly combine renewable energies with highly efficient, flexible and controllable power plants. The reliability, smartness and performance capacity of our grids have a key role to play in this respect. That is why we continually invest in maintaining, expanding and optimising our grids and plants and thus help to maintain supply reliability.

Sector coupling
We are actively involved in sector coupling and are pressing further ahead with this topic. In terms of the heat supply, our focus is currently on making conventional generation more flexible, for example by working with power-to-heat solutions such as heat storage facilities, and on e-mobility and activities involving the production and use of hydrogen.

Changed energy demand
The acceleration in the heat transition will produce significant shifts in demand for heat in the coming years already. Renovating buildings to enhance their energy efficiency may halve demand for heat in the long term. Moreover, the move away from natural gas now initiated will have repercussions in the form of growing electricity demand due to heat pumps, additional demand for district heat in large built-up areas and, in the long term, rising demand for green hydrogen. As a competent partner, we offer all customers – from private households to industrial players – the products and services they need to implement their own energy transitions. Another factor that influences energy demand is the changed energy market situation.

Changed infrastructures and smart cities
The trend towards smart cities is a process in which we act as a partner to local authorities and innovative municipal utility companies. Here, information and communications technology solutions can help in mastering the challenges involved.

Innovation
The change processes required to promote the development towards greater sustainability have to be driven and implemented by companies in particular. For the energy industry, the potential for innovation especially involves new technologies and digitalised services. Here, energy companies are not the prime movers who themselves develop new technologies based on their own fundamental research. Their role is rather to find the right fields of application in an energy system that is complex in terms of its technology and regulation and to ensure that such technologies are put to as sustainable use as possible. We have set ourselves the goal of developing smart energy products and innovative solutions that satisfy the needs of our customers.

Digital transformation
We make targeted use of digitalisation instruments to create modern hybrid ways of working and to enhance the efficiency and networking of our own business processes. We enhance our efficiency by optimising our own plants and grids with data-driven technologies and control systems. At the same time, we draw on digitalisation to analyse the energy situation for our customers and to structure individual optimal solutions. This way, we also reduce the long-term impact of energy consumption. Smart cities are another field of application now emerging for digital products. Viewed as a whole, the decentralised new energy world needs smart control and offsetting mechanisms. This being so, digitalisation, and here in particular the processing of large volumes of data using artificial intelligence (AI), is an important building block to make the energy industry, and thus also MVV, fit for the future.

Working with an information security management system based on the international norm DIN ISO 27001 and a continually optimised data protection management system, we manage and monitor the security of business processes in terms of IT and data protection law both centrally and on a decentralised basis and ensure that both information and personal data are protected against unauthorised viewing, loss or manipulation.

Material topic: Employees and Society (GRI 403 Occupational health and safety, GRI 404 Training and education, GRI 405 Diversity and equal opportunity, GRI 413 Local communities, MVV topic: Society)

Background

Motivated, healthy and well-qualified employees are crucial to MVV's success. Viewed in the long term, demographic trends and changes in the population structure will create additional challenges if we are to find and retain suitable employees in future as well.

We are working closely on building the energy system of the future and on expanding renewable energies. To increase acceptance by people on location, one factor that is crucial for many projects is to enter into open dialogue with our stakeholders and local communities. Furthermore, making a contribution to the common good in those regions in which we operate is also important to us.

We report on the policies applicable at MVV under **GRI 2-23, Page 18.**

Impacts, measures and effectiveness

The positive impacts of our business activities in the material topic of Employees and Society include the training positions and further training we offer, the precautionary measures we take to uphold occupational health and safety and our promotion of equal opportunities, particularly for women at the company. Moreover, local people benefit from our social commitment at our locations. In our business activities, there is the risk that work-related accidents may occur. We report on this potential negative impact under **GRI 403, Page 60 onwards.** The overwhelming share of our business activities in the year under report took place in Germany, the UK and the Czech Republic, i.e. in European countries where respect for human rights is a core aspect of entrepreneurial activity. We have received no indications that any negative impacts arose in respect of human rights in connection with our material topic of Employees and Society. Such impacts may nevertheless potentially arise in the supply chain; we comment on these under **GRI 2-16, Page 16.**

Employees

We offer attractive and secure jobs to our employees, who now number more than 6,500, in an environment in which everyone can make his or her contribution to promoting decarbonisation and upholding supply reliability. That is also a great responsibility, one that we are aware of and factor into our strategic decisions.

The coronavirus pandemic has presented us with particular challenges since the 2020 financial year. Working together, however, the Executive Board, managers, employees and employee representatives have managed these challenges successfully. The decisions we have taken to handle the crisis have enabled us to live the values underpinning our corporate culture – Community, Responsibility, Appreciation and Courage – in our daily work. To protect our employees and safeguard operating processes, we have agreed rules based on the respective status of the pandemic and implemented solutions. We amended our forms of working together, communicating with each other and entering into dialogue in line with requirements. We have noticed that these changes have influenced our activities, management and communication. We are monitoring these developments and will draw on the positive aspects at MVV in future as well. Our personnel strategy focuses on the following areas:

- Leadership: We are continually and systematically improving the quality of management at the company and adapting this in line with changing market and employee requirements.

- Demographics, work-life balance, remuneration management: We aim to remain an attractive employer. That is why we offer attractive remuneration packages and are committed to helping our employees combine their work with family or nursing care commitments. In our recruitment, we particularly focus on expanding diversity at the company and especially on equal opportunities for women.

- Work organisation: We are making continuing efforts to further develop our company and corporate culture and aim to retain and enhance our employees' skills. To this end, we invest in training our workforce and enhancing its willingness to embrace change. After all, we need highly trained, flexible and innovative specialists and managers who are keen to make their contribution to the new energy system. We are actively shaping our company for the future. Mobile work, for example, has become a fixed component of our work organisation.

- Talent management: We deliberately identify, support and cultivate upcoming talent – within the company from among our trainees and new recruits through to employees who have the potential to take on management positions, and externally with strong personnel recruitment efforts on the market.

We are promoting the company's development and boosting our attractiveness as an employer by expanding "Energy for Diversity", our strategic diversity management. We are convinced that diversity has a key part to play in any modern and innovative corporate culture and thus contributes to the company's success. Our approach is based on the pillars of promoting women, work and family and demographic management. To further strengthen equality of opportunity and participation by all employees, we have also intensified our inclusion measures for people who have disabilities or are temporarily ill. We also offer confidential advice and support to those colleagues who feel disadvantaged or discriminated against on account of their personal characteristics.

The Executive Board Personnel Director is responsible for all personnel-related activities. Reporting on relevant personnel topics is provided to the full Executive Board on a regular basis and whenever necessary due to individual events or topics. The specific structure and implementation of the personnel strategy is organised on a decentralised basis. This way, targeted focuses can be set in line with circumstances on location.

MVV has a Group Works Council, as well as works council bodies and committees on the relevant levels. The company's management works together with these bodies on a basis of trust, meaning that both the company's concerns and those of its workforce are accounted for in all significant decisions. The Supervisory Board of MVV Energie AG **www.mvv.de/supervisory-board** includes equal numbers of shareholder and employee representatives. This means that employee concerns are also central to any important company decisions.

We aim to protect the physical and mental wellbeing of our own employees and of those who work on our behalf. To this end, we are making ongoing efforts to improve work safety at the Group. Consistent with this objective, we have established groupwide programmes to increase safety at work. These programmes are taken up by the work safety officers on a decentralised basis and then backed up and supplemented with suitable measures. The current status is reported on Group level and discussed by the Executive Board on a quarterly basis. Further details about this management approach can be found in the reporting on
GRI 403, Page 60.

Over and above these topics, actively living our corporate culture is a factor of great importance to us **www.mvv.de/gelebte-energie.**

Local communities
A further important aspect of our responsibility towards society relates to our dealings with local communities. We have the responsibility to use our resources to promote the conversion in the energy system so as to provide a more sustainable and efficient energy supply and, to this end, to maintain a transparent dialogue with our stakeholders. For many of the projects involved in expanding renewable energies and the necessary infrastructure, acceptance by people on location is absolutely crucial. We are therefore committed to planning and implementing projects together with local populations and their representatives on location, promoting acceptance for these projects on the basis of dialogue and reaching decisions that also convince third parties. We remain closely in contact with the approval authorities for our projects and, following suitable agreement, make our planning documents, and in particular the relevant environmental compatibility aspects, available to local residents and the representatives of public concerns. Major building sites are announced by way of dialogue-based measures and, where necessary, backed up with events such as public question and answer sessions. We have adopted a project-specific approach which is handled on a decentralised basis by our subsidiaries and shareholdings.

Thanks to our social commitment, we contribute to the common good in those regions in which we operate. The way we deal with and exchange information with all relevant groups within society shapes the relationship between us as a company and local populations. As a general rule, our social commitment is project-based and supports the fields of social welfare, education, culture and sports. We set our focuses here in line with the specific context. Responsibility for our social commitment lies with the management of the respective companies.

Material Topics: Disclosures Relating to the Topic Standards

Economic Performance

GRI 201 ECONOMIC PERFORMANCE

GRI 201-1 Direct economic value generated and distributed

Creating value

In our input/output balance sheet **Page 40,** we present all significant flows of materials, energy, goods and money associated with our business activities. Our economic success is reflected in the adjusted EBIT and ROCE key figures. Consistent with the logic of business administration, these and other key earnings figures chiefly refer to the economic capital committed or created. Our value added statement supplements the perspectives provided in the input/output balance sheet, as well as those in the consolidated financial statements, as we present all the "added values" we create that are measured at market prices. Value added reflects the output generated at market prices and resulting from the efficient deployment of all resources – capital, employees and natural resources. It represents MVV's contribution to gross domestic product.

In our value added statement, we calculate the net value creation of our operations. This figure comprises our production value, from which our input costs and capital consumption are deducted. This measurement nevertheless only approximates to the value we actually create. After all, measuring net value creation on the basis of market prices does not account for non-monetary output such as intellectual capital and other external costs like adverse environmental impacts. As a company, we nevertheless aim to minimise any such impacts of our activities for society, people and the natural world. To bridge the gaps in the associated contents and methodologies, cross-industry approaches have been in development for several years now. One example is the approach developed by the Value Balancing Alliance, which we regularly analyse.

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Generation of value added

Euro million	**FY 2022**	FY 2021	+/– change	% change
Company performance [1]	4,814	4,507	+ 307	+ 7
Input costs [2]	– 3,458	– 3,273	+ 185	+ 6
Depreciation [3]	– 211	– 204	+ 7	+ 3
Value added	**1,145**	**1,030**	**+ 115**	**+ 11**

1 Mainly sales

2 Cost of materials/energy and fuel procurement, other expenses, other taxes

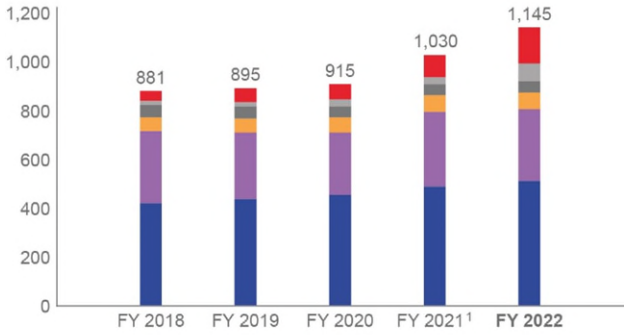
3 Previous year's figure adjusted

Utilisation of value added

Euro million		FY 2022	FY 2021	+/– change	% change
Recipient	**Utilisation**				
Employees	Wages, salaries and social security payments	511	487	+ 24	+ 5
State authorities	Taxes on income, other taxes, concession duties and levies	296	311	– 15	– 5
Shareholders	Dividend	69	69	0	0
Lenders	Interest expenses	50	48	+ 2	+ 4
Other shareholders	Share of group earnings attributable to non-controlling interests	72	27	+ 45	>+ 100
MVV [1]	Retention of earnings	147	88	+ 59	+ 67

1 Previous year's figure adjusted

ALLOCATION OF VALUE ADDED
Euro million



	FY 2022 Shares %
MVV (retention of earnings)	13
Minority interests (share of group earnings attributable to non-controlling interests)	6
Lenders (interest expenses)	4
Shareholders (dividend)	6
State authorities (taxes on income, other taxes, concession duties and levies)	26
Employees (wages, salaries and social security payments)	45

1 Previous year's figure adjusted

The figures presented in the value added statement for the year under report allow conclusions to be drawn as to fundamental trends. Adjusted sales rose, with this mainly being driven by price and volume factors for input costs, particularly commodities. The 11 % growth in value added nevertheless shows that this increase was not merely due to price factors; as a proportion of total sales, value added rose from 22.9 % to 23.8 %. The trend seen in recent years is thus continuing, and that in terms both of the absolute and of the relative increase in value added. The rise in absolute terms reflects our long-term growth strategy with a high volume of investment. The relative increase in value added as a share of sales indicates MVV's growing efficiency and our economic success.

We also present how we use this value added. Having raised the share of value added which we distributed to shareholders in the 2021 financial year compared with the 2020 financial year, we intend to maintain this share at a stable level for the year under report. We have based our dividend policy on continuity and the development in our operating earnings. We are therefore proposing a dividend of Euro 1.05 per share, and thus at the previous year's level, for approval by the Annual General Meeting. The distribution quota thus amounts to 39 % of adjusted annual net income after minority interests. The largest share of our value added is still attributable to our employees, with the year-on-year increase in this share chiefly being attributable to the higher number of employees.

The total volume of donations or funds invested in broader local communities is not calculated on group level, as this key figure is not relevant to our management of the company and the cost of collecting such information would be disproportionate to the benefit. This regional commitment is organised on a decentralised basis, as are the respective responsibilities. We describe this MVV topic of Society on **Page 67.**

GRI 203 INDIRECT ECONOMIC IMPACTS

GRI 203-1 Infrastructure investments and services supported

In our extensive investment programme, we have invested for years now in our existing plants, in expanding and maintaining our grid infrastructure, in developing smart grids and in energy storage systems. A further investment focus relates to renewable energies, where we have a constantly growing plant portfolio. This mainly involves onshore wind turbines, photovoltaics systems and biomass plants to generate electricity, heat and biomethane. We invested a total of Euro 335 million in the year under report.

Energy and Environment

GRI 301 MATERIALS

GRI 301-1 Materials used by weight or volume

Resource efficiency

At our conventional power plants, we generate electricity and heat by using fossil fuels, and here especially natural gas and hard coal, as well as regenerative fuels. These include both solid biomass and non-recyclable waste, as well as so-called refuse-derived fuels obtained from waste. They do not meet any narrower definition of fuels, as they are not used primarily to generate energy, but rather to fulfil the waste disposal mandate. Typically, half the waste results from biogenic sources; this share therefore counts as renewable.

The fuel efficiency rate key figure shows the efficiency of generation by presenting the volume of end energy generated (electricity and heat) as a ratio of the energy input (primary energy). If the fuel efficiency rate increases, the generation portfolio has a higher yield. By continually increasing the fuel efficiency rates of our plants, we reduce the volume of fuels used and cut emissions. In the year under report, our plants had an average fuel efficiency rate of 66 %. Our energy yield is thus ahead of the German average for generation activities. The Working Group on Energy Balances (AG Energiebilanzen) published an average fuel efficiency rate of 51.9 % for electricity generation at German power plants in 2021.

We operate our major generation plants almost exclusively with highly efficient combined heat and power (CHP) generation. After all, the fuel efficiency rate for CHP is significantly higher than when electricity and heat are generated separately. The year under report witnessed a reduction in the share of electricity generation volumes attributable to combined heat and power generation, see **Page 51,** a development due above all to the operating mode at the Grosskraftwerk Mannheim power plant. Given higher demand for conventional electricity generation as a result of the war in Ukraine – and to uphold supply reliability – our other electricity generation volumes were 31 % higher in the year under report than in the previous year. This increase reflects temporary one-off factors rather than structural changes in MVV's generation portfolio. Depending on the situation on electricity markets, this circumstance could nevertheless continue in the 2023 financial year as well. Potential consequences would include negative impacts on the fuel efficiency rate, as well as on CO_2 emissions.

The volume of fuel used in individual financial years largely depends on developments in weather conditions and market prices, as well as on the properties of the fuel in question. In the year under report, the geopolitical situation also had a significant impact. By-products, primarily ash and slag **Page 50,** arise in our energy from waste and CHP plants. The volume of this ash and slag is determined by technical factors or by the fuels used and does not lie within our control. Wherever, technically possible and economically viable, we put these by-products to further use. After suitable treatment, they are returned to the economic cycle, for example as products for the construction industry. Non-reusable residual volumes have to be disposed of in accordance with legal requirements. Other by-products and toxic or hazardous substances, such as polychlorinated biphenyls (PCBs), only play a subordinate role in our business activities. The handling of such substances and relevant control mechanisms are regulated in our management systems for work safety and for quality and the environment.

Fuels and waste used at power plants and energy from waste plants
Fully consolidated companies

	FY 2022	FY 2021	+/– change	% change
Biomass (tonnes 000s)	522	528	– 6	– 1
Waste/RDF (tonnes 000s)	2,018	2,014	+ 4	0
Natural gas (kWh million)	2,939	3,490	– 551	– 16
Hard coal (tonnes 000s)	84	65	+ 19	+ 29
Other fossil fuels (kWh million)	354	307	+ 47	+ 15

Fuels and waste used at power plants and energy from waste plants
Fully consolidated companies and companies recognised at equity

	FY 2022	FY 2021	+/– change	% change
Biomass (tonnes 000s)	559	566	– 7	– 1
Waste/RDF (tonnes 000s)	2,018	2,014	+ 4	0
Natural gas (kWh million)	2,954	3,501	– 547	– 16
Hard coal (tonnes 000s)	806	688	+ 118	+ 17
Other fossil fuels (kWh million)	354	307	+ 47	+ 15

Average fuel efficiency rate
Fully consolidated companies

%	FY 2022	FY 2021	+/– change	% change
Average fuel efficiency rate	68	67	+ 1	+ 1

Average fuel efficiency rate
Fully consolidated companies and companies recognised at equity

%	FY 2022	FY 2021	+/– change	% change
Average fuel efficiency rate	66	67	– 1	– 1

Coal use

Targets set out in German Climate Protection Act require exit from coal use by 2030

With the revision to the German Federal Climate Protection Act (KSG) that came into effect at the end of August 2021, lawmakers have on federal level taken due account both of European climate targets and of the ruling adopted by the Federal Constitutional Court with regard to climate justice (ruling of the First Senate dated 24 March 2021). The centrepiece of the legislation involves the obligation to reduce greenhouse gas emissions in Germany by at least 65 % by 2030. For the energy industry, this target means that it will only be permitted to emit a maximum of 108 million tonnes of CO_{2eq} in 2030, a reduction of 57 % compared with 2019. This can only be achieved if coal-based generation is largely discontinued.

In its Coalition Agreement from 2021, the Federal Government agreed that Germany would “ideally” exit from coal-based energy generation by 2030. To achieve this, it will be necessary to streamline the relevant legislative procedures and bring forward the decommissioning of coal-based power plants either with market-based measures or on the basis of regulatory requirements. At the same time, the Federal Government aims to promote investments in renewable generation capacities. In the heat sector, the relevant target provides for a 50 % share of climate-neutral heat by 2030.

These targets present great challenges for district heating systems in large built-up areas. Within nine years, the operators of these systems will have to convert practically all of their heat generation to renewable sources. Gas-based plants will also be used on a transitional basis. As the exit from all fossil fuels is foreseeable, however, the energy industry will have to rely here on “H2-ready” technology, i.e. plants capable of conversion at relatively low cost to high shares of hydrogen in the fuel used. The manufacturers have committed to making such plants available in the foreseeable future. MVV announced many years ago already that we will skip the interim stage of natural gas-based generation and convert the heat generation for the district heat grid in Mannheim and parts of the Rhine-Neckar region directly to green heat sources. Energieversorgung Offenbach is also pressing ahead with comparable plans adapted to local conditions.

To promote the decarbonisation of district heat grids, at the beginning of August 2022 the European Commission provided its approval for the long-awaited Federal Funding for Efficient Heat Networks (BEW). This will become the most important instrument for us as well when it comes to expanding green heat. It provides funding both for individual investments in green heat generation and for projects aimed at decarbonising entire district heat grids. The funding policy entered effect in mid-September 2022. We report on the decarbonisation of our district heat supply under **GRI 302-5,** **Page 41.**

Coal-based generation at MVV

With its capacity of 60 MW_e, the power plant in Offenbach is now the only hard coal-fired power plant in our conventional generation portfolio. Due to the lead time needed to build new low-CO_2 heat generation capacity, we expect this plant to be decommissioned in a few years. Via our former subsidiary MVV CZ, in the year under report we operated several small coal-based plants in the Czech Republic to generate and secure the heat supply. We sold this subsidiary on 9 December 2022. We will discontinue all use of coal at the latest by the end of this decade.

We are a minority shareholder in Grosskraftwerk Mannheim AG (GKM), with a 28 % stake, and do not operate this plant ourselves. GKM currently still operates three hard coal-fired CHP blocks. Block 9 at GKM is one of the newest and most efficient hard coal-fired power plants in Germany. At the end of 2022, GKM responded to an initiative by the Federal Government by deciding to offer Block 7, until that time in the grid reserve, on the electricity market on a temporary basis once again from 1 January 2023 in the interests of upholding supply reliability. In general, we base our plans and measures on coal-based electricity generation being discontinued by the end of the 2020s. The setting of specific decommissioning dates for individual power plant blocks is subject to the proviso of supply reliability, as well as to the legal framework and the agreements reached with GKM and its shareholders. The speed at which substitute green technologies and backup capacities for district heat generation become available also plays a role in this respect. The coal exit legislation does not stipulate the precise modalities and dates for the decommissioning process.

Water use

We report on our water use in the Combined Non-Financial Declaration in our Annual Report, **www.mvv.de/AR2022, Page 70.**

Sustainable circular economy

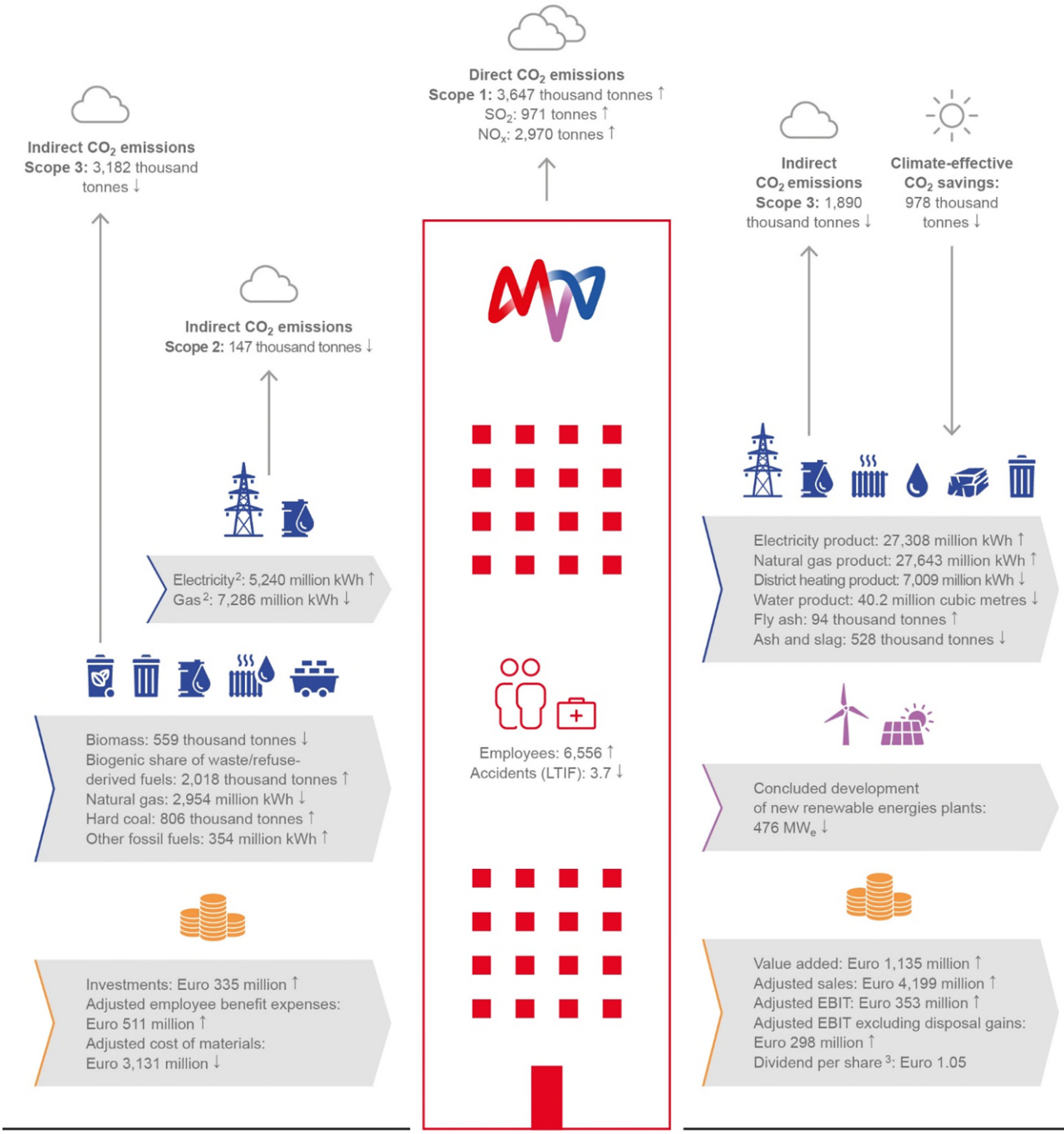
We provide information about the sustainable circular economy in the Combined Non-Financial Declaration in our Annual Report, **www.mvv.de/AR2022, Page 73.**

Environmental impacts in our input/output balance sheet

We have compiled an input/output balance sheet each year for several years now. This can be seen on **Page 40.** This visualisation compares our most important environmental impacts with our value added.

MVV'S INPUT/OUTPUT BALANCE SHEET[1]

Fully consolidated and at-equity companies



1 With change compared to previous year (↓ decrease, ↑ increase)
2 Excluding sales volumes from trading transactions
3 Subject to approval by Annual General Meeting on 10 March 2023

GRI 302 ENERGY

GRI 302-5 Reductions in energy requirements of products and services

Energy efficiency

Energy efficiency involves reducing both the amount of end energy consumed and the volume of primary energy used for generation. We aim to enhance energy efficiency at our plants and for our customers.

By making targeted investments, we are enhancing the efficiency of our generation plants and minimising grid losses resulting from the operation of our electricity and heat grids. With our products and services, we in turn support our customers not only to reduce the energy used by their own plants but also to optimise their energy management. We assess the increase in energy efficiency at our generation plants due to modernisation measures on a project-by-project basis. The projects listed below are examples and show how rising levels of energy efficiency at the plants are also accompanied by lower CO_2 emissions.

Increasing the efficiency of our own generation and our infrastructure

A major share of our environmental protection activities on local level comprises investments in modernising our plants. These are intended to save resources by achieving greater efficiency. The energy management system (ISO 50001) at MVV Umwelt means that, alongside major programmes such as decarbonising district heat in Mannheim, numerous smaller efficiency measures are planned, audited and implemented on an ongoing basis.

Primary energy
The primary energy factor (PEF) indicates the efficiency of infrastructure. It presents the ratio of primary energy used to the volume of end energy yielded and is relevant for meeting legal requirements governing heat insulation and building facility technology. We calculate the PEF for our major district heat supply systems in Mannheim, Offenbach and Kiel. The lower the PEF is, the more environmentally friendly and efficient the fuel use is.

The German Building Energy Act (GEG) will be amended in 2023 in order to implement the obligation set out in the Coalition Agreement to use 65 % renewable energies in new heat systems. According to a key issues paper that is available, connection to our district heat systems will be one option for customers to meet this obligation.

Decentralised natural gas or oil-fired heat systems are currently assessed with a PEF of 1.1, while uncertified district heat from combined heat and power has a standardised PEF of 0.7.

Primary energy factor for district heat grids

	FY 2022	FY 2021
Mannheim district heat supply system	0.42	0.42
Offenbach district heat supply system	0.25	0.25
SWKiel district heat supply system	0.28	0.28

In absolute terms, our primary energy consumption is determined by demand levels on the wholesale markets, i.e. by wholesale electricity prices and the generation margin (clean dark spread or clean spark spread). We report on the fuels used at our power plants under **GRI 301-1,** **Page 37.**

Energy efficiency projects
District heat from highly efficient combined heat and power generation or renewable energies represents a key lever for reducing primary energy use, as well as for implementing the heat transition. To decarbonise the district heat supply, we are compiling various concepts which account for all significant forward-looking technologies. At our Mannheim location, we can already generate up to 30 % of annual district heat volumes from green heat sources. The next specific steps we will take to decarbonise district heat in Mannheim and the region are:

- Launch of operations with MVV's first river heat pump at the end of 2023. With heat generation capacity of 20 MW_t, we will be able to draw on the environmental heat in the Rhine from the coming heating period.
- Construction work is underway at the Mannheim location for a sewage sludge treatment plant with a capacity of up to 135,000 tonnes of sewage sludge a year, where we intend to launch operations in 2023. In addition to the energy yield, we will in future also be able to recover phosphorous from the sewage sludge that can then be used in fertiliser production.
- We will launch operations with the backup plants currently being built in 2024 at the latest. This way, we will meet the technical preconditions for decommissioning Block 8 at GKM.
- We are extending our biomass power plant (waste timber) to include a heat extraction facility. With a future heat extraction capacity of 45 MW_t, this CHP plant will make a major contribution to the district heat supply in regular operations from 2024 onwards.

- We are gradually tapping the potential for industrial waste heat at the plants in our energy and recycling park.

- We will access regional potential for deep geothermal energy. With GeoHardt, a joint venture with EnBW, we are investigating up to three preferred areas for geothermal energy plants to the south of Mannheim. Moreover, we have signed a cooperation agreement with Vulcan Energy for the medium-term supply of geothermal heat.

We are currently investigating further options in detail. Examples include solutions such as further river heat pumps, biomethane CHP plants and the use of further industrial waste heat potential. We are also working on green heat concepts at MVV's other locations with heat activities.

At our Offenbach location, we already use a plant at which we incinerate 80,000 tonnes of sewage sludge a year. As the sewage sludge is almost exclusively of biogenic origin, the waste heat gained from incineration can be used to displace fossil-based generation at the CHP plant in Offenbach and thus reduce primary energy use.

Increasing energy efficiency at customers

We support our customers in the industrial, retail, commercial and real estate sectors in reducing energy input in their systems and optimising their energy management. Our portfolio includes, for example, electricity and gas procurement, solutions for sustainable energy generation, digital energy data management, billing services, contracting, smart metering, e-mobility, LED solutions for lighting concepts and energy-efficient data centres. We build energy efficiency partnerships with our customers in which we combine modern measurement technology, software and services. This way, we can make all energy and process costs and all consumption visible to our customers, automate their monitoring and reporting and compile and implement plans to optimise all these factors. We thus provide our customers with comprehensive solutions and services for all aspects of energy efficiency. We perform all of the above economic activities in alignment with the EU Taxonomy Regulation, as a result of which our customers can state the associated investments (CapEx) and operating expenses (OpEx) in their reporting and, where applicable, benefit from more favourable borrowing conditions.

We are currently converting steam generation for a customer from gas to biomass. From 2023, the new, more efficient plant will produce around 90 % of the process steam required by the customer by incinerating the cocoa husks incurred on location. This will simultaneously reduce CO_2 emissions by 8,000 tonnes a year. Alongside planning and implementation, we have also assumed responsibility for financing and managing operations at the plant over a period of 16 years.

Grid losses

Grid losses occur when electrical energy is transported in electricity grids. They particularly arise due to electrical resistance in the transmission cables and transformation losses between various voltage levels. Grid losses in heat energy grids are due to technical factors and mainly relate to the transport route between the source of the heat and the heat sink. The scale of grid losses depends on how well insulated the transport pipes are. The most important factors determining the scale of losses nevertheless involve natural circumstances, such as temperatures and weather conditions.

Grid losses at MVV

kWh million	**2021** [1]	2020 [1]	+/– change	% change
Electricity	138	131	+ 7	+ 5
Heat	486	481	+ 5	+ 1

1 Calendar year

Grid losses can be reduced with long-term infrastructure measures, such as improved pipe insulation, temperature reduction and other technical methods. In the case of electricity, the change compared with the previous year is mainly due to grid losses resulting from cable defects at Stadtwerke Kiel. The slight increase for heat is due above all to weather-related factors.

MVV TOPIC RENEWABLE ENERGIES

Renewable energies

Active contribution to meeting climate protection targets

At least of 80 % of electricity generation in Germany should be based on renewable energies by 2030. It should be based almost entirely on renewable energies by 2035 at the latest. These will play a key role in enabling the national climate protection targets to be met. For our company, this situation harbours growth potential; not least because of this, renewable energies are a key focus of our strategic alignment. By expanding renewable energies, we are also making a measurable contribution to achieving climate protection targets on behalf of society as a whole.

In this area as well, we set two specific sustainability targets in 2016 already and intend to reach these by the end of the 2026 financial year.

On the one hand, in the period from 2016 to 2026 we will double our proprietary electricity generation from renewable energies from more than 400 MW to more than 800 MW. This target of doubling our generation also covers the shareholdings we recognise at equity. To reach our target, we are consistently investing in expanding our renewable energies generation portfolio. Main focuses here relate above all to onshore wind turbines and, more recently, photovoltaics systems as well.

In the 2022 financial year, we made further progress on the way to reaching our target. Including our shareholdings recognised at equity, our electricity generation capacity from renewable energies stood at 614 MW at the end of the 2022 financial year, 50 MW higher than one year earlier. This growth was mainly driven by the expansion in our wind power and photovoltaics portfolio.

On the other hand, between 2016 and 2026 we are connecting 10,000 MW of renewable energies to the grid. We have all-round expertise in developing, building and launching operations with renewable energies plants. We aim to reach the projecting target in particular by installing onshore wind turbines and photovoltaics systems both in Germany and abroad. Biomass and photovoltaics systems at customers' locations will contribute smaller amounts.

Since the beginning of the 2017 financial year, we have connected renewable energies plants with capacities of 3,229 MW to the grid. In the 2022 financial year, we added new capacities of 476 MW.

Transformation of the generation portfolio

Electricity generation capacity
Fully consolidated companies

MW_e	**FY 2022**	FY 2021	+/– change	% change
Biomass and biogas plants [1]	109	105	+ 4	+ 4
EfW [2]	176	176	0	0
Wind power	275	250	+ 25	+ 10
Photovoltaics	24	3	+ 21	>+ 100
Hydroelectricity	2	2	0	0
Renewables and EfW	**586**	**536**	**+ 50**	**+ 9**
Conventional CHP and other activities	330	329	+ 1	0
Total	**916**	**865**	**+ 51**	**+ 6**

1 Including biomethane plants

2 Including RDF plants

Electricity generation capacity
Fully consolidated companies and companies recognised at equity

MW_e	**FY 2022**	FY 2021	+/– change	% change
Biomass and biogas plants [1]	121	117	+ 4	+ 3
EfW [2]	176	176	0	0
Wind power	290	265	+ 25	+ 9
Photovoltaics	25	4	+ 21	>+ 100
Hydroelectricity	2	2	0	0
Renewables and EfW	**614**	**564**	**+ 50**	**+ 9**
Conventional CHP and other activities	703	702	+ 1	0
Total	**1,317**	**1,266**	**+ 51**	**+ 4**

1 Including biomethane plants

2 Including RDF plants

Heat generation capacity
Fully consolidated companies

MW_t	**FY 2022**	FY 2021	+/– change	% change
Biomass and biogas plants	99	34	+ 65	>+ 100
EfW [1]	762	759	+ 3	0
Green heat capacity	**861**	**793**	**+ 68**	**+ 9**
Conventional CHP and other activities	1,596	1,737	– 141	– 8
Total	**2,457**	**2,530**	**– 73**	**– 3**

1 Including RDF plants

Heat generation capacity
Fully consolidated companies and companies recognised at equity

MW_t	**FY 2022**	FY 2021	+/– change	% change
Biomass and biogas plants	99	34	+ 65	>+ 100
EfW [1]	762	759	+ 3	0
Green heat capacity	**861**	**793**	**+ 68**	**+ 9**
Conventional CHP and other activities	3,150	3,292	– 142	– 4
Total	**4,011**	**4,085**	**– 74**	**– 2**

1 Including RDF plants

The generation capacity of our biomethane plants stood at 34 MW at the end of the 2022 financial year (previous year: 30 MW). The increase is due to our new plant in Bernburg. The biomethane produced at our plants in an environmentally compatible manner is one of the most versatile green fuels. It can be used both to generate electricity and heat and as a fuel for vehicles. In the medium term, we plan to further expand our biomethane generation capacities from waste digestion.

Project development business strengthened in 2022 financial year

We merged our subsidiaries Juwi O & M and Windwärts into Juwi in the year under report and redesigned this company's market and brand presence. With Juwi, we offer end-to-end project development and services for planning, building and managing operations at onshore wind turbines and ground-mounted photovoltaics plants, as well as for hybrid projects, i.e. systems combined with battery storage facilities. Moreover, we also strengthened our project development business for rooftop photovoltaics in the B2B segment by taking over Avantag in the 2022 financial year.

Completed development of new renewable energies plants

MW_e	**FY 2022**	FY 2021	+/– change	% change
Wind power	58	92	– 34	– 37
Photovoltaics	418	518	– 100	– 19
Total	**476**	**610**	**– 134**	**– 22**

The project development business is inherently volatile, both in Germany and in our international markets. The volume of new renewable energies plants at which operations are launched each year depends, among other factors, on social and political acceptance, the length of approval processes, regulations governing subsidies for renewable energies and specific implementation dates for individual projects. The volume can therefore vary widely from year to year. Moreover, changes in underlying conditions, such as those due to the coronavirus pandemic or changes in national subsidy mechanisms for renewable energies, may have a notable impact on the implementation of projects.

Operations management for renewable energies plants

MW_e	**FY 2022**	FY 2021	+/– change	% change
Wind power	1,261	1,282	– 21	– 2
Photovoltaics	2,518	2,529	– 11	0
Total	**3,779**	**3,811**	**– 32**	**– 1**

GRI 305 EMISSIONS

GRI 305-1 Direct (Scope 1) GHG emissions, and

GRI 305-2 Energy indirect (Scope 2) GHG emissions, and

GRI 305-3 Other indirect (Scope 3) GHG emissions

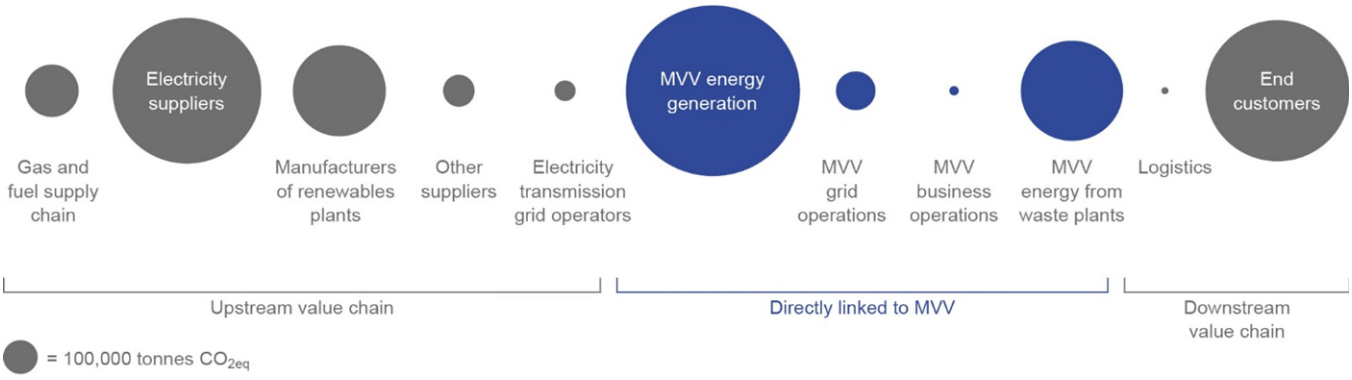
STRUCTURAL COMPOSITION OF OUR CLIMATE BALANCE SHEET

36 %	2 %	41 %	21 %
Scope 3 upstream	**Scope 2[1]**	**Scope 1**	**Scope 3 downstream**
» Purchased electricity and heat » Purchased goods and services » Upstream emissions for fuels and transport » Grid losses for purchased electricity and heat » Business travel and employee commuting	» Grid losses in proprietary grids » Energy consumption at business locations	» Energy industry: energy generation (electricity, heat) » Disposal industry: EfW, RDF » Methane and sulphur hexafluoride emissions in grid and plant operations	» Burning by end customers of natural gas sold » Emissions from customer use of sold products and generation plants » Emissions from customer disposal of sold products » Waste

1 Location-based

DIRECT AND INDIRECT CO_2 SOURCES AT MVV

Fully consolidated companies and companies recognised at equity



Our climate balance sheet for the year under report

MVV's climate balance sheet

In our climate balance sheet, we distinguish between direct and indirect CO_2 emissions. The generation of energy at our own plants or at plants from which we procure contingents gives rise to **direct CO_2 emissions.** These are designated as **Scope 1** under the Greenhouse Gas Protocol.

On the one hand, direct CO_2 emissions are influenced by weather-based demand for heat and by developments in wholesale electricity prices. These factors cannot be influenced by MVV but are reflected in capacity utilisation rates at our generation plants. On the other hand, the medium to long-term development in direct emissions largely depends on the dates at which existing plants are decommissioned and the new plants required to uphold the supply.

Our direct Scope 1 emissions showed a year-on-year increase of 4 % in the 2022 financial year. The main reason for this was the increased production at coal-based CHP plants due to the changed market situation in connection with the geopolitical consequences of the war in Ukraine.

Indirect CO_2 emissions, Scope 2, mainly result from the energy we use for our business operations outside energy generation. These emissions are only of subordinate significance at MVV and were 28 % higher in the year under report than in the previous year.

Indirect CO_2 emissions, Scope 3, comprise greenhouse gases arising in upstream and downstream stages of the value chain. CO_2 emissions in upstream value chain stages arise at suppliers manufacturing products and services purchased by MVV. These relate, for example, to the production of photovoltaics systems and wind turbines or the procurement of electricity not generated by MVV. Emission activities in downstream stages of the value chain chiefly involve the use of natural gas supplied by MVV to its customers. The annual development in Scope 3 emissions is chiefly determined by sales volumes for electricity, gas and heat, as well as by volumes in the renewable energies project development business. This key figure also includes emissions from non-commodities procurement activities. In the interests of transparency, from the 2022 financial year we are reporting further non-material emissions sources in our climate balance sheet.

The reduction in Scope 3 emissions by 4 % in the 2022 financial year largely reflects the lower volume of gas turnover and the development in our project development business.

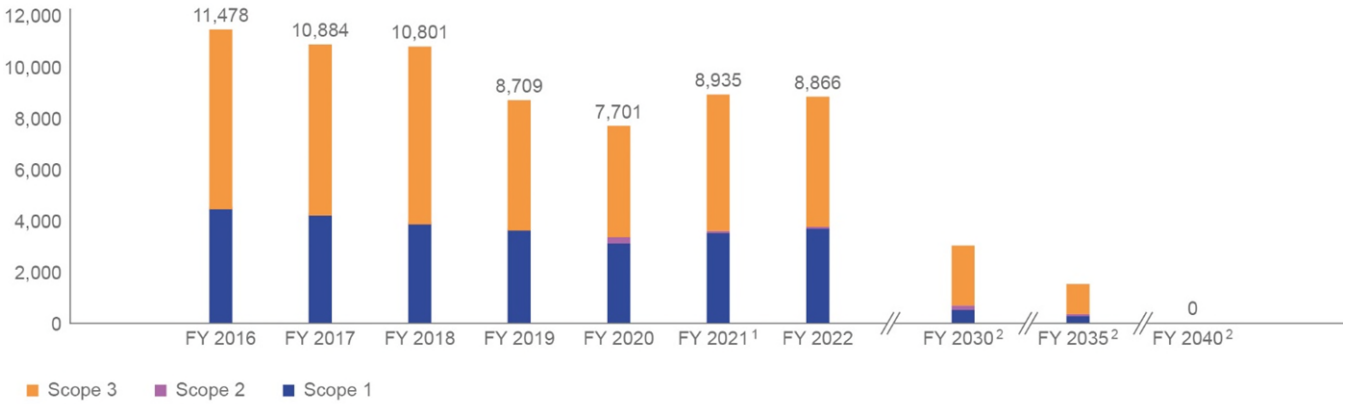
We still expect to be able to meet our decarbonisation targets for 2030, 2035 and 2040.

We include CO_2, CH_4, N_2O, HFC, PFC, SF_6 and NF_3 in the calculation of CO_2 emissions (CO_2 equivalents).

DEVELOPMENT IN TOTAL EMISSIONS

Fully consolidated and at-equity companies

1,000 tonnes CO_{2eq}



1 Previous year's figures adjusted

2 Target figures: simplified assumption of linear development for Scope 1 in 2035 and Scope 3 in 2030

Climate balance sheet
Fully consolidated companies

1,000 tonnes CO_{2eq}	**FY 2022**	FY 2021	+/– change	% change
Direct CO_2 emissions (Scope 1) [1, 2]	1,941	2,013	– 72	– 4
Energy industry activities [2]	995	1,064	– 69	– 6
of which CH_4 emissions [3, 4]	55	69	– 14	– 20
of which SF_6 emissions [4, 5]	1	5	– 4	– 80
Disposal activities (EfW) [6]	946	949	– 3	– 0
Indirect CO_2 emissions (Scope 2) [2, 7]	144	112	+ 32	+ 29
of which energy procured for proprietary plants [2]	7	7	0	0
of which energy used for grid operations [2]	137	105	+ 32	+ 30
Indirect CO_2 emissions (Scope 3) [2]	5,578	6,039	– 461	– 8
of which purchased goods and services (GHG category 1) [8]	872	986	– 114	– 12
of which fuel and energy-related activities (GHG category 3)	2,868	3,108	– 240	– 8
of which waste generated in operations (GHG category 5) [4]	1	1	0	0
of which business travel (GHG category 6) [4]	1	1	0	0
of which employee commuting (GHG category 7) [4]	6	6	0	0
of which use of sold products (GHG category 11) [2]	1,827	1,934	– 107	– 6
of which end-of-life treatment of sold products (GHG category 12) [4]	1	1	0	0
of which downstream leased assets (GHG category 13) [4]	2	2	0	0
Net CO_2 savings	1,006	1,030	– 24	– 2
For information: indirect emissions from gas grid use by third-party sales operations [4, 9]	620	525	+ 95	+ 18
For information: climate-neutral biogenic emissions	1,647	1,661	– 14	– 1

1 We refer to industry-typical factors from GEMIS/Öko-Institut for fuel-related emissions, the emissions factors issued by the Federal Environment Agency (UBA) for electricity and the certified emissions factors of the respective locations for district heat.

2 Previous year's figure adjusted

3 Emissions from gas motor combustion

4 Reported for the first time; data in some cases refer to calendar years and are in some cases not collected each year.

5 Inspection work performed on an older plant enabled leakages to be remedied, significantly reducing SF_6 emissions.

6 Including RDF plants

7 Indirect Scope 2 emissions (location-based) cover the Mannheim, Kiel and Offenbach locations and are recorded on a calendar year basis.

8 GHG Protocol methodology used: spend-based and average data method

9 Due to its SBTi certification, MVV is required to publish regular reports. This involves natural gas volumes channelled by other energy companies through our gas grids.

Climate balance sheet
Fully consolidated companies and companies recognised at equity

1,000 tonnes CO_{2eq}	**FY 2022**	FY 2021	+/– change	% change
Direct CO_2 emissions (Scope 1) [1, 2]	3,647	3,510	+ 137	+ 4
Energy industry activities [2]	2,701	2,561	+ 140	+ 5
of which CH_4 emissions [3, 4]	55	69	– 14	– 20
of which SF_6 emissions [4, 5]	1	5	– 4	– 80
Disposal activities (EfW) [6]	946	949	– 3	– 0
Indirect CO_2 emissions (Scope 2) [2, 7]	147	115	+ 32	+ 28
of which energy procured for proprietary plants [2]	7	7	0	0
of which energy used for grid operations [2]	140	108	+ 32	+ 30
Indirect CO_2 emissions (Scope 3) [2]	5,072	5,310	– 238	– 4
of which purchased goods and services (GHG category 1) [8]	872	986	– 114	– 12
of which fuel and energy-related activities (GHG category 3)	2,302	2,270	+ 32	+ 1
of which waste generated in operations (GHG category 5) [4]	1	1	0	0
of which business travel (GHG category 6) [4]	1	1	0	0
of which employee commuting (GHG category 7) [4]	6	6	0	0
of which use of sold products (GHG category 11) [2]	1,887	2,043	– 156	– 8
of which end-of-life treatment of sold products (GHG category 12) [4]	1	1	0	0
of which downstream leased assets (GHG category 13) [4]	2	2	0	0
Net CO_2 savings	978	1,002	– 24	– 2
For information: indirect emissions from gas grid use by third-party sales operations [4, 9]	620	525	+ 95	+ 18
For information: climate-neutral biogenic emissions	1,706	1,721	– 15	– 1

1 We refer to industry-typical factors from GEMIS/Öko-Institut for fuel-related emissions, the emissions factors issued by the Federal Environment Agency (UBA) for electricity and the certified emissions factors of the respective locations for district heat..

2 Previous year's figure adjusted

3 Emissions from gas motor combustion

4 Reported for the first time; data in some cases refer to calendar years and are in some cases not collected each year.

5 Inspection work performed on an older plant enabled leakages to be remedied, significantly reducing SF_6 emissions.

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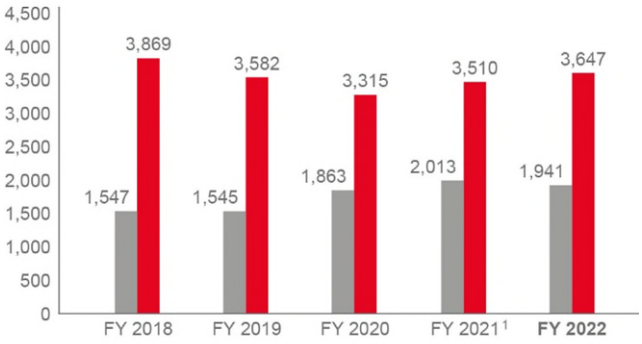
7 Indirect Scope 2 emissions (location-based) cover the Mannheim, Kiel and Offenbach locations and are recorded on a calendar year basis.

8 GHG Protocol methodology used: spend-based and average data method

9 Due to its SBTi certification, MVV is required to publish regular reports. This involves natural gas volumes channelled by other energy companies through our gas grids.

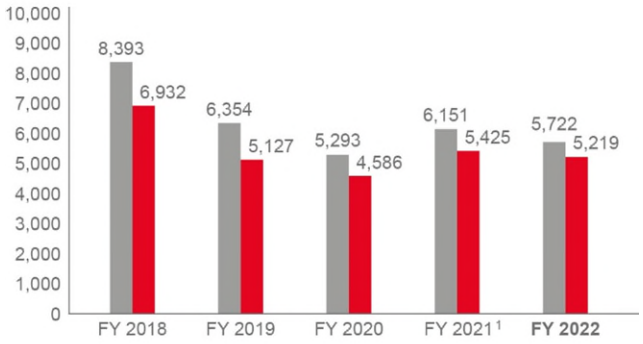
DIRECT CO_2 EMISSIONS (SCOPE 1)
1,000 tonnes $CO_{2\ eq}$



Fully consolidated companies
Fully consolidated companies and companies recognised at equity

1 Previous year's figure adjusted

INDIRECT CO_2 EMISSIONS (SCOPE 2+3)
1,000 tonnes $CO_{2\ eq}$



Fully consolidated companies
Fully consolidated companies and companies recognised at equity

1 Previous year's figure adjusted

GRI 305-4 GHG emissions intensity

Increase in specific CO_2 emissions

Due to the higher volume of conventional electricity generation, the specific CO_2 emissions for our generation portfolio increased compared with the previous year. The CO_2 intensity figure presents the Group's direct CO_2 emissions in Scope 1 as a proportion of its electricity and heat generation volumes. The specific heat emissions represent the volume-weighted average of the certified and published specific emission factors for the individual district heating grids.

Specific CO_2 emissions in the groupwide generation portfolio

g CO_2/kWh	**FY 2022**	FY 2021
Electricity generation	460	422
Heat generation	122	124
Energy generation in the generation portfolio	249	231

Climate protection measures

Climate protection – reduction in our emissions

1,000 tonnes CO_{2eq}	**Main medium-term measures to reduce CO_2**
Direct CO_2 emissions (Scope 1)	
Energy industry	Gradual decommissioning of fossil-based generation plants and expansion in renewable energies
Disposal activities (EfW)	Construction of a pilot carbon capture plant in Mannheim in 2023 and promotion of plans to scale up on an industrial scale
Indirect CO_2 emissions (Scope 2)	
of which energy procured for proprietary plants	Energy efficiency measures in buildings and procurement of green energies
of which energy used for grid operations	Technical measures to reduce grid losses
Indirect CO_2 emissions (Scope 3)	
of which purchased goods and services (GHG category 1)	Promote green procurement, improve quality of CO_2 data from upstream suppliers and develop suppliers in specific areas
of which fuel and energy-related activities (GHG category 3)	Gradual decommissioning of fossil-based generation plants
of which waste generated in operations (GHG category 5)	Operative measures in environmental management systems
of which business travel (GHG category 6)	Increased avoidance of air travel and greater use of rail travel
of which employee commuting (GHG category 7)	Communications campaign for employees to use "Jobticket"
of which use of sold products (GHG category 11)	Long-term fuel switch from natural gas to other fuels (e.g. district heat, hydrogen or heat pumps)
of which end-of-life treatment of sold products (GHG category 12)	Improve basis of data and in the long term the PCF of upstream products
of which downstream leased assets (GHG category 13)	No measures currently planned

GRI 305-7 Nitrogen oxides (NOx), sulphur oxides (SOx) and other significant air emissions

Local environmental protection and management systems

We operated our plants in accordance with the approvals granted and relevant legal requirements once again in the 2022 financial year. We continually monitored compliance with the relevant threshold values.

Operative environmental protection aspects form part of the environmental and energy management systems at our companies, which are responsible for these on a decentralised basis. Our energy and environmental management systems were enhanced and recertified for the relevant companies with energy infrastructure. Our subsidiary MVV Netze successfully introduced EMAS as a management system for the first time at the end of 2022.

Other emissions and by-products
Fully consolidated companies

Tonnes	**2021** [1]	2020 [1]	+/– change	% change
NO_x	2,385	2,367	+ 18	+ 1
SO_2	597	528	+ 69	+ 13
Dust	18	11	+ 7	+ 64
Fly ash	41,104	36,568	+ 4,536	+ 12
Ash and slag	525,824	527,203	– 1,379	0

1 Calendar year

Other emissions and by-products
Fully consolidated companies and companies recognised at equity

Tonnes	**2021** [1]	2020 [1]	+/– change	% change
NO_x	2,970	2,924	+ 46	+ 2
SO_2	971	885	+ 86	+ 10
Dust	28	18	+ 10	+ 56
Fly ash	94,039	90,470	+ 3,569	+ 4
Ash and slag	528,235	529,882	– 1,647	0

1 Calendar year

System Transformation

MVV TOPIC SUPPLY RELIABILITY

Energy companies play a key role in the energy system transformation by investing in the energy infrastructure to prepare this for the energy transition and make it fit for the future. At the same time, they perform what is for society the important task of ensuring that the supply of electricity, gas, heat and water remains reliable and stable. The advancing energy transition raises new questions, as the volume of electricity fed in from wind turbines or photovoltaics systems fluctuates in line with weather conditions and the time of day. As an energy company and distribution grid operator, we ensure that we at all times provide our customers with a secure and reliable supply of energy. That makes it necessary at first to smartly combine renewable energies with highly efficient, flexible and controllable power plants and suitable energy storage facilities that generate electricity with conventional fuels.

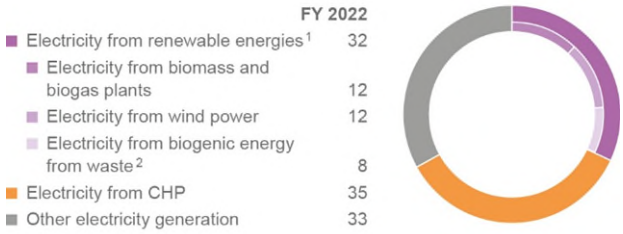
The reliability, smartness and performance capacity of our grids also have a key role to play in this respect. That is why we continually invest in maintaining, expanding and optimising our grids and plants and thus help to maintain supply reliability.

To shape the energy system transformation along social, ecological and economic lines, we are working to an increasing extent with renewable and to a decreasing extent with conventional energies and relying here on a variety of energy sources and technologies. The doubling of our proprietary electricity generation from renewable energies will change our generation portfolio, which will become even more diversified. This kind of generation portfolio helps us to ensure a secure energy supply for our customers. That is particularly true for the supply of heat to those retail, business and industrial customers connected to our district heat and industrial steam grids in Mannheim, Offenbach and Kiel.

Supply reliability became even more important as a topic in the year under report due to the impact of the war in Ukraine. With regard to our district heat supply, we continue to plan for a very high level of supply reliability. The so-called N-2 security level means that the district heat supply must still be secure if the two largest generation units suffer downtime at the same time, whether due to technical problems, damage or temporary fuel shortage. For this reason, we are building two backup plants at the Mannheim location to safeguard a seamless transition between the decommissioning of coal-fired blocks at our at-equity shareholding Grosskraftwerk Mannheim and the launch of operations with green heat generation. We expect to launch operations at these plants in 2024 at the latest.

MVV's proprietary electricity generation
At the end of the 2022 financial year, the electricity generated at renewable energies plants (including biomass CHP and the biogenic share of waste/refuse-derived fuels) accounted for around 32 % of our total electricity generation (previous year: 32 %).

ELECTRICITY GENERATION
Shares (%)



1 Due to their immaterial shares, electricity generation volumes from hydroelectricity and photovoltaics have not been presented in this overview.

2 Including RDF plants

The reduction in electricity generation volumes at our biomass and biogas plants is due above all to our Mannheim biomass plant in particular generating lower electricity volumes in order to generate higher heat volumes. The increase in generation volumes at our energy from waste plants is chiefly due to the launch of full-scale operations with Line 3 at our new energy from waste plant in Dundee/Scotland in the 2022 financial year. The higher generation volumes from wind power and photovoltaics result from additions to our portfolio. The reduction in generation from combined heat and power (CHP) is due above all to a lower volume of electricity generated at our gas-fired CHP plant in Kiel.

Electricity generation volumes
Fully consolidated companies

kWh million	FY 2022	FY 2021	+/– change	% change
Biomass and biogas plants	456	485	– 29	– 6
Biogenic share of EfW [1]	306	268	+ 38	+ 14
Wind power	447	386	+ 61	+ 16
Hydroelectricity	5	3	+ 2	+ 67
Photovoltaics [2]	11	2	+ 9	>+ 100
	1,225	**1,144**	**+ 81**	**+ 7**
Electricity from CHP	1,059	1,232	– 173	– 14
Other electricity generation	277	242	+ 35	+ 14
Total	**2,561**	**2,618**	**– 57**	**– 2**

1 Including RDF plants

2 Previous year's figure adjusted

Electricity generation volumes
Fully consolidated companies and companies recognised at equity

kWh million	FY 2022	FY 2021	+/– change	% change
Biomass and biogas plants	492	522	– 30	– 6
Biogenic share of EfW [1]	306	268	+ 38	+ 14
Wind power	480	421	+ 59	+ 14
Hydroelectricity	5	3	+ 2	+ 67
Photovoltaics	12	3	+ 9	>+ 100
	1,295	**1,217**	**+ 78**	**+ 6**
Electricity from CHP	1,438	1,594	– 156	– 10
Other electricity generation [2]	1,345	1,030	+ 315	+ 31
Total	**4,078**	**3,841**	**+ 237**	**+ 6**

1 Including RDF plants

2 Previous year's figure adjusted

MVV's proprietary heat generation

At the end of the 2022 financial year, green heat generation accounted for a 39 % share of our total heat generation volumes (previous year: 36 %). Particularly at our biomass plant in Mannheim, we generated higher heat volumes at the expense of lower electricity volumes. Our energy from waste plants in Gersthofen and Leuna also generated more heat.

Heat generation volumes
Fully consolidated companies

kWh million	FY 2022	FY 2021	+/– change	% change
Biomass and biogas plants [1]	146	97	+ 49	+ 51
EfW [2]	2,515	2,464	+ 51	+ 2
Green heat generation	**2,661**	**2,561**	**+ 100**	**+ 4**
Other heat generation	2,238	2,376	– 138	– 6
Total	**4,899**	**4,937**	**– 38**	**– 1**

1 Previous year's figure adjusted

2 Including RDF plants

Heat generation volumes
Fully consolidated companies and companies recognised at equity

kWh million	FY 2022	FY 2021	+/– change	% change
Biomass and biogas plants [1]	147	97	+ 50	+ 52
EfW [2]	2,515	2,464	+ 51	+ 2
Green heat generation	**2,662**	**2,561**	**+ 101**	**+ 4**
Other heat generation	4,121	4,466	– 345	– 8
Total	**6,783**	**7,027**	**– 244**	**– 3**

1 Previous year's figure adjusted

2 Including RDF plants

MVV's proprietary biomethane generation
The increase in biomethane generation volumes was due to higher throughput compared with the previous year, as well as to our new plant in Bernburg.

Biomethane generation volumes
Fully consolidated companies

kWh million	FY 2022	FY 2021	+/– change	% change
Biomethane generation	273	258	+ 15	+ 6

Biomethane generation volumes
Fully consolidated companies and companies recognised at equity

kWh million	FY 2022	FY 2021	+/– change	% change
Biomethane generation	288	269	+ 19	+ 7

Grid stability

Upholding grid stability even with growing loads
One way to assess the reliability of the energy supply involves measuring the frequency and duration of grid downtime. Our three large grid companies MVV Netze, Energienetze Offenbach and SWKiel Netz have set themselves the goal of ensuring a secure supply free of interruptions and thus to avoid grid downtime and remedy any downtime as quickly as possible. One key task for our grid companies is to work on further developing and operating our grid infrastructure. They therefore invest large sums in maintenance and modernisation measures. In the 2022 financial year, we invested Euro 126 million in maintaining and expanding our grids. One key non-financial performance indicator which shows the security of the energy supply is the system average interruption duration index (SAIDI), which presents the average interruption to the supply in minutes per year and customer. The SAIDI figure only accounts for unplanned downtimes lasting longer than three minutes and not due to force majeure. We aim to minimise any interruption-induced failure in the supply. The management teams at our grid companies are kept regularly informed about interruptions and also discuss this information with the Executive Board. Any countermeasures thereby required are factored into our investment and maintenance projects.

We were able to maintain the cumulative SAIDI figure for our grid regions in the 2021 calendar year at almost the previous year's level. We provided our customers with an electricity supply that was largely free of interruptions and once again ahead of the national average.

Electricity supply interruptions (SAIDI)

Minutes/year	2021 [1]	2020 [1]	+/– change	% change
Electricity at MVV	10.3	9.0	+ 1.3	+ 14
Electricity in Germany [2]	12.7	11.0	+ 1.7	+ 15

1 Calendar year

2 Source: Federal Network Agency (BNetzA)

We perform risk assessments of potential supply interruptions on a quarterly basis. We analyse these from various perspectives, such as by reference to the cause. Particularly worth mentioning in this respect are: plant downtime, especially at our large power plants, downtime at transformer stations and grid downtime due to cyber risks. The maintenance expenses incurred to maintain the grids are also factored into our risk assessment.

All of MVV's grids are approved. When extending our grids, we clarify whether we are obliged to perform an environmental impact assessment in order to minimise the environmental impact of our distribution grids.

We are preparing our energy distribution grids for the changes in demand for electricity and heat resulting from the conversion in the energy system or from energy efficiency measures.

MVV TOPIC SECTOR COUPLING

Smartly combining electricity, heat and mobility

One of the changes in the energy market that is set to play a major role is sector coupling. Only this way will it be possible to turn the existing electricity transition into a comprehensive energy transition. First and foremost, this is about making electricity from renewable energies fit for use in the transport and heat sectors and about networking the entire system. One sub-goal involves distributing and storing surplus electricity from fluctuating renewables-based generation volumes in ways that make sense. Here, use can also be made of energy storage facilities outside the electricity sector, such as innovative power-to-heat solutions like heat storage units, electrode boilers and generating green hydrogen in electrolysers. E-mobility is another core component of the energy system transformation and of a resource-efficient lifestyle **www.mvv.de/energie.**

Sector coupling will also have repercussions in terms of demand for renewables-based generation, as well as for grid loads and expansion. In view of this, the expansion of sector coupling is a factor of strategic significance for us, particularly in the fields of project development, generation, grids and sales. A study recently published by a German distribution grid operator confirms our viewpoint: “Energy-System 2050”, published by Transnet BW GmbH in June 2022, investigates how European climate neutrality can be achieved in 2050 and, by reference to a detailed model, compares two cost-optimal pathways. The authors conclude that the energy transition can only be implemented efficiently if it is jointly planned and executed on European level. Moreover, electricity and gas infrastructure are to be viewed as the backbone of the energy transition. In future, it will therefore be necessary to ensure temporal flexibility for electricity by working with storage facilities and demand management in all connected sectors.

Promoting heat storage and decentralised energy management

We are pressing ahead with sector coupling and are currently focusing on enhancing flexibility by working with heat storage facilities and power-to-heat. One major component involves large-scale heat storage facilities, enabling CHP power plants to shut down their electricity generation for up to 24 hours when required by the market or grid situation. We have corresponding district heat storage facilities in operation in our major district heat grids. The launch of operations with the river heat pump at the end of 2023 will increase the flexibilities available. The close proximity of the heat storage facility to the river heat pump will make it possible to react to the requirements of the energy market even more effectively.

Heat storage capacity

Cubic meters	**FY 2022**	FY 2021
MVV Energie	45,000	45,000
Stadtwerke Kiel	42,000	42,000
Energieversorgung Offenbach	8,000	8,000
Stadtwerke Ingolstadt	3,200	3,200

One key field of application for us is the development of urban districts and quarters. Such units are one area in which decentralised generation, e.g. from photovoltaics systems, can be smartly combined with covering heat requirements, for example by working with heat pumps or other technologies. The FRANKLIN conversion site in Mannheim is one example where we are deploying these kinds of technical and business concepts.

We are actively promoting decentralised energy management and sector coupling and act as a one-stop source of smart and decentralised energy management services and products for our industrial, retail and housing customers, as well as for business and private customers. Here, our experts at MVV Enamic can support customers both in compiling climate balance sheets, introducing energy and sustainability management systems and in planning and implementing complex “prosuming” and efficiency technologies.

Expanding e-mobility

Making renewables-based electricity suitable for use by the transport sector as well requires smart needs-based charging solutions. In structuring the transport transition and expanding the range of e-mobility solutions, we are heading in the same direction as the City of Mannheim. Drawing on federal grants from the charging infrastructure subsidy programme, since early summer 2019 we have installed more than 200 charging points for electric vehicles in Mannheim and the region, of which 70 in the year under report. Within the “TENK Network”, all our charging points are connected with further charging infrastructure across other towns in the Rhine-Neckar metropolitan region. We will also continue to expand our own charging network. The construction of more than 200 further charging points in Mannheim and the Rhine-Neckar metropolitan region is planned by the end of 2023. This expansion has two key focuses: On the one hand, by increasing the density of the existing alternating current (AC) infrastructure we aim to ensure that charging infrastructure is within walking distance in all districts of Mannheim. On the other hand, we are pressing ahead with expanding direct current (DC) rapid charging points. Here, we also plan to install high power charging (HPC) hubs. With high charging capacities of around 300 kW, these significantly reduce the time needed for charging processes while also making it possible to charge larger vehicle classes, such as e-trucks. Energieversorgung Offenbach launched operations with five further charging points in the year under report, while Stadtwerke Kiel added seven new charging points.

MVV TOPIC CHANGED ENERGY DEMAND

Structural changes accounted for in our strategic planning

The war in Ukraine has underlined the need to accelerate the heat transition. Existing buildings in Germany are still mostly heated with fossil-based natural gas and heating oil. With a cascade of legislative amendments, such as the German Building Energy Act (GEG) and the German Energy Efficiency Act (EnEfG) through to the Federal Funding Programme for Efficient Heat Networks (BEW), lawmakers intend to incentivise building energy efficiency and the use of renewable energies.

By the mid-2040s, buildings should require around 40 % to 50 % less heat. Instead of natural gas and heating oil, the remaining demand will be covered in future with heat pumps, district heat, geothermal energy, waste heat or biomass.

This too will change demand for electricity. The shift to renewable energies in the electricity mix and reduction in end energy consumption are backed up with ambitious political targets. In parallel, our customers are increasingly interested in covering their electricity needs with their own generation plants. Moreover, demand for electricity will increase in the overall economy in line with the growth in domestic hydrogen generation and e-mobility.

In the Annual Report, we report on hydrogen and green gases in the chapter **Technology and Innovation**, **www.mvv.de/AR2022, Page 28.**

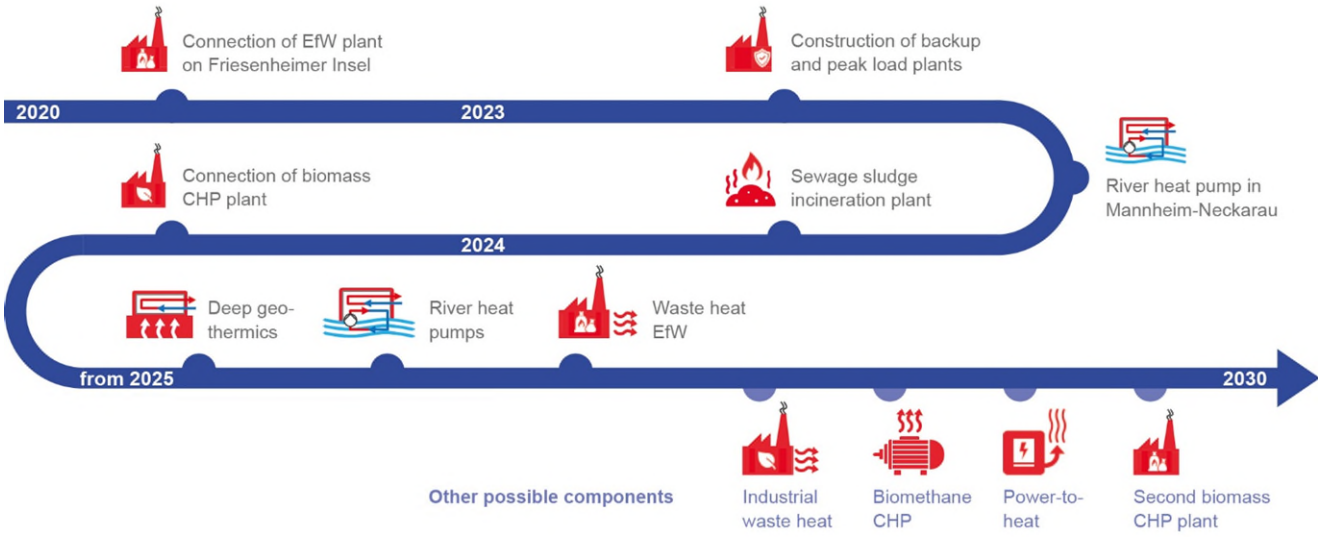
Decentralisation and storage of energy
Alongside the increased provision of renewable energies, three factors that are particularly gaining in significance are the enhanced flexibility, decentralisation and storage of energy. We systematically account for foreseeable changes in demand in our strategic investment planning and continually adapt our business in line with actual market developments. We report on technology and innovation in our Annual Report **www.mvv.de/AR2022, Pages 25 – 28.**

MVV is one of Germany's largest district heat suppliers

As well as industrial district steam grids, in Mannheim, Kiel and Offenbach we also operate integrated district heating systems and provide our customers with a supply of environmentally-friendly, centrally generated heat. Moreover, in the year under report we also used several smaller heat, district steam and property-specific grids in Germany, the Czech Republic and the UK. We aim to further decarbonise the heat supply for which we are responsible – not least given the climate protection targets for the building sector. Our task is to transform our CHP-operated district heat supply, which is already highly efficient, as rapidly as possible to enable us to provide our customers with a supply of 100 % green energy.

At our Mannheim location, the energy from waste plant was connected to our district heat grid in 2020. We are currently extending our biomass plant at the same site to include a district heat extraction facility. With a capacity of 45 MW_t, this will make an important contribution to the district heat supply from 2024. This is based on the conviction that, since a central heat supply system is already in place, decarbonisation can be achieved more quickly and efficiently on the supply side than it can by implementing numerous decentralised measures on the demand side. With a heat generation capacity of 20 MW_t, the first river heat pump in Mannheim-Rheinau should put the environmental heat available in the Rhine to climate-neutral use from the end of 2023 onwards.

ROADMAP FOR GREEN HEAT GENERATION AT MANNHEIM LOCATION



MVV TOPIC CHANGED INFRASTRUCTURES AND SMART CITIES

The growth in populations in large built-up areas, i.e. the trend towards urbanisation, is creating substantial environmental burdens. There is a need for cities to further develop their infrastructures, as well as to improve their environmental and climate protection.

To promote the process of development towards smart cities, we are consistently working to advance our concepts. We are promoting decarbonisation and digitalisation in the municipal sector with sMArt City Mannheim GmbH, a joint venture with the City of Mannheim. One focus is to convert all of the electricity generated for properties owned by the city to renewable energies, and here especially photovoltaics, by 2027. To this end, we are also pressing ahead with several ground-mounted PV projects. The term “smart city” refers to a holistic, cross-sector development concept which, by using digital and interlinked applications, aims to improve the quality of life for the local population and increase resource efficiency. A smart mobility system should make it possible to combine different modes of transport effectively, for example, and thus reduce the environmental impact, time spent in queues and the hunt for parking spaces. In the Annual Report, we comment on the progress made in the year under report in the chapter **Technology and Innovation** **www.mvv.de/AR2022, Page 25 onwards.**

Smart infrastructures harbour numerous benefits for cities and local authorities, as they are more efficient to maintain and use. This applies to the digital management of green space, parking areas and waste, for example, as well as to public lighting, municipal buildings and optimising traffic flows. The Internet of Things (IoT) enables local authorities to sustainably improve life in built-up areas and to structure processes more efficiently. With our MVV IoT platform, we provide a data platform which accesses various data sources and evaluates the data thereby obtained and processes this in line with requirements. One particular feature of this IoT platform is its comprehensive integration of LoRaWAN wireless technology.

MVV TOPIC INNOVATION

We have set ourselves the goal of developing smart energy products and innovative solutions that meet our customers’ needs. Our efforts to meet this objective are driven among other areas by our Customer Experience and Innovation department. Here, innovation managers and market researchers work on research and development projects in which colleagues from our operating business fields are also involved. Moreover, our operating units and our digital city department are also independently involved in forward-looking projects.

Alongside technical and product-based innovations, an ever more important role is also being played by process innovations, which are being driven not least by increasing automation and advances in digitalisation. These enable us to enhance the efficiency of our business operations. Not only that, they also lead to improvements in energy and material efficiency. One example: We deploy approaches such as predictive maintenance based on artificial intelligence and big data. This way, we can optimise maintenance cycles at our power plants or wind turbines and minimise downtimes.

The ideas and proposals of our employees are an important source of momentum for continuous improvements. Our ideas management function also holds topic-specific campaigns. Moreover, we draw on “Take-Off”, our internal innovation process, to develop new products and business models. In a multistage process, we support employees at our Mannheim location in developing their ideas to prepare them for implementation. This is also how our Climap service was created. Here, we provide owners of residential buildings with access to our thermal imaging technology. This way, they can easily obtain information about the energy status of their property and use this as the basis for undertaking energy efficiency improvements.

We report in detail on technology and innovation in our Annual Report **www.mvv.de/AR2022, Pages 25 – 28.**

MVV TOPIC DIGITAL TRANSFORMATION

For the future energy system, we need a decentralised communications infrastructure that networks generators, marketers and consumers with each other. This gives rise to consistent end-to-end processes. As the industrial transformation already begun – Industry 4.0 – progresses further, all industrial equipment and tools down to end points will in future be connected both to each other and to the internet and thus become the Internet of Things (IoT). The aim then will be for end consumers to use large amounts of electricity when it is available in large quantities and thus inexpensive. At times when less electricity is available due to more significant fluctuations at renewable energies plants, electricity demand will also have to fall. The electricity price will thus fluctuate in the course of the day. In summary: In the past, power plant production was aligned towards electricity demand. In the future, the electricity supply will be influenced by wind and sun conditions, meaning that electricity demand will have to adapt in line with these. This process, which involves demand side management, means that electricity consumers will defer their energy requirements to times with lower costs in line with electricity price movements, and thus changes in the supply of and demand for electricity. This will lead to changes both in patterns of consumption and in customer relationships.

Combining digitalisation, automation and networking should make it possible to coordinate generation and consumption in real time. This will create further benefits, as data aggregation and analysis will enable business processes to be structured more efficiently, thus reducing CO_2 emissions. Early warning indicators will also make it possible for plant maintenance processes to be planned more effectively. Moreover, the avoidance of peak loads means that the investment costs needed to expand Germany's grids can be expected to turn out lower.

Digitalisation on end customer level and Industry 4.0 on B2B level – both form part of the energy system of the future. As a provider of energy-related services, we have a key role to play: We are drawing on digitalisation to further develop our end-to-end business process logic on a permanent and efficient basis and to provide our customers with bespoke and attractive services, such as those for monitoring, controlling and optimising customer plants.

Qivalo and Econ, the two metering specialists within MVV's service provider portfolio, pool their strengths and facilitate automatic data transfer via a dedicated interface. In particular, the combination of the advantages offered by Qivalo in operating metering points and billing and by Econ for submetering and analysis is attractive for companies who, alongside customary billing requirements, also have an increased need for analytic options. We also offer e-mobility handling, including billing. In a cross-location project, we are harmonising processes in the retail customer business. We are thus also safeguarding the productivity of processes, optimising these in shared standard processes and thus enhancing process quality while simultaneously cutting costs. Soluvia Energy Services is participating in the MeKIDI research project (Human-Centred AI-Based Process Digitalisation in the Energy Sector) promoted by the Federal Ministry of Labour and Social Affairs (BMAS). The aim here is to research the impact of advancing digitalisation, taking robotic process automation (RPA) as an example, in order to replace monotonous activities and reduce error quotas and process costs. The digital transformation will also further increase the degree of networking between energy sources and with other industries. These factors will be accompanied by the trend towards end consumers increasing their proprietary electricity and heating generation from renewable energies – a trend that applies both to business and to retail customers. On the one hand, we have to record our customers' energy data in real time and network this with applications intended, for example, to optimise energy consumption or enhance energy efficiency. On the other hand, we must enable our customers to supply themselves and to integrate, and thus secure, this supply in ways that make best sense.

At MVV, the overriding topic of digitalisation is being implemented in all business fields. We coordinate key aspects of this in our overall digitalisation programme. We are closely monitoring developments in this field and continually assessing the market with regard to commercially available applications for our portfolio. Thanks to digitalisation, our business models are evolving continuously, as is our cooperation within the company and with external partners. In the year under report, we drew on digitalisation to advance topics across all business fields and departments.

At MVV Trading, for example, we have founded a new unit that will implement and operate model-based trading strategies in modern cloud-based system architectures. Adaptable IT and a well-structured approach to data handling form the foundation enabling us to permanently secure a resilient competitive position and to deploy AI in other applications too. Like many other companies, we too are preparing to transition to the new world of SAP S/4HANA. We are thus streamlining, harmonising and automating our processes. With a joint and harmonised data model, we are laying a foundation to make more intensive use of data and fully exploit the potential offered by AI applications. We report on technology and innovation in our Annual Report **www.mvv.de/AR2022, Pages 25 – 28.**

In the year under report, we once again met the requirements of data protection law, and in particular those of the European General Data Protection Regulation (GDPR), the German Federal Data Protection Act (BDSG) and of internal data protection requirements covering all areas of the company and all business processes. The points of contact we have established to deal with all internal and external enquiries and issues relating to data protection and information security also carefully assessed, checked and processed the enquiries received once again in the year under report. We regularly train our employees, inform them about the steadily rising standards applicable to information security and data protection and work to raise their awareness of existing risks and threats.

Employees and Society

GRI 403 OCCUPATIONAL HEALTH AND SAFETY

GRI 403-1 Occupational health and safety management system

We accord the utmost priority to protecting the health and safety of our employees and those who work on our behalf. The following points form the core of our “Lived Safety” programme:

- Every accident is one too many. Our goal is therefore clear: no accidents.
- For us, protecting the health and safety of our employees is not just a task, but rather an obligation.
- All employees are important to us and are involved in health and safety decisions.
- All managers and employees know their responsibilities and actively live up to these in the areas which they are able to influence.
- The aim is to continually improve the safety and health protection of all employees based on a prevention-driven approach.

For “Lived Safety” to be effective, everyone has to make their own individual contribution. Based on clearly defined roles and equipped with corresponding skills, those involved in occupational safety are therefore the key pillars of our safety philosophy.

In our activities, we take due account of all legal requirements, such as the German Industrial Safety Act (ArbSchG) with its related ordinances and the German Occupational Safety Act (ASiG), as well as of the occupational health and safety regulations of the respective trade associations (BGV).

In the context of TSM certifications, our grid companies are regularly inspected on a cross-utility basis in accordance with the requirements of the DVGW, AGFW and VDN specialist associations. Furthermore, individual subsidiaries and company departments have systems and certificates in accordance with national and international norms and standards, such as ISO 45001, ISO 9001, the AMS System of the trade associations (BG), the BG seal of quality and specialist disposal operation. Implementation of these norms and standards at the company primarily relates to our own employees. In individual cases, compliance with specific regulations is also required from the employees of third-party companies and other service providers.

Structured programmes and measures form a key foundation in this respect. Examples here include an electronic instruction system with occupational safety training tailored to the respective workplace, an inspection concept and regular safety briefings aimed at raising safety awareness and firmly establishing this on all levels.

Our accident statistics and the prevention measures taken are evaluated on Executive Board and group level on a quarterly basis, with further measures also being discussed and planned.

We aim to boost the health of our employees with a prevention-based approach and therefore support them with a variety of company health management measures, which are organised on a decentralised basis. The principal legal requirements for mandatory occupational health support in Germany are set out in the German Occupational Safety Act (ASiG) and the accident prevention regulation of the German Social Accident Insurance (DGUV). Alongside the extensive range of services available at our occupational health service, we also provide employees at our major locations with further health promotion options that go well beyond legal requirements. We report on these under **GRI 403-6, Page 62.**

To maintain our focus on the topics of occupational health and safety, we have pooled these in respective central departments.

GRI 403-2 Hazard identification, risk assessment and incident investigation

In line with the German Industrial Safety Act (ArbSchG), we perform risk assessments in all areas of the company. This way, we identify any work-related hazards, assess associated risks and lay down suitable technical, organisational and personnel measures. Together with the safety specialists, managers compile the risk assessments and, where necessary, consult the company doctor and the Works Council. This cooperation enables us to ensure that we account for all relevant requirements and information.

In around 80 % of our domestic company departments, these risk assessments are performed and documented via a software tool. Here, we analyse the workplaces used, the activities performed, the work equipment used and any hazardous materials deployed. Where necessary, account is also taken of groups of persons who are at particular risk. Once we have implemented protective measures and conclusively checked their effectiveness, we reassess the remaining residual risk. Furthermore, implementation of various work safety ordinances is also factored into our analyses. We perform a review at least once a year to ascertain whether new findings or new legal or operating requirements mean that we have to amend the risk assessments.

All employees are called on to report any work-related risks and dangerous situations to their managers. If necessary, we can then add these to the risk assessment and lay down suitable measures. Persons who find themselves in a work situation where there is an acute risk of injury or sickness must stop work and immediately consult their managers. We have laid this down in corresponding operating instructions that have been communicated to employees, for example in the context of training. We systematically investigate any accidents and near-accidents reported. All recorded work-related incidents are investigated by the respective manager with support from the relevant safety expert and, where applicable, from the company doctor, Works Council and safety officers. When investigating the accident, we also review whether the causes have already been accounted for in the hazard assessment and whether the associated risk assessment is appropriate. If necessary, we amend the hazard and risk assessments. Based on the findings of the investigation, the respective managers also lay down measures to enable accidents of the same nature to be avoided.

GRI 403-3 Occupational health services

At our major locations, we have our own occupational health services that advise employees in accordance with the German Occupational Safety Act (ASiG), offer work-related and other preventative healthcare measures. At our Mannheim location alone, these services support around 2,200 employees. We safeguard the quality of the services offered by requiring company doctor qualifications and further training. We use the intranet to inform our employees about the scope of services on offer. For additional seasonal offerings, we also display posters and distribute leaflets.

Our employees in Germany are all subject to Regulation No. 2 of the German Social Accident Insurance (DGUV). Due to confidentiality requirements, the occupational health services at the company do not share any data.

GRI 403-4 Worker participation, consultation and communication on occupational health and safety

The work safety committees required by § 11 of the German Occupational Safety Act (ASiG) are formed by the companies on location and comprise both employer and employee representatives. The great importance our company attaches to work safety is also reflected in the fact that this is a fixed agenda item at the meetings of our Supervisory Board. We liaise closely with professional associations and employee representatives and agree our work safety and prevention strategies and measures with them.

We communicate important information about occupational health and safety on a regular basis in the organisational units. Via the intranet, this information is also permanently available to most company departments. We also make the findings of the risk assessments available to staff via a software tool. By attending meetings, participating in inspections and investigations into accidents or submitting proposals via the company suggestion scheme, for example, our employees always have the opportunity to be actively involved in the further development of occupational health and safety.

GRI 403-5 Worker training on occupational health and safety

We aim to prevent accidents and health risks by raising awareness among our managers and employees for the risks and dangers of accidents. In our instructions, we explain the interrelationships involved and lay down work safety requirements. We supplement personal training by offering work safety training using an electronic instruction system. This is based on the results of the risk assessments and is tailored to individual workplaces. This way, our employees can flexibly and individually address a variety of basic topics relating to work safety. This also applies in some cases when we commission third-party firms to work at the company.

GRI 403-6 Promotion of worker health

We offer an extensive range of company health management services in cooperation with external service providers, including a range of regular healthcare courses, training on health-related matters, sports cooperations and prevention-based health campaigns to promote employees' health. Before restrictions were introduced in connection with the coronavirus pandemic from March 2020 onwards, we made therapeutic devices available, for example, and experienced coaches guided participants in health-related courses. In the year under report, these courses were offered in online format and well received by our employees working from home. We once again offered a wide range of sports groups at several locations in the year under report. We also have cooperations with fitness centres and offer nutritional advice. Our range of services includes extensive prevention measures, such as flu vaccinations, skin cancer screening and laboratory diagnostics services for the early detection of common metabolic illnesses. By organising courses and presentations on topics such as nutrition or exercise, we help our employees to obtain the specific information they need. The focuses and services on offer vary in line with the requirements and circumstances at our individual locations. Employees at all of our locations have shown great interest in the services on offer. With the onset of the first lockdown, we offered alternative online information, training and individual telephone advice, with a focus on addressing the particular psychological strain resulting from the required minimisation of contacts.

In the year under report, company doctors at our major locations again offered coronavirus vaccinations to our employees. This way, we helped to raise the vaccination rate. Following the first and second vaccinations already provided in the previous year, in the year under report the company offered and actively advertised the booster vaccination for all employees and enabled them to receive this during working hours.

GRI 403-7 Prevention and mitigation of occupational health and safety impacts directly linked by business relationships

We safeguard our employees' safety and health when working together with company-internal regulations and processes applicable at individual locations. This way, we prevent or mitigate any material negative occupational health and safety impacts that, via our business relationships, are directly linked with the locations, products or services of our organisation.

We base the coordination required when cooperating with third-party companies on the German Industrial Safety Act (ArbSchG), Regulation 1 of the German Social Accident Insurance (DGUV) and the German Building Site Ordinance (BaustellV). The requirements, which are determined on a decentralised basis in order to account for local specifics, are nevertheless largely comparable. Third-party company employees may only work at the technical facilities run by MVV Umwelt, for example, once they have received general instructions for the location as a whole and the place of their specific deployment. These include general safety-related information, information about how to behave in the event of an emergency and the relevant contact partners. The third-party companies are also required to provide instructions to their employees themselves and must present the risk assessments for their activities to us. We assess the effectiveness of these measures at individual locations by requiring companies to report to the procurement department that the work commissioned has been safely performed. In the event of accidents, we may also perform joint accident analyses depending on the severity of the respective accident.

With regard to the safe handling of our products, our websites provide publicly accessible safety recommendations to our customers which inform them, for example, how to behave if they smell gas in their homes. The telephone numbers of our emergency hotlines, which are available free of charge and around the clock, are also published there.

GRI 403-9 Work-related injuries

We evaluate all accidents on a systematic basis for the overall Group. In this, we consider all accidents at or on the way to or from work, including more minor injuries. We only perform a statistical evaluation of accidents with particularly severe injuries and of accident types on an incident-related basis. The most frequent types of accident include people stumbling, slipping or falling over, as well as handling-related accidents. The assessment and evaluation are performed on a gender-neutral basis and in line with the requirements of data protection. We also assess which further preventative measures might be expedient.

Accident statistics

	FY 2022	FY 2021	+/– change	% change
Lost time injury frequency rate (LTIF) [1, 2, 3, 4]	3.7	4.1	– 0.4	– 10
Work-related injuries with severe consequences [5]	0	0	0	0
Fatal accidents	0	0	0	0

1 Includes all fully consolidated companies in Germany (new fully consolidated companies only included in accident statistics in second financial year after acquisition)
2 Calculation based on work-related accidents from first day of absence per 1,000,000 working hours
3 Basis for FTE figures:
FTE figures at reporting date on 30 September
Basis for non-centrally recorded FTE figures:
FTE figures received directly from companies at reporting date on 30 September
Working hours = number of FTEs (full-time equivalents) at reporting date on 30 September multiplied by 1,700 hours (≙ 1 FTE)
4 Changes of methodology in FY 2022:
Definition of accidents included: Influenceable LTI arising during working hours due to a work assignment.
Adjustment in companies included: only domestic fully consolidated companies.
5 Non-recuperation after 6 months

With an LTIF of 3.7, we were able to reduce the frequency of accidents by a further 10 % compared with the previous year. We have thus achieved a reduction of around 45 % in the past two financial years. There were no accidents with fatal consequences in the year under report.

GRI 404 TRAINING AND EDUCATION

GRI 404-2 Programmes for upgrading employee skills and transition assistance programmes

Training and development

Training with promising prospects for the future
In Mannheim alone, we offer the next generation of employees training in more than 16 different commercial and technical vocations, as well as combined training and study programmes. In Mannheim, Offenbach, Kiel and Gersthofen close to Augsburg, we are among the largest trainers in the respective regions.

Our broad range of training programmes aims to show young people the wide variety of career opportunities at our company. As of 30 September 2022, a total of 335 women and men were in training at MVV. Since March 2020, our trainees in combined training and study programmes and our commercial trainees have mostly worked from home. This enabled us to maintain the high quality of training despite the restrictions resulting from the coronavirus pandemic. As a result, we were able to avoid any trainees leaving the company for this reason.

Training concept implemented
In the year under report, we pressed consistently ahead with our training concept and offered numerous virtual seminars on various topics on all levels of the hierarchy. Our employees made intensive use of this training.

We also offer further training on an internal basis by compiling an interdisciplinary team of university graduates from a variety of disciplines. Within MVV, our Junior Consulting Team (JCT) acts as an internal consulting unit and independently acquires its own projects and tasks. The team's strength lies in its independence of departments and divisions. This enables it to gain fresh perspectives and provide momentum. With their analytical and theoretically sound approach, team members base their activities on their internal client's objectives and develop and propose qualified solutions. At the same time, the participants themselves also gain experience and obtain a good overview of our individual business fields.

Targeted personnel development

For us, targeted personnel development is a key factor which also determines our competitive success. We have therefore developed numerous measures and instruments based on the experience we have gained in the rapidly changing economic climate in which we operate.

Our further training measures and a variety of knowledge platforms enable us to ensure a shared basis of knowledge on overriding strategic topics. Alongside in-house training on various topics, we also offer team development and individual measures, such as coaching and mentoring.

We aim to develop the potential of our employees. Key focuses of our staff development measures in the 2022 financial year on the one hand included the launch of our General Management series intended to develop our management staff and on the other hand further expanding our IT training for all employees. We also launched an online platform for specialist journals. Moreover, we offered training on topics such as time and self-management, agile work, communications, presentation and virtual management. Our seminar evaluation showed a high level of acceptance for the seminars among the participants, who confirmed that they had good possibilities to transfer the skills gained in the training to their daily work.

In Mannheim, we work with a management review system to record the skills and further training needs of our managers and high-potential employees and to plan their next career steps. This involves a graded process including self-assessment, third-party assessment, internal management review conferences and concluding feedback talks between employees and managers. Individual development measures are implemented under the responsibility of specialist departments, while employees with management potential are developed within a well-established talent management process. Our understanding of talent also extends to specialist and upcoming staff, such as trainees and career starters.

MVV's specific competency model forms the basis for personnel-development meetings and individual support programmes. We also regularly hold appraisals and surveys at our main locations in Germany. This way, our employees have the opportunity to provide honest feedback and we can enhance the quality of management at our company.

GRI 405 DIVERSITY AND EQUAL OPPORTUNITY

GRI 405-1 Diversity of governance bodies and employees

Energy for diversity

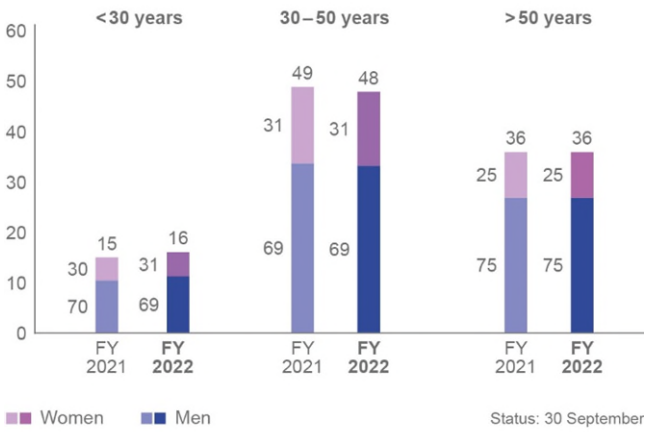
To date, women have only made up a comparatively low share of the overall workforce at companies operating in the energy sector. The Supervisory and Executive Boards of MVV Energie AG believe that increasing the share of women working at the group of companies on a long-term basis is one key to the company's successful further development.

Gender distribution

%	**FY 2022**	FY 2021
Share of women	28	28
Share of men	72	72
Share of women managers [1]	16	14

1 Includes all levels to group and team leader

AGE STRUCTURE OF EMPLOYEES
(%)



We have set ourselves the target of raising women's share of our Group's workforce to 35 % by 30 September 2026, up from 28 % at 30 September 2022. Among our management staff, we also aim to increase the share of women to 25 %; at the balance sheet date on 30 September 2022, this share stood at 16 %. To achieve our targets by 2026, we will consistently implement our measures and strategic programmes and further expand these in the years ahead. That is particularly true for our targeted personnel activities for women who have the potential to take on management positions.

We are supplementing existing activities to increase the share of women by implementing measures aimed at raising the visibility of women at MVV both within and outside the company. One key aspect is the establishment of "wom:energy", our groupwide network of women that holds regular networking meetings and organises its own formats. Moreover, we have also taken measures to increase the number of applications we receive from promising external and internal women candidates.

For MVV Energie AG, we report on the share of women in the first and second management tiers below the Executive Board. In September 2021, the Executive Board set targets for the share of women at 25 % for the first and 30 % for the second management tiers, with both targets to be reached by 30 September 2026. The share of women in the first management tier amounted to 18 % at 30 September 2022 and was thus ahead of the previous year (30 September 2021: 14 %). In the second management tier, the share of women amounted to 22 % (30 September 2021: 31 %) and thus fell short of the target level set. We see the share of women in the first management tier as offering an improved basis for meeting our target and will further step up our internal efforts to raise the share in the second management tier.

In our Annual Report, we provide information about the diversity concepts for the Executive and Supervisory Boards in the **Corporate Governance Declaration** 💻 **www.mvv.de/AR2022, Page 101 onwards.** In the Annual Report, we also present the composition of the Executive and Supervisory Boards in the chapter **Directors and Officers, Page 209 onwards.**

We promote equal opportunities for women
As well as raising awareness for all aspects of diversity, one key focus of the new central department, Diversity and Prevention, involves equal opportunities for women. To promote this objective, the department is developing and implementing measures in the areas of employer image, recruitment, personnel and cultural development. The new department is also planning campaigns to raise awareness and promote networking and pursuing targets in close cooperation with specialist departments. Alongside diversity management, the inclusion activities for people living with disabilities and advice centre for general equal treatment (AGG) have now also been integrated into the central department. This way, we can pool expertise and offer uniform advice to our employees.

To reach our targets, we are drawing on a variety of promotional measures and programmes and expanding these further. To increase diversity at the company, we offer voluntary training to all managers. This addresses MVV's diversity focuses, unconscious prejudice, judgemental habits and the handling of discrimination or unequal treatment. We are promoting the exchange of information and experiences between employees with "Diversity Talk", our new format in which we look into a variety of diversity-related topics. Furthermore, we attach great importance to offering targeted personnel development to women with suitable potential. One example is the individual support offered to women in mentoring schemes. In X-Company-Mentoring, a cross-company programme organised each year in cooperation with other well-known companies in the region, male and female mentors in the management tiers of participating companies pass on their skills and experience to talented women employees for a period of one year. This is intended to support employees in their own personal development, with a separate special focus on management. We supplement this with an internal mentoring programme in which women managers advise and support select experts and next-generation talent. Thanks to our corporate membership in "European Women's Management Development", an association for professional women, and "Spitzenfrauen BW", a regional project for women in Baden-Württemberg, we offer free membership for interested women employees. This way, they benefit, for example, from free contingents of places in presentations and seminars and from access to areas of knowledge specially tailored to women.

Work and family can be combined at MVV
Our aim is for our employees to be able to successfully combine their family and work commitments on an ongoing basis. Over their working lives, our employees pass through many different stages of life. We aim to support them in mastering the daily requirements of their work and private lives. To this end, we offer a variety of worktime models with flexible working hours; these are explicitly available for our managers as well. Digitalisation and the use of modern communications appliances also facilitate mobile work in line with specific needs.

To assist our employees in dealing with the challenges presented by the coronavirus pandemic, in cooperation with the Works Council we have significantly extended the regular working hours to facilitate a more flexible approach.

Our part-time management concept is intended to retain high-performing employees at the company through various stages of their lives. This concept is targeted on the one hand at management staff in specific situations, such as parental or nursing care leave. It is also intended to help employees to return to work more quickly after parental leave. On the other hand, the concept is intended to encourage employees to directly assume part-time management positions.

Since the 2021 financial year, we have offered a family service. Here, we work together with an experienced service provider who can offer strictly confidential advice to employees who face work-related, family or financial difficulties. This offer is initially restricted to around 2,000 employees mostly at the Mannheim location, as well as at other, smaller locations.

Another area in which our employees will have greater needs in future involves caring for relatives. We are supporting them here as well. Employees caring for relatives can be granted leave from work. We also inform our staff about care options by holding information events, providing emergency folders with information about work and care and, like at our subsidiary Energieversorgung Offenbach, for example, by cooperating with a nursing care service.

We are actively tackling demographic management
In our third pillar of “Energy for Diversity”, we are addressing the demographic challenges we face. We offer extensive services via our company health management to help employees maintain their health, further develop their personal skillset and make use of a modern knowledge transfer method for employees leaving the company. The knowledge they have acquired over many years should be retained at the company after their departure. We organise a well-structured and moderated transfer of knowledge and coordinate which knowledge should be transferred, as well as the timeframe and manner in which this should take place. In select departments in Mannheim, for example, we perform so-called “parallel runs”, in which employees due to retire from the company help to train their new colleagues over an extended period of time.

Furthermore, an interdisciplinary workgroup at the Mannheim location, namely “Work & Age/Age-Appropriate Work” is currently developing additional ideas and specific proposals for measures to consider the whole employee lifecycle. One initial focus is on short-term measures to accompany employees during their final three to five years at the company.

GRI 405-2 Ratio of basic salary and remuneration of women to men

We attach great importance to treating MVV’s employees fairly and equally. We therefore ensure gender-neutral remuneration. At MVV Energie AG, for example, remuneration is based on the respective position and remuneration group. Our other locations also ensure gender-neutral remuneration based on the employees’ roles, the qualifications required for such and their experience. Employee representatives are integrated into the staff hiring process.

The German Transparency in Wage Structures Act (EntgTranspG) has been in effect in Germany since 2017. We consistently apply these requirements and respond to all requests for information submitted by our employees.

GRI 413 LOCAL COMMUNITIES

GRI 413-1 Operations with local community engagement, impact assessments and development programmes

We are helping to convert the energy system and thus to develop a new, more sustainable and more efficient energy supply. Building new generation plants, the required conversion and expansion in the electricity grid and the necessary modernisation of existing plants – all these measures change the local environment and may involve restrictions for local residents. We already give systematic and comprehensive consideration to these challenges when selecting suitable locations. Our companies weigh up the conservation, economic and social aspects on location for each individual case. In the project planning stage, they perform environmental compatibility audits in accordance with approval requirements. These deal, for example, with emission loads, conservation requirements and immission protection. Not only that, they also look into the potential implications of the projects for the surrounding countryside or for architectural and natural monuments. The results of these analyses are mostly published. Various authorities and project partners are involved in the approval process. We actively involve residents, local clubs, associations and citizens’ initiatives, and that to an extent that goes beyond minimum legal requirements. Our companies provide information about projects, for example in their general press work and on their respective homepages. Representatives of our companies attend information events and are on hand to answer any questions. These activities are important to ensure the necessary acceptance among local residents. Particularly for infrastructure projects, such as onshore wind turbines, we have observed growing resistance to the associated interventions in the natural world and changes to the appearance of the countryside. The best way to counter concerns and reservations is to enter into face-to-face dialogue.

All our existing generation plants continually benefit from technical supervision in line with legal requirements. Should any interruptions to operations arise that could affect local populations, we proactively and quickly inform all affected parties. Here, all companies have routine processes in place to protect the safety of local communities.

MVV TOPIC SOCIETY

As a company with regional roots, we are an active part of society in the locations and regions in which we operate. We are aware of the important role we play in society. We assume responsibility for our decisions, actions, products and services, and that towards our customers and capital providers, as well as towards the environment and society in which we live. The value we create on site makes us a major economic factor at our locations. We invest, award contracts to local or regional businesses where possible, safeguard jobs, offer high-quality training and pay taxes and duties. It goes without saying that we do not use any questionable measures to avoid taxes or move profits across borders.

The companies within our Group are committed to promoting the development in society and support local and regional projects, especially in the fields of social welfare, education, science, culture and sport. One key focus is on promoting upcoming talent and young people. In view of the coronavirus pandemic, our companies offered greater support to social welfare initiatives and projects again in the past year. Based on shared values, our companies are responsible for determining the structure and scope of their regional social commitment. Staff on location are familiar with local needs, have contacts to local organisations and facilities and set the priorities they would like to address and the projects they intend to support with their activities. In most cases, the support is financial, taking the form of donations. This means that we provide support for clearly defined countermeasures and with corresponding benefits.

At MVV Energie, the Sponsorship Fund is one key component of its regional commitment. This provides financial support to innovative and creative projects at clubs, organisations and institutions in Mannheim and the Rhine-Neckar metropolitan region. Moreover, in 2020 MVV Energie launched the MVV Green Sponsorship Fund, which supports clubs in installing photovoltaics systems. The Emergency Fund at MVV Energie, which helps private customers who through no fault of their own are in situations of need to cover the costs of their electricity, gas, district heat and water, has been in place for 15 years already. With our #MonnemSpartEnergie (Mannheim saves energy) campaign, we are supporting private customers in making targeted energy savings and have made numerous tips available to assist in this. The company's largest sponsorship partners in the Rhine-Neckar metropolitan region are the art gallery Kunsthalle Mannheim, which holds MVV Art Evenings with free entry every first Wednesday in the month, the technology museum Technoseum, the Adler Mannheim ice hockey team, the Reiterverein Mannheim riding club and TSG Hoffenheim football club. With its "Heart and Soul for Your Project!" sponsorship concept, Energieversorgung Offenbach supports regional clubs and organisations. Stadtwerke Kiel has partnered Camp 24/7, in which around 6,000 children and young people a year learn how to sail and the only project of its kind in Germany, since 2002 already.

Further Information

GRI Content Index

GRI content index

GRI Standard	Designation	Page	Notes
GRI 1: Foundation 2021			
Statement of use MVV is reporting in accordance with GRI Standards for the period from 1 October 2021 to 30 September 2022.			
GRI 2: General disclosures 2021			
1. Organisation and reporting practices			
GRI 2-1	Organisational details	10	
GRI 2-2	Entities included in the organisation's sustainability reporting	10	
GRI 2-3	Reporting period, frequency and contact point	10	
GRI 2-4	Restatements of information	10	
GRI 2-5	External assurance	10	
2. Activities and workers			
GRI 2-6	Activities, value chain and other business relationships	11	
GRI 2-7	Employees	13	
GRI 2-8	Workers who are not employees	13	We assess the shares of temporary employees and third-party employees as immaterial. Specific data would therefore not offer us any benefits. In view of this, we have so far not collected any group-wide data, apart from a survey for the basic assessment of the overall scope.
3. Governance			
GRI 2-9	Governance structure and composition	14	
GRI 2-10	Nomination and selection of the highest governance body	14	
GRI 2-11	Chair of the highest governance body	14	
GRI 2-12	Role of the highest governance body in overseeing the management of impacts	15	
GRI 2-13	Delegation of responsibility for managing impacts	15	
GRI 2-14	Role of the highest governance body in sustainability reporting	16	
GRI 2-15	Conflicts of interest	16	
GRI 2-16	Communication of critical concerns	16	
GRI 2-17	Collective knowledge of the highest governance body	17	
GRI 2-18	Evaluation of the performance of the highest governance body	17	
GRI 2-19	Remuneration policies	17	
GRI 2-20	Process to determine remuneration	17	

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GRI Standard	Designation	Page	Notes
GRI 2-21	Annual total compensation ratio	17	
4. Strategy, policies and practices			
GRI 2-22	Statement on sustainable development strategy	18	
GRI 2-23	Policy commitments	18	**udhr.pdf (un.org)** **OECD Guidelines for Multinational Enterprises** **UN Global Compact Network Germany: United Nations Global Compact** **ILO Core Labour Standards (ILO Berlin)**
GRI 2-24	Embedding policy commitments	19	
GRI 2-25	Processes to remediate negative impacts	19	
GRI 2-26	Mechanisms for seeking advice and raising concerns	19	
GRI 2-27	Compliance with laws and regulations	20	
GRI 2-28	Membership of associations	20	
5. Stakeholder engagement			
GRI 2-29	Approach to stakeholder engagement	21	**www.lobbyregister.bundestag.de**
GRI 2-30	Collective bargaining agreements	22	
GRI 3: Disclosures and guidance on material topics 2021			
GRI 3-1	Process to determine material topics	23	
GRI 3-2	List of material topics	24	
GRI 3-3	Management of material topics	26	
Material topics: Disclosures relating to the topic standards			
Economic Performance			
GRI 201: Economic performance 2016			
GRI 201-1	Direct economic value generated and distributed	35	
GRI 203: Indirect economic impacts 2016			
GRI 203-1	Infrastructure investments and services supported	36	
Energy and Environment			
GRI 301: Materials 2016			
GRI 301-1	Materials used by weight or volume	37	
GRI 302: Energy 2016			
GRI 302-5	Reductions in energy requirements of products and services	41	No complete groupwide data on the energy savings achieved is available to us. That is because customer data on volume factors relating to changes in weather conditions or production volumes is highly confidential. We therefore only provide quantitative disclosures on a project-by-project basis.
MVV topic	Renewable energies	43	
GRI 305: Emissions 2016			
GRI 305 1	Direct (Scope 1) GHG emissions	45	
GRI 305-2	Energy indirect (Scope 2) GHG emissions	45	
GRI 305-3	Other indirect (Scope 3) GHG emissions	45	
GRI 305-4	GHG emissions intensity	49	

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GRI Standard	Designation	Page	Notes
GRI 305-7	Nitrogen oxides (NOx), sulphur oxides (SOx) and other significant air emissions	50	
System Transformation			
MVV topic	Supply reliability	51	
MVV topic	Sector coupling	54	
MVV topic	Changed energy demand	55	
MVV topic	Changed infrastructures and smart cities	57	
MVV topic	Innovation	57	
MVV topic	Digital transformation	58	
Employees and Society			
GRI 403: Occupational health and safety 2018			The information provided refers to the company's proprietary employees operating in Germany. Due to the decentralised organisational structure, we do not collect this data for our international employees. We also deploy a small number of third-party company employees for various activities. We do not collect any data about these employees, however, as we assess their share as immaterial and the collection of such data would not provide us with any additional benefits.
GRI 403-1	Occupational health and safety management system	60	
GRI 403-2	Hazard identification, risk assessment and incident investigation	61	
GRI 403-3	Occupational health services	61	
GRI 403-4	Worker participation, consultation and communication on occupational health and safety	61	
GRI 403-5	Worker training on occupational health and safety	62	
GRI 403-6	Promotion of worker health	62	
GRI 403-7	Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	62	
GRI 403-9	Work-related injuries	63	We currently do not collect complete data on documentable work-related injuries on a centralised groupwide basis; we therefore do not report any disclosures on these.
GRI 404: Training and education 2016			
GRI 404-2	Programmes for upgrading employee skills and transition assistance programmes	63	
GRI 405: Diversity and equal opportunity 2016			
GRI 405-1	Diversity of governance bodies and employees	64	We only distinguish by age and gender, as the collection of data on minorities is governed by national legal norms. **www.mvv.de/executive-board** **www.mvv.de/supervisory-board**
GRI 405-2	Ratio of basic salary and remuneration of women to men	66	

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GRI Standard	Designation	Page	Notes
GRI 413: Local communities 2016			
GRI 413-1	Operations with local community engagement, impact assessments and development programmes	66	We do not collect any data on measures conducted on a decentralised and project-related basis, as this information is not relevant to managing the company and collecting such data would not provide us with any benefits.
MVV topic	Society	67	

Progress Report for UN Global Compact

MVV is committed to the ten principles of the UN Global Compact. By way of a progress report, and in addition to answering the questionnaire, in the following table we link our material sustainability topics to the principles of the UN Global Compact.

Progress report for UN Global Compact

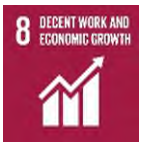
Principle	Topic	Page
Human rights		
1. Businesses should support and respect the protection of internationally proclaimed human rights.	Human rights policy	**www.mvv.de/en/responsibility**
2. Businesses should make sure that they are not complicit in human rights abuses.	Compliance	18
Labour		
3. Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining.	Employees and Society – Employee representation	33 60
4. Businesses should be committed to the elimination of all forms of forced and compulsory labour.	Value chain	11
5. Businesses should be committed to the effective abolition of child labour.	Value chain	11
6. Businesses should be committed to the elimination of discrimination in respect of employment and occupation.	Compliance Employees and Society	18 64, 66
Environment		
7. Businesses should support a precautionary approach to environmental challenges.	Material topics	35
8. Businesses should undertake initiatives to promote greater environmental responsibility.	Material topics	35
9. Businesses should encourage the development and diffusion of environmentally-friendly technologies.	Material topics	35
Corruption		
10. Businesses should work against corruption in all its forms, including extortion and bribery.	Compliance	18

UN Sustainable Development Goals (SDG)

In 2015, the United Nations created a basis for jointly tackling global challenges with its “Sustainable Development Goals”, the 17 targets set out in its “2030 Agenda for Sustainable Development”.

In the year under report, we again performed a review to identify those Sustainable Development Goals to which we can make a substantial contribution. With our business activities, we contribute in particular to the following SDGs:

Sustainable Development Goals – MVV’s contribution

SDG		Chapter/content	Page
	End poverty in all its forms everywhere.	**General disclosures:** 1. Organisation and reporting practices; GRI 2-6 Activities, value chain and other business relationships **Topic-specific disclosures:** Economic Performance	11 35
	Ensure access to affordable, reliable, sustainable and modern energy for all.	**General disclosures:** 1. Organisation and reporting practices; GRI 2-6 Activities, value chain and other business relationships **Topic-specific disclosures:** Energy and Environment; MVV topic renewable energies **Human rights**	11 43 **www.mvv.de/humanrights**
	Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.	**Topic-specific disclosures:** Employees and Society	60
	Build resilient infrastructure, promote inclusive and sustainable industrialisation and foster innovation.	**Topic-specific disclosures:** System Transformation	51
	Make cities and human settlements inclusive, safe, resilient and sustainable .	**Topic-specific disclosures:** System Transformation; Changed infrastructures and smart cities	57
	Ensure sustainable consumption and production patterns.	**Topic-specific disclosures:** Energy and Environment; Materials	37
	Take urgent action to combat climate change and its impacts.	**Topic-specific disclosures:** Energy and Environment; Energy, Renewable energies, Emissions	37 43 45
	Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels.	**General disclosures:** GRI 2-6 Activities, value chain and other business relationships GRI 2-15 Conflicts of interest GRI 2-16 Communication of critical concerns 4. Strategy, policies and practices GRI 2-29 Approach to stakeholder engagement	11 16 16 21

Transparency Recommendations of the Task Force on Climate-related Financial Disclosure (TCFD)

The TCFD is an initiative founded by the Financial Stability Board (FSB) in December 2015. The FSB is an international body created with the support of G20 member states to contribute to international financial stability. The TCFD is intended to identify the information needed by stakeholder groups such as investors, lenders and insurers to assess the risks and opportunities involved in a company's approach to climate change.

In 2017, the TCFD published its eleven recommendations for climate-related financial disclosures in the areas of governance, strategy, risk management and metrics and targets. In the table below, we link the TCFD aspects with our reporting to assist our stakeholders in finding information:

TCFD transparency recommendations – MVV's reporting

TCFD aspect	Recommended TCFD topics	Brief description	Page
Governance	Role of Executive and Supervisory Boards	Within our risk management system, the Executive Board and the Supervisory Board Audit Committee are regularly informed about non-financial risks, including the climate topic. The Executive Board bears overall strategic responsibility for the company's sustainability and climate protection strategy. Responsibility for the operative management of climate protection and climate-related risks is decentralised, but nevertheless coordinated by our groupwide sustainability and risk management.	14, 15
	Management of climate protection and climate-related risks		15 **www.mvv.de/AR2022, Page 116** **www.mvv.de/AR2022, Page 177**
Strategy	Climate-related risks and opportunities	Our strategy of becoming climate positive by 2040 at the latest leads to a rapid reduction in our CO_2 exposure, minimises potential climate-related risks and helps us to grow by offering green products and services. In our corporate planning, we work with scenarios that portray different regulatory and market developments, for example.	23, 45
	Impact of climate-related risks and opportunities on MVV		55
	Climate-related scenarios		**www.mvv.de/AR2022, from Page 88**
Risk management	Identifying climate-related risks at MVV	MVV's risk management system covers all relevant non-financial risks and opportunities, including the climate topic. As part of our risk management, risks are assessed with their probabilities of occurrence, potential level of damages and, if applicable, suitable countermeasures. In analysing physical climate-related risks, we use the approach prescribed by the EU Taxonomy. As an energy company, many of our activities are subject to statutory CO_2 pricing – the EU ETS and the German Emissions Trading Act (BEHG). Internal price-based and structural management instruments are continually being developed further.	45 **www.mvv.de/AR2022, from Page 118**
	Managing climate-related risks at MVV		**www.mvv.de/AR2022, from Page 51**
	Integration into risk management at MVV		**www.mvv.de/AR2022, from Page 88** **www.mvv.de/AR2022, from Page 113**
Metrics and targets	Metrics used to assess climate-related opportunities and risks	MVV's climate balance sheet compiled in accordance with the GHG Protocol is the point of reference for our ambitious climate protection targets. These have been certified by the Science Based Target initiative (SBTi) as being compatible with its net zero standard. In addition, extensive quantitative metrics pursuant to the EU Taxonomy provide information about our investments in climate-friendly technologies and business models.	37, 43 et seq. **www.mvv.de/AR2022, Page 118**
	MVV's climate balance sheet		45 et seq.
	MVV's climate protection targets		29 et seq.

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