Consolidated Financial Statements

Income Statement

Income statement

Euro 000s	**1 Oct 2018 to 30 Sep 2019**	1 Oct 2017 to 30 Sep 2018	Notes
Sales[1]	3,820,091	4,098,376	
less electricity and natural gas taxes	160,349	166,911	
Sales after electricity and natural gas taxes	**3,659,742**	**3,931,465**	1
Changes in inventories	18,067	– 30,930	2
Own work capitalised	20,987	19,076	3
Other operating income [1,2]	327,067	476,914	4
Cost of materials [1]	2,800,954	3,041,979	5
Employee benefit expenses	438,229	422,744	6
Other operating expenses [1,2]	454,720	458,270	7
Impairment losses on financial instruments [2]	6,582	4,196	
Income from companies recognised at equity	25,332	– 110	8
Other income from shareholdings	– 1,732	1,133	8
Restructuring result	–	821	
EBITDA	**348,978**	**471,180**	
Depreciation	183,493	180,680	9
EBITA	**165,485**	**290,500**	
Goodwill amortisation	–	33,706	
EBIT	**165,485**	**256,794**	
of which result of IFRS 9 derivative measurement	– 56,100	31,591	
of which EBIT before result of IFRS 9 derivative measurement	221,585	225,203	
Financing income [3]	21,510	12,159	10
Financing expenses [3]	74,581	58,970	11
EBT	**112,414**	**209,983**	
Taxes on income [3]	36,155	77,375	12
Annual net income	**76,259**	**132,608**	
of which non-controlling interests [2]	30,276	2,507	
of which earnings attributable to MVV Energie AG shareholders (annual net income after minority interests)	45,983	130,101	13
Basic and diluted earnings per share (Euro)	**0.70**	**1.97**	

1 Previous year's figures adjusted due to IFRIC "Physical settlement of contracts to buy or sell a non-financial item (IFRS 9)"
2 Previous year's figures restructured
3 Previous year's figures adjusted due to first-time application of IFRS 9

Statement of Comprehensive Income

Statement of income and expenses recognised in group equity

Euro 000s	1 Oct 2018 to 30 Sep 2019	1 Oct 2017 to 30 Sep 2018
Annual net income [1]	**76,259**	**132,608**
Cash flow hedges	– 47,226	24,195
Hedging costs [1]	248	– 195
Currency translation differences	3,888	1,376
Reclassifiable share of companies recognised at equity	364	166
Items that may subsequently be reclassified to profit or loss	**– 42,726**	**25,542**
Actuarial gains and losses	– 17,591	893
Non-reclassifiable share of companies recognised at equity	– 1,353	14,370
Items that will not be reclassified to profit or loss	**– 18,944**	**15,263**
Total comprehensive income	**14,589**	**173,413**
Non-controlling interests	18,988	7,369
Total comprehensive income attributable to MVV Energie AG shareholders	**– 4,399**	**166,044**

1 Previous year's figures adjusted due to first-time application of IFRS 9

Balance Sheet

Balance sheet

Euro 000s	30 Sep 19	30 Sep 18	1 Oct 2017	Notes
Assets				
Non-current assets				
Intangible assets	309,494	315,923	345,064	14
Property, plant and equipment	2,633,871	2,588,247	2,519,369	15
Right-of-use assets	149,814	–	–	16
Investment properties	2,606	2,451	2,404	17
Interests in companies recognised at equity	188,816	189,414	180,015	18, 19
Other financial assets	78,931	57,662	56,541	21
Other receivables and assets	70,927	309,020	189,270	22
Deferred tax assets	29,368	30,420	33,435	33
	3,463,827	**3,493,137**	**3,326,098**	
Current assets				
Inventories	179,074	160,962	282,529	23
Trade receivables	365,038	381,729	351,104	24
Other receivables and assets	441,538	765,978	343,443	22
Tax receivables	15,156	27,586	18,908	25
Securities	–	–	7	
Cash and cash equivalents	357,564	310,589	370,301	26
Assets held for sale	–	–	20,498	
	1,358,370	**1,646,844**	**1,386,790**	
	4,822,197	**5,139,981**	**4,712,888**	
Equity and debt				
Equity				27
Share capital	168,721	168,721	168,721	
Capital reserve	455,241	455,241	455,241	
Accumulated net income [1]	768,308	777,833	705,540	
Accumulated other comprehensive income [1]	– 72,554	– 21,372	– 57,284	
Capital of MVV	**1,319,716**	**1,380,423**	**1,272,218**	
Non-controlling interests	215,551	244,791	248,884	
	1,535,267	**1,625,214**	**1,521,102**	
Non-current debt				
Provisions	211,849	181,370	198,689	28, 29
Tax provisions	7	–	4,987	28
Financial debt	1,533,537	1,163,138	1,299,227	30
Other liabilities	220,494	403,883	310,268	31
Deferred tax liabilities	143,461	173,809	162,983	33
	2,109,348	1,922,200	1,976,154	
Current debt				
Other provisions	152,331	138,988	134,794	28, 29
Tax provisions	33,816	54,879	31,803	28
Financial debt	168,632	222,858	148,413	30
Trade payables	361,609	340,256	351,179	32
Other liabilities	461,010	835,147	548,369	31
Tax liabilities	184	439	1,074	33
	1,177,582	**1,592,567**	**1,215,632**	
	4,822,197	**5,139,981**	**4,712,888**	

1 Previous year's figures adjusted due to first-time application of IFRS 9

Statement of Changes in Equity

Statement of changes in equity

	Equity contributed		**Equity generated**						
				Accumulated other comprehensive income					
Euro 000s	Share capital of MVV Energie AG	Capital reserve of MVV Energie AG	Accumu-lated net income	Currency translation differences	Fair value measure-ment of financial instruments	Actuarial gains and losses	**Capital of MVV**	Non-controlling interests	**Total capital**
Balance at 1 October 2017 [1]	**168,721**	**455,241**	**705,540**	**17,497**	**– 7,475**	**– 67,306**	**1,272,218**	**248,884**	**1,521,102**
Other income and expenses recognised in equity [1]	–	–	–	1,089	19,810	15,044	35,943	4,862	40,805
Result of business operations [1]	–	–	130,101	–	–	–	130,101	2,507	132,608
Total comprehensive income	**–**	**–**	**130,101**	**1,089**	**19,810**	**15,044**	**166,044**	**7,369**	**173,413**
Dividends paid	–	–	– 59,316	–	–	–	– 59,316	– 17,753	– 77,069
Capital increase/reduction at subsidiaries	–	–	–	–	–	–	–	8,634	8,634
Change in scope of consolidation	–	–	1,508	– 31	–	–	1,477	– 2,343	866
Balance at 30 September 2018	**168,721**	**455,241**	**777,833**	**18,555**	**12,335**	**– 52,262**	**1,380,423**	**244,791**	**1,625,214**
Balance at 1 October 2018	**168,721**	**455,241**	**777,833**	**18,555**	**12,335**	**– 52,262**	**1,380,423**	**244,791**	**1,625,214**
Adjustment due to IFRS 9 and IFRS 15 [2]			20,349				20,349	4,903	25,252
Balance at 1 Oct 2018 (adjusted)	**168,721**	**455,241**	**798,182**	**18,555**	**12,335**	**– 52,262**	**1,400,772**	**249,694**	**1,650,466**
Other income and expenses recognised in equity	–	–	–	3,161	– 38,378	– 15,165	– 50,382	– 11,288	– 61,670
Result of business operations	–	–	45,983	–	–	–	45,983	30,276	76,259
Total comprehensive income	**–**	**–**	**45,983**	**3,161**	**– 38,378**	**– 15,165**	**– 4,399**	**18,988**	**14,589**
Dividends paid	–	–	– 59,316	–	–	–	– 59,316	– 17,795	– 77,111
Capital increase/reduction at subsidiaries	–	–	–	–	–	–	–	54	54
Change in scope of consolidation/ level of shareholding	–	–	– 16,541	– 893	61	32	– 17,341	– 35,390	– 52,731
Balance at 30 September 2019	**168,721**	**455,241**	**768,308**	**20,823**	**– 25,982**	**– 67,395**	**1,319,716**	**215,551**	**1,535,267**

1 Previous year's figures adjusted due to first-time application of IFRS 9
2 Opening values adjusted due to first-time application of IFRS 9 and IFRS 15

Cash Flow Statement

Cash flow statement [1]

Euro 000s	**1 Oct 2018 to 30 Sep 2019**	1 Oct 2017 to 30 Sep 2018
Annual net income before taxes on income [2]	112,414	209,983
Amortisation, depreciation and write-ups of intangible assets, property, plant and equipment and investment properties	182,746	214,386
Financial result [2]	53,070	46,811
Interest received	9,274	7,550
Change in non-current provisions	15,833	126
Other non-cash income and expenses	54,783	– 440
Result of disposal of non-current assets	918	– 28,512
Cash flow before working capital and taxes	**429,038**	**449,904**
Change in other assets	– 94,195	29,044
Change in other liabilities	– 35,464	– 71,387
Change in current provisions	1,978	– 12,545
Income taxes paid	– 63,812	– 63,528
Cash flow from operating activities	**237,545**	**331,488**
Payments for investments in intangible assets, property, plant and equipment and investment properties	– 266,765	– 269,376
Proceeds from disposals of intangible assets, property, plant and equipment and investment properties	20,200	56,577
Proceeds from subsidy payments	5,316	14,808
Proceeds from sale of fully consolidated companies	13,197	–
Proceeds from sale of other financial assets	11,726	281
Payments for acquisition of fully consolidated companies and other business units	– 17,263	– 4
Payments for other financial assets	– 8,092	– 14,073
Cash flow from investing activities	**– 241,681**	**– 211,787**
Proceeds from taking up of loans	552,758	190,250
Payments for redemption of loans	– 358,838	– 250,597
Dividends paid	– 59,316	– 59,316
Dividends paid to non-controlling interests	– 17,795	– 17,753
Change due to changes in capital at minority interests	– 14,817	7,914
Interest paid	– 51,886	– 49,703
Cash flow from financing activities	**50,106**	**– 179,205**
Cash-effective changes in cash and cash equivalents	45,970	– 59,504
Change in cash and cash equivalents due to currency translation	1,005	– 208
Cash and cash equivalents at 1 October 2018 (2017)	310,589	370,301
Cash and cash equivalents at 30 September 2019 (2018)	**357,564**	**310,589**
of which cash and cash equivalents at 30 September 2019 (2018) with restraints on disposal	1,833	1,226

1 Further information about cash flow statement in Note 37

2 Previous year's figures adjusted due to first-time application of IFRS 9

Cash flow - aggregate presentation

Euro 000s	**1 Oct 2018 to 30 Sep 2019**	1 Oct 2017 to 30 Sep 2018
Cash and cash equivalents at 1 October 2018 (2017)	**310,589**	**370,301**
Cash flow from operating activities	237,545	331,488
Cash flow from investing activities	– 241,681	– 211,787
Cash flow from financing activities	50,106	– 179,205
Change in cash and cash equivalents due to currency translation	1,005	– 208
Cash and cash equivalents at 30 September 2019 (2018)	**357,564**	**310,589**

Notes to MVV's 2019 Consolidated Financial Statements

Information about the company

MVV Energie AG has its legal domicile in Mannheim, Germany. Its business address is at Luisenring 49, 68159 Mannheim. It is the parent company of the MVV Group, which acts as an energy generator, distributor and service provider. Its business is managed in the reporting segments of Customer Solutions, New Energies, Supply Reliability, Strategic Investments and Other Activities.

Basis of preparation

MVV's consolidated financial statements have been prepared pursuant to § 315e (1) of the German Commercial Code (HGB) in accordance with the International Financial Reporting Standards (IFRS) issued by the International Accounting Standards Board (IASB) and the interpretations (IFRIC) of the IFRS Interpretations Committee (IFRS IC). The consolidated financial statements thus fully conform with the IFRS and IFRIC published by the IASB and the IFRS IC to the extent that these had been adopted by the European Union at the end of the period under report and required mandatory application as of 30 September 2019.

The consolidated financial statements have been prepared as of the balance sheet date for the annual financial statements of MVV Energie AG and refer to the 2019 financial year (1 October 2018 to 30 September 2019). The consolidated financial statements are compiled in euros. Unless otherwise indicated, all amounts are stated in thousand euros (Euro 000s).

The income statement has been prepared using the total cost method. In the interests of clarity, individual line items have been presented in summarised form in the income statement and balance sheet and listed and commented on separately in the notes.

The Executive Board of MVV Energie AG is responsible for the preparation, completeness and accuracy of the consolidated financial statements and the combined management report. The Executive Board prepared the consolidated financial statements and combined management report on 12 November 2019 and subsequently forwarded these to the Supervisory Board for approval.

Changes in accounting policies

The International Accounting Standards Board (IASB) and the IFRS Interpretations Committee (IFRS IC) have revised or newly adopted some standards and interpretations which require mandatory application for the first time in the 2019 financial year. None of the standards and interpretations not listed in the table below has any (material) implications for MVV:

Amended standards and interpretations

		EU endorsement	Effective date [1]
IFRS 9	Financial Instruments: Classification and Measurement of Financial Assets	22 November 2016	1 January 2018
IFRS 15	Revenue from Contracts with Customers	22 September 2016	1 January 2018
IFRS 15	Clarification to Revenue from Contracts with Customers	31 October 2017	1 January 2018
IFRS 16	Leases	31 October 2017	1 January 2019

1 Applicable in financial years beginning on or after the date stated
2 Premature application together with IFRS 15 as of 1 October 2018

The IASB and the IFRS IC have published standards and interpretations not yet requiring mandatory application in the 2019 financial year and of which no voluntary premature application has been made. None of the standards and interpretations not listed in the table below is expected to have any material implications for MVV:

Amended standards and interpretations

	EU endorsement	Effective date [1]	Implication
IFRS 3 Definition of a Business	Outstanding	1 January 2020	The amendment to IFRS 3 restricts the definition of a business in such a way that fewer transactions will tend to qualify as business combinations in future. Such transactions may require recognition as purchases of groups of assets for which no goodwill arises upon acquisition.

1 Applicable in financial years beginning on or after the date stated

MVV applied IFRS 9 “Financial Instruments” for the first time as of 1 October 2018. IFRS 9 has replaced the existing requirements of IAS 39 “Financial Instruments: Recognition and Measurement”. Consistent with the transitional requirements provided for in IFRS 9, MVV has drawn on the option of continuing to present comparative information in line with IAS 39. One exception involves specific aspects of hedge accounting, which have been retrospectively adjusted in other comprehensive income.

IFRS 9 includes revised requirements for the classification and measurement of financial instruments, the impairment of financial assets and hedge accounting. The classification and measurement of financial assets in IFRS 9 is based on the company’s business model and the contractual cash flow characteristics of the respective financial instrument. Where the requirements for the “hold” business model and the contractual cash flow characteristics of the respective debt instrument are met, these debt instruments are recognised at amortised cost. Where, in respect of the business model, only the conditions for “hold and sell” and simultaneously the conditions for the contractual cash flow characteristics of the respective debt instrument are met, fair value changes for these debt instruments are recognised in other comprehensive income apart from those changes resulting from amended loss allowances. All other debt instruments are recognised at fair value, with changes in value being credited or charged to the income statement. Equity instruments require recognition at fair value.

Fair value adjustments may be recognised either in the income statement or in other comprehensive income. The exception that allowed equity instruments to be recognised at cost in specific circumstances no longer applies. For financial liabilities, the IAS 39 requirements have largely been retained without amendment.

The table below presents financial assets and liabilities with their previous IAS 39 measurement categories, new IFRS 9 measurement categories and the corresponding carrying amounts.

Transition of measurement categories from IAS 39 to IFRS 9

Euro 000s	IAS 39 measurement categories	IAS 39 carrying amounts at 30 Sep 2018	Change due to measurement at fair value	Changes due to additional impairments under IFRS 9	Changes due to IFRS 15 and IFRS 16	IFRS 9 carrying amounts at 1 Oct 2018	IFRS 9 measurement categories
Assets							
Financial assets							
of which other shareholdings	Available for sale	7,410	2,273	–	–	9,683	
						8,536	Fair value through profit or loss
						1,147	Not applicable
of which loans excluding finance leases	Loans and receivables	10,164	–	– 42	–	10,122	Amortised cost
of which loans in connection with finance leases	Not applicable	50,248	–	– 49	–	50,199	Not applicable
Trade receivables < 1 year	Loans and receivables	381,729	–	– 1,276	– 15,684	364,769	Amortised cost
Other assets							
of which derivatives outside hedge accounting	Held for trading	878,817	–	–	–	878,817	Fair value through profit or loss
of which derivatives within hedge accounting	Not applicable	78,414	–	–	–	78,414	Not applicable
of which other operating assets	Loans and receivables	100,296	–	– 201	17,530	117,625	
						28,951	Amortised cost
						14,471	Fair value through profit or loss
						53,156	Outside scope of IFRS 7
						21,047	Not applicable
Cash and cash equivalents	Loans and receivables	310,589	–	–	–	310,589	Amortised cost
		1,817,667	**2,273**	**– 1,568**	**1,846**	**1,820,218**	
Debt							
Financial debt							
of which financial debt in connection with leases	Not applicable	45,237	–	–	88,143	133,380	Not applicable
of which other financial debt	Amortised cost	1,340,759	–	–	–	1,340,759	Amortised cost
Trade payables <1 year	Amortised cost	340,256	–	–	681	340,937	Amortised cost
Other liabilities							
of which derivatives outside hedge accounting	Held for trading	797,014	–	–	–	797,014	Fair value through profit or loss
of which derivatives within hedge accounting	Not applicable	52,012	–	–	–	52,012	Not applicable
of which other operating liabilities	Amortised cost	357,218	–	–	– 59,405	297,813	
						142,733	Amortised cost
						155,080	Outside scope of IFRS 7
		2,932,496	**–**	**–**	**29,419**	**2,961,915**	

The first-time application of IFRS 9 did not have any implications for financial liabilities.

Unlike IAS 9 requirements, the new IFRS 9 impairment model accounts not only for losses that have already been incurred, but also for expected losses (expected credit loss model). This means that impairments of financial assets are recognised at an earlier point in time. Moreover, when determining loss allowances greater reference is made to prospective information. This will mainly affect trade receivables. Loss allowances for trade receivables without significant financing components and for contract assets are calculated using the simplified approach set out in IFRS 9.

The effects resulting from first-time application of the new impairment model are presented in the following table. The resultant item has been recognised directly in equity in the opening balance sheet for 2019.

Reconciliation of IFRS 9 loss allowances

Euro 000s	Trade receivables	Receivables and other financial assets	Loans	Other financial assets
Impairments pursuant to IAS 39 at 30 September 2018	35,258	3,348	4,221	–
Change in impairments due to IFRS 9	1,276	185	41	66
Impairments pursuant to IFRS 9 at 1 October 2018	**36,534**	**3,533**	**4,262**	**66**

The revised hedge accounting requirements are intended to create a closer relationship between a company's risk management strategy and the conclusion of a hedging relationship. Furthermore, IFRS 9 has extended the range of hedged items qualifying for hedge accounting and simplified the effectiveness measurement and thus the conditions governing eligibility for hedge accounting. MVV is able to maintain its existing hedge relationships under IFRS 9. Moreover, under IFRS 9 changes in the fair value of an option designated as a hedge have to be recognised as hedging costs in other comprehensive income. The amounts recognised in other comprehensive income are subsequently reflected in the hedged item on either a transaction or a period basis. This amendment was applied retrospectively. As of 1 October 2017, an amount of Euro 512 thousand was reclassified out of equity and recognised through profit or loss. The financing income and financing expenses recognised in the income statement for the 2018 financial year have decreased by Euro 418 thousand and Euro 699 thousand respectively.

For forward transactions requiring physical settlement that are recognised pursuant to IFRS 9 as derivatives through profit or loss, the existing measurement is withdrawn upon settlement, with the resultant amounts recognised through profit or loss as other operating income or expenses.

Sales and cost of materials are recognised in the amount of the agreed forward prices. We have reviewed the implications of the decision taken by the IFRS Interpretations Committee (IFRS IC) on the "Physical settlement of contracts to buy or sell a non-financial item (IFRS 9)" and implemented the decision as of 30 September 2019, and thus within the year under report. Accordingly, upon settlement sales and cost of materials will in future be recognised in the amount of the respective current spot prices.

Moreover, MVV applied IFRS 15 "Revenue from Contracts with Customers" for the first time as of 1 October 2018.

IFRS 15 replaces the following existing standards and interpretations: IAS 11 "Construction Contracts", IAS 18 "Revenue", IFRIC 13 "Customer Loyalty Programmes", IFRIC 15 "Agreements on the Construction of Real Estate", IFRIC 18 "Transfers of Assets from Customers" and SIC-31 "Revenue – Barter Transactions Involving Advertising Services". MVV has applied IFRS 15 using the cumulative retrospective method.

For allocations in the renewable energies business, the clarifications relating to the constellation of principal or agent will lead in future to a reduction in sales and an equivalent reduction in the cost of materials. MVV acts as an agent when the following criteria are met: Another party is primarily responsible for fulfilling the contract, no inventory or default risks are assumed, MVV does not have discretion to establish the pricing and the consideration takes the form of commission.

The amount netted for sales and cost of materials depends on future developments in the market premium and in the compensation paid under the EEG legislation. In the 2019 financial year, this netting led the income statement to contract by Euro 233 million. This amendment did not have any impact on earnings.

Reclassifications have arisen in the balance sheet between the assets and contract assets and the liabilities and contract liabilities recognised in the past. These mainly related to building cost grants and prepayments received.

Application of IFRS 15 has resulted in the capitalisation of contract acquisition costs. This has slightly extended the balance sheet. Customer acquisition costs of Euro 439 thousand were incurred in the 2019 financial year. These are being amortised over the average contract term. Costs relating to contract terms of less than one year are directly expensed.

Furthermore, upon the introduction of IFRS 15 the period over which building cost grants for electricity and gas connections are reversed was amended to 20 years. Moreover, upon the introduction of IFRS 15 we brought the period of reversal in line with norms customary to our industry. In the previous year, the reversal was based on the useful life of the underlying grid. The resultant increase in equity amounts to Euro 30 million.

Upon the first-time application of IFRS 16, the previous classification of leases at the lessee as operating or finance leases was abolished and replaced by a uniform right-of-use model. Since 1 October 2018, leases have been recognised as right-of-use assets and corresponding lease liabilities from the time when the underlying assets are available for use by the Group. One exception relates to contracts with terms of less than twelve months and low-value assets, which are permitted to be expensed on a straight-line basis. MVV has drawn on this accounting option. Implementation of the new standard means that, from the financial year under report, previously existing operating leases have also triggered capital retention in the form of a right-of-use asset and a liability. This approach is largely comparable with that previously taken to recognise finance leases. The implications for previously existing finance leases do not involve any material amendments. These leases have been measured at the same amounts, with only their statement being amended. Each lease instalment is divided into principal repayments and financing expenses. Financing expenses are charged to earnings over the term of the lease. The right-of-use asset is subject to straight-line depreciation over the shorter of its useful life and the term of the lease contract. Upon initial recognition, lease-related assets and liabilities leases are measured at present value. Lease payments are discounted at the interest rate implicit in the lease, if this can be determined, and otherwise using the lessee's incremental borrowing rate. Upon first-time application, leases were discounted using the lessee's incremental borrowing rate, which was determined based on the contract terms and underlying currencies.

For lessors, the accounting model does not differ to any significant extent from that in IAS 17 "Leases".

Upon first-time application of IFRS 16, the Group did not have any onerous leases. As a result, no corresponding allowances had to be recognised for right-of-use assets. The Group opted not to apply the new requirements to leases whose terms expire within twelve months of the date of first-time application. These leases are accounted for in the same way as short-term leases and expensed.

Furthermore, the following practical expedients were used upon first-time application: the use of an individual discount rate for portfolios of leases with similar characteristics; waiver of an impairment review; exclusion of initial direct costs when measuring right-of-use assets; renewed assessment of termination or extension options upon the lessee obtaining more accurate information.

The lease liabilities refer to buildings, various items of technical equipment and plant and operating equipment and include the present values of the following lease payments:

- Fixed payments less any receivable lease incentives
- Variable lease payments dependent on an index or interest rate
- Expected residual payments from residual value guarantees provided by the lessor
- The exercise price for a purchase option when the lessee is reasonably certain to exercise the option
- Penalties for the termination of the lease when the term already accounts for the possibility of the lessee exercising a termination option.

Based on the operating lease liabilities at 30 September 2018, the reconciliation with the values stated for lease liabilities in the opening balance sheet at 1 October 2018 was as follows:

Reconciliation of lease liabilities at 1 October 2018

Euro 000s	**FY 2019**
Financial obligations for operating leases at 30 Sep 2018	106.619
Minimum lease payments (nominal value) of liabilities in connection with finance leases at 30 September 2018	67.824
< 1 year	5.571
> 1 year and < 5 years	21.295
> 5 years	40.958
Practical expedient for short-term leases	2.520
Practical expedient for low-value asset leases	546
Gross lease liabilities at 1 October 2018	**171.377**
Discounting	37.997
Lease liabilities at 1 October 2018 under IFRS 16	**133.380**
of which for operating leases under IAS 17	88.143
of which for finance leases under IAS 17	45.237

Upon the introduction of IFRS 16, financial obligations for operating leases were recalculated and adjusted as of 30 September 2019.

Lease liabilities were discounted as of 1 October 2018 using the lessee's incremental borrowing rate. The weighted average interest rate amounted to 1.45 %. With regard to the transitional requirements, MVV has applied the modified retrospective approach.

The impact of IFRS 9, IFRS 15 and IFRS 16 conversion effects on the balance sheet, revenue reserves and other comprehensive income is presented in the following tables.

Reconciliation of balance sheet pursuant to IFRS 9, IFRS 15 and IFRS 16

Euro 000s	30 Sep 2018	IFRS 9 effects	IFRS 15 effects	IFRS 16 effects	1 Oct 2018
Non-current assets	**3,493,137**	**2,306**	**16**	**88,143**	**3,583,602**
of which property, plant and equipment	2,588,247	–	–	– 54,876	2,533,371
of which right-of-use assets	–	–	–	143,019	143,019
of which other financial assets	57,662	2,206	–	–	59,868
of which other receivables and assets	309,020	– 41	–	–	308,979
of which deferred tax assets	30,420	141	16	–	30,577
Current assets	**1,646,844**	**– 1,461**	**– 5,239**	**–**	**1,640,144**
of which inventories	160,962	–	– 7,085	–	153,877
of which trade receivables	381,729	– 1,276	– 15,684	–	364,769
of which other receivables and assets	765,978	– 185	17,530	–	783,323
Equity	**1,625,214**	**1,143**	**24,108**	**–**	**1,650,465**
Non-current debt	**1,922,200**	**– 298**	**– 28,032**	**80,190**	**1,974,060**
of which non-current financial debt [1]	1,163,138	–	–	80,190	1,243,328
of which non-current other liabilities	403,883	–	– 38,492	–	365,391
of which deferred tax liabilities	173,809	– 298	10,460	–	183,971
Current debt	**1,592,567**	**–**	**– 1,299**	**7,953**	**1,599,221**
of which other provisions	138,988	–	33	–	139,021
of which trade payables	340,257	–	681	–	340,938
of which current financial debt [1]	222,858	–	–	7,953	230,811
of which current other liabilities	835,147	–	– 2,013	–	833,134

1 Figure includes former liabilities of Euro 45,237 thousand in connection with finance leases

Reconciliation of accumulated net income

Euro 000s	FY 2019
Accumulated net income at 30 September 2018	777,833
IFRS 9 effects	
Change in risk provision	– 777
Adjustments resulting from measurement of equity instruments	1,615
IFRS 15 effects	19,511
Accumulated net income at 1 October 2018	**798,182**

Reconciliation of accumulated other comprehensive income

Euro 000s	FY 2018
Accumulated other comprehensive income at 30 September 2017	– 6,963
IFRS 9 effects: Hedging costs	– 512
Fair value measurement of financial instruments at 1 October 2017	**12,335**

Reconciliation of accumulated net income

Euro 000s	FY 2018
Accumulated net income at 30 September 2017	705,028
IFRS 9 effects: Hedging costs	512
Fair value measurement of financial instruments at 1 October 2017	**705,540**

Consolidation methods

The financial statements included in consolidation have been prepared on the basis of uniform accounting policies as of 30 September 2019.

Subsidiaries are fully consolidated upon acquisition, i.e. from the time when the Group gains control. Their inclusion in the consolidated financial statements ends when they are no longer controlled by the parent company. Capital consolidation is based on the purchase method. Non-controlling interests held in the earnings and net assets of fully consolidated companies are not attributable to the Group. In the consolidated balance sheet, they are recognised within equity, separately from equity attributable to shareholders in the parent company. Subsidiaries that due to materiality considerations have not been fully consolidated in MVV's consolidated financial statements have been reported under other majority shareholdings.

Interests in associates and joint ventures are consolidated using the equity method.

Shareholdings in companies not included by way of full consolidation or by application of the equity method have been accounted for in accordance with IFRS 9.

Receivables and liabilities between consolidated companies are offset against each other, as are income and expenses. Material intercompany results have also been eliminated.

Scope of consolidation and changes in scope of consolidation

In addition to MVV Energie AG, all material German and foreign subsidiaries in which MVV Energie AG directly or indirectly holds a majority of the voting rights have been included in MVV's consolidated financial statements. Furthermore, subsidiaries at which contractual provisions result in control by MVV are included in the consolidated financial statements irrespective of whether MVV holds a majority of voting rights.

Scope of consolidation

Number of companies	Fully consolidated companies	Companies recognised at equity
30 September 2018	172	37
Additions	11	3
Disposals	18	4
30 September 2019	**165**	**36**

The increase in the shareholding held in DC-Datacenter-Group GmbH, Wallmenroth, to 74.99 % led to the addition of three new fully consolidated companies to the scope of consolidation as of 1 April 2019. The shares are held by MVV Enamic GmbH, Mannheim, a wholly-owned subsidiary of MVV Energie AG. The companies, which previously were consolidated at equity as joint ventures, specifically involve: DC-Datacenter-Group GmbH, Wallmenroth, RZ-Products GmbH, Wallmenroth and DC-Group Immobilienverwaltung GmbH & Co. OHG, Wallmenroth.

The fair values of the assets and liabilities identifiable for Data Center Group upon full consolidation are presented in the table below. The goodwill is fully attributable to MVV. No share of goodwill attributable to minorities was identified. The acquisition costs of Euro 27,070 thousand correspond to the total of the fair value of the shareholding prior to full consolidation and the purchase price for those shares additionally acquired which led to control of Data Center Group.

Identifiable assets and liabilities

Euro 000s	Data Center Group, Wallmenroth Recognised upon acquisition
Intangible assets	4,579
Property, plant and equipment	6,677
Shareholdings recognised at equity	115
Right-of-use assets	5,855
Other financial assets	23,931
Inventories	2,365
Trade receivables	6,388
Other receivables and assets	9,587
Cash and cash equivalents	838
Provisions	1,910
Trade payables	2,268
Financial debt	29,270
Other liabilities	10,622
Deferred tax liabilities	2,996
Fair value of net assets	**13,269**
Acquired share of net assets	**9,952**
Goodwill	17,118

Since full consolidation, Data Center Group has contributed sales of Euro 18,748 thousand and earnings of Euro – 339 thousand.

Additions to fully consolidated companies also include companies newly founded, mainly involving project companies at the Juwi and Windwärts subgroups, as well as additions due to changes in status at other majority shareholdings.

Disposals from fully consolidated companies mostly relate to mergers at the Juwi, Soluvia and Umwelt subgroups, as well as to sales of project companies at the Juwi and Windwärts subgroups. Furthermore, the following companies were sold in the 4th quarter of the year under report: Götzfried + Pitzer Entsorgungs GmbH, Ulm, and Vents d'Oc Energies Renouvelables, Montpellier, France.

The changes in companies recognised at equity also mainly involve mergers at the Juwi subgroup.

Currency translation

Foreign currency transactions are recognised at the spot rate applicable at the time the consolidated companies executed the transaction. Monetary assets and liabilities stated in foreign currencies are translated at each balance sheet date at the reporting date rate. Consistent with their respective allocation, currency translation differences are recognised either in earnings from operations or the financial result.

Annual financial statements of foreign group companies are translated into euros (the reporting currency of the Group) in accordance with the functional currency concept and using the modified reporting date method. MVV determines the functional currency for each of its companies. Assets and liabilities are translated from their respective national currencies into euros at the mean exchange rate valid on the balance sheet date. Income and expense items are translated using annual average exchange rates. Currency differences resulting from the use of different exchange rates for the balance sheet and the income statement are recognised directly in equity under accumulated other comprehensive income (currency translation differences).

Currency translation has been based on the following main exchange rates:

Currency translation

	Reporting date rate		Average rate	
1 Euro	**30 Sep 2019**	30 Sep 2018	**1 Oct 2018 to 30 Sep 2019**	1 Oct 2017 to 30 Sep 2018
Czech crown (CZK)	25.816	25.731	25.741	25.591
British pound (GBP)	0.886	0.887	0.884	0.885
US dollar (USD)	1.089	1.158	1.128	1.190
South African rand (ZAR)	16.558	16.445	16.166	15.570

Source: European Central Bank

Accounting policies

Assets and liabilities are measured at amortised cost in all cases with the exception of certain assets, liabilities and derivative financial instruments which IFRS 9 and IFRS 13 require to be measured at fair value where this can be reliably determined. Non-current receivables and debt are recognised at fair value. Assets and liabilities are netted where the relevant requirements are met. Income and expenses derived from assets and liabilities are recognised under earnings from operations or in the financial result depending on the respective balance sheet item. Period deferrals are accounted for where necessary. Items are recognised directly in equity where International Accounting Standards so require and are presented separately in the statement of changes in equity.

The underlying principles of recognition and measurement applied when preparing MVV's consolidated financial statements are set out below.

Intangible assets

Intangible assets were mainly acquired in return for payment and are carried at cost, reduced where appropriate by subsidies received. They are subject to straight-line amortisation based on their pattern of consumption. Useful lives are based on economic aspects or contract terms and range between 1 and 50 years. With the exception of goodwill, there are no intangible assets with useful lives classified as indefinite. Where MVV has to purchase CO_2 emission rights with holding periods longer than one year, these are recognised as intangible assets at cost. Rights allocated free of charge are recognised at Euro 0. As the CO_2 emission rights constitute non-amortisable assets, they are not subject to amortisation but, pursuant to IAS 36, nevertheless reduced by any impairment losses arising.

Property, plant and equipment

Property, plant and equipment is stated at cost, less proportionate depreciation to account for the decline in value of the assets. In the case of internally generated property, plant and equipment, the costs of manufacture are based on allocable direct costs and a commensurate share of directly allocable overhead expenses. Borrowing costs are recognised as a component of costs when they can be directly attributed to the acquisition or manufacture of a qualifying asset. Such costs are recognised as soon as the asset in question requires a significant period of time to be prepared for its intended use or sale. During the commissioning phase, the net balance of income and expenses incurred is capitalised. Income in excess of the expenses incurred is recognised not as a reduction to cost, but through profit or loss.

The cost of assets is reduced by public subsidies received (investment grants). Public subsidies are recognised when it is sufficiently certain that these will be granted and the relevant conditions have been met. Investment grants relate exclusively to asset-based subsidies. These grants are reported separately from investments in the non-current asset schedule.

Items of property, plant and equipment are subject to straight-line depreciation consistent with their pattern of consumption. Depreciation is undertaken pro rata temporis in the year of addition. Scheduled depreciation is based on the following useful lives:

Useful lives in years	
Buildings	5 – 100
Technical equipment and machinery	2 – 55
Transmission grids	2 – 69
Plant and operating equipment	1 – 50

Investment properties

Investment properties are measured at amortised cost. In the context of impairment tests, their fair values are regularly determined by way of independent surveys. As these do not constitute observable market prices, measurement is allocable to Level 3 of the IFRS 13 measurement hierarchy.

Impairment of intangible assets, property, plant and equipment and investment properties

The carrying amounts of intangible assets, property, plant and equipment and investment properties are assessed for indications of impairment at each balance sheet date. An impairment test pursuant to IAS 36 is performed if there are any such indications. Goodwill and intangible assets with indefinite useful lives are not subject to scheduled amortisation, but are rather tested for impairment at least once a year. This also applies when changes in circumstances or indications of impairment arise.

Where the carrying amount of an asset is higher than its recoverable amount (the higher of its fair value less disposal costs or its value in use), the carrying amount is written down to the recoverable amount. The fair value represents the best estimate of the recoverable amount. The recoverable amounts must be determined for each individual asset, unless the asset does not generate any largely independent cash flows. In this case, the amount should be stated for which an independent third party would acquire the cash generating unit at the balance sheet date. The fair values/ values in use of the cash generating units are determined based on the cash flow forecasts approved by the management and supervisory bodies of MVV Energie AG. Such cash flow forecasts are based on experience and results in previous financial years, as well as on expectations as to future market developments. They refer to the expected development in key macroeconomic figures derived from economic and financial studies. Key assumptions used in the forecasts concern the development in the price of crude oil, natural gas and coal on the global markets, the price of electricity and gas on wholesale and end consumer markets and the development in market shares and the relevant regulatory framework.

The cash flow forecasts cover a detailed budgeting period of three years. Figures for subsequent financial years are based on an extrapolation of the results of the final financial year in the detailed budget period. Reference is made to current estimates of growth rates. These correspond to the average long-term growth rates in the markets in which the companies operate and are consistent with external sources of information concerning market expectations. Impairment losses are recognised when the recoverable amount of the asset falls short of its carrying amount. Where the recoverable amount exceeds the carrying amount in subsequent periods, the assets are written up to a maximum of amortised cost.

Goodwill is not written up. Should the carrying amount of a cash generating unit to which goodwill has been allocated exceed its recoverable amount, then the goodwill thereby allocated is written down first. Any further write-down requirement is then accounted for by means of a prorated reduction in the carrying amounts of the other assets at the cash generating unit. However, assets are not written down below their respective present values.

Receivables and other assets

Receivables and other assets include trade receivables, other receivables and assets and tax receivables.

Apart from derivative financial instruments, these are measured at amortised cost. Initial measurement is carried out as of the performance date. Any write-downs required are based on the expected level of default risk. The values of receivables are generally corrected by means of an allowance schedule.

Trade receivables mainly comprise receivables from contracts with customers. These are recognised when the respective goods are delivered or services performed. Should consideration be conditional on something other than the passage of time, then a contract asset is capitalised and recognised under other assets. Trade receivables include accruals/deferrals to cover energy and water sales not yet read or invoiced as of the balance sheet date. Part-payments made in the context of annual consumption invoicing are deducted from the receivables. Default risks existing at the balance sheet date are covered by adequate write-downs. Receivables are derecognised immediately upon becoming uncollectible. The carrying amounts reported are basically equivalent to their respective fair values.

CO_2 emission rights with remaining terms of less than a year and requiring purchase or exchange by MVV are recognised at cost as other assets, while rights allocated free of charge have been recognised at Euro 0.

Inventories

Inventories consist of raw materials and supplies, unfinished and finished products and services and project rights, advance payments made for such and commodity trading assets. They are measured at the lower of cost or net sale value. The commodity trading assets are measured at fair value less disposal costs. Costs of acquisition or manufacture for raw materials and supplies are calculated using the average cost method. The manufacturing costs of unfinished and finished products and services and project rights comprise production-related full costs. These consist of allocable direct costs and a commensurate share of the material and production overheads required based on normal capacity utilisation rates. Risks resulting from impairment in utility are accounted for with suitable deductions.

Cash and cash equivalents

Cash and cash equivalents consist of cash on hand and credit balances at banks with original terms of less than three months.

Non-current assets and liabilities held for sale

Non-current assets which can be sold in their current state and whose sale is highly probable are recognised as non-current assets held for sale. Liabilities due to be dispensed with in a transaction together with assets are reported separately as liabilities held for sale.

Unless the relevant specific standards are applicable, non-current assets held for sale are no longer subject to scheduled depreciation and amortisation. Unless stipulated in another standard, they are measured at fair value less expected disposal costs, where this is lower than the carrying amount. Gains or losses resulting from the measurement of individual non-current assets held for sale or disposal groups are recognised under earnings from continuing operations until their ultimate disposal. Any losses resulting from the measurement of discontinued operations at fair value less disposal costs are recognised as earnings from discontinued operations.

Deferred taxes

Deferred taxes are stated for temporary differences between the tax balance sheets and IFRS balance sheets at individual companies arising from the measurement of assets and liabilities for tax purposes on the one hand and for external IFRS accounting on the other, as well as from consolidation processes impacting on earnings. Moreover, deferred tax assets are also recognised for tax reduction claims resulting from the expected utilisation in subsequent years of existing losses carried forward. Such claims are capitalised if the utilisation of these losses carried forward is certain within a five-year forecast horizon based on existing business plans. Deferred taxes are calculated based on the tax rates valid or expected at the individual organisational units upon realisation. Account is taken of the tax regulations valid or already adopted at the balance sheet date.

Provisions

Provisions are recognised for all legal or constructive obligations to third parties at the balance sheet date as a result of past events, when it is probable that a future outflow of resources will be required to settle the obligations and the amounts can be reliably estimated. Provisions are recognised at their expected performance amounts and are not netted with refund claims. Provisions based on a large number of events of the same nature are recognised at the expected value of the potential results.

All non-current provisions are recognised at their expected performance amounts as of the balance sheet date. Non-current provisions are discounted.

Financial instruments

Primary financial instruments: All primary financial instruments, such as shares and shareholdings, loans, securities, trade receivables, other cash receivables and cash and cash equivalents, are measured at fair value upon addition. Upon subsequent measurement, financial assets are recognised either at fair value or at amortised cost. In the case of subsequent measurement at amortised cost, transaction costs are distributed over the term of the financial instrument using the effective interest method. In other cases, they are expensed directly.

The fair values of financial instruments traded on organised markets are determined by reference to the bid prices listed on the stock market on the balance sheet date. The fair values of financial instruments for which there is no active market are estimated with due application of valuation techniques. These methods are based on recent transactions performed on customary market terms, on the current value of other instruments which are essentially the same instruments, on analysis of discounted cash flows or on option price models. Pursuant to IFRS 13, due account is taken of market and credit risks when determining fair values.

Subsequent recognition is determined by the contractual cash flow characteristics and the objectives of the business model in which the financial instruments are held. If, with minimal exceptions, the contractual cash flow characteristics of a financial instrument solely comprise payments of principal and interest, the instrument may be recognised at amortised cost using the effective interest method if the business model involves collecting contractual payments from the debtor. If, alongside the collection of contractual cash flows, the business model also involves the possibility of selling the financial instrument, then developments in the fair value of the financial instrument over and above effective interest are recognised in other comprehensive income. In recognising fair value changes in other comprehensive income, due account is taken of deferred taxes. Other business models lead to the recognition of the financial instrument at fair value through profit or loss, particularly when the contractual cash flow characteristics also comprise payments other than principal and interest. Based on their cash flow characteristics, only debt instruments qualify for irrevocable allocation to one of the aforementioned business models upon initial recognition. Any equity instruments held are generally recognised at fair value through profit or loss. Should they be held without any intention to trade, the development in the fair value of the equity instrument may be presented through other comprehensive income, taking due account of deferred taxes, but may not be reclassified to the income statement upon disposal.

For financial investments that are subject to the effective interest method, impairments that are already expected are recognised in accordance with the expected credit loss model. In the general approach, loss allowances are determined such that a distinction is made as to whether or not the default risk of a financial asset has deteriorated significantly since initial recognition. If the default risk has not changed, the loss allowance is determined on the basis of potential loss events in the next twelve months (12-month expected loss). In the event of a significant deterioration in the default risk that can no longer be classified as low, the loss allowance is based on the lifetime expected credit loss of the financial instrument. In the simplified approach, by contrast, the loss allowance is directly based on lifetime expected credit losses. Alongside trade receivables, lease receivables and contract assets for customer contracts also require application of the simplified approach. Impairments are recognised directly in period earnings and may directly change the carrying amount of the financial instrument or be presented in an allowances schedule.

Purchases and sales of financial assets executed on customary market terms are recognised on the date of the transaction, i.e. on the date on which the company assumed the liability to purchase or sell the assets. Purchases and sales executed on customary market terms require transfer of the assets within a period determined by market regulations or conventions.

Financial assets are retired when the contractual rights to cash flows from the asset expire or when the financial asset is transferred, provided that all principal risks and rewards relating to ownership of the asset are also transferred and the power to dispose over the asset has been ceded.

Financial debt, trade payables and other financial liabilities are measured at amortised cost, with application of the effective interest method where appropriate. In the case of financial debt, cost is equivalent to the amount disbursed. In the case of trade payables and other liabilities, cost is equivalent to the fair value of the consideration received.

Financial liabilities are retired when the underlying obligation has been met, terminated or has expired.

No use is made of the fair value option.

Derivative financial instruments: Derivative financial instruments particularly include interest rate and currency derivatives, as well as commodity derivatives, in this case mainly for electricity, gas, coal and CO_2. Derivative financial instruments are measured at fair value both upon initial recognition and in subsequent periods and are reported under other assets or other liabilities. The amounts recognised are derived from market values or using recognised valuation methods (present value method or option pricing models based on current market parameters). In particular, certain long-term energy contracts and interest rate derivatives are, where no market prices are available, measured using recognised valuation methods based on internal fundamentals. Changes in the value of interest rate and currency derivatives relating to operations are recognised as income or expenses under earnings from operations or in the financial result. Changes in the value of all other derivative financial instruments are recognised as income or expenses under other operating income and expenses. Derivatives deployed in cash flow hedges have to be treated separately. Where they additionally meet IFRS 9 hedge accounting requirements, changes in the fair value of the effective portion of the hedging instrument are recognised directly in equity under fair value measurement of financial instruments. When the underlying transaction is recognised in the income statement, the hedging instrument is also recognised through profit or loss and thus compensates for the impact of the underlying transaction. Alongside cash flow hedge accounting, risks may also be hedged with fair value hedges. Here, changes in the fair values of those derivatives which serve to hedge a fair value and qualify as fair value hedges are recognised through profit or loss at the same time as the risk thereby hedged. For fair value hedges, changes in the value of primary financial instruments arising due to exchange rate movements may additionally be hedged by the currency-related changes in other primary financial instruments or currency derivatives.

Pending transactions intended to secure market prices in the field of energy trading are within the scope of IFRS 9 and are recognised as derivative financial instruments, while the hedged items (sales contracts) are generally not covered by IFRS 9. The accounting treatment under IFRS 9 relates in particular to commodities futures transactions. Where possible, the own use exemption is applied for these energy trading transactions. Other energy trading transactions are recognised as cash flow hedges or as standalone derivatives.

For closed foreign currency positions, fair value hedges are designated and recognised in accordance with fair value hedge accounting requirements.

Interest rate risks are limited by drawing in particular on interest swaps. These instruments secure the cash flow from financial liabilities with floating interest rates by means of cash flow hedges.

Developments in the fair value of those components of a hedging transaction that are not designated as hedging a risk from a hedged item may be recognised as hedging costs in other comprehensive income and reversed upon recognition of the hedged item through profit or loss.

Discretionary decisions in the application of accounting policies

Discretionary decisions have to be made when applying the accounting policies. This has not had any material influence on the values of the assets and liabilities reported in the financial statements.

Measurement uncertainties

The preparation of consolidated financial statements in accordance with IFRS requires assets and liabilities to be measured. Here, it is also necessary to make assumptions and estimates which could impact on the values stated for the assets and liabilities, income and expenses thereby recognised and the disclosure of contingent liabilities.

The following section provides information on the most important prospective assumptions and other major sources of uncertainty involved in estimates made at the balance sheet date, as a result of which there is a risk that material adjustments will be required in the carrying amounts of assets and liabilities in the next financial year.

The fair values of assets and liabilities and the useful lives of assets have been determined on the basis of management assessment. The same applies to the calculation of any impairments of assets.

The impairment test performed on goodwill and assets requires an estimation of the recoverable amount of the cash generating unit to which the goodwill or asset is allocated. The recoverable amount is the higher of the fair value, less disposal costs, of the cash generating unit and its value in use. This is compared with the carrying amount. To estimate the recoverable amount, MVV has to estimate the cash flow surpluses expected to be generated by the cash generating unit in future and furthermore to select an appropriate discount rate to calculate the present value of the cash flows. All assumptions and estimates are based on circumstances and assessments at the balance sheet date or at the date during the financial year on which event-specific impairment becomes necessary. Any deviation in underlying conditions could result in differences arising between such estimates and actual values. Appropriate amendments are made in such cases to the assumptions and if need be to the carrying amount of the goodwill and assets.

Moreover, assumptions also have to be made when calculating actual and deferred taxes. In particular, the possibility of generating corresponding future taxable income plays a key role in the assessment as to whether it will be possible to use deferred tax assets.

The uncertainties arising when measuring the provisions to be recognised are countered with the best possible estimates. Among other methods, the calculations are based on probability considerations.

The measurement of sales and cost of materials is dependent on estimates to the extent that consumption deferrals have been undertaken as of the balance sheet date for trade receivables and payables already incurred but not yet invoiced.

Compensation liabilities for partnerships are recognised at prorated fair value. This is determined by compiling a company valuation, taking due account of current budgets and the yield curve.

When assessing measurement uncertainties, reference is always made to the best information available concerning circumstances at the balance sheet date. Actual amounts may differ from estimates. The carrying amounts recognised in the financial statements which are subject to these uncertainties have been stated in the balance sheet and the accompanying information provided in the notes.

The amendments made to estimates in the 2019 financial year due to IAS 8 did not lead to any notable adjustments in the relevant income, expenses, assets or liabilities.

NOTES TO INCOME STATEMENT

1. Sales after electricity and natural gas taxes

Sales include all revenues generated by the Group's typical business activities. MVV's main products are electricity, heating energy, gas, water and waste incineration and disposal. The Group also generates significant revenues from services and from solar and wind power project development services. Revenues from contracts with customers are generally recognised upon delivery to the customer or performance of the service for the customer. Delivery is deemed complete when control has been transferred to the customer and consideration is unconditional except for the passage of time. If consideration is conditioned on something other than the passage of time, the respective claims are recognised as contract assets.

A material share of revenues from contracts with customers is performed over a period of time. The percentage of completion is generally determined using the output method. In some cases, application is also made of the input method. Here, however, it is necessary to document that this method also corresponds to the transfer of control.

Revenues from contracts with customers result from the transaction prices allocated to the respective products and services. These correspond to the value of units delivered, including estimated deferrals for units not yet read or billed as of the balance sheet date.

The average payment target amounts to between 14 and 30 days.

The composition of sales broken down into individual segments can be found in Segment Reporting in Note 36.

Sales from contracts with customers (external sales) are broken down by product and presented in the following table:

Sales by product group

Euro 000s	**FY 2019**	FY 2018
Electricity [1]	1,656,037	2,094,707
Heating energy	374,362	359,409
Gas [1]	706,389	576,571
Water	89,187	86,988
Other sales	833,767	813,790
	3,659,742	**3,931,465**

1 Previous year's figures adjusted due to NIFRIC "Physical settlement of contracts to buy or sell a non-financial item (IFRS 9)"

Timing of sales recognition

Euro 000s	**FY 2019**	FY 2018
Sales recognised at a point in time	3,232,903	3,555,715
Electricity [1]	1,656,037	2,094,707
Heating energy	374,362	359,409
Gas [1]	706,389	576,571
Water	89,187	86,988
Other sales	406,928	438,040
Sales recognised over time	426,839	375,750
Project development	380,019	335,455
Operations management services	46,820	40,295
	3,659,742	**3,931,465**

1 Previous year's figures adjusted due to NIFRIC "Physical settlement of contracts to buy or sell a non-financial item (IFRS 9)"

The previous year's sales figures for the electricity and gas products have been increased by Euro 28,627 thousand due to NIFRIC "Physical settlement of contracts to buy or sell a non-financial item (IFRS 9)".

Other sales mainly include revenues from waste incineration and consulting services, as well as other sales in business fields not forming part of MVV's core business.

In group currency, sales at our foreign subsidiaries came to Euro 443,964 thousand (previous year: Euro 206,095 thousand). The increase in this share of sales is chiefly due to the higher number of projects realised abroad.

The volume of sales included in net contract liabilities at the beginning of the period under report and since recognised amounts to Euro 24,395 thousand.

2. Changes in inventories

Changes in inventories mainly relate to unfinished projects and project rights.

3. Own work capitalised

Own work capitalised relates above all to the construction and expansion of distribution grids.

4. Other operating income

Other operating income

Euro 000s	FY 2019	FY 2018
Income from IFRS 9 derivatives [1]	236,728	336,350
Income from emission rights [1]	14,176	15
Reversal of provisions	15,581	42,851
Agency agreements and personnel supplies	9,782	4,836
Reimbursements of damages claims	8,985	5,400
Exchange rate gains	5,211	5,428
Benefits to employees	4,458	4,185
Rental income	3,884	3,667
Credits and refunds	2,863	2,756
Income from sales of assets and write-ups	1,716	1,734
Income from sales of assets held for sale	–	30,802
Miscellaneous	23,683	38,890
	327,067	**476,914**

1 Previous year's figures adjusted due to NIFRIC "Physical settlement of contracts"

The previous year's figures for other operating income have been increased by Euro 68,970 thousand due to NIFRIC "Physical settlement of contracts to buy or sell a non-financial item (IFRS 9)" and reduced by Euro 10,314 thousand due to the new statement of impairment losses under IAS 1.

Other operating income particularly includes measurement items for energy trading transactions requiring measurement under IFRS 9. Measurement items relating to energy trading transactions are reported on a gross basis. This valuation-dependent income is offset by corresponding expenses.

The increase in income from emission rights was due to higher market prices.

In the previous year, the income from sales of assets held for sale resulted from the sale of the fibre optic network at MVV Energie AG and of assets relating to multi-utility contracts at MVV ImmoSolutions GmbH.

Undiscounted income recognised for future lease payments is broken down into its respective maturities and presented in the following table. There are no variable lease payments not linked to an index or an interest rate.

Future income from operating lease payments

Euro 000s	FY 2019
Minimum lease payments with maturities < 1 year	1,562
Minimum lease payments with maturities > 1 year and < 5 years	2,940
Minimum lease payments with maturities > 5 years	2,611

5. Cost of materials

Cost of materials

Euro 000s	FY 2019	FY 2018
Raw materials, supplies and purchased goods [1]	1,944,490	2,199,941
Procurement of wind turbines and solar power systems	294,378	285,650
Purchased services	562,086	556,388
	2,800,954	**3,041,979**

1 Previous year's figures adjusted due to NIFRIC "Physical settlement of contracts to buy or sell a non-financial item (IFRS 9)"

The previous year's figures for cost of materials have been increased by Euro 84,218 thousand in the electricity and gas products due to NIFRIC "Physical settlement of contracts to buy or sell a non-financial item (IFRS 9)".

Expenses for purchased services mainly relate to expenses for grid utilisation fees, concession duties, maintenance and repair expenses, disposal costs for residual waste and other third-party services.

6. Employee benefit expenses

Employee benefit expenses

Euro 000s	FY 2019	FY 2018
Wages and salaries	358,910	345,592
Social security expenses and welfare expenses	59,934	57,838
Pension expenses	19,385	19,314
	438,229	**422,744**

MVV had an annual average of 6,040 employees (previous year: 6,006). This total includes 10 executives (previous year: 10), 5,713 employees (previous year: 5,680), 287 trainees (previous year: 281) and 30 interns/students (previous year: 35).

The executives are members of the management in key functions, i.e. authorised representatives and division heads at MVV Energie AG.

7. Other operating expenses

Other operating expenses

Euro 000s	FY 2019	FY 2018
Expenses for IFRS 9 derivatives [1]	268,529	246,467
Contributions, fees and duties	30,271	31,990
Expenses for advisory services	27,255	32,634
Maintenance, repair and IT service expenses	20,276	21,844
Operating taxes (including energy taxes)	15,796	12,819
Employee benefit and welfare expenses	12,605	12,312
Rental, leasehold and leasing expenses	12,327	22,759
Public relations expenses	10,812	11,411
Facility management	7,748	7,344
Personnel supplies	4,698	10,008
Service contracts	3,872	5,397
Losses incurred on sales of assets	3,473	4,025
Exchange rate losses	2,860	7,169
Hospitality expenses	1,960	2,186
Office materials and specialist literature	1,688	1,744
Miscellaneous [1]	30,550	28,161
	454,720	**458,270**

1 Previous year's figures adjusted due to NIFRIC "Physical settlement of contracts"

The previous year's figures for other operating expenses have been increased by Euro 13,457 thousand due to NIFRIC "Physical settlement of contracts to buy or sell a non-financial item (IFRS 9)" and reduced by Euro 14,511 thousand due to the new statement of impairment losses under IAS 1.

Other operating expenses include negative measurement items for energy trading transactions requiring measurement under IFRS 9. Measurement items relating to energy trading transactions are reported on a gross basis. These valuation-dependent expenses are countered by other operating income offsetting this item.

The reduction in rental, leasehold and leasing expenses was mainly due to the first-time application of IFRS 16.

8. Income from companies recognised at equity and other income from shareholdings

Interests in associates and joint ventures are recognised initially at cost and subsequently at the amortised value of the prorated net assets. The carrying amounts are increased or reduced annually to account for prorated earnings, dividends paid and other changes in equity. Any goodwill thereby recognised is included in the value of the shareholding, rather than being reported separately. Impairment losses are recognised on the at-equity carrying amount when the recoverable amount falls short of the carrying amount. When the reasons for impairment losses previously recognised on the at-equity carrying amount no longer apply, the carrying amount is correspondingly written up through profit or loss.

Income from companies recognised at equity and other income from shareholdings

Euro 000s	FY 2019	FY 2018
Income from companies recognised at equity	25,332	– 110
Income from other shareholdings	1,229	1,144
Expenses/income from sales of financial assets	– 2,961	– 11
	23,600	**1,023**

The changes in the income from companies recognised at equity were mainly due to the subsequent measurement of those companies over which MVV exercises significant influence.

9. Depreciation and amortisation

Depreciation and amortisation

Euro 000s	FY 2019	FY 2018
Depreciation	183,493	180,680
of which impairment losses	–	–

10. Financing income

Financing income

Euro 000s	FY 2019	FY 2018
Income from currency translation in connection with financing activities	10,579	3,548
Interest income from finance leases	3,540	3,240
Income from IFRS 9 measurement[1]	1,445	206
Interest income from current account, overnight and fixed-term deposits	1,052	774
Other interest and similar income	4,894	4,391
	21,510	**12,159**

1 Previous year's figures adjusted due to first-time application of IFRS 9

11. Financing expenses

Financing expenses

Euro 000s	FY 2019	FY 2018
Interest expenses from current account, non-current and current loans	36,730	35,627
Compounding of provisions	10,990	2,826
Expenses from currency translation in connection with financing activities	10,000	3,654
Expenses for IFRS 9 measurement [1]	742	1,006
Other interest and similar expenses	16,119	15,857
	74,581	**58,970**

1 Previous year's figures adjusted due to first-time application of IFRS 9

The other interest and similar expenses were reduced by Euro 3,558 thousand as a result of the capitalisation of borrowing interest (previous year: Euro 3,127 thousand). The financing cost rate thereby assumed ranged from 1.4 % to 2.5 % in the financial year under report and from 1.4 % to 1.9 % in the previous year. Expenses for compounding provisions mainly relate to long-term personnel provisions.

12. Taxes on income

Taxes on income

Euro 000s	FY 2019	FY 2018
Actual taxes	54,803	72,163
Deferred taxes [1]	– 18,648	5,212
	36,155	**77,375**

1 Previous year's figures adjusted due to first-time application of IFRS 9

Current tax expenses include trade tax and corporate income tax, including the solidarity surcharge, as well as foreign taxes on income.

Deferred taxes in Germany are calculated on the basis of tax rates applicable at individual companies. These result from the unchanged corporate income tax rate of 15 %, the unchanged solidarity surcharge of 5.5 % and the applicable trade tax rate (currently 12 % to 16 %). Equivalent calculations for foreign companies are based on the respective national tax rates. Where the requirements of IAS 12 are met, deferred tax assets and liabilities are stated on a net basis for each company or fiscal unit.

The deferred tax income is due on the one hand to tax expenses of Euro 1,650 thousand (previous year: Euro 6,673 thousand) that are attributable to the change in the write-down on losses carried forward and the recognition through profit or loss of losses carried forward, as well as to deferred tax income of Euro 20,298 thousand (previous year's figure adjusted due to first-time application of IFRS 9: Euro 1,461 thousand) attributable to the arising and/or reversal of temporary differences.

Actual tax expenses were reduced by Euro 5,646 thousand by using tax losses not previously recognised (previous year: Euro 1,348 thousand).

The following table presents the reconciliation of expected tax expenses with those actually reported. The tax rate applicable for the tax reconciliation amounts to 30.3 % (previous year: 30.3 %) and comprises the corporate income tax rate, the solidarity surcharge and an average trade tax rate of 14.5 % (previous year: 14.5 %).

Reconciliation of income tax expenses

Euro 000s	FY 2019	FY 2018
Earnings before taxes (EBT) [1]	**112,414**	**209,983**
Expected tax expenses based on tax rate of 30.3 % (previous year: 30.3 %) [1]	**34,061**	**63,625**
Deviations resulting from trade tax assessment base	1,216	1,851
Deviations from expected tax rate	– 4,884	– 3,075
Utilisation of losses carried forward, change in write-down for losses and losses for which no deferred taxes are recognised	1,716	6,590
Non-deductible expenses	8,298	3,300
Tax-exempt income	– 7,098	– 6,939
Income from shareholdings recognised at equity	– 4,113	4,725
Permanent differences	5,248	– 7,220
Taxes for previous years	1,225	5,510
Goodwill impairments	–	10,212
Miscellaneous	486	– 1,204
Effective tax expenses [1]	**36,155**	**77,375**
Effective tax rate (%) [1]	**32.2**	**36.9**

1 Previous year's figures adjusted due to first-time application of IFRS 9

13. Share of earnings attributable to MVV Energie AG and earnings per share

Share of earnings attributable to MVV Energie AG shareholders and earnings per share

	FY 2019	FY 2018
Share of earnings attributable to MVV Energie AG shareholders (Euro 000s)	45,983	130,101
Number of shares (weighted average in 000s)	65,907	65,907
Earnings per share (Euro)	0.70	1.97
Dividend per share (Euro)	0.90	0.90

The total number of individual registered shares in MVV Energie AG amounts to 65,906,796.

The dividend for the 2019 financial year is consistent with the proposal submitted by the Executive and Supervisory Boards and is subject to approval by the Annual General Meeting on 13 March 2020. The proposal provides for the distribution of a dividend of Euro 59,316 thousand. The proposals for the amount of dividend and appropriation of earnings for the 2018 financial year were approved by the Annual General Meeting held on 8 March 2019. A dividend of Euro 59,316 thousand was thus distributed.

NOTES TO BALANCE SHEET

14. Intangible assets

Intangible assets include concessions, industrial property rights, customer lists and similar rights and values, goodwill and advance payments. Concessions, industrial property rights and similar rights and values chiefly consist of software, rights eligible for capitalisation and customer lists. As in the previous year, no intangible assets are subject to restrictions on disposal.

MVV performs only a low volume of research and development. The amount of research and development expenses qualifying under IFRS came to Euro 575 thousand in the 2019 financial year (previous year: Euro 714 thousand). Development expenses capitalised under IAS 38 came to Euro 334 thousand in the year under report (previous year: Euro 228 thousand). These mainly involve the development of a global project database for solar and wind power projects at the Juwi subgroup.

The goodwill impairment tests performed in the 2019 financial year were based on determining the recoverable amounts of the cash generating units to which goodwill was allocated. These still correspond to the legal subgroups.

As no market prices or other binding indicators for the value of the units were available, their fair values less costs to sell were determined using discounted cash flow methods. These correspond to Level 3 measurements in the IFRS 13 hierarchy. Taking due account of corresponding expected prices from relevant and validated market forecasts, the historic cash flows of the units were extrapolated over a forecast period of three to five years and discounted using discount rates (weighted costs of capital) of 5.3 % to 11.5 % before taxes (previous year: 5.9 % to 12.8 %). A growth rate of 0.5 % was assumed for the perpetuity included in the calculation.

A sensitivity analysis varying the discount rate by 0.5 % did not produce any changes in the findings of the impairment test.

The carrying amounts stated for goodwill are structured as follows:

Goodwill carrying amounts

Euro 000s	**30 Sep 2019**	30 Sep 2018
Juwi subgroup	74,970	74,970
Energieversorgung Offenbach subgroup	75,894	75,894
MVV Enamic subgroup	44,535	27,417
Windwärts subgroup	3,910	6,073
MVV Energie CZ subgroup	6,257	6,280
MVV Umwelt subgroup	3,080	5,583
Other subgroups	552	552
	209,198	**196,769**

The rise in goodwill at the MVV Enamic subgroup relates to the acquisition and full consolidation of Data Center Group, while the reductions at the Windwärts and MVV Umwelt subgroups were due to the sale of Vents d'Oc Energies Renouvelables and Götzfried + Pitzer Entsorgungs GmbH.

Intangible assets

Euro 000s	Concessions, industrial property rights and similar rights and values	Goodwill	Advance payments	**Total**
Gross value at 1 October 2017	334,317	243,237	3,515	581,069
Currency adjustments	14	92	–	106
Additions	21,945	–	4,298	26,243
Disposals	– 10,267	–	– 34	– 10,301
Reclassifications	1,640	–	– 1,455	185
Gross value at 30 September 2018	**347,649**	**243,329**	**6,324**	**597,302**
Amortisation at 1 October 2017	– 223,174	– 12,831	–	– 236,005
Currency adjustments	– 15	– 23	–	– 38
Scheduled amortisation	– 14,882	–	–	– 14,882
Impairment losses	–	– 33,706	–	– 33,706
Disposals	3,252	–	–	3,252
Amortisation at 30 September 2018	**– 234,819**	**– 46,560**	**–**	**– 281,379**
Net value at 30 September 2018	**112,830**	**196,769**	**6,324**	**315,923**
Gross value at 1 October 2018	347,649	243,329	6,324	597,302
Change in scope of consolidation	1,546	12,452	–	13,998
Currency adjustments	36	– 31	–	5
Additions	3,558	–	4,438	7,996
Disposals	– 19,287	–	–	– 19,287
Reclassifications	2,383	–	– 2,440	– 57
Gross value at 30 September 2019	**335,885**	**255,750**	**8,322**	**599,957**
Amortisation at 1 October 2018	– 234,819	– 46,560	–	– 281,379
Change in scope of consolidation	2,839	–	–	2,839
Currency adjustments	3	8	–	11
Scheduled amortisation	– 14,152	–	–	– 14,152
Disposals	2,221	–	–	2,221
Reclassifications	– 3	–	–	– 3
Amortisation at 30 September 2019	**– 243,911**	**– 46,552**	**–**	**– 290,463**
Net value at 30 September 2019	**91,974**	**209,198**	**8,322**	**309,494**

15. Property, plant and equipment

Property, plant and equipment

Euro 000s	Land, leasehold rights and buildings, including buildings on third-party land	Technical equipment and machinery	Other assets, plant and operating equipment	Advance payments and construction in progress	**Total**
Gross value at 1 October 2017	914,455	4,502,278	181,065	190,405	5,788,203
Change in scope of consolidation	–	500	154	–	654
Currency adjustments	483	236	– 1	– 46	672
Additions	10,528	47,829	7,714	182,691	248,762
Subsidy payments received	– 10	– 5,854	– 81	– 316	– 6,261
Disposals	– 1,423	– 24,019	– 10,310	– 3,217	– 38,969
Reclassifications	6,721	46,265	1,225	– 54,396	– 185
Gross value at 30 September 2018	**930,754**	**4,567,235**	**179,766**	**315,121**	**5,992,876**
Depreciation at 1 October 2017	– 424,355	– 2,710,815	– 133,664	–	– 3,268,834
Currency adjustments	– 479	– 944	– 10	–	– 1,433
Scheduled depreciation	– 24,455	– 131,105	– 10,238	–	– 165,798
Disposals	1,355	19,926	10,155	–	31,436
Reclassifications	245	– 168	2	– 79	–
Depreciation at 30 September 2018	**– 447,689**	**– 2,823,106**	**– 133,755**	**– 79**	**– 3,404,629**
Net value at 30 September 2018	**483,065**	**1,744,129**	**46,011**	**315,042**	**2,588,247**
Gross value at 1 October 2018	930,754	4,567,235	179,766	315,121	5,992,876
Adjustment due to IFRS 16	– 40,301	– 27,211	– 870	–	– 68,382
Gross value at 1 October 2018 (adjusted)	890,453	4,540,024	178,896	315,121	5,924,494
Change in scope of consolidation	1,679	– 2,497	314	100	– 404
Currency adjustments	– 124	– 23	54	– 40	– 133
Additions	3,724	40,285	6,993	210,832	261,834
Subsidy payments received	– 620	– 4,171	– 11	– 514	– 5,316
Disposals	– 2,100	– 21,800	– 3,671	– 898	– 28,469
Reclassifications	7,827	42,097	1,212	– 51,079	57
Gross value at 30 September 2019	**900,839**	**4,593,915**	**183,787**	**473,522**	**6,152,063**
Depreciation at 1 October 2018	– 447,689	– 2,823,106	– 133,755	– 79	– 3,404,629
Adjustment due to IFRS 16	6,861	5,776	868	–	13,505
Depreciation at 1 October 2018 (adjusted)	– 440,828	– 2,817,330	– 132,887	– 79	– 3,391,124
Change in scope of consolidation	217	1,429	2,299	–	3,945
Currency adjustments	154	329	– 29	–	454
Scheduled depreciation	– 21,141	– 123,129	– 9,730	–	– 154,000
Write-ups	–	652	96	–	748
Disposals	1,747	16,645	3,390	–	21,782
Reclassifications	60	42	– 96	– 3	3
Depreciation at 30 September 2019	**– 459,791**	**– 2,921,362**	**– 136,957**	**– 82**	**– 3,518,192**
Net value at 30 September 2019	**441,048**	**1,672,553**	**46,830**	**473,440**	**2,633,871**

Property, plant and equipment up to an equivalent value of Euro 43 million (previous year: Euro 46 million) has been provided as security for financial debt. This involves land and buildings, technical equipment and machinery. Property, plant and equipment of Euro 110 million is subject to restrictions on disposal (previous year: Euro 119 million).

Subsidy payments received involve government grants received in the 2019 financial year chiefly in connection with urban planning measures for the distribution grid and for combined heat and power generation. There are no conditions that have not been met or other performance uncertainties in connection with these subsidy payments.

Apart from the connection of a waste-fired CHP plant to the district heating grid in Mannheim, the largest additions to advance payments and construction in progress in the 2019 financial year involved the construction of a gas-powered CHP plant in Kiel and an energy from waste plant in the UK.

16. Leases as lessee

The development in right-of-use assets recognised in connection with leased items is presented in the table below:

Right-of-use assets

Euro 000s	Land and buildings	IT hardware and software	Vehicles	Technical equipment and machinery	Plant and office equipment	Other leased items	**Total**
Opening balance at 1 Oct 2018	97,513	829	3,496	40,952	139	90	143,019
Depreciation and amortisation	– 9,355	– 400	– 2,096	– 3,392	– 56	– 42	– 15,341
Additions	20,839	518	2,771	2,831	–	412	27,371
Other changes	– 1,692	–	– 731	– 2,736	– 76	–	– 5,235
Closing balance at 30 Sep 2019	**107,305**	**947**	**3,440**	**37,655**	**7**	**460**	**149,814**

Further disclosures about the leases recognised in MVV's capacity as lessee are presented in the following table:

Disclosures on leases (as lessee)

Euro 000s	**FY 2019**
Interest expenses for lease liabilities	4,470
Outflow of cash for leases	15,562
Expenses for short-term leases	2,633
Expenses for low-value leases	570
Expenses for variable lease payments	367
Income from sub-lease arrangements	719

With regard to future lease payments, the windfarms in some cases face risks resulting from variable leasehold payments that are dependent on the amount of feed-in revenues. Further risks involve future developments in consumer price indices, to which lease payments are in some cases linked.

MVV has only one sale and leaseback transaction, which was concluded in the past in order to procure liquidity. The outflow of funds for this transaction, involving the deployment of an ERP system, amounted to Euro 77 thousand in the period under report.

17. Investment properties

Investment properties involve a piece of land let out in the USA. Rental income amounted to Euro 34 thousand in the financial year under report (previous year: Euro 32 thousand). As in the previous year, direct operating expenses came to Euro 0 thousand. The fair value of investment properties is at least equivalent to the carrying amount.

Investment properties

Euro 000s	**FY 2019**	FY 2018
Gross value at 1 October	2,451	2,404
Currency adjustments	155	47
Gross value at 30 September	**2,606**	**2,451**
Depreciation at 1 October	–	–
Depreciation at 30 September	**–**	**–**
Net value at 30 September	**2,606**	**2,451**

18. Joint ventures

MVV operates joint ventures with partners. In view of their size and their influence on the Group, the following companies have been identified as material joint ventures:

Together with its shareholders, Uniper Kraftwerke GmbH and Stadtwerke Kiel AG, which is a subsidiary of MVV Energie AG, the company Gemeinschaftskraftwerk Kiel GmbH operated a hard coal-fired power plant in Kiel. Stadtwerke Kiel AG owns a 50 % share of the capital. All significant decisions have to be reached jointly by the shareholders. The hard coal-fired power plant was switched off in the 2019 financial year and is in the process of being replaced by a modern gas-powered CHP plant owned exclusively by Stadtwerke Kiel AG. As a result of this, Gemeinschaftskraftwerk Kiel GmbH no longer constituted a material joint venture as of 30 September 2019.

Grosskraftwerk Mannheim AG operates what is one of Europe's most efficient hard coal-fired power plants in Mannheim. Overall, MVV owns a 28 % share of the capital in this company. Grosskraftwerk Mannheim AG is a power plant jointly owned by the following shareholders: RWE Generation SE, Essen, EnBW Energie Baden-Württemberg AG, Karlsruhe, and MVV RHE GmbH, Mannheim. Due to contractual amendments made to the Code of Procedure and Articles of Incorporation in 2019, MVV RHE GmbH no longer exercises significant influence on the company. Since then, Grosskraftwerk Mannheim AG has been included as a joint venture.

Stadtwerke Ingolstadt is responsible for the energy supply in the Ingolstadt region. MVV Energie AG owns a 48.4 % share of the capital in Stadtwerke Ingolstadt Beteiligungen GmbH which, as the financial holding company, pools several subsidiaries. All significant decisions have to be taken jointly by the shareholders.

The assets, liabilities, equity, sales, annual net income and other income and expenses at material joint ventures are presented in the following tables:

Statement of comprehensive income for material joint ventures

	Grosskraftwerk Mannheim AG, Mannheim		Stadtwerke Ingolstadt Beteiligungen GmbH, Ingolstadt	
Euro 000s	**Financial year**	Previous year	**Financial year**	Previous year
Sales excluding energy taxes	754,058	509,634	191,626	186,060
Scheduled depreciation and amortisation	– 98,036	– 97,071	– 13,953	– 13,851
Interest income	–	–	92	99
Interest expenses	– 52,705	– 64,709	– 1,009	– 1,112
Income tax expenses/income	– 7,212	116	– 7,639	– 7,475
Annual net income	39,691	– 62,574	19,593	17,854
Other income and expenses	– 3,603	51,330	– 337	– 5
Total comprehensive income for period	**36,088**	**– 11,244**	**19,256**	**17,849**
Dividends received from material joint ventures	–	–	8,883	9,025

Further key financial figures for material joint ventures

	Grosskraftwerk Mannheim AG, Mannheim		Stadtwerke Ingolstadt Beteiligungen GmbH, Ingolstadt	
Euro 000s	**Financial year**	Previous year	**Financial year**	Previous year
Assets	**2,001,398**	**1,985,979**	**269,923**	**273,593**
Non-current assets	1,723,518	1,817,686	234,275	231,451
Current assets	277,880	168,293	35,648	42,142
of which cash and cash equivalents	1,298	1,879	877	1,325
Equity and debt	**2,001,398**	**1,985,979**	**269,923**	**273,593**
Equity	152,117	116,029	66,689	65,787
Non-current provisions	632,599	629,536	6,697	5,232
Non-current debt and other liability items	893,510	228,972	96,067	99,462
of which non-current financial debt	830,000	154,000	22,050	26,366
Current provisions	187,526	73,761	124	301
Current debt and other liability items	135,646	937,681	100,346	102,811
of which current financial debt	99,621	876,280	80,406	72,128

Reconciliation of summarised key financial figures with carrying amounts of material joint ventures

	Grosskraftwerk Mannheim AG, Mannheim		Stadtwerke Ingolstadt Beteiligungen GmbH, Ingolstadt	
Euro 000s	**Financial year**	Previous year	**Financial year**	Previous year
Net assets at 1 October	116,029	127,273	65,787	66,584
Profit/loss for period	39,691	– 62,574	19,593	17,854
Distribution	–	–	– 18,354	– 18,646
Other income and expenses	– 3,603	51,330	– 337	– 5
Net assets at 30 September	**152,117**	**116,029**	**66,689**	**65,787**
Group share of net assets	42,593	32,488	32,277	31,841
Other items	1,897	1,897	– 154	– 154
Goodwill	–	–	53,759	53,759
Carrying amount of interest in joint ventures	**44,490**	**34,385**	**85,882**	**85,446**

The aggregate profit/loss, total comprehensive income and carrying amounts of non-material joint ventures are presented in the following table:

Summarised key financial figures for non-material joint ventures

Euro 000s	**Financial year**	Previous year
Profit/loss for period	12,469	9,806
Total comprehensive income for period	12,469	9,806
Carrying amount of interest in non-material joint ventures	**45,416**	**44,897**

Other comprehensive income at material joint ventures includes items resulting from the measurement of pension obligations.

The consolidated joint ventures Gemeinschaftskraftwerk Kiel GmbH and Grosskraftwerk Mannheim AG have financial years ending on 31 December, and thus deviating from MVV's financial year. Their results have been recognised at the Group accordingly. As both these companies involve power plants whose costs are fully reimbursed and whose annual net income and distributions remain constant, the deviating balance sheet date does not have implications for MVV. As in the previous year, no publicly listed market prices were available.

19. Associates

As a result of contractual amendments made to the Code of Procedure and Articles of Incorporation at Grosskraftwerk Mannheim AG, MVV RHE GmbH no longer exercises significant influence on that company. The inclusion status for Grosskraftwerk Mannheim AG has therefore been amended from associate to joint venture.

The aggregate profits, total comprehensive income and carrying amounts of non-material associates are presented in the following table:

Summarised key financial figures for non-material associates

Euro 000s	**Financial year**	Previous year
Profit/loss for period	1,743	1,992
Total comprehensive income for period	1,743	1,992
Carrying amount of investment in non-material associates	**13,028**	**12,422**

The income from shareholdings collected by MVV from associates amounted to Euro 53 thousand in the 2019 financial year (previous year: Euro 981 thousand).

MVV's share of the contingent liabilities at companies measured at equity came to Euro 1,775 thousand (previous year: Euro 1,568 thousand).

20. Subsidiaries with non-controlling interests of material significance to the Group

Given their size and their influence on the Group, the following companies have been identified as material subsidiaries with non-controlling interests: Stadtwerke Kiel AG, Kiel, and Energieversorgung Offenbach AG, Offenbach am Main. Since the 1st quarter of the 2019 financial year, MVV has held 100 percent of the shares in Juwi AG, as a result of which non-controlling interests are no longer reported for this company.

The statements of comprehensive income and further key financial information concerning the non-controlled interests in the companies are presented in the following tables.

The figures stated represent amounts prior to consolidation.

Statement of comprehensive income for non-controlled interests in Energieversorgung Offenbach AG

Euro 000s	**1 Oct 2018 to 30 Sep 2019**	1 Oct 2017 to 30 Sep 2018
Sales excluding energy taxes	341,420	312,318
Annual net income	5,361	17,573
Other income and expenses	– 3,784	451
Total comprehensive income for period	**1,577**	**18,024**
Total comprehensive income attributable to non-controlling interests	788	9,012
Dividends paid (to non-controlling shareholders)	5,468	5,468

Statement of comprehensive income for non-controlled interests in Stadtwerke Kiel AG

Euro 000s	**1 Oct 2018 to 30 Sep 2019**	1 Oct 2017 to 30 Sep 2018
Sales excluding energy taxes	614,123	650,892
Annual net income	– 6,036	29,235
Other income and expenses	– 4,882	53
Total comprehensive income for period	**– 10,918**	**29,288**
Total comprehensive income attributable to non-controlling interests	– 5,350	14,351
Dividends paid (to non-controlling shareholders)	9,316	9,629

Further key financial figures for non-controlled interests in Energieversorgung Offenbach AG

Euro 000s	**30 Sep 2019**	30 Sep 2018
Assets	**374,889**	**366,392**
Non-current assets	299,474	292,814
Current assets	75,415	73,578
of which cash and cash equivalents	13,871	12,597
Equity and debt	**374,889**	**366,392**
Equity	149,354	158,650
Non-current provisions	37,909	33,151
Non-current debt and other liability items	134,822	95,588
of which non-current financial debt	111,021	59,974
Current provisions	6,815	7,759
Current debt and other liability items	45,989	71,244
of which current financial debt	1,858	21,983

Further key financial figures for non-controlled interests in Stadtwerke Kiel AG

Euro 000s	**30 Sep 2019**	30 Sep 2018
Assets	**709,318**	**780,949**
Non-current assets	633,435	635,817
Current assets	75,883	145,132
of which cash and cash equivalents	13,648	48,201
Equity and debt	**709,318**	**780,949**
Equity	209,590	240,718
Non-current provisions	25,802	24,082
Non-current debt and other liability items	327,713	350,483
of which non-current financial debt	289,063	305,664
Current provisions	8,847	10,617
Current debt and other liability items	137,366	155,049
of which current financial debt	57,545	36,136

Total non-controlled interests in subsidiaries amounted to Euro 215,374 thousand in the period under report, of which Euro 102,799 thousand related to Stadtwerke Kiel AG, Kiel, Euro 55,898 thousand to Energieversorgung Offenbach AG, Offenbach am Main, and Euro 56,677 thousand to non-material subsidiaries.

21. Other financial assets

Write-downs and the development in other financial assets are reported in the following table, as well as under income from companies recognised at equity and other income from shareholdings (Note 8), financing income (Note 10) and financing expenses (Note 11).

Other financial assets

Euro 000s	Other majority shareholdings	Other shareholdings	Loans in connection with finance leases	General loans and securities	**Total**
Gross value at 1 October 2017	1,385	7,272	43,515	5,770	57,942
Currency adjustments	6	2	–	–	8
Additions	242	67	229	1,073	1,611
Disposals	– 212	– 870	–	– 79	– 1,161
Reclassifications	–	7	– 379	156	– 216
Gross value at 30 September 2018	**1,421**	**6,478**	**43,365**	**6,920**	**58,184**
Amortisation at 1 October 2017	– 515	– 853	– 33	–	– 1,401
Currency adjustments	– 4	–	–	–	– 4
Disposals	30	853	–	–	883
Amortisation at 30 September 2018	**– 489**	**–**	**– 33**	**–**	**– 522**
Net value at 30 September 2018	932	6,478	43,332	6,920	57,662
Gross value at 1 October 2018	1,421	6,478	43,365	6,920	58,184
Adjustment due to IFRS 9	–	2,273	–	–	2,273
Gross value at 1 October 2018 (adjusted)	1,421	8,751	43,365	6,920	60,457
Changes in scope of consolidation	– 13	–	23,930	– 9	23,908
Currency adjustments	1	73	–	–	74
Additions	416	114	650	1,934	3,114
Disposals	– 320	– 1,863	– 122	– 424	– 2,729
Reclassifications	–	–	– 4,169	– 897	– 5,066
Gross value at 30 September 2019	**1,505**	**7,075**	**63,654**	**7,524**	**79,758**
Amortisation at 1 October 2018	– 489	–	– 33	–	– 522
Adjustment due to IFRS 9	–	–	– 34	– 23	– 57
Amortisation at 1 October 2018 (adjusted)	– 489	–	– 67	– 23	– 579
Currency adjustments	2	–	–	–	2
Impairment losses	–	–	–	– 250	– 250
Amortisation at 30 September 2019	**– 487**	**–**	**– 67**	**– 273**	**– 827**
Net value at 30 September 2019	**1,018**	**7,075**	**63,587**	**7,251**	**78,931**

Other financial assets comprise other majority shareholdings, other shareholdings, receivables in connection with finance leases and loans. These items are measured and categorised as follows:

Other majority shareholdings and other shareholdings are measured at fair value, corrected where necessary to account for impairments due to cash flows falling short of expectations or default risks materialising. The other shareholdings recognised under other financial assets involve minority shareholdings, associates and joint ventures not included in MVV's consolidated financial statements due to materiality considerations.

The loans included in this line item are measured at amortised cost. Lease receivables are classified under leases, with finance leases recognised as receivables in the amount of the present value of minimum lease payments (net investment value). Loans and lease receivables have fixed interest rates, with an average interest rate of 4.4 % (previous year: 4.4 %). The average period for which interest rates remain fixed amounts to 4.4 years in the case of fixed-interest loans (previous year: 5.7 years) and 6.2 years in the case of finance leases (previous year: 6.6 years). Reclassifications mainly involve reclassifications of the aforementioned items to current financial assets in line with their respective maturities.

Default risks identifiable for financial assets are accounted for with write-downs recognised under income from shareholdings or in the financial result.

Further information about financial instruments can be found in Note 35.

As in the previous year, there were no restrictions on disposal or other encumbrances.

Other financial assets also include the non-current share of finance leases. In several contracting projects and, since the financial year under report, in housing concepts for data centres, MVV acts as lessor in the context of finance lease arrangements. The reconciliation of the minimum lease payments with net investments in leases is as follows:

Reconciliation of net investments in leases

Euro 000s	30 Sep 2019	30 Sep 2018
Minimum lease payments with maturities < 1 year	12,432	9,907
Minimum lease payments with maturities > 1 year and < 5 years	44,275	31,254
of which minimum lease payments with maturities > 1 year and < 2 years	12,791	9,725
of which minimum lease payments with maturities > 2 years and < 3 years	11,678	8,662
of which minimum lease payments with maturities > 3 years and < 4 years	10,259	6,973
of which minimum lease payments with maturities > 4 years and < 5 years	9,547	5,894
Minimum lease payments with maturities > 5 years	31,838	23,776
Total minimum lease payments	**88,545**	**64,937**
Less financing income not yet realised	– 15,663	– 14,294
Net investments in finance leases	**72,882**	**50,643**

Further disclosures on leases involving finance lease arrangements are summarised in the following table:

Disclosures on leases involving finance leases (as lessor)

Euro 000s	FY 2019
Financing income from net investment in lease	3,540
Profit/loss on sale	64

22. Other receivables and assets

Other receivables and assets have been broken down into their respective contents and counterparties in the following tables. The hedging relationship has also been stated in the case of derivative financial instruments.

Financial and non-financial receivables and assets

	30 September 2019			30 September 2018		
Euro 000s	**Non-current**	**Current**	**Total**	Non-current	Current	Total
Financial receivables and assets						
Derivative financial instruments	54,416	266,113	320,529	292,690	664,541	957,231
Receivables from security deposits for energy trading transactions	–	14,088	14,088	–	194	194
Receivables in connection with finance leases	–	9,293	9,293	–	6,916	6,916
Suppliers with debit balances	–	3,957	3,957	–	6,484	6,484
Loans	–	6,378	6,378	–	3,244	3,244
Receivables from employees	–	352	352	–	352	352
Escrow accounts	–	35	35	–	–	–
Miscellaneous other financial assets	4,411	7,958	12,369	2,931	33,645	36,576
Non-financial receivables and assets						
Project development contract assets	–	64,119	64,119	–	–	–
Other contract assets	3,308	408	3,716	3,466	147	3,613
Other tax receivables	–	52,393	52,393	–	33,306	33,306
Deferred expenses and accrued income	3,024	13,217	16,241	5,172	9,202	14,374
Emission rights	–	113	113	–	5,475	5,475
Miscellaneous other non-financial assets	5,768	3,114	8,882	4,761	2,472	7,233
	70,927	**441,538**	**512,465**	**309,020**	**765,978**	**1,074,998**

Derivative financial instruments (financial receivables and assets)

	30 September 2019			30 September 2018		
Euro 000s	**Non-current**	**Current**	**Total**	Non-current	Current	Total
Derivative financial instruments	54,416	266,113	320,529	292,690	664,541	957,231
of which without IFRS 9 hedges	34,066	231,876	265,942	234,909	643,908	878,817
of which cash flow hedges	20,350	34,237	54,587	57,781	20,633	78,414

Derivative financial instruments decreased in value compared with the previous year. This was due to lower market prices and the resultant reduction in fair values of energy trading transactions recognised under IFRS 9. These items relate to interest, currency and commodity derivatives for electricity, gas, coal, CO_2 and other certificates.

Further information about financial instruments can be found in Note 35.

Other tax receivables mainly include input tax and energy tax credits.

Non-financial miscellaneous other assets include expenses of Euro 6,632 thousand for the past extension and renewal of infrastructure assets at the two British power plants. These assets are not within MVV's control but are essential for the supply of electricity and steam. The outlays thereby incurred are being deferred over the corresponding contractual terms. Furthermore, this item also includes input taxes that are not yet deductible.

The current portion of lease receivables and loans is reported under current financial other assets. Measurement of these items is based on the same principles as for the non-current portions. These principles are outlined under other financial assets.

Other assets in connection with IFRS 15 mainly comprise capitalised customer acquisition expenses. These developed as follows:

Customer acquisition costs pursuant to IFRS 15 [1]

Euro 000s	FY 2019
Balance at 1 October 2018	–
Balance at 30 September 2019	439

1 New line item due to introduction of IFRS 15; previous year's figures unavailable as, due to immateriality, no restatement was performed

Other receivables and assets

	30 September 2019			30 September 2018		
Euro 000s	Non-current	Current	Total	Non-current	Current	Total
Other receivables and assets						
from third parties	70,311	434,114	504,425	308,671	761,316	1,069,987
from other majority shareholdings	–	1,211	1,211	–	976	976
from companies recognised at equity	616	6,196	6,812	349	3,640	3,989
from other shareholdings	–	17	17	–	46	46
	70,927	**441,538**	**512,465**	**309,020**	**765,978**	**1,074,998**

The write-downs and maturity structures for other receivables and assets have been presented in Note 35.

To reduce the counterparty risk involved in highly fluctuating fair values of energy trading derivatives, security deposits are exchanged with external trading partners. These involve margins. To reduce these counterparty risks, payments are made both within the European Energy Exchange (EEX) and in some cases within the framework of bilateral agreements. These are reflected in the receivables from security deposits for energy trading transactions line item. Receivables from security deposits increased year-on-year to Euro 14,088 thousand (previous year: Euro 194 thousand).

The opening and closing balances of contract assets recognised under IFRS 15 are presented in the following table:

Contract assets [1]

Euro 000s	FY 2019
Balance at 1 October 2018	21,048
Balance at 30 September 2019	67,835

1 New line item due to introduction of IFRS 15

23. Inventories

Inventories

Euro 000s	30 Sep 2019	30 Sep 2018
Raw materials and supplies	48,229	40,771
Finished and unfinished products and services (project rights)	44,517	44,977
Finished and unfinished products and services (other) and merchandise	47,401	46,089
Advance payments	33,663	19,421
Commodity trading assets	5,264	9,704
	179,074	160,962

Write-downs of Euro 698 thousand were recognised for inventories (previous year: Euro 745 thousand). Write-ups of Euro 2,168 thousand were included due to higher net disposal prices (previous year: Euro 3,725 thousand).

The commodity trading assets item includes inventories relating to special gas storage transactions.

24. Trade receivables

Trade receivables

Euro 000s	30 Sep 2019	30 Sep 2018
Trade receivables	365,038	381,729
of which due from other majority shareholdings	110	293
of which due from companies recognised at equity	17,550	16,497
of which due from other shareholdings	1,470	697

The above table exclusively shows those trade receivables with terms of under one year. Trade receivables with terms of more than one year are of immaterial significance at the Group and have been recognised under other receivables and assets.

Trade receivables mainly comprise receivables recognised under IFRS 15.

The write-downs and maturity structures for trade receivables have been presented in Note 35.

25. Tax receivables

The tax receivables of Euro 15,156 thousand (previous year: Euro 27,586 thousand) mainly relate to corporate income tax and trade tax refund claims. These have been recognised at nominal value.

The reduction in income tax receivables is mainly due to one-off capital gains tax receivables at Juwi AG as a result of a capital reduction at Juwi Energieprojekte GmbH in the previous year.

26. Cash and cash equivalents

Cash and cash equivalents predominantly comprise credit balances at banks. The acquisition of fully consolidated companies and other business units resulted in the addition of cash and cash equivalents of Euro 1,795 thousand (previous year: Euro 824 thousand). The disposal of fully consolidated companies and other business units led to the retirement of cash and cash equivalents of Euro 1,774 thousand (previous year: Euro 1,269 thousand).

Within the framework of short-term liquidity management structures, credit balances are exclusively deposited at banks of impeccable creditworthiness.

27. Equity

The structure and development of equity are presented in the statement of changes in equity. The acquisition of the remaining non-controlling shares in Juwi AG reduced accumulated net income by an amount of Euro 17,103 thousand, as well as accumulated other comprehensive income by Euro 750 thousand. As a result, non-controlling interests fell by Euro 34,918 thousand. The consideration for this transaction was paid partly in cash and partly by offsetting other claims.

Share capital: The share capital of MVV Energie AG amounts to Euro 168,721 thousand and is divided into 65,906,796 individual registered shares of Euro 2.56 each. All registered shares are paid up in full. The City of Mannheim directly and indirectly owned 50.1 % of the shares at 30 September 2019; EnBW Energie Baden-Württemberg AG held 28.8 % and Rhein-Energie AG 16.3 % of the shares. The remaining 4.8 % of the shares are in free float.

Authorised capital II: By resolution dated 8 March 2019, the Annual General Meeting of MVV Energie AG authorised the Executive Board until 7 March 2024 to increase the share capital on one or several occasions by a total of up to Euro 51,200 thousand. Shareholders must generally be granted subscription rights; however, the Executive Board may exclude such rights on one or several occasions, in full or in part, for a maximum total of up to 9,880,000 new individual registered shares. The Executive Board of MVV Energie AG has not yet made any use of this authorisation.

Authorisation to buy back treasury stock: By resolution dated 13 March 2015, the Annual General Meeting authorised the Executive Board until 12 March 2020 to acquire treasury stock up to 10 % of existing share capital upon adoption of the resolution. The Executive Board of MVV Energie AG has not yet made any use of this authorisation.

Capital reserve: This relates to MVV Energie AG and includes external flows of funds requiring inclusion pursuant to § 272 HGB. The variance of Euro 3,705 thousand to the capital reserve presented in the financial statements of MVV Energie AG is due to transaction costs for the capital increases executed in 2006 and 2007, which have been recognised as a reduction to the capital reserve.

Equity generated: In addition to the prorated revenue reserves and accumulated annual net income of MVV Energie AG and of other consolidated companies since the date of initial consolidation, equity generated also includes cumulative changes recognised directly in equity as a result of the fair value measurement of financial instruments, mainly relating to hedge relationships recognised under IFRS 9, as well as currency translation differences arising upon the translation of foreign financial statements and actuarial gains and losses for defined benefit pension plans. Expenses of Euro 38,378 thousand were recognised directly in equity in the financial year under report in connection with the fair value measurement of financial instruments (previous year: income of Euro 19,810 thousand).

28. Provisions

Provisions

Euro 000s	Balance at 1 Oct 2018[1]	Change in scope of consolida-tion	Currency adjust-ments	Utilised	Reversed	Added	Reclassi-fied	Interest component	**Balance at 30 Sep 2019**
Non-current provisions									
Pensions and similar obligations	**77,551**	**1,124**	**–**	**– 2,675**	**–**	**26,209**	**–**	**1,598**	**103,807**
Tax provisions	**–**	**–**	**–**	**–**	**–**	**–**	**7**	**–**	**7**
Other provisions									
Personnel-related obligations	41,072	–	14	– 273	518	3,348	– 7,519	8,459	44,583
Refurbishment, dismantling and warranty obligations	35,912	350	3	– 144	–	3,027	– 3,045	854	36,957
Provisions for litigation and contract risks	1,480	–	–	– 81	55	84	– 249	4	1,183
Miscellaneous contingencies	25,356	–	–	– 35	3,004	3,205	– 278	75	25,319
Total other provisions	**103,820**	**350**	**17**	**– 533**	**3,577**	**9,664**	**– 11,091**	**9,392**	**108,042**
Total non-current provisions	**181,371**	**1,474**	**17**	**– 3,208**	**3,577**	**35,873**	**– 11,084**	**10,990**	**211,856**
Current provisions									
Tax provisions	**54,881**	**– 61**	**20**	**– 29,105**	**2,787**	**10,875**	**– 7**	**–**	**33,816**
Other provisions									
Personnel-related obligations	41,761	83	108	– 35,323	5,515	34,344	7,519	–	42,977
Services not yet invoiced	54,486	–	124	– 47,346	258	47,967	–	–	54,973
Refurbishment, dismantling and warranty provisions	8,058	–	120	– 3,606	3,076	15,702	3,045	–	20,243
Provisions for litigation and contract risks	5,817	9	16	– 2,879	1,248	1,179	249	–	3,143
Miscellaneous contingencies	28,895	153	– 77	– 9,456	1,907	13,109	278	–	30,995
Total other provisions	**139,017**	**245**	**291**	**– 98,610**	**12,004**	**112,301**	**11,091**	**–**	**152,331**
Total current provisions	**193,898**	**184**	**311**	**– 127,715**	**14,791**	**123,176**	**11,084**	**–**	**186,147**
Total provisions	**375,269**	**1,658**	**328**	**– 130,923**	**18,368**	**159,049**	**–**	**10,990**	**398,003**

1 Opening balance adjusted as of 1 October 2018 due to first-time application of IFRS 15

Provisions broken down by maturity

	30 September 2019			30 September 2018		
Euro 000s	Non-current	Current	Total	Non-current	Current	Total
Provisions for pensions and similar obligations	103,807	–	103,807	77,551	–	77,551
Tax provisions	7	33,816	33,823	–	54,881	54,881
Personnel-related obligations	44,583	42,977	87,560	41,073	41,761	82,834
Services not yet invoiced	–	54,973	54,973	–	54,486	54,486
Refurbishment, dismantling and warranty obligations	36,957	20,243	57,200	35,912	8,058	43,970
Provisions for litigation and contract risks	1,183	3,143	4,326	1,480	5,817	7,297
Miscellaneous contingencies	25,319	30,995	56,314	25,354	28,864	54,218
	211,856	**186,147**	**398,003**	**181,370**	**193,867**	**375,237**

Consistent with the "Decision on presentation of uncertain tax liabilities (or assets)" issued by the IFRS IC on 25 September 2019, uncertain tax liabilities recognised under IFRIC 23 for income taxes have been recognised as tax provisions and are not included in any other line item. Tax liabilities for which a tax assessment notice is available are presented in the balance sheet under tax liabilities.

The provisions for personnel-related obligations category comprises provisions for early retirement expenses and for employee benefit expenses.

The provisions for early retirement expenses mainly relate to legal and constructive obligations towards employees as a result of part-time early retirement agreements. The actuarial assumptions correspond to those used to measure pensions and similar obligations.

The provisions for employee benefit expenses mainly include collectively agreed obligations, such as allowances, compensation payments, bonus payments, employee working hour credits and anniversary bonuses. The provisions for employee benefit expenses include individual items for which utilisation depends on a specified degree of target achievement.

The services not yet invoiced category principally involves supplies and services from third parties which have already been provided but not yet invoiced. These have been measured on the basis of appropriate estimates.

The provisions for refurbishments, dismantling obligations and warranties category mainly includes dismantling obligations in connection with the construction of a gas storage facility and for wind turbines.

The provisions for warranties relate to solar and wind power projects already completed. These provisions have been recognised on the basis of contractual requirements. Recognition here has been based on assessments of individual cases and relevant factors.

The provisions for litigation and contract risks category includes provisions for the litigation risks relating to several individual risks for which the level of utilisation is uncertain. The value is based on the most likely outcome of litigation expected on the basis of the information currently available. Furthermore, this category also includes provisions for onerous contracts.

Miscellaneous contingencies include the following items: provisions for risks relating to contractual obligations for completed projects and for the renewal of infrastructure assets, provisions for risks associated with a price adjustment clause, provisions for risks resulting from the review of § 6a of the German Land Transfer Tax Act (GrEstG) by the European Court of Justice and for the risks resulting from a tax audit of interest expenses pursuant to § 233a of the German Tax Code (AO).

The provisions recognised are utilised in line with the terms to which they are allocated. Provisions were discounted with a discount rate of 0 % in the 2019 financial year.

29. Provisions for pensions and similar obligations

The company pension plans consist of defined contribution and defined benefit plans.

The pension scheme for MVV employees is largely arranged in line with collective wage and salary agreements specific to the respective companies. This results in indirect pension obligations to employees which are covered almost exclusively by municipal supplementary pension companies (ZVKs). This requires allocations to be made for retirement periods. The payments made in this context serve to finance current pension outlays. According to IFRS requirements, this type of pension plan represents a defined benefit plan, as the individual benefits provided by the ZVKs to former employees of member companies are not dependent on the level of contributions paid into the pension funds. Moreover, as the employees of several member companies are insured by the ZVKs, this type of pension plan is considered a multi-employer plan and thus requires the application of special regulations.

Given the redistribution of the benefits provided by ZVKs among member companies and the lack of adequate information about the age structures, personnel turnover rates and salaries of the employees thereby covered, no data is available on the proportion of future payment obligations (economic obligation) accruing to MVV. In view of this, IFRS does not permit recognition of provisions and the amounts therefore have to be treated by MVV as a defined contribution obligation, even though it is actually a defined benefit pension plan. Contributions to the pension plan are measured as a percentage of compensation subject to the additional pension premium and are borne by employees and employers. The percentage rate of contribution is determined by the ZVKs. MVV expects contributions in the 2020 financial year in the same amount as in the previous year. The contributions are used for the beneficiaries as a collective entity. Should the ZVKs have insufficient funds, then they could increase the mandatory contribution. Should MVV terminate its membership of the ZVKs, then they would be entitled to financial settlement. The amount of settlement is calculated as the present value of beneficiaries' existing entitlement and future claims on the part of their surviving dependants and existing pension entitlements for vested claims at the time at which membership is terminated.

The payments made to municipal supplementary pension companies (ZVKs) and the state pension system are viewed as payments to defined contribution plans. These contributions are recognised as expenses and reported under employee benefit expenses. Payments of Euro 30,303 thousand were made into the state pension systems in the 2019 financial year (previous year: Euro 31,165 thousand). Moreover, an amount of Euro 15,259 thousand was paid into defined contribution pension schemes (previous year: Euro 15,169 thousand).

Furthermore, there are direct pension obligations resulting from former collective agreements (measured in terms of duration of company service and employee compensation), as well as individual commitments made to Executive Board members.

Provisions for pensions and similar obligations are recognised exclusively for defined benefit plans.

The principal estimates used when measuring provisions for pensions and similar obligations relate in particular to the discount factor, biometric probabilities and trend assumptions. Any deviations in the development in these estimates could result in differences between the amounts recognised and the obligations actually arising over time. Actuarial gains and losses are fully recognised in the period in which they arise. They are recognised outside the income statement in the statement of income and expenses recognised in group equity. This means that any amendments in estimates have direct implications for MVV.

Pursuant to IAS 19, the pension provisions are calculated using the projected unit credit method. As well as pensions and vested claims known of at the balance sheet date, this method also accounts for pay rises and pension increases expected in future. The calculation made application of the 2018 G Heubeck mortality tables.

The main parameters used to calculate the defined benefit plans as of 30 September 2019 are:

Parameter

	30 Sep 2019	30 Sep 2018
Discount rate	0.3 %	2.1%
Future pay rises	2.1-3.0 %	2.1-3.0 %
Future pension increases	1.6-2.0 %	1.6-2.0 %

The expenses for these pensions and similar obligations structured as defined benefit plans comprise the following items:

Pension provision expenses

Euro 000s	**FY 2019**	FY 2018
Service cost	2,075	2,054
Interest expenses	1,598	1,550
	3,673	**3,604**

The interest expenses for vested pension claims are reported in the income statement under financing expenses (compounding of provisions). The other expenses are recognised as employee benefit expenses.

The present value of the defined benefit obligations developed as follows:

Development in pension claims

	30 September 2019			30 September 2018		
Euro 000s	**Present value of defined benefit obligations**	**Fair value of plan assets**	**Total**	Present value of defined benefit obligations	Fair value of plan assets	Total
Balance at 1 October	78,199	648	77,551	78,401	583	77,818
Current service cost	2,075	–	2,075	2,054	–	2,054
Interest expenses (interest income)	1,598	14	1,584	1,550	–	1,550
Remeasurement						
(i) Income from plan assets (excluding amounts included in interest income from plan assets)	–	4	– 4	–	12	– 12
(ii) Actuarial gains/losses	24,200	48	24,152	– 1,133	– 13	– 1,120
Payments made to beneficiaries	– 2,675	–	– 2,675	– 2,673	–	– 2,673
Contributions to plan assets	–	–	–	–	66	– 66
Change in scope of consolidation	1,124	–	1,124	–	–	–
Balance at 30 September	**104,521**	**714**	**103,807**	**78,199**	**648**	**77,551**

The defined benefit pension obligations at the Group are countered by a low volume of plan assets. The amount of provision recognised in the balance sheet is calculated as follows:

Calculation of provision

Euro 000s	FY 2019	FY 2018
Present value of defined benefit obligation	104,521	78,199
Fair value of plan assets	714	648
Provisions recognised at 30 September	**103,807**	**77,551**

The plan assets involve contractual trust arrangements (CTAs) managed as trust assets by the trustee Deutsche Pensflex Treuhand e.V. Furthermore, there are insurance contracts with private insurers and an investment fund organised by an international fund company and listed on the capital market.

The actuarial gains and losses recognised in group equity for defined benefit obligations developed as follows:

Accumulated actuarial gains and losses recognised in equity

Euro 000s	FY 2019	FY 2018
Accumulated actuarial gains (+) and losses (-) recognised in equity at 1 October	– 12,942	– 13,616
Actuarial gains (+) and losses (-) recognised in equity	– 13,751	674
Accumulated actuarial gains (+) and losses (-) recognised in equity at 30 September	**– 26,693**	**– 12,942**

Experience adjustments to the present value of the pension claims (changes in assumptions) form part of the actuarial gains and losses attributable to the pension claims in the given year.

Pension payments of Euro 3,117 thousand are forecast for existing pension obligations for the 2020 financial year.

In the financial year, use was made of a discount rate appropriate to the expected weighted remaining term of 17 years.

The expected maturity of undiscounted pension payments as of the balance sheet date was as follows:

Expected pension payments

Euro 000s	
2020	3,117
2021	3,243
2022	4,443
2023	3,301
2024	3,313
>2024	84,471
	101,888

The sensitivity analysis is based on changes in one assumption while all other assumptions remain constant. That is unlikely to occur in reality. Furthermore, it is possible that changes in several assumptions will correlate with each other. The sensitivity of the defined benefit obligation to actuarial assumptions has been calculated using the same method used to calculate pension provisions in the balance sheet.

The methods and types of assumption used when preparing the sensitivity analysis have not changed compared with the previous year.

Sensitivity analysis

		Impact on obligation	
	Change in assumption by	Increase in assumption	Reduction in assumption
Discount rate	0.50 %	Reduction by 8 %	Increase by 9 %
Future pay rises	0.50 %	No change	Reduction by 1 %
Future pension increases	0.50 %	Increase by 3 %	Reduction by 3 %
Mortality	1 year	Increase by 5 %	-

30. Financial debt

Financial debt

	30 September 2019			30 September 2018		
Euro 000s	**Non-current**	**Current**	**Total**	Non-current	Current	Total
Liabilities						
to banks	1,380,470	107,432	1,487,902	1,096,574	212,460	1,309,034
in connection with leases[1]	120,840	18,494	139,334	42,320	2,917	45,237
to other majority shareholdings	–	557	557	–	766	766
to companies recognised at equity	–	36,581	36,581	–	1,581	1,581
to other shareholdings	–	830	830	–	460	460
Other financial debt	32,227	4,738	36,965	24,244	4,674	28,918
	1,533,537	**168,632**	**1,702,169**	**1,163,138**	**222,858**	**1,385,996**

1 In previous year: IAS 17; in financial year under report: IFRS 16

Maturity in years

	30 September 2019			30 September 2018		
Euro 000s	**< 1 year**	**1 - 5 years**	**> 5 years**	< 1 year	1 - 5 years	> 5 years
Liabilities						
to banks	107,432	680,870	699,599	212,460	486,957	609,617
in connection with leases	18,494	120,840	–	2,917	11,594	30,726
to other majority shareholdings, companies recognised at equity and other shareholdings	37,968	–	–	2,807	–	–
Other financial debt	4,738	21,003	11,225	4,674	13,020	11,224
	168,632	**822,713**	**710,824**	**222,858**	**511,571**	**651,567**

The fixed-rate liabilities to banks of Euro 1,036 million (previous year: Euro 937 million) have an average interest rate of 2.4 % (previous year: 2.6 %), while the floating-rate liabilities to banks of Euro 452 million (previous year: Euro 372 million) have an average interest rate of 2.0 % (previous year: 2.2 %). This interest rate is influenced by foreign currency liabilities with higher interest rates.

The average remaining period for which the rate remains fixed in the case of fixed-rate liabilities comes to nine years (previous year: seven years). The floating-rate liabilities to banks are hedged.

At 30 September 2019, MVV had undrawn committed credit lines of Euro 699 million (previous year: Euro 650 million).

Lease liabilities have been recognised at the present value of mandatory lease payments over the term of the lease. These refer to the right-of-use assets presented under "Leases (as lessee)".

31. Other liabilities

Other liabilities have been broken down into their respective contents and counterparties in the tables below. The hedging relationship has also been stated for derivative financial instruments. After initial recognition, liabilities other than derivative financial instruments are measured at amortised cost using the effective interest method. This is basically consistent with their present values.

Other financial and non-financial liabilities

	30 September 2019			30 September 2018		
Euro 000s	**Non-current**	**Current**	**Total**	Non-current	Current	Total
Other financial liabilities						
Derivative financial instruments	72,908	259,655	332,563	235,604	613,421	849,025
Liabilities to employees	–	26,251	26,251	–	25,376	25,376
Customer credit balances	–	11,514	11,514	–	6,132	6,132
Interest liabilities	–	6,087	6,087	–	6,618	6,618
Liabilities for security deposits for energy trading transactions	–	687	687	–	77,258	77,258
Concession duties	–	2,607	2,607	–	2,160	2,160
Social security liabilities	–	693	693	–	736	736
Miscellaneous other financial liabilities	27,633	37,924	65,557	6,147	19,043	25,190
Other non-financial liabilities						
Contract liabilities for advance payments received	–	26,720	26,720	7,178	23,959	31,137
Contract liabilities for building cost grants	96,239	6,913	103,152	130,232	2,822	133,054
Other contract liabilities	17,920	4,355	22,275	20,651	11,724	32,375
Liabilities for other taxes	–	67,187	67,187	–	44,846	44,846
Miscellaneous other non-financial liabilities	5,794	10,417	16,211	4,071	1,052	5,123
	220,494	**461,010**	**681,504**	**403,883**	**835,147**	**1,239,030**

Other liabilities

	30 September 2019			30 September 2018		
Euro 000s	**Non-current**	**Current**	**Total**	Non-current	Current	Total
Liabilities	220,494	434,290	654,784	403,883	811,188	1,215,071
of which to companies recognised at equity	862	4,264	5,126	6,129	11,749	17,878
Advance payments received for orders	–	26,720	26,720	–	23,959	23,959
	220,494	**461,010**	**681,504**	**403,883**	**835,147**	**1,239,030**

Derivative financial instruments involve interest rate derivatives, currency derivatives and commodity derivatives for electricity, gas, coal, CO_2 and other rights. Further details about financial instruments can be found in Note 35.

Derivative financial instruments (other financial liabilities)

	30 September 2019			30 September 2018		
Euro 000s	**Non-current**	**Current**	**Total**	Non-current	Current	Total
Derivative financial instruments	72,908	259,655	332,563	235,604	613,421	849,025
of which without IFRS 9 hedge	22,488	217,505	239,993	194,700	602,313	797,013
of which cash flow hedges	50,420	42,150	92,570	40,904	11,108	52,012

To reduce the counterparty risk involved in highly fluctuating fair values of energy trading derivatives, security deposits (margins) are exchanged with the EEX. Moreover, the Group has entered into bilateral risk reduction agreements in some cases. Liabilities for security deposits for energy trading transactions fell year-on-year to Euro 687 thousand (previous year: Euro 77 million).

Financial miscellaneous other liabilities mainly relate to liabilities for concession duties and deferred liabilities.

Non-financial liabilities for other taxes chiefly include energy and value added tax liabilities.

The opening and closing balances of contract liabilities recognised under IFRS 15 are presented in the following table:

Contract liabilities [1]

Euro 000s	**FY 2019**
Balance at 1 October 2018	156,061
Balance at 30 September 2019	**152,147**

[1] New line item due to introduction of IFRS 15

MVV expects that, of the transaction price allocated to unsatisfied performance obligations as of 30 September 2019, an amount of Euro 37,988 thousand will be recognised as revenues in the next reporting period. The remaining amount of Euro 114,159 thousand will be recognised in subsequent financial years.

32. Trade payables

Trade payables

Euro 000s	**30 Sep 2019**	30 Sep 2018
Trade payables	361,609	340,256
to other majority shareholdings	62	101
to companies recognised at equity	14,135	16,483
to other shareholdings	3	24

Trade payables are measured at amortised cost. The above table exclusively shows trade payables with terms of under one year. Due to their immaterial significance for the Group, trade payables maturing in the medium to long term have been recognised under other liabilities.

33. Tax liabilities and deferred taxes

The tax liabilities of Euro 184 thousand (previous year: Euro 439 thousand) consist of income tax liabilities.

The deferred taxes reported for the 2019 financial year relate to the following items:

Deferred taxes

	30 September 2019		30 September 2018	
Euro 000s	**Deferred tax assets**	**Deferred tax liabilities**	Deferred tax assets	Deferred tax liabilities
Intangible assets	4,152	– 14,283	2,287	– 14,235
Property, plant and equipment, including investment properties	19,182	– 170,008	11,275	– 169,013
Right-of-use assets	–	– 40,096	–	–
Inventories	14,543	– 3,722	10,822	– 5,237
Special item	–	– 5,997	–	– 1,604
Other assets and positive fair values of derivatives	8,262	– 177,628	29,807	– 487,427
Provisions for pensions	20,941	–	12,352	–
Non-current other provisions	25,969	–	21,603	–
Current other provisions	7,333	– 14,182	4,988	– 18,751
Liabilities and negative fair values of derivatives	168,268	– 20,071	466,179	– 33,111
Lease liabilities	37,395	–	–	–
Losses carried forward	25,849	–	26,676	–
Deferred taxes (gross)	**331,894**	**– 445,987**	**585,989**	**– 729,378**
Netting	– 302,526	302,526	– 555,569	555,569
Deferred taxes (net)	**29,368**	**– 143,461**	**30,420**	**– 173,809**

Of the (net) deferred taxes presented above, Euro 14,952 thousand (previous year: Euro 11,568 thousand) relate to non-current deferred tax assets and Euro 93,427 thousand (previous year: Euro 85,387 thousand) to non-current deferred tax liabilities.

No deferred tax assets have been recognised for corporate income tax loss carryovers of Euro 95,962 thousand (previous year: Euro 100,046 thousand), trade tax loss carryovers of Euro 88,826 thousand (previous year: Euro 108,351 thousand) or foreign loss carryovers of Euro 162,616 thousand (previous year: Euro 82,128 thousand).

For temporary differences of Euro 12,876 thousand at shareholdings (previous year: Euro 11,008 thousand), no deferred tax liabilities have been stated for an amount of Euro 3,901 thousand (previous year: Euro 3,336 thousand), as such differences are unlikely to be reversed by dividend distributions or disposal of the companies in the foreseeable future.

Deferred tax assets of Euro 6,460 thousand (previous year: Euro 11,390 thousand) have been recognised at the balance sheet date for companies that generated a loss in the financial year under report or the previous year in cases where realisation of the assets is exclusively dependent on the generation of future profits. Based on available budget figures, which mainly assume that renewable energies projects will be marketed promptly, we expect these assets to be realised.

Deferred taxes of Euro 21,873 thousand were recognised directly in other comprehensive income as part of group equity in the 2019 financial year (previous year: Euro 2,010 thousand).

The income tax items within other comprehensive income in group equity can be broken down into their components as follows:

Income tax items

	30 September 2019		30 September 2018	
Euro 000s	**Income tax**	**Gross**	Income tax	Gross
Actuarial gains and losses	6,561	– 24,152	– 226	1,120
Share of total comprehensive income attributable to companies recognised at equity	–	– 1,353	–	14,370
Items that will not be reclassified to profit or loss	**6,561**	**– 25,505**	**– 226**	**15,490**
Cash flow hedges/hedging costs [1]	16,800	– 63,778	– 9,489	33,489
Currency translation differences	–	3,888	–	1,376
Share of total comprehensive income attributable to companies recognised at equity	–	364	–	166
Items that will be reclassified to profit or loss	**16,800**	**– 59,526**	**– 9,489**	**35,031**

1 Previous year's figures adjusted due to first-time application of IFRS 9

34. Contingent claims, liabilities and financial obligations

The volume of obligations for contingent liabilities, claims and financial obligations stated below corresponds to the scope of liability at the balance sheet date. Contingent claims are treated by analogy with contingent liabilities.

Contingent liabilities involve potential obligations to third parties or existing obligations for which an outflow of resources is unlikely or whose amount cannot be reliably determined. Contingent liabilities are not recognised in the balance sheet.

The company has contingent liabilities of Euro 8.4 million for warranty agreements (previous year: Euro 7.0 million). It also has obligations of this nature in the form of guarantees amounting to Euro 13.1 million (previous year: Euro 1.1 million). Guarantees increased in connection with the initial consolidation of the DCG Group. As in the previous year, no collateral has been provided for third-party liabilities.

MVV has purchase commitments of Euro 68.4 million in connection with investment orders placed and financial obligations (previous year: Euro 177.4 million). The reduction in this item was due to the investments made in the previous year in a new power plant in Scotland.

The Group has a contingent claim from the State of Baden-Württemberg and the City of Mannheim in connection with a land decontamination measure. This claim has a present value of Euro 3.5 million.

35. Financial instruments

Fair values and carrying amounts of financial instruments

The carrying amounts and fair values of those financial instruments recognised at MVV and their allocation to IFRS 9 measurement categories (previous year: IAS 39) have been presented in the following tables. The classes presented are based on the balance sheet.

IFRS 9 measurement categories for carrying amounts at 30 September 2019

Euro 000s	IFRS 9 measurement category	Carrying amounts	of which not within scope of IFRS 7	Fair values
Assets				
Financial assets				
of which other shareholdings	Fair value through profit or loss	6,861	–	6,861
	Not applicable	1,232	1,232	–
of which loans excluding finance leases	Amortised cost	13,629	–	13,629
of which loans in connection with finance leases	Not applicable	72,880	–	72,880
of which securities	Fair value through profit or loss	–	–	–
Trade receivables < 1 year	Amortised cost	365,038	–	365,038
Other assets				
of which derivatives outside hedge accounting	Fair value through profit or loss	265,942	–	265,942
of which derivatives within hedge accounting	Not applicable	54,587	–	54,587
of which other financial assets	Amortised cost	30,761	–	30,761
	Fair value through profit or loss	40		40
of which contract assets	Not applicable	67,825		67,835
Cash and cash equivalents	Amortised cost	357,564	–	357,564
		1,236,369	**1,232**	**1,235,137**
Debt				
Financial debt				
of which financial debt in connection with finance leases	Not applicable	139,334	–	139,334
of which other financial debt	Amortised cost	1,562,835	–	1,668,661
Trade payables <1 year	Amortised cost	361,609	–	361,609
Other liabilities				
of which derivatives outside hedge accounting	Fair value through profit or loss	239,993	–	239,993
of which derivatives within hedge accounting	Not applicable	92,570	–	92,570
of which other financial liabilities	Amortised cost	91,498	–	91,498
	Fair value through profit or loss	21,898	–	21,898
		2,509,737	**–**	**2,593,665**

IAS 39 measurement categories for carrying amounts at 30 September 2018

Euro 000s	IAS 39 measurement category	Carrying amounts	of which not within scope of IFRS 7	Fair values
Assets				
Financial assets				
of which unconsolidated shareholdings	Available for sale	7,410	–	7,410
of which loans excluding finance leases	Loans and receivables	10,164	–	10,164
of which loans in connection with finance leases	Not applicable	50,248	–	50,248
of which securities	Held for trading	–	–	–
Trade receivables < 1 year	Loans and receivables	381,729	–	381,729
Other assets				
of which derivatives outside hedge accounting	Held for trading	878,817	–	878,817
of which derivatives within hedge accounting	Not applicable	78,414	–	78,414
of which other operating assets	Loans and receivables	96,761	53,507	96,761
Cash and cash equivalents	Loans and receivables	310,589	–	310,589
		1,814,132	**53,507**	**1,814,132**
Debt				
Financial debt				
of which financial debt in connection with finance leases	Not applicable	45,237	–	45,237
of which other financial debt	Amortised cost	1,340,759	–	1,399,468
Trade payables <1 year	Amortised cost	340,256	–	340,256
Other liabilities				
of which derivatives outside hedge accounting	Held for trading	797,013	–	797,013
of which derivatives within hedge accounting	Not applicable	52,012	–	52,012
of which other operating liabilities	Amortised cost	352,507	209,773	352,507
		2,927,784	**209,773**	**2,986,493**

Given the predominantly short-term remaining terms of trade receivables and payables, other financial assets and liabilities and cash and cash equivalents, their carrying amounts as of the balance sheet date basically correspond to their fair values.

The fair value of other financial debt items is determined as their present value, taking due account of future payments. These items are discounted using the rate valid as of the balance sheet date (Level 2).

The fair value of other shareholdings is determined using a capital value procedure. Should MVV not have sufficient new information to measure the fair value, then cost is referred to as an approximate estimate of the fair value.

With regard to the fair value measurement of financial instruments, reference is made to the information provided on financial instruments in the accounting policies section of these notes.

No items were reclassified between Levels 1 and 2 of the measurement hierarchy in the year under report. Similarly, no items were reclassified into or out of Level 3.

The following table presents the key parameters for financial instruments measured at fair value. Pursuant to IFRS 7, the individual levels are defined as follows:

Level 1: Measurement based on prices listed on active markets and taken over without amendment

Level 2: Measurement based on directly or indirectly observable factors other than those in Level 1

Level 3: Measurement based on factors not observable on the market.

Fair value hierarchy at 30 September 2019

Euro 000s	Level 1	Level 2	Level 3	At cost
Financial assets				
Other shareholdings[1]	–	–	6,861	–
Securities	–	–	–	–
Derivatives outside hedge accounting	93,339	171,954	649	–
Derivatives within hedge accounting	26,730	27,857	–	–
Other financial assets	40	–	–	–
Financial liabilities				
Derivatives outside hedge accounting	82,287	157,381	325	–
Derivatives within hedge accounting	30,723	56,115	5,732	–
Other financial liabilities	–	–	21,898	–

1 Previous year's figures adjusted due to first-time application of IFRS 9

Fair value hierarchy at 30 September 2018

Euro 000s	Level 1	Level 2	Level 3	At cost
Financial assets				
Unconsolidated shareholdings	–	–	–	7,410
Securities	–	–	–	–
Derivatives outside hedge accounting	235,679	642,309	829	–
Derivatives within hedge accounting	74,109	4,305	–	–
Financial liabilities				
Derivatives outside hedge accounting	202,363	594,401	250	–
Derivatives within hedge accounting	31,804	17,704	1,712	792

The derivatives of Euro 5,732 thousand in Level 3 hedge accounting include interest swaps with floor (previous year: Euro 1,712 thousand). The fair value of these derivatives amounts to Euro 5,732 thousand. Any upward or downward change in the volatility factored into the calculation by an absolute figure of 1 would increase the fair value by Euro 91 thousand or reduce it by Euro 87 thousand.

Other Level 3 liabilities include variable purchase price components resulting from acquisitions. The fair value thereby determined would increase or decrease depending on the development in future sales and future EBIT.

The following reconciliation presents the development in financial instruments recognised in Level 3:

Development in financial instruments recognised in Level 3

Euro 000s	**Balance at 1 October 2018** [1]	**Gains/losses in income statement**	**Gains/losses in OCI**	**Additions/ disposals**	**Balance at 30 September 2019**
Financial assets					
Other shareholdings	8,536	73	–	– 1,748	6,861
Derivatives outside hedge accounting	829	– 180	–	–	649
Financial liabilities					
Derivatives outside hedge accounting	250	75	–	–	325
Derivatives within hedge accounting	1,712	–	4,020	–	5,732
Other financial liabilities	–	3,428	–	18,470	21,898

1 Previous year's figures adjusted due to first-time application of IFRS 9

Development in financial instruments recognised in Level 3

Euro 000s	Balance at 1 Oct 2017	Gains/losses in income statement	Gains/losses in OCI	Additions/ disposals	Balance at 30 Sep 2018
Financial assets					
Derivatives outside hedge accounting	28	801	–	–	829
Financial liabilities					
Derivatives outside hedge accounting	516	– 266	–	–	250
Derivatives within hedge accounting	1,014	–	698	–	1,712

The gains and losses recognised through profit or loss for Level 3 financial instruments are presented in the income statement in the following line items:

Gains and losses recognised in statement of comprehensive income for Level 3 financial instruments

Euro 000s	**Total**	of which still held at 30 Sep 2019
Other operating expenses	– 255	–
Income from shareholdings	73	–
Financial result	3,428	–
Other comprehensive income	– 4,020	–
	– 4,348	**–**

Gains and losses recognised in statement of comprehensive income for Level 3 financial instruments

Euro 000s	Total	of which still held at 30 Sep 2018
Other operating income	801	–
Other operating expenses	–	–
Other comprehensive income	– 698	–
	103	**–**

Netting of financial assets and financial liabilities
The financial assets and financial liabilities listed below are subject to netting, enforceable master netting agreements or similar arrangements.

Netting of financial assets at 30 September 2019

Euro 000s	Gross amount of financial assets reported	Gross amount of financial liabilities reported that are netted in balance sheet	Net amount of financial assets reported in balance sheet	Related amounts not netted in balance sheet: Financial instruments	Related amounts not netted in balance sheet: Cash collateral received	Net amount
Loans excluding finance leases	13,629	–	13,629	–	–	13,629
Securities	–	–		–	–	
Trade receivables < 1 year	515,831	– 150,793	365,038	–	–	365,038
Derivative financial instruments	320,529	–	320,529	– 237,974	– 25,489	57,066
Other operating assets	98,643	– 7	98,636	–	–	98,636
Cash and cash equivalents	357,564	–	357,564	– 14,202	–	343,362
	1,306,196	**– 150,800**	**1,155,396**	**– 252,176**	**– 25,489**	**877,731**

Netting of financial liabilities at 30 September 2019

Euro 000s	Gross amount of financial liabilities reported	Gross amount of financial assets reported that are netted in balance sheet	Net amount of financial liabilities reported in balance sheet	Related amounts not netted in balance sheet: Financial instruments	Related amounts not netted in balance sheet: Cash collateral received	Net amount
Financial debt	1,562,835	–	1,562,835	– 4,737	– 805	1,568,377
Trade payables < 1 year	493,369	– 131,760	361,609	–	–	361,609
Derivative financial instruments	332,563	–	332,563	– 237,974	– 38,890	609,427
Other operating liabilities	110,538	– 19,040	91,498	–	–	91,498
	2,499,305	**– 150,800**	**2,348,505**	**– 242,711**	**– 39,695**	**2,630,911**

Netting of financial assets at 30 September 2018

Euro 000s	Gross amount of financial assets reported	Gross amount of financial liabilities reported that are netted in balance sheet	Net amount of financial assets reported in balance sheet	Related amounts not netted in balance sheet		Net amount
				Financial instruments	Cash collateral received	
Loans excluding finance leases	10,164	–	10,164	–	–	10,164
Trade receivables < 1 year	519,751	– 138,022	381,729	–	–	381,729
Derivative financial instruments	957,231	–	957,231	– 738,786	– 104,659	113,786
Other operating assets	96,767	– 6	96,761	–	–	96,761
Cash and cash equivalents	310,589	–	310,589	– 13,982	–	296,607
	1,894,502	**– 138,028**	**1,756,474**	**– 752,768**	**– 104,659**	**899,047**

Netting of financial liabilities at 30 September 2018

Euro 000s	Gross amount of financial liabilities reported	Gross amount of financial assets reported that are netted in balance sheet	Net amount of financial liabilities reported in balance sheet	**Related amounts not netted in balance sheet**		Net amount
				Financial instruments	Cash collateral received	
Financial debt	1,340,759	–	1,340,759	– 5,210	– 700	1,346,669
Trade payables < 1 year	460,230	– 119,974	340,256	–	–	340,256
Derivative financial instruments	849,026	–	849,026	– 738,786	– 27,596	1,615,408
Other operating liabilities	375,272	– 18,054	357,218	–	–	357,218
	3,025,287	**– 138,028**	**2,887,259**	**– 743,996**	**– 28,296**	**3,659,551**

Net results by measurement category
Financial instruments have been recognised in the income statement with the following net results pursuant to IFRS 7:

Net results (IFRS 7)

Euro 000s	FY 2019
Financial assets and liabilities measured at fair value through profit or loss	39,967
of which mandatorily measured at fair value	39,967
Financial assets measured at amortised cost	6,582

Net results (IFRS 7)

Euro 000s	FY 2018
Financial assets and financial liabilities held for trading [1]	33,468
Financial assets available for sale	868
Loans and receivables	– 5,385

1 Previous year's figures adjusted due to first-time application of IFRS 9 and NIFRIC

The presentation of net results takes due account of standalone derivatives included in the "at fair value through profit or loss" measurement category. In the case of financial assets and financial liabilities, the net result in the "at fair value through profit or loss" category is largely attributable to fair value measurement under IFRS 9. The net result from financial liabilities in this category is recognised in the income statement.

For financial assets, the net results in the "at amortised cost" category predominantly comprise write-downs.

Total interest income and expenses were recognised in the income statement as follows:

Total interest income and expenses

Euro 000s	FY 2019	FY 2018
Total interest income	9,472	8,392
Total interest expenses	40,056	41,735

The financial result also includes interest components for provisions not covered by IFRS 7 disclosure requirements, as a result of which the figures published here differ from the financial result. The interest income reported here mainly results from credit balances at banks, overnight and fixed-term deposits and loans. The interest expenses mostly relate to loan obligations.

The total interest income and total interest expenses chiefly result from financial assets and liabilities measured at amortised cost.

Risk management
Due to its business activities, MVV is exposed to various financial risks. These comprise receivables default and liquidity risks, interest and exchange rate risks and market price risks on both procurement and sales markets. MVV's risk management pursues the objective of identifying developments on financial markets at an early stage and countering any resultant negative implications. This is stipulated in internal guidelines, discretionary frameworks, responsibilities, separations of functions and checks.

Derivative financial instruments are used to cover against market price risks. For interest rate risks, these mainly involve interest swaps. Currency risks are hedged by concluding forward currency transactions. Commodity derivatives are deployed in the field of energy trading. The use of commodity derivatives for proprietary energy trading is only permitted within narrow limits and is monitored and managed with a separate limit system.

Receivables default risks: The risk of economic loss arising as a result of a business partner failing to meet its contractual payment obligations is referred to as receivables default risk. This encompasses both the risk of direct default and the risk of reduced creditworthiness. In its trading activities, MVV maintains its business relationships predominantly with banks and other trading partners of good credit standing. Receivables default risks towards contractual partners are inspected upon conclusion of the contract and monitored continuously. This risk is limited by setting trading limits for transactions with business partners and, where appropriate, by demanding cash collateral. Where possible, default risk is already reduced in advance by means of suitable framework agreements with trading partners.

MVV is exposed to receivables default risks in its sales business, as customers may potentially fail to meet their payment obligations. This risk is limited by regularly inspecting the creditworthiness of major items in our customer portfolio. For trading transactions concluded with stock exchanges, security payments are deposited in order to reduce any additional receivables default risks.

The maximum default risk for the assets recognised in the balance sheet, including derivatives with positive fair values, is equivalent to the carrying amounts recognised.

In the carrying amounts of financial assets, default risks have already been accounted for by way of write-downs.

IFRS 9 requires any expected credit loss to be accounted for by way of an impairment upon initial recognition of the respective asset already. Unlike in IAS 39, impairments require recognition not for losses already incurred, but for defaults expected in future. These "expected losses" are determined using either the general or the simplified approach.

MVV has applied the simplified approach to determine the expected losses for trade receivables, contract assets and lease receivables. This requires recognition of a loss allowance equivalent to the credit losses expected over the lifetime of the respective instrument ("lifetime expected credit losses"). To determine loss allowances, MVV mostly works with a provision matrix based on historic default rates and prospective information such as knowledge of economic developments at customers and macroeconomic data.

When using the provision matrix, financial instruments have to be allocated to different customer segments showing similar patterns of default. Our customer segments are based on the business models which are in turn mostly allocable to a similar geographical area.

Any internal or external ratings available for our customers are used as the basis for determining the expected credit losses.

Loss allowances for loans and other financial assets are determined on the basis of the general approach. This requires financial assets to be investigated in terms of their credit default risk and allocated to one of three stages of the impairment model in line with their respective development. The creditworthiness of the contract partner forms the basis for assessing credit default risk and is monitored on a regular basis.

All financial assets require allocation to Level 1 upon addition unless they were already impaired upon acquisition or issue. If the credit risk increases significantly since initial recognition, the respective assets are transferred to Level 2. The assessment as to whether credit risk has increased significantly in subsequent periods is made in a defined default risk management process. At MVV, a significant increase is assumed if the internal rating of the contract partner has deteriorated. Assets are transferred to Level 3 should there be any direct indications of impairment or actual default. A financial instrument is assumed to have defaulted when the asset is 720 days overdue. Financial assets are written down in full when, following a detailed review of the individual case, they are classified as being uncollectible.

For trade receivables, contract assets and lease receivables, MVV applies the simplified approach under IFRS 9 to determine the loss allowance. The development in loss allowances is presented in the following table:

Loss allowance (simplified approach)

Euro 000s	FY 2019
Balance at 1 October	36,748
Net balance of additions/disposals	6,779
Retirements	– 19,398
Reclassifications	–
Currency translation	11
Balance at 30 September	**24,140**

The default risks for financial assets for which no rating is available and the volume of lifetime expected credit losses and credit default rates for such assets are presented broken down by age group in the table below:

Receivables default risks (simplified approach) at 30 September 2019

Euro 000s	Gross carrying amount	Loss allowance	Credit default rate %
Not overdue	375,809	4,285	1
Overdue by			
< 89 days	20,185	314	2
90 to 179 days	4,646	632	14
180 to 359 days	10,943	2,039	19
360 to 719 days	9,274	6,455	70
> 719 days	10,894	10,345	95
	431,751	**24,070**	

Impairments of Euro 70 thousand relate to assets whose loss allowances were determined on the basis of an internal or external rating. No material changes arose in these impairments in the year under report.

Due to retirements of financial instruments, the loss allowances recognised for trade receivables changed by Euro 19,398 thousand in the 2019 financial year. The retirements relate to three project companies previously included at equity in the consolidated financial statements.

In the case of financial assets not eligible for application of the simplified approach provided for by IFRS 9, MVV applies the general approach to determine loss allowances within the expected loss model. This category mainly includes loans and other financial assets. The following reconciliation presents the development in the loss allowance determined using this method:

Loss allowance (general approach) FY 2019

Euro 000s	12-month expected credit loss *Level 1*	Lifetime expected credit loss *Level 2*	Lifetime expected credit loss *Level 3*	Total
Balance at 1 Oct 2018	4,305	–	3,342	7,647
Additions	501	–	42	543
Utilisations	2,101	–	–	2.101
Reclassifications	24	–	– 24	6
Other	–	–	– 21	– 27
Balance at 30 Sep 2019	2,729	–	3,381	6,122

The breakdown of default risk by risk class is presented in the following overview:

Default risk (general approach) at 30 September 2019

Euro 000s	12-month expected credit loss Level 1	Lifetime expected credit loss Level 2	Lifetime expected credit loss Level 3	Total
Extremely secure contract partner	26,015	–	2,699	28,714
Secure contract partner	17,956	–	1,524	19,480
Acceptable contract partner	2,355	–	–	2,355
Speculative contract partner	280	–	–	280
Balance at 30 Sep 2019	**46,606**	**–**	**4,223**	**50,829**

The receivables default risks recognised pursuant to IAS 39 for the previous year and their maturities broken down by category are structured as follows:

Receivables default risks and maturities at 30 September 2018

Euro 000s	Loans	Trade receivables < 1 year	Other operating assets
Neither overdue nor impaired	60,412	297,158	41,493
Overdue but not impaired			
≤ 6 months	–	34,001	197
> 6 months ≤ 1 year	–	4,500	-
> 1 year	–	8,809	50
Net value of assets written down	–	37,261	1,514
	60,412	**381,729**	**43,254**

Liquidity risks: Liquidity risk involves the risk of a company being unable to meet its financial obligations adequately. MVV is subject to liquidity risks as a result of its obligation to meet its liabilities in full and on time, as well as its obligation to service security payments (margins) from energy trading partners. Cash and liquidity management at MVV is responsible for maintaining the company's solvency at all times. This involves calculating all cash requirements and all cash surpluses. The major subgroups have a cash pooling process which enables liquidity needs and surpluses to be balanced at short notice, thus reducing bank transactions to a necessary minimum.

A financial budget is compiled for liquidity management purposes. Any financing requirements arising are covered by means of suitable liquidity management instruments. Alongside the liquidity available on a daily basis, MVV has further liquidity reserves in the form of committed credit lines. The volume of contractually committed credit lines is structured in such a way as to ensure that the Group has adequate liquidity reserves available at all times, even in a difficult market climate. In view of its available liquidity and existing credit lines, MVV does not see itself as being exposed to any material liquidity risks.

Covenants customary to the industry have been agreed with some of the financing banks. These entitle the banks to terminate the facilities in the event of any material deterioration in the company's asset, financial and earnings position. All covenants had been complied with as of the balance sheet date on 30 September 2019.

MVV's group companies are generally financed by banks and by MVV Energie AG.

Items of security have been provided to banks to limit their risks in connection with loans granted to MVV. These are subdivided into non-current assets, receivables and cash and cash equivalents with a total amount of Euro 4,986 thousand (previous year: Euro 11,576 thousand) and interests in subsidiaries amounting to Euro 3,327 thousand (previous year: Euro 3,337 thousand).

Contractually agreed outflows of funds for financial liabilities are presented in undiscounted form in the table below. The figures include the corresponding interest payments.

Undiscounted cash flows

	30 September 2019			30 September 2018		
Euro 000s	**Maturities < 1 year**	**Maturities 1 - 5 years**	**Maturities > 5 years**	Maturities < 1 year	Maturities 1 - 5 years	Maturities > 5 years
Non-derivative financial liabilities						
Liabilities to banks	128,269	732,429	765,083	244,899	564,047	678,077
Lease liabilities	–	55,130	96,941	5,571	21,295	40,958
Trade payables	361,609	838	2,670	340,256	816	2,796
Other financial debt	42,938	22,719	17,006	7,455	13,616	11,224
Other financial liabilities	89,637	9,341	32,715	148,460	7,569	15,629
Derivative financial liabilities	247,145	33,778	–	573,261	180,666	27
	869,598	**854,235**	**914,415**	**1,319,902**	**788,009**	**748,711**

Interest rate risks: Interest rate risks relate to bank credit balances on the asset side and to floating-rate liabilities to banks on the liabilities side of the balance sheet. They result from any potential change in the reference interest rate underlying the hedged item. MVV limits its interest rate risks by financing its investment projects, where possible, with facilities with congruent terms and fixed interest rates. Furthermore, financing-related risks are also managed by using interest derivatives. These risks are hedged by working with interest swaps enabling a fixed interest rate to be paid and conversely a floating interest rate to be collected over the term of the instrument.

Hedging transactions are structured and concluded in a manner appropriate to the interest rate risks identified for the hedged item, thus creating a direct economic relationship. The hedging relationship is measured by reference to the scope of the risk thereby hedged. Furthermore, the hedging relationship accounts for specific parameters of the hedged item, such as its term and planning reliability.

The sensitivity analysis below presents the impact of changes in interest rates on annual earnings and equity. In this analysis, it is assumed that there are no changes in any other parameters, such as exchange rates. The analysis only includes financial instruments where interest rate risk could impact on equity or annual earnings. For the calculation, we have assumed that interest rates are 10 % higher or lower throughout the financial year.

Any upward or downward variance in the level of interest rates in the euro area by 10 % as of the balance sheet date on 30 September 2019 would, as in the previous year, not have led to any overall change in annual net income. This variance would have reduced/increased equity by a total of Euro 730 thousand/Euro 737 thousand (previous year: Euro 1,264 thousand/Euro 1,972 thousand).

Currency risks: Currency risks arise due to exchange rate movements that may impact negatively on our asset, financial or earnings position, for example due an increase in a foreign-currency liability or a reduction in income or in a receivable denominated in a foreign currency.

The resultant currency risks are hedged by natural hedges in the form of currency-congruent financing and by using derivative financial instruments. MVV is therefore not exposed to any material risks in this respect. As a result, no disclosures of currency risks have been provided. In natural hedges, the cash flows and changes in the fair value of the hedged item and the hedging transaction cancel each other out. Derivative financial instruments in the form of forward exchange transactions are deployed to hedge the risks resulting from changes in the respective spot and forward rates.

Hedging transactions are structured and concluded in a manner appropriate to the currency risks identified for the hedged item, thus creating a direct economic relationship. The hedging relationship is measured by reference to the scope of the risk thereby hedged. Furthermore, the hedging relationship accounts for specific parameters of the hedged item, such as its term and planning reliability.

Commodity price risks: In connection with our energy trading activities, energy trading contracts are concluded for the purposes of price risk management, adjustments to actual loads and margin optimisation. Price change risks chiefly arise in connection with the procurement and disposal of electricity and gas and the procurement of coal and emission rights. The risks resulting from these trading activities are initially limited by setting narrow and clearly defined limit structures. Taking due account of the limits thereby stipulated, commodity price risks are hedged using suitable derivative financial instruments. The hedging instruments used mainly involve forwards, futures and swaps.

Hedging transactions are structured and concluded in a manner appropriate to the risks identified for the hedged item, thus creating a direct economic relationship. The price index for hedging instruments is selected in each case in such a way as to conform to the hedged item. This way, the hedging instruments are subject to the same commodity price risk as the hedged items. The objective of MVV's hedging activities is to optimise and minimise risk across the entire portfolio.

The sensitivity involved in measuring electricity, coal, gas and emission right derivatives is analysed in the following section. This analysis assumes that there are no changes in any other parameters and that there is mutual dependency between the commodities. The analysis only includes derivatives for which fluctuations in market values could impact on equity or annual earnings. These involve derivatives requiring mandatory recognition. The analysis does not include energy trading contracts earmarked for the physical delivery of non-financial items in line with the company's expected procurement, sale or utilisation ("own use"). These do not require recognition under IFRS 9.

If the market price at the balance sheet date on 30 September 2019 had been 10 % higher/lower, this would have increased/decreased annual net income by Euro 10,250 thousand / Euro 10,139 thousand (previous year: Euro 19,140 thousand / Euro 19,724 thousand). Equity as of the same reporting date would have increased/decreased by Euro 19,901 thousand / Euro 19,736 thousand (previous year: Euro 27,596 thousand / Euro 27,770 thousand).

Derivative financial instruments and hedging relationships

MVV deploys derivative and currency-congruent financial liabilities to hedge its commodity, interest rate and currency risks. For commodities, the associated risks are hedged using forwards, futures and swaps. Financing risks are hedged with interest swaps, while foreign exchange risks are hedged with forward exchange transactions and by way of currency-congruent financial liabilities.

The risks hedged for the hedged items correspond to the contractual terms of the hedging instruments thereby concluded. For commodity and financing risks, for example, the price risks and interest rate risks of the hedged item correspond to the agreed price and interest rate index of the hedging instrument. Currency risks involved in financing activities are hedged using hedging transactions in the corresponding currency. For all hedging relationships, hedging instruments are concluded with the same nominal volume as the respective hedged item. Risks are thereby hedged at a ratio of 1:1. Selecting this hedging strategy means that hedging relationships can be expected to be highly effective on a prospective basis.

The nominal volumes of derivatives deployed at MVV are presented in the following table:

Nominal volumes by maturity

	30 September 2019			30 September 2018		
Euro 000s	< 1 years	1 - 5 years	> 5 years	< 1 year	1 - 5 years	> 5 years
Interest derivatives	11,443	343,933	154,285	25,603	276,371	231,357
Commodity derivatives	4,623,796	1,783,479	-	3,280,687	1,398,691	-
Currency derivatives	7,353	61,100	-	15,302	1,423	-
	4,642,592	**2,188,512**	**154,285**	**3,321,592**	**1,676,485**	**231,357**

The commodity derivatives deployed at MVV can be broken down as follows:

Commodity derivatives

Euro 000s	**30 September 2019** Nominal volumes	**30 September 2019** Fair values	30 September 2018 Nominal volumes	30 September 2018 Fair values
Commodity derivatives				
Electricity	4,427,176	13,388	2,837,379	32,912
Coal	17,426	– 8,287	38,678	35,160
Gas	1,788,569	– 10,392	1,643,190	7,895
CO_2 rights	172,541	40,714	160,014	51,766
Other	1,563	324	1,499	579
	6,407,275	**35,747**	**4,680,760**	**128,312**
Commodity derivatives				
Futures	6,389,849	44,034	4,641,273	93,822
Swaps	17,426	– 8,287	39,487	34,490
Options	–	–	–	–
	6,407,275	**35,747**	**4,680,760**	**128,312**

As derivatives may be subject to substantial fluctuations in their fair values, the counterparty risk of derivative financial assets has been presented in the following overview. Only recognised accounts have been included. Where netting agreements are in place with a trading partner, the actual risk, i.e. the net risk, has been presented. No account has been taken of counterparties with negative balances, i.e. where there is no counterparty risk. In all other cases, the figures have not been netted against negative fair values.

Counterparty risk at 30 September 2019

Euro 000s Counterparty rating as per Standard & Poor's and/or Moody's	**Total** Nominal value	**Total** Counterparty risk	**of which < 1 year** Nominal value	**of which < 1 year** Counterparty risk	**of which 1 to 5 years** Nominal value	**of which 1 to 5 years** Counterparty risk
AAA and Aaa to AA- and Aa3	530,728	78,657	135,095	35,451	395,633	43,206
A+ and A1 to A- and A3	73,604	5,484	7,280	45	66,324	5,439
BBB+ and Baa1 to BBB- and Baa3	88,678	13,532	–	–	88,678	13,532
BB+ and Ba1 to BB- and Ba3	–	–	–	–	–	–
Other	2,609,211	292,366	1,403,246	172,503	1,205,965	119,863
	3,302,221	**390,039**	**1,545,621**	**207,999**	**1,756,600**	**182,040**

Counterparty risk at 30 September 2018

Euro 000s Counterparty rating as per Standard & Poor's and/or Moody's	Total Nominal value	Total Counterparty risk	of which < 1 year Nominal value	of which < 1 year Counterparty risk	of which 1 to 5 years Nominal value	of which 1 to 5 years Counterparty risk
AAA and Aaa to AA- and Aa3	308,847	112,939	220,000	81,704	88,847	31,235
A+ and A1 to A- and A3	212,626	119,824	132,261	69,891	80,365	49,933
BBB+ and Baa1 to BBB- and Baa3	115,144	31,477	84,293	23,320	30,851	8,157
BB+ and Ba1 to BB- and Ba3	9,790	3,943	5,113	2,665	4,677	1,278
Other	1,744,237	759,176	1,204,832	552,393	539,405	206,783
	2,390,644	**1,027,359**	**1,646,499**	**729,973**	**744,145**	**297,386**

Cash flow hedges serve to hedge against fluctuations in future cash flows. At MVV, cash flow hedges are mainly deployed for commodities to hedge price risks on sales and procurement markets. Furthermore, MVV deploys cash flow hedges to limit the currency risk on foreign-currency liabilities and the interest risk on floating-rate liabilities.

For interest hedges, existing hedged items were included in cash flow hedges with terms of up to 14 years as of 30 September 2019 (previous year: ten years). For commodity hedges, the terms of planned hedged items amount to up to four years (previous year: up to three years).

Both interest hedging instruments and commodity derivatives require net settlements to be paid at contractually fixed dates mainly corresponding to the hedged items.

In the year under report, MVV concluded hedging transactions with an average interest rate of 0.86 % to 4.56 % to hedge against interest rate risks in its financing activities. To hedge against currency risks, MVV has a hedging transaction in British pounds with an average hedging rate of 0.93 GBP / EUR. The average hedged prices for commodity price risks range from Euro 20.00 to Euro 71.85 in the electricity business, Euro 11.63 to Euro 26.15 in the gas business and Euro 19.20 to Euro 31.22 for emission rights.

The following table presents the carrying amounts and nominal amounts, as well as changes in fair value, for the hedging instruments and hedged items deployed in cash flow hedging relationships:

Hedging relationships involving cash flow hedges at 30 September 2019

	Carrying amount of hedging instrument		Nominal volume	Changes in fair value of hedging instrument	Changes in fair value of hedged item
Euro 000s	Other financial assets	Other financial liabilities			
Commodity price risk	54,525	– 50,432	913,137	9,388	9,388
Interest rate risk	62	– 40,099	509,661	29,581	30,179
	54,587	**– 90,531**	**1,422,798**	**38,969**	**39,567**

Cash flow hedges had the following impact on MVV's statement of comprehensive income:

Impact of cash flow hedges on total comprehensive income at 30 Sep 2019

Euro 000s	Hedging gains/losses recognised in OCI	Ineffectiveness recognised through profit or loss	Reclassification through profit or loss
Commodity price risk	– 9,388	-	32,688
Interest rate risk	– 30,179	598	– 8,229
	– 39,567	**598**	**24,459**

Ineffectivenesses resulting from cash flow hedges and their reclassification from other comprehensive income to profit or loss are recognised in the income statement line item in which the respective hedged item is also recognised. For commodity hedges, amounts of Euro 66,772 thousand and Euro 34,084 thousand were reclassified through profit or loss and recognised under sales and cost of materials respectively in the 2019 financial year. For interest rate hedges, an amount of Euro 8,229 thousand was reclassified through profit or loss and recognised under financing expenses. The reclassifications from equity through profit or loss to the income statement refer to hedged items realised in the financial year under report.

In the 2019 financial year, income due to ineffectiveness was recognised in the financial result in connection with an interest hedge. This involved the reversal of ineffectiveness recognised in previous years.

The following table shows the development in the cash flow hedge reserve:

Development in hedge reserve

Euro 000s	FY 2019
Balance at 1 October	27,903
Unrealised changed in reserve for hedging costs	248
Unrealised change in cash flow hedge reserve	– 39,567
Reclassification through profit or loss	
Commodity hedges	– 32,688
Interest rate hedges	– 8,229
Balance at 30 September	**35,875**

The impact on the income statement and on other comprehensive income of the hedging relationships recognised under IAS 39 in the previous year is presented below.

The amount reclassified out of equity and recognised through profit or loss in the income statement in connection with cash flow hedge accounting was as follows:

Amount reclassified

Euro 000s	FY 2018
Included in EBIT	20,811
Included in financial and tax result	– 8,540
Total amounts withdrawn	**12,271**

The amounts recognised directly in equity and attributable reclassification amounts are presented in the following table:

Amounts recognised in equity

Euro 000s	30 Sep 2018
Cash flow hedges	24,000
of which changes recognised in equity	36,271
of which changes recognised through profit or loss	– 12,271

In the 2018 financial year, income of Euro 18 thousand was recognised for the ineffective portion of cash flow hedges. The results of ineffective portions of cash flow hedges are recognised as other operating income or expenses to the extent that they exceed the cumulative fair value change in the respective hedged item. For interest rate hedges, the results are recognised under other interest income and expenses.

Fair value hedges serve to hedge risks relating to changes in fair value. At MVV, fair value hedges include one foreign currency hedge for intragroup loans and payments in foreign currency. The hedged items amount to Euro 247,235 thousand. The hedging instruments deployed involve a bank liability in British pounds and a forward exchange transaction.

Other assets include a cumulative amount of Euro 1,832 thousand for hedging-related adjustments.

The following table presents the carrying amounts and nominal volumes, as well as changes in the fair value, for the hedged items and hedging instruments deployed in fair value hedging relationships.

Hedging relationships involving fair value hedges at 30 September 2019

	Carrying amount of hedging instrument		Nominal volume	Changes in fair value of hedging instrument	Changes in fair value of hedged item
Euro 000s	Other financial assets	Other financial debt			
Currency risk	1,547	194,235	247,235	1,617	1,625
	1,547	**194,235**	**247,235**	**1,617**	**1,625**

Fair value hedges had the following impact on MVV's statement of comprehensive income:

Impact of fair value hedges on total comprehensive income at 30 Sep 2019

Euro 000s	Ineffectiveness recognised through profit or loss
Currency risk	1
	1

In the 2018 financial year, fair value hedges were designated for closed foreign currency positions. The following amounts were recognised in the income statement in connection with these hedging relationships:

Gains and losses recognised in income statement for fair value hedges

Euro 000s	FY 2018
Gains/losses on hedged item	– 1,580
Gains/losses on hedging instrument	1,270

Capital management

MVV Energie AG is not subject to any statutory minimum capital requirements, but pursues its internal objective of using effective financial management to maintain its equity ratio at a level necessary to attain a good implicit rating on the financial market and to boost the company's earnings strength.

The adjusted equity ratio referred to for management purposes presents adjusted consolidated equity as a proportion of adjusted total assets. Adjusted equity comprises all equity items reported in the consolidated financial statements, including non-controlling and minority interests, but excluding non-operating IFRS 9 derivative measurement items and the associated impact on deferred taxes. MVV intends to maintain an adjusted equity ratio of at least 30 %.

Measures to comply with the targeted equity ratio initially take place within the business planning process and within the framework of investment budgeting in the case of major (unplanned) investment measures. By retaining earnings and issuing shares, the company can basically adjust its equity base to requirements.

The key figure used in our value-based corporate management and the capital management thereby required is the value spread. This key figure is calculated as the difference between the period-based adjusted return on capital employed (adjusted ROCE) and the weighted average cost of capital (WACC).

There were no changes in the underlying capital management requirements compared with the previous year.

36. Segment reporting

Segment report from 1 October 2018 to 30 September 2019

Euro 000s	Adjusted external sales excluding energy taxes [1]	Intercompany sales excluding energy taxes	Scheduled depreciation	Impairment losses
Customer Solutions	2,632,099	162,970	18,531	–
New Energies	734,227	102,217	80,235	–
Supply Reliability	228,716	621,973	59,253	–
Strategic Investments	85,950	1,304	10,924	–
Other Activities	2,368	50,369	14,550	–
Consolidation	–	– 938,833	–	–
	3,683,360	**–**	**183,493**	**–**

Euro 000s	Material non-cash income and expenses	Adjusted EBIT	Income from companies recognised at equity	Investments
Customer Solutions	15,980	26,281	– 6,726	36,665
New Energies	1,442	108,584	9,252	119,346
Supply Reliability	– 8,022	68,909	12,789	124,488
Strategic Investments	515	20,553	9,908	15,681
Other Activities	3,890	969	109	14,025
Consolidation	–	–	–	–
	13,805	**225,296**	**25,332**	**310,205**

1 Variance to income statement due to non-inclusion of NIFRIC effects

Segment report from 1 October 2017 to 30 September 2018

Euro 000s	External sales excluding energy taxes	Intercompany sales excluding energy taxes	Scheduled depreciation	Impairment losses
Customer Solutions	2,819,400	148,373	14,812	9,364
New Energies	737,658	106,737	76,160	24,201
Supply Reliability	256,129	612,471	64,547	–
Strategic Investments	87,198	2,608	11,263	141
Other Activities	2,375	24,017	13,898	–
Consolidation	––	– 894,206	–	–
	3,902,760	**–**	**180,680**	**33,706**

Euro 000s	Material non-cash income and expenses	Adjusted EBIT	Income from companies recognised at equity	Investments
Customer Solutions	6,488	46,657	– 1,915	29,542
New Energies	3,040	89,596	4,159	81,244
Supply Reliability	14,213	62,545	– 11,549	156,772
Strategic Investments	2,198	25,357	9,183	10,525
Other Activities	1,529	3,776	12	11,495
Consolidation	–	–	–	–
	27,468	**227,931**	**– 110**	**289,578**

External reporting is based on the internal management structure, thus complying with the management approach pursuant to IFRS 8. Units are grouped in such a way that the pooling of specialist competence under one roof forms the basis for stringent portfolio management at the Group. Business fields based on the respective energy industry value chain stages have been allocated to the reporting segments of Customer Solutions, New Energies, Supply Reliability, Strategic Investments and Other Activities. The characteristics used to identify and aggregate the segments relate to the type of products and services, the type of production processes, the asset and capital intensity, customer structures and needs, the sales methods used and, where appropriate, the regulatory framework.

Analytically, the business fields can be further broken down by subgroup and individual company with their products.

- The **Customer Solutions** reporting segment is subdivided into the business fields of commodities, retail and business. It comprises the retail and secondary distribution business with electricity, heating energy, gas and water, the solutions business for corporate customers and the service and trading business at MVV Trading GmbH, Mannheim.

  The key focus of aggregation for these business fields relates to the service business and to customer needs. The customer is the key focus of the business, use is made of comparable services methods, activities and marketing processes for the customers are pooled and almost exclusively target external customers (e.g. sales to third parties).

- The energy from waste plants, biomass power plants, wind turbines, biomethane plants and biogas plants are allocated to the **New Energies** reporting segment. Furthermore, this reporting segment also includes the renewable energies project development and operations management activities.

  The business fields aggregated in this segment focus on the provision of services, solutions and products in connection with renewable energies. The activities within this reporting segment involve the planning, approval, development, construction and operation of technical plants to generate electricity and heating energy from sustainable/partly sustainable commodities such as wind, waste timber, non-recyclable forest timber, green cuttings, waste/RDF, biogas and sunshine. The processes are characterised by long planning, approval, construction and operating stages.

- In addition to conventional energy generation, the **Supply Reliability** reporting segment also includes grid facilities for electricity, heating energy, gas and water. It comprises combined heat and power generation, grid facilities and further facilities required to provide our customers with a secure supply of electricity, heating energy, gas and water.

  The business fields aggregated in this segment serve to provide customers with a reliable and stable supply of various products. All facilities are characterised by high asset intensity, long technical lifecycles and long-term financing structures.

- The **Strategic Investments** reporting segment consists of the Köthen Energie and MVV Energie CZ subgroups and the at-equity results of select shareholdings in municipal utility companies.

- The **Other Activities** reporting segment consists in particular of the shared service companies and cross-divisional functions.

- Consolidation includes figures for transactions with other reporting segments that are eliminated for consolidation purposes.

Intercompany sales represent the volume of sales between segments. Transfer prices between segments correspond to customary market terms. Segment sales prior to consolidation are equivalent to the total of intercompany and external sales.

The segment reporting presented pursuant to IFRS 8 is based on the internal management structure. This is mainly reflected in segment earnings (adjusted EBIT) and investments. The reconciliation of EBIT with adjusted EBIT is presented in the table below. In the management perspective, the concept of investments includes both the additions apparent in the respective schedules and the change in non-current assets from first-time consolidation. By contrast, additions to securities and loans do not form part of the investment concept in the management perspective and have therefore been excluded.

Consistent with the management approach, the earnings stated for the reporting segments include internal transfer relationships between the reporting segments (charges and credits). The distribution of reporting segment earnings presented in the "adjusted EBIT" column corresponds to the distribution of earnings referred to in internal reporting. In some cases, this means that items are charged or credited to earnings in other business fields, and thus in other reporting segments, than the field or segment in which the item responsible for such charge or credit is located. This applies to business fields fully or partly managed on the basis of cost centre logic (shared services and cross-divisional functions).

Furthermore, when it comes to the generation of district heating the primary costs are incurred in operative terms in the Supply Reliability and New Energies reporting segments. These are charged to Customer Solutions. The latter reporting segment reimburses Supply Reliability and New Energies with a prorated return on their capital employed.

Segmentation is performed in the same way for all segments through to adjusted EBIT. The table below presents the reconciliation of earnings before interest and taxes (EBIT) with adjusted EBIT:

Reconciliation of EBIT (income statement) with adjusted EBIT

Euro 000s	**1 Oct 2018 to 30 Sep 2019**	1 Oct 2017 to 30 Sep 2018	+/- change
EBIT as per income statement	165,485	256,794	– 91,309
Financial derivative measurement items	56,100	– 31,591	87,691
Structural adjustment for part-time early retirement	172	309	– 137
Restructuring result	–	– 821	821
Interest income in connection with finance leases	3,539	3,240	299
Adjusted EBIT	**225,296**	**227,931**	**– 2,635**

Of segment sales with external customers, 87.9 % were generated in Germany (previous year: 94.7 %). The regional breakdown of sales is based on the geographical location of the respective companies.

No individual customers of MVV account for 10 % or more of total sales.

37. Cash flow statement

The cash flow statement shows the flow of funds from operating activities, investing activities and financing activities. The cash flows from investing and financing activities are calculated directly. The cash flow from operating activities, on the other hand, has been derived indirectly. The amount of cash and cash equivalents stated in the cash flow statement is consistent with the corresponding figure in the balance sheet.

Inflows and outflows of funds from the acquisition and disposal of consolidated companies are included in the cash flow from investing activities.

The substantial year-on-year reduction in annual earnings before taxes (EBT) was partly offset by the positive impact of eliminating non-cash income and expenses and of the non-operating result. As a result, the **cash flow before working capital and taxes** decreased by Euro 21 million. The largest positive effect related to the elimination of non-cash IFRS 9 measurement items.

The **cash flow from operating activities** was Euro 94 million lower than in the previous year. This development was due on the one hand to the lower cash flow before working capital and taxes. On the other hand, this reduction was intensified in particular by the increase in inventories and contract assets in the project development business, as well by the repayment of margins (securities for counterparty default risk) in the trading business due to market prices. By contrast, the cash flow from operating activities was positively affected in particular by changes in trade receivables and trade payables as a result of improved working capital management. In the previous year, the strong fluctuation in prepayments received on orders led to a sharp drop in the cash flow from operating activities. The change in the financial year under report was significantly less marked, however, which also led to a sharp improvement compared with the previous year.

The development in the **cash flow from investing activities** was mainly shaped by the higher inflow of funds generated from the sale of non-current assets in the previous year. Furthermore, the cash flow from investing activities was also influenced by the increase in the shareholding held in DC-Datacenter-Group GmbH. The divestments in the financial year under report had an opposing positive impact. The main inflows from sales of fully consolidated companies resulted from the sale of Götzfried + Pitzer Entsorgung GmbH and Vents d'Oc Energies Renouvelables SARL. Payments for investments in property, plant and equipment and intangible assets remained at a similar level to that in the previous year. Overall, the cash flow from investing activities fell by Euro 30 million compared with the 2018 financial year.

The **cash flow from financing activities** rose year-on-year by Euro 229 million, a development largely due to higher net borrowing. This related to the taking up of promissory note loans to finance current major projects. This factor was opposed by the payment made to acquire the remaining shares in Juwi.

MVV reported **cash and cash equivalents** of Euro 358 million as of 30 September 2019 (30 September 2018: Euro 311 million).

The reconciliation of liabilities in connection with financing activities is summarised in the following overview:

Liabilities in connection with financing activities

Euro 000s	30 Sep 2018	Cash-effective changes	Non-cash-effective changes				30 Sep 2019
			Restatement as per IFRS 16	Change in scope of consolidation	Changes in exchange rates	Additions to leases	
Liabilities to banks	1,309,034	156,879	-	21,822	167	-	1,487,902
Lease liabilities	45,237	– 13,677	88,143	4,409	79	15,144	139,335
Other financial debt	31,725	50,717	-	– 7,482	– 28	-	74,932
	1,385,996	**193,919**	**88,143**	**18,749**	**218**	**15,144**	**1,702,169**

38. Related party disclosures

Business transactions performed between the parent company and its consolidated subsidiaries, which constitute related parties, are not outlined in this section, as they were eliminated in the course of consolidation.

The City of Mannheim is the sole shareholder in MKB Mannheimer Kommunalbeteiligungen GmbH (previously: MVV GmbH). MKB Mannheimer Kommunalbeteiligungen GmbH owns 99.99 % of the shares in MV Mannheimer Verkehr GmbH (previously: MVV Verkehr GmbH), which in turn has a 50.1 % shareholding in MVV Energie AG. The City of Mannheim and the companies it controls therefore represent related parties as defined in IFRS.

Numerous contractually agreed legal relationships are in place between the MVV companies and the companies it controls (electricity, gas, water and district heating supply agreements, rental, leasing and service agreements). Moreover, concession agreements are also in place between MVV Energie AG and the City of Mannheim.

The concession duties to the City of Mannheim amounted to Euro 19,441 thousand (previous year: Euro 18,314 thousand).

All business agreements have been concluded on customary market terms and are basically analogous to the supply and service agreements concluded with other companies.

Related party disclosures

	Goods and services provided				Receivables		Liabilities	
	Income		Expenses					
Euro 000s	**1 Oct 2018 to 30 Sep 2019**	1 Oct 2017 to 30 Sep 2018	**1 Oct 2018 to 30 Sep 2019**	1 Oct 2017 to 30 Sep 2018	**30 Sep 2019**	30 Sep 2018	**30 Sep 2019**	30 Sep 2018
City of Mannheim	15,901	14,910	24,995	23,599	850	938	7,245	5,276
Abfallwirtschaft Mannheim	7,567	7,593	1,661	1,617	1,333	1,243	327	403
GBG Mannheimer Wohnungsbaugesellschaft mbH	12,661	12,625	25	166	166	841	8	–
m:con - mannheim:congress GmbH	4,058	4,022	352	419	6,037	6,540	–	–
MKB Mannheimer Kommunalbeteiligungen GmbH (previously: MVV GmbH)	64	63	–	60	1	–	–	–
MV Mannheimer Verkehr GmbH (previously: MVV Verkehr GmbH)	24	29	1	6	–	–	–	–
Rhein-Neckar-Verkehr GmbH	5,786	6,532	317	1,371	603	1,208	1,369	1,552
Stadtentwässerung Mannheim	1,697	1,545	376	414	427	74	19	–
Associates	9,810	10,213	1,301	155,402	2,849	3,372	1,724	10,302
Joint ventures	117,161	63,992	239,027	73,837	24,268	18,196	54,118	25,640
Other related parties	23,602	25,854	3,364	3,490	5,872	5,085	1,457	1,513
	198,331	**147,378**	**271,419**	**260,381**	**42,406**	**37,497**	**66,267**	**44,686**

The income and expenses with other related parties include income of Euro 19 thousand (previous year: Euro 31 thousand) and expenses of Euro 358 thousand (previous year: Euro 374 thousand) for goods and services provided to management staff performing key functions.

Pursuant to IAS 24, related parties also include management staff performing key functions. Alongside the Executive Board, this group of persons at MVV also includes active heads of division and authorised company representatives of MVV Energie AG.

Customer contracts concerning the supply of electricity, gas, water and district heating have been concluded between MVV Energie AG and members of its Executive and Supervisory Boards and members of the management (division heads, authorised representatives). These have been concluded on customary market terms and do not differ from other customer contracts.

MVV has otherwise not concluded or performed any material related party transactions. In particular, as in the previous year no loans or advances had been granted to members of the Executive or Supervisory Boards as of 30 September 2019. As in the previous year, the company also did not issue any guarantees on behalf of Executive or Supervisory Board members.

MVV Energie AG has compiled a dependent company report in accordance with § 312 AktG for the financial year ending on 30 September 2019.

The disclosure requirements for the compensation of management staff performing key functions at the Group cover the compensation paid to active members of the Executive Board, the Supervisory Board, active division heads and authorised representatives.

In the year under report, Executive Board members received short-term benefits of Euro 2,439 thousand (previous year: Euro 2,209 thousand). Pension provisions of Euro 9,871 thousand were recognised for them (previous year: Euro 5,754 thousand). The company has not concluded any share-based compensation agreements.

No long-term compensation targets have been agreed. The compensation paid to active division heads and authorised representatives came to Euro 3,033 thousand in the year under report (previous year: Euro 2,439 thousand). Of this total, Euro 2,926 thousand involved short-term benefits (previous year: Euro 2,332 thousand).

Unless they are insured via municipal supplementary pension companies (ZVKs), division heads and authorised representatives receive a defined contribution company pension of up to 8.6 % of their fixed basic compensation. They can determine which biometric risks should be covered. The expenses incurred for this scheme amounted to Euro 108 thousand in the 2019 financial year (previous year: Euro 107 thousand).

Active Supervisory Board members were compensated as follows:

Supervisory Board compensation

Euro 000s	FY 2019	FY 2018
Fixed compensation (including meeting allowances)	400	412

Individualised information and further details concerning the compensation of Executive and Supervisory Board members can be found in the audited Compensation Report, which forms part of the Combined Management Report.

Former members of the Executive Board received benefits of Euro 531 thousand in the year under report (previous year: Euro 513 thousand). Provisions totalling Euro 21,727 thousand have been stated for pension obligations towards former Executive Board members (previous year: Euro 16,758 thousand). A total of Euro 347 thousand was allocated to this item in the year under report (previous year: Euro 336 thousand).

39. MVV's shareholdings

List of MVV's shareholdings at 30 September 2019

	Town/city	Country	Share of capital [1] %	Footnote
Fully consolidated subsidiaries				
Associates (Germany)				
AVA Abwasser- und Verwertungsanlagen GmbH	Mörfelden-Walldorf	Germany	100.00	4
BEEGY GmbH	Mannheim	Germany	100.00	
BEG Gernsbacher Höhe UG (haftungsbeschränkt) & Co. KG	Mainz	Germany	0.00	7
BEG Haunetal UG (haftungsbeschränkt) & Co. KG	Gundersheim	Germany	0.00	7
BFE Institut für Energie und Umwelt GmbH	Mühlhausen	Germany	100.00	4
Biokraft Naturbrennstoffe GmbH	Offenbach am Main	Germany	100.00	
Biomethananlage Barby GmbH	Mannheim	Germany	100.00	
Biomethananlage Klein Wanzleben GmbH	Mannheim	Germany	100.00	
Biomethananlage Kroppenstedt GmbH	Mannheim	Germany	100.00	
Biomethananlage Staßfurt GmbH	Mannheim	Germany	100.00	
Cerventus Naturenergie GmbH	Offenbach am Main	Germany	50.00	
Cerventus Naturenergie Verwaltungs GmbH	Offenbach am Main	Germany	100.00	
Dabit Grundstücksverwaltungsgesellschaft mbH & Co. Vermietungs KG	Mainz	Germany	94.00	
DC-Datacenter-Group GmbH	Wallmenroth	Germany	74.99	
DC-Group Immobilienverwaltung GmbH & Co. OHG	Wallmenroth	Germany	100.00	5
econ solutions GmbH	München (dom.: Mannheim)	Germany	100.00	
Energienetze Offenbach GmbH	Offenbach am Main	Germany	100.00	4
Energieversorgung Dietzenbach GmbH	Dietzenbach	Germany	50.00	
Energieversorgung Offenbach Aktiengesellschaft	Offenbach am Main	Germany	48.42	2
eternegy GmbH	Mannheim	Germany	100.00	
EVO Ressourcen GmbH (previously: EVO Alpha 3 GmbH)	Offenbach am Main	Germany	100.00	5
EVO Vertrieb GmbH	Offenbach am Main	Germany	100.00	
FRASSUR GmbH Umweltschutz-Dienstleistungen	Mörfelden-Walldorf	Germany	100.00	
Gasversorgung Offenbach GmbH	Offenbach am Main	Germany	74.90	
IGS Netze GmbH	Gersthofen	Germany	100.00	4
Infrastruktur Callbach GmbH & Co. KG	Wörrstadt	Germany	71.40	
Infrastruktur Fahlenberg GmbH & Co. KG	Wörrstadt	Germany	50.00	
Infrastruktur Oberheimbach II GmbH & Co. KG	Wörrstadt	Germany	72.00	
Infrastruktur Waldweiler GmbH & Co. KG	Wörrstadt	Germany	60.40	
Infrastrukturgesellschaft Hungerberg GmbH & Co. KG	Offenbach am Main	Germany	100.00	
Infrastrukturgesellschaft Schmölln GmbH & Co. KG	Wörrstadt	Germany	41.32	
Infrastrukturgesellschaft Veldenz GmbH & Co. KG	Wörrstadt	Germany	61.86	
juwi AG	Wörrstadt	Germany	100.00	
juwi Bestandsanlagen GmbH (previously: juwi Repowering GmbH)	Wörrstadt	Germany	100.00	4, 5
juwi Bio Germany 19 GmbH & Co. KG	Wörrstadt	Germany	100.00	
juwi Bio Service & Betriebs GmbH	Wörrstadt	Germany	100.00	
juwi Operations & Maintenance GmbH	Wörrstadt	Germany	100.00	4
juwi Verwaltungs GmbH	Wörrstadt	Germany	100.00	
juwi Wind Germany 135 GmbH & Co. KG	Wörrstadt	Germany	88.00	
juwi Wind Germany 162 GmbH & Co. KG	Wörrstadt	Germany	80.00	
juwi Wind Germany 196 GmbH & Co. KG	Wörrstadt	Germany	100.00	5
juwi Wind Germany 33 GmbH & Co. KG	Wörrstadt	Germany	100.00	
juwi Wind Germany Verwaltungs GmbH	Wörrstadt	Germany	100.00	
Köthen Energie GmbH	Köthen	Germany	100.00	
MDW Muldendienst West GmbH	Frankfurt am Main	Germany	100.00	

List of MVV's shareholdings at 30 September 2019

	Town/city	Country	Share of capital [1] %	Footnote
mobiheat GmbH	Friedberg in Bayern	Germany	74.90	
MVV Alpha fünfzehn GmbH	Mannheim	Germany	100.00	4
MVV Biogas Bernburg GmbH	Mannheim (dom.: Bernburg/Saale)	Germany	90.00	
MVV Biogas Dresden GmbH	Mannheim (dom.: Dresden)	Germany	100.00	
MVV decon GmbH	Mannheim	Germany	100.00	
MVV Enamic GmbH	Mannheim	Germany	100.00	4
MVV Enamic Korbach GmbH	Korbach	Germany	100.00	4
MVV Enamic Ludwigshafen GmbH	Mannheim	Germany	100.00	
MVV Enamic Naturenergie GmbH	Mannheim	Germany	100.00	
MVV EnergySolutions GmbH	Mannheim	Germany	100.00	4
MVV ImmoSolutions GmbH	Berlin	Germany	100.00	4
MVV Industriepark Gersthofen GmbH	Gersthofen	Germany	100.00	4
MVV Netze GmbH	Mannheim	Germany	100.00	4
MVV RHE GmbH	Mannheim	Germany	100.00	4
MVV Trading GmbH	Mannheim	Germany	97.50	4
MVV Umwelt Asset GmbH	Mannheim	Germany	100.00	4
MVV Umwelt GmbH	Mannheim	Germany	100.00	4
MVV Umwelt Ressourcen GmbH	Mannheim	Germany	100.00	4
MVV Windenergie Deutschland GmbH	Mannheim	Germany	100.00	
MVV Windenergie GmbH	Mannheim	Germany	100.00	4
MVV Windpark Freudenberg GmbH	Mannheim	Germany	100.00	
MVV Windpark Plauerhagen GmbH & Co. KG	Ostseebad Rerik	Germany	100.00	
Netzgesellschaft Köthen mbH	Köthen	Germany	100.00	4, 6
New Breeze GmbH	Wörrstadt	Germany	100.00	
RZ-Products GmbH	Wallmenroth	Germany	100.00	5
Soluvia Energy Services GmbH	Offenbach am Main	Germany	100.00	5
Soluvia GmbH	Mannheim	Germany	100.00	
Soluvia IT-Services GmbH	Kiel	Germany	100.00	
Stadtwerke Kiel Aktiengesellschaft	Kiel	Germany	51.00	
SWKiel Netz GmbH	Kiel	Germany	100.00	4
SWKiel Speicher GmbH	Kiel	Germany	100.00	4
Umspannwerk Kirchberg 2 GmbH & Co. KG	Wörrstadt	Germany	51.60	
Windpark Albisheim GmbH & Co. KG	Offenbach am Main	Germany	100.00	
Windpark Buhlenberg GmbH & Co. KG	Hanover	Germany	100.00	5
Windpark Dirlammen GmbH & Co. KG	Offenbach am Main	Germany	100.00	
Windpark Hungerberg I GmbH & Co. KG	Offenbach am Main	Germany	100.00	
Windpark Hungerberg II GmbH & Co. KG	Offenbach am Main	Germany	100.00	
Windpark Kirchberg GmbH & Co. KG	Offenbach am Main	Germany	100.00	
Windwärts Energie GmbH	Hanover	Germany	100.00	
Windwärts Photovoltaik GmbH	Hanover	Germany	100.00	
WiWi Windkraft GmbH & Co. Herrnsheim KG	Wörrstadt	Germany	100.00	
WiWi Windkraft GmbH & Co. Worms KG	Wörrstadt	Germany	100.00	

List of MVV's shareholdings at 30 September 2019

	Town/city	Country	Share of capital [1] %	Footnote
Fully consolidated subsidiaries				
Associates (international)				
Cactus Garden Solar LLC	Delaware	USA	100.00	
Ceskolipská teplárenská a.s.	Ceská Lípa	Czech Republic	75.00	
Ceskolipské teplo a.s.	Ceská Lípa (dom.: Prague)	Czech Republic	100.00	
Corsoleil EURL	Saint Florent	France	100.00	
CTZ s.r.o.	Uherské Hradiste	Czech Republic	50.96	
e.services s.r.o.	Decín	Czech Republic	100.00	
Electaparc S.A.	Montevideo	Uruguay	100.00	
ENERGIE Holding a.s.	Prague	Czech Republic	100.00	
G-LINDE s.r.o.	Prague	Czech Republic	100.00	
G-RONN s.r.o.	Prague	Czech Republic	100.00	
IROMEZ s.r.o.	Pelhrimov	Czech Republic	100.00	
JSI 01 Srl	Verona	Italy	100.00	
JSI Construction Group LLC	Delaware	USA	100.00	
JSI Equipment Solutions LLC	Delaware	USA	100.00	
JSI Milford Realty Company LLC	Delaware	USA	100.00	
JSI O&M Group LLC	Delaware	USA	100.00	
juwi energias renovables de Chile S.R.L.	Santiago de Chile	Chile	100.00	
juwi energias renovables S.L.U.	Valencia	Spain	100.00	
juwi Energie Rinnovabili Srl	Verona	Italy	100.00	
juwi Energii Regenerabile S.R.L.	Bucharest	Romania	99.00	
juwi Energy Services (Pty) Ltd.	Cape Town	South Africa	80.00	
juwi Hellas renewable energy sources A.E.	Athens	Greece	100.00	
juwi Holding US LLC	Delaware	USA	100.00	
juwi Inc.	Delaware	USA	100.00	
juwi India Renewable Energies Private Limited	Bangalore	India	100.00	
juwi Nippon Energy K.K.	Tokyo	Japan	100.00	
juwi Philippines Inc.	Makati City	Philippines	99.99	
juwi Renewable Energies (Pty) Ltd.	Cape Town	South Africa	100.00	
juwi Renewable Energies Ltd.	London	UK	100.00	
juwi renewable Energies Malaysia SDN. BHD.	Kuala Lumpur	Malaysia	100.00	
juwi renewable energies Pvt. Ltd.	Singapore	Singapore	100.00	
juwi Renewable Energies Thai Co.. Ltd.	Bangkok	Thailand	100.00	
juwi Renewable Energy Pty. Ltd.	Brisbane	Australia	100.00	
juwi Singapore Projects Pvt. Ltd.	Singapore	Singapore	100.00	
Juwi Solar ZA Construction 1 (Pty) Ltd.	Cape Town	South Africa	80.00	
Juwi Solar ZA Construction 2 (Pty) Ltd.	Cape Town	South Africa	92.00	
Juwi Solar ZA Construction 3 (Pty) Ltd.	Cape Town	South Africa	80.00	
juwi Solar ZA Construction 4 (Pty) Ltd.	Cape Town	South Africa	60.00	
juwi Solar ZA O&M 1 (Pty) Ltd.	Cape Town	South Africa	49.00	
juwi Wind LLC	Delaware	USA	100.00	
Kozilio Dio I.K.E. (Monoprosopi)	Athens	Greece	100.00	
Kozilio Ena I.K.E. (Monoprosopi)	Athens	Greece	100.00	
Las Torres Solar I S.L.	Valencia	Spain	100.00	
mobiheat Schweiz GmbH	Glattbrugg	Switzerland	100.00	
mobiheat Österreich GmbH	Sankt Lorenz	Austria	100.00	

List of MVV's shareholdings at 30 September 2019

	Town/city	Country	Share of capital [1] %	Footnote
MVV Energie CZ a.s.	Prague	Czech Republic	100.00	
MVV Environment Baldovie Ltd.	Dundee	UK	100.00	
MVV Environment Devonport Limited	Plymouth	UK	100.00	
MVV Environment Limited	London	UK	100.00	
MVV Environment Ridham Limited	Sittingbourne/Iwade	UK	100.00	
MVV Environment Services Limited	London	UK	100.00	
OPATHERM a.s.	Opava	Czech Republic	100.00	
POWGEN a.s.	Prague	Czech Republic	100.00	
proRZ Rechenzentrumsbau Austria GmbH in Liqu.	Hallein	Austria	100.00	5
Rocky Mountain Solar LLC	Delaware	USA	100.00	
SE Chronus Solar Energy 10 E.P.E.	Athens	Greece	100.00	
SE Chronus Solar Energy 11 E.P.E.	Athens	Greece	100.00	
SE Chronus Solar Energy 12 E.P.E.	Athens	Greece	100.00	
SE Chronus Solar Energy 13 E.P.E.	Athens	Greece	100.00	
SE Chronus Solar Energy 14 E.P.E.	Athens	Greece	100.00	
SE Chronus Solar Energy 15 E.P.E.	Athens	Greece	100.00	
SE Chronus Solar Energy 16 E.P.E.	Athens	Greece	100.00	
SE Chronus Solar Energy 17 E.P.E.	Athens	Greece	100.00	
SE Chronus Solar Energy 18 E.P.E.	Athens	Greece	100.00	
SE Chronus Solar Energy 19 E.P.E.	Athens	Greece	100.00	
SE Chronus Solar Energy 2 E.P.E.	Athens	Greece	100.00	
SE Chronus Solar Energy 3 E.P.E.	Athens	Greece	100.00	
SE Chronus Solar Energy 4 E.P.E.	Athens	Greece	100.00	
SE Chronus Solar Energy 5 E.P.E.	Athens	Greece	100.00	
SE Chronus Solar Energy 6 E.P.E.	Athens	Greece	100.00	
SE Chronus Solar Energy 7 E.P.E.	Athens	Greece	100.00	
SE Chronus Solar Energy 8 E.P.E.	Athens	Greece	100.00	
SE Chronus Solar Energy 9 E.P.E.	Athens	Greece	100.00	
Teplárna Liberec a.s.	Liberec	Czech Republic	76.04	
TERMIZO a.s.	Liberec	Czech Republic	100.00	
TERMO Decín a.s.	Decín	Czech Republic	96.91	
Zásobování teplem Vsetín a.s.	Vsetín	Czech Republic	100.00	
Unconsolidated other shareholdings				
Associates (Germany)				
Blue Village FRANKLIN Mobil GmbH	Mannheim	Germany	100.00	
Erschließungsträgergesellschaft Weeze mbH	Weeze	Germany	75.00	
iwo Pellet Rhein - Main GmbH	Offenbach am Main	Germany	100.00	
juwi Solar Germany 13 GmbH & Co. KG	Wörrstadt	Germany	100.00	
juwi Solar Germany 3 GmbH & Co. KG	Wörrstadt	Germany	100.00	
juwi Wind Germany 126 GmbH & Co. KG	Wörrstadt	Germany	100.00	
juwi Wind Germany 127 GmbH & Co. KG	Wörrstadt	Germany	100.00	
juwi Wind Germany 128 GmbH & Co. KG	Wörrstadt	Germany	100.00	
juwi Wind Germany 134 GmbH & Co. KG	Wörrstadt	Germany	100.00	
juwi Wind Germany 177 GmbH & Co. KG	Wörrstadt	Germany	100.00	
juwi Wind Germany 178 GmbH & Co. KG	Wörrstadt	Germany	100.00	

List of MVV's shareholdings at 30 September 2019

	Town/city	Country	Share of capital [1] %	Footnote
juwi Wind Germany 180 GmbH & Co. KG	Wörrstadt	Germany	100.00	
juwi Wind Germany 183 GmbH & Co. KG	Wörrstadt	Germany	100.00	
juwi Wind Germany 184 GmbH & Co. KG	Wörrstadt	Germany	100.00	
juwi Wind Germany 185 GmbH & Co. KG	Wörrstadt	Germany	100.00	
juwi Wind Germany 186 GmbH & Co. KG	Wörrstadt	Germany	100.00	
juwi Wind Germany 189 GmbH & Co. KG	Wörrstadt	Germany	100.00	
juwi Wind Germany 190 GmbH & Co. KG	Wörrstadt	Germany	100.00	
juwi Wind Germany 191 GmbH & Co. KG	Wörrstadt	Germany	100.00	
juwi Wind Germany 192 GmbH & Co. KG	Wörrstadt	Germany	100.00	
juwi Wind Germany 193 GmbH & Co. KG	Wörrstadt	Germany	100.00	5
juwi Wind Germany 194 GmbH & Co. KG	Wörrstadt	Germany	100.00	5
juwi Wind Germany 197 GmbH & Co. KG	Wörrstadt	Germany	100.00	5
juwi Wind Germany 198 GmbH & Co. KG	Wörrstadt	Germany	100.00	5
juwi Wind Germany 200 GmbH & Co. KG	Wörrstadt	Germany	100.00	5
juwi Wind Germany 201 GmbH & Co. KG	Wörrstadt	Germany	100.00	5
juwi Wind Germany 202 GmbH & Co. KG	Wörrstadt	Germany	100.00	5
juwi Wind Germany 203 GmbH & Co. KG	Wörrstadt	Germany	100.00	5
juwi Wind Germany 204 GmbH & Co. KG	Wörrstadt	Germany	100.00	5
juwi Wind Germany 205 GmbH & Co. KG	Wörrstadt	Germany	100.00	5
juwi Wind Germany 206 GmbH & Co. KG	Wörrstadt	Germany	100.00	5
juwi Wind Germany 207 GmbH & Co. KG	Wörrstadt	Germany	100.00	5
juwi Wind Germany 208 GmbH & Co. KG	Wörrstadt	Germany	100.00	5
juwi Wind Germany 209 GmbH & Co. KG	Wörrstadt	Germany	100.00	5
juwi Wind Germany 212 GmbH & Co. KG	Wörrstadt	Germany	100.00	5
juwi Wind Germany 213 GmbH & Co. KG	Wörrstadt	Germany	100.00	5
juwi Wind Germany 214 GmbH & Co. KG	Wörrstadt	Germany	100.00	5
juwi Wind Germany 215 GmbH & Co. KG	Wörrstadt	Germany	100.00	5
juwi Wind Germany 51 GmbH & Co. KG	Wörrstadt	Germany	100.00	
MVV Alpha zwei GmbH	Mannheim	Germany	100.00	4
MVV Insurance Services GmbH	Mannheim	Germany	100.00	
MVV Regioplan GmbH	Mannheim	Germany	100.00	4
MVV Windpark Verwaltungs GmbH	Mannheim	Germany	100.00	
Neu-Anspach Wind GmbH & Co. KG	Wörrstadt	Germany	100.00	
Windpark Biebelnheim-Gabsheim GmbH & Co. KG (previously: juwi Wind Germany 199 GmbH & Co. KG)	Wörrstadt	Germany	100.00	5
Windpark Hellenthal Wiesenhardt GmbH & Co. KG	Wörrstadt	Germany	100.00	
Windpark Lauda-Heckfeld GmbH & Co. KG	Wörrstadt	Germany	100.00	
Windpark Mußbach GmbH & Co. KG	Wörrstadt	Germany	100.00	
Windpark Wiebelsheim GmbH & Co. KG	Wörrstadt	Germany	100.00	
Windwärts Betriebs- und Beteiligungsgesellschaft mbH (previously: Windwärts erste Verwaltungsgesellschaft mbH)	Hanover	Germany	100.00	
Windwärts Projektmanagement GmbH	Hanover	Germany	100.00	
WKA Schauerberg GmbH & Co. KG	Wörrstadt	Germany	100.00	

List of MVV's shareholdings at 30 September 2019	Town/city	Country	Share of capital [1] %	Footnote
Unconsolidated other shareholdings				
Associates (international)				
Abert Rim Solar LLC	Delaware	USA	100.00	
Achab Wind Farm (Pty) Ltd.	Cape Town	South Africa	100.00	
AL Solar I LLC	Delaware	USA	100.00	
Alachua Solar LLC	Delaware	USA	100.00	
Apple Valley Solar LLC	Delaware	USA	100.00	
Archer Solar LLC	Delaware	USA	100.00	
Arizona Solar I LLC	Delaware	USA	100.00	
Ashdown Solar LLC	Delaware	USA	100.00	
Axial Basin Solar LLC	Delaware	USA	100.00	5
Birch Creek Solar LLC	Delaware	USA	100.00	
Bishop Cap Solar LLC	Delaware	USA	100.00	5
Black Hollow Solar LLC	Delaware	USA	100.00	
Blue Creek Solar LLC	Delaware	USA	100.00	
Blue Earth Solar LLC	Delaware	USA	100.00	
Blue Grama Solar LLC	Delaware	USA	100.00	
Blue Spruce Solar LLC	Delaware	USA	100.00	
Briscoe Solar LLC	Delaware	USA	100.00	
Buckeye South Solar LLC	Delaware	USA	100.00	
Buckskin Solar LLC	Delaware	USA	100.00	
Cache Valley Solar LLC	Delaware	USA	100.00	
Cascade Solar LLC	Delaware	USA	100.00	
Castle Wind Farm (Pty) Ltd.	Cape Town	South Africa	100.00	
Cedar Canyon Solar LLC	Delaware	USA	100.00	
Cedarwood Solar LLC	Delaware	USA	100.00	
Centrale Solair De Lafayette LLC	Delaware	USA	100.00	
Chapeno Solar LLC	Delaware	USA	100.00	5
Chewaucan Solar LLC	Delaware	USA	100.00	
Chino Valley Solar LLC	Delaware	USA	100.00	5
Chinquapin Solar LLC	Delaware	USA	100.00	5
Cinnaminson Solar LLC	Delaware	USA	100.00	
Coolidge Solar LLC	Delaware	USA	100.00	
Coyote Gulch Solar LLC	Delaware	USA	100.00	5
Curry Hill Solar LLC	Delaware	USA	100.00	
Daisy Canyon Solar LLC	Delaware	USA	100.00	
Deer Creek Solar LLC	Delaware	USA	100.00	
Delareyville Solar Farm (Pty) Ltd.	Cape Town	South Africa	100.00	
Dolores Canyon Solar LLC	Delaware	USA	100.00	5
Eureka Solar LLC	Delaware	USA	100.00	
Firelands Wind Farm LLC	Delaware	USA	100.00	
Fountain Solar LLC	Delaware	USA	100.00	
Front Range Solar LLC	Delaware	USA	100.00	
GA Solar I LLC	Delaware	USA	100.00	
Galloway Solar LLC	Delaware	USA	100.00	
Gila Solar LLC	Delaware	USA	100.00	5
Grassland Solar LLC	Delaware	USA	100.00	

List of MVV's shareholdings at 30 September 2019

	Town/city	Country	Share of capital [1] %	Footnote
Hartebeest Wind Farm (Pty) Ltd.	Cape Town	South Africa	100.00	
High Plains Solar LLC	Delaware	USA	100.00	
Highland Solar LLC	Delaware	USA	100.00	5
Holden Solar LLC	Delaware	USA	100.00	
Hotazel Solar Farm 1 (Pty) Ltd.	Cape Town	South Africa	100.00	
Hotazel Solar Farm 2 (Pty) Ltd.	Cape Town	South Africa	100.00	
Hudsonville Solar LLC	Delaware	USA	100.00	
JSI Construction Canada LLC	Delaware	USA	100.00	
JSI Equipment Purchasing Inc.	Delaware	USA	100.00	5
JSI PR Green Holding Company Inc.	Delaware	USA	100.00	
JSI Procurement Group LLC	Delaware	USA	100.00	
JSI Rockfish Realty LLC	Delaware	USA	100.00	
juwi Development 01 Srl	Verona	Italy	100.00	5
juwi Development 02 Srl	Verona	Italy	100.00	5
juwi Development 03 Srl	Verona	Italy	100.00	5
juwi Energy Services 2 (Pty) Ltd.	Cape Town	South Africa	80.00	
juwi Solar ZA Construction 9 (Pty) Ltd.	Cape Town	South Africa	60.00	
juwi Solar ZA O&M 2 (Pty) Ltd. (previously: K20171516079 (Pty) Ltd.)	Cape Town	South Africa	100.00	
juwi Viet Nam Company Limited	Hanoi	Vietnam	100.00	
JWT Asset Co.. Ltd.	Bangkok	Thailand	49.80	6
Kaip Wind Farm (Pty) Ltd.	Cape Town	South Africa	100.00	
Kap Vley Wind Farm (Pty) Ltd.	Cape Town	South Africa	100.00	
Kenhardt PV1 (Pty) Ltd.	Cape Town	South Africa	100.00	
Kiowa Creek Solar LLC	Delaware	USA	100.00	
Kiowa Solar LLC	Delaware	USA	100.00	
Klondike Solar LLC	Delaware	USA	100.00	
Koppie Enkel Solar Farm (Pty) Ltd.	Cape Town	South Africa	100.00	
Kronos Solar Farm 1 (Pty) Ltd.	Cape Town	South Africa	100.00	
Kronos Solar Farm 2 (Pty) Ltd.	Cape Town	South Africa	100.00	
Kronos Solar Farm 3 (Pty) Ltd.	Cape Town	South Africa	100.00	
L&D Solar LLC	Delaware	USA	100.00	
La Garita Solar LLC	Delaware	USA	100.00	5
Lavaca Solar LLC	Delaware	USA	100.00	5
Lone Rock Solar LLC	Delaware	USA	100.00	
Long Prairie Solar LLC	Delaware	USA	100.00	
Los Brazos Solar LLC	Delaware	USA	100.00	5
Lost Creek Solar LLC	Delaware	USA	100.00	
Madras Solar LLC	Delaware	USA	100.00	
Marovax (Pty) Ltd.	Cape Town	South Africa	100.00	
Meadowlark Solar LLC	Delaware	USA	100.00	
Mesilla Solar LLC	Delaware	USA	100.00	
Mesquite Solar LLC	Delaware	USA	100.00	
MN Solar LLC	Delaware	USA	100.00	
Moffat Solar LLC	Delaware	USA	100.00	5
Monarch Solar LLC	Delaware	USA	100.00	
Monaville Solar LLC	Delaware	USA	100.00	5
Muleshoe Solar LLC	Delaware	USA	100.00	
MVV Environnement Ressources SASU	Colmar	France	100.00	

List of MVV's shareholdings at 30 September 2019

	Town/city	Country	Share of capital [1] %	Footnote
Namies Wind Farm (Pty) Ltd.	Cape Town	South Africa	100.00	
Nine Mile Solar LLC	Delaware	USA	100.00	
NM Solar I LLC	Delaware	USA	100.00	
Oasis Wind Farm (Pty) Ltd.	Cape Town	South Africa	100.00	
OH Solar I LLC	Delaware	USA	100.00	
Ophir Canyon Solar I LLC	Delaware	USA	100.00	
Ophir Canyon Solar II LLC	Delaware	USA	100.00	
Ophir Canyon Solar LLC	Delaware	USA	100.00	
Osage Solar LLC	Delaware	USA	100.00	
Othello Solar LLC	Delaware	USA	100.00	
Outeniqua Wind Farm (Pty) Ltd.	Cape Town	South Africa	100.00	
Pacolet Solar LLC	Delaware	USA	100.00	5
Palisade Solar LLC	Delaware	USA	100.00	
Parachute Solar LLC	Delaware	USA	100.00	
Paradox Valley Solar LLC	Delaware	USA	100.00	5
Pike Solar LLC	Delaware	USA	100.00	
Pilot Rock Solar LLC	Delaware	USA	100.00	
Pleasant Hill Solar LLC	Delaware	USA	100.00	
Poplar Springs Solar LLC	Delaware	USA	100.00	
Pronghorn Solar LLC	Delaware	USA	100.00	
Rawhide Flats II Solar LLC	Delaware	USA	100.00	
Razorback Solar LLC	Delaware	USA	100.00	
Red Dirt Solar LLC	Delaware	USA	100.00	5
Royal Slope Solar LLC	Delaware	USA	100.00	
Saddle Butte Solar LLC	Delaware	USA	100.00	
San Arroyo Solar LLC	Delaware	USA	100.00	
San Carlos Solar LLC	Delaware	USA	100.00	
San Tan Mountain Solar LLC	Delaware	USA	100.00	5
Sand Hollow Solar LLC	Delaware	USA	100.00	
Santa Cruz Solar LLC	Delaware	USA	100.00	
Santa Rita Solar LLC	Delaware	USA	100.00	5
Santa Rosa Solar LLC	Delaware	USA	100.00	
Saranac Solar LLC	Delaware	USA	100.00	
Seward Solar LLC	Delaware	USA	100.00	5
Shaefers Peak Solar LLC	Delaware	USA	100.00	
Sherman Solar LLC	Delaware	USA	100.00	5
Sierra Mojada Solar LLC	Delaware	USA	100.00	
Sierra Vista Solar LLC	Delaware	USA	100.00	5
Silver Moon Solar LLC	Delaware	USA	100.00	
Silver River Solar LLC	Delaware	USA	100.00	5
Skipjack Solar LLC	Delaware	USA	100.00	
Spanish Peaks II Solar LLC	Delaware	USA	100.00	5
Spanish Peaks Solar LLC (previously: Valent Canyon Solar LLC)	Delaware	USA	100.00	
Squirrel Creek Solar LLC	Delaware	USA	100.00	
Stansburry Solar II LLC	Delaware	USA	100.00	
Stansburry Solar LLC	Delaware	USA	100.00	
Sugarcane Solar LLC	Delaware	USA	100.00	
Suwannee Solar LLC	Delaware	USA	100.00	

List of MVV's shareholdings at 30 September 2019

	Town/city	Country	Share of capital [1] %	Footnote
Tailwind Solar LLC	Delaware	USA	100.00	
Thatcher Solar LLC	Delaware	USA	100.00	
Vredendal Solar Farm (Pty) Ltd.	Cape Town	South Africa	100.00	
Wildebeest Wind Farm (Pty) Ltd.	Cape Town	South Africa	100.00	
Wolf Wind Farm (Pty) Ltd.	Cape Town	South Africa	100.00	
Zingesele Wind Farm (Pty) Ltd.	Cape Town	South Africa	100.00	
At equity				
Joint ventures (Germany)				
ABeG Abwasserbetriebsgesellschaft mbH	Dietzenbach	Germany	49.00	
Allegro engineering GmbH	Markranstädt-Thronitz	Germany	30.00	
AVR BioGas GmbH	Sinsheim	Germany	41.50	
BEEGY Operations GmbH	Mannheim	Germany	51.00	
Biomasse Rhein-Main GmbH	Flörsheim am Main	Germany	33.33	
enerix Franchise GmbH & Co KG	Regensburg	Germany	25.10	
enerix Management GmbH	Regensburg	Germany	25.10	
Fernwärme Rhein-Neckar GmbH	Mannheim	Germany	50.00	
Gemeinschaftskraftwerk Kiel Gesellschaft mit beschränkter Haftung	Kiel	Germany	50.00	
Grosskraftwerk Mannheim Aktiengesellschaft	Mannheim	Germany	28.00	
Infrastruktur Donnersberg GmbH & Co. KG	Wörrstadt	Germany	36.31	
Infrastrukturgesellschaft Rheinhessen II GmbH & Co. KG	Wörrstadt	Germany	48.00	
KommunalWind GmbH & Co. KG	Tübingen	Germany	50.00	
MAIN DC Asset GmbH (previously: EVO Alpha 7 GmbH)	Offenbach am Main	Germany	60.00	5
MAIN DC Offenbach GmbH (previously: DataCenter Offenbach Rhein-Main GmbH)	Offenbach am Main	Germany	60.00	
Mainnetz GmbH	Obertshausen	Germany	25.10	
Naunhofer Transportgesellschaft mbH	Parthenstein-Großsteinberg	Germany	50.00	
Qivalo GmbH	Mannheim	Germany	42.50	
ReNabi GmbH	Mannheim	Germany	51.00	
Rockenhausen Windenergie-Projektentwicklungs GmbH i.L.	Rockenhausen	Germany	49.00	
Stadtwerke Ingolstadt Beteiligungen GmbH	Ingolstadt	Germany	48.40	
Stadtwerke Sinsheim Versorgungs GmbH & Co. KG	Sinsheim	Germany	30.00	
Umspannwerk Donnersberg GmbH & Co. KG	Wörrstadt	Germany	36.31	
wärme.netz.werk Rhein-Neckar GmbH	Heidelberg	Germany	50.00	5
At equity				
Joint ventures (international)				
juwi Shizen Energy Inc.	Tokyo	Japan	50.00	
luminatis S.à.r.l.	Luxembourg	Luxembourg	70.00	

List of MVV's shareholdings at 30 September 2019

	Town/city	Country	Share of capital [1] %	Footnote
At equity				
Associates (Germany)				
ESN EnergieSystemeNord GmbH	Schwentinental	Germany	25.00	
Infrastrukturgesellschaft Erbes-Büdesheim GmbH & Co. KG	Wörrstadt	Germany	22.36	
juwi Wind Germany 100 GmbH & Co. KG	Wörrstadt	Germany	39.00	
Naturenergie Main-Kinzig GmbH	Gelnhausen	Germany	50.00	
Netzgesellschaft Edingen-Neckarhausen GmbH & Co. KG	Edingen-Neckarhausen	Germany	24.00	
Phoenix Energie GmbH	Hanover	Germany	0.05	6
Recogizer Group GmbH	Bonn	Germany	40.69	
Stadtwerke Buchen GmbH & Co. KG	Buchen-Odenwald	Germany	25.10	
Zweckverband Wasserversorgung Kurpfalz (ZWK)	Mannheim (dom: Heidelberg)	Germany	51.00	3
At equity				
Associates (international)				
juwi Shizen Energy Operation Inc.	Tokyo	Japan	30.00	
Other minority shareholdings				
(Germany)				
8KU GmbH	Berlin	Germany	12.50	
Infrastruktur Oberheimbach I GmbH & Co. KG	Wörrstadt	Germany	15.00	
Infrastrukturgesellschaft Bischheim GmbH & Co. KG	Wörrstadt	Germany	15.31	
juwi Wind Germany 129 GmbH & Co. KG	Wörrstadt	Germany	16.00	
Klimaschutzagentur Mannheim gemeinnützige GmbH	Mannheim	Germany	40.00	
Main-Kinzig-Entsorgungs- und Verwertungs GmbH	Gelnhausen	Germany	49.00	
Management Stadtwerke Buchen GmbH	Buchen-Odenwald	Germany	25.20	
RIO Holzenergie GmbH & Co. Langelsheim KG	Wörrstadt	Germany	37.55	
Stadtmarketing Mannheim GmbH	Mannheim	Germany	3.09	
Stadtwerke Langen Gesellschaft mit beschränkter Haftung	Langen	Germany	10.00	4
Stadtwerke Schwetzingen GmbH & Co. KG	Schwetzingen	Germany	10.00	
Stadtwerke Schwetzingen Verwaltungsgesellschaft mbH	Schwetzingen	Germany	10.00	
Stadtwerke Sinsheim Verwaltungs GmbH	Sinsheim	Germany	30.00	
Stadtwerke Walldorf GmbH & Co. KG	Walldorf	Germany	25.10	
Stadtwerke Walldorf Verwaltungs GmbH	Walldorf	Germany	25.10	
SWT Regionale Erneuerbare Energien GmbH	Trier	Germany	51.00	
Wasserversorgungsverband Neckargruppe	Edingen-Neckarhausen	Germany	25.00	
Windfarm Wonnegau UW GmbH & Co. KG	Gundersheim	Germany	24.70	
WiWi Windkraft GmbH & Co. Westpfalz KG	Wörrstadt	Germany	5.32	
WVE Wasserversorgungs- und -entsorgungsgesellschaft Schriesheim mbH	Schriesheim	Germany	24.50	

[1] Share of capital at 30 September 2019 pursuant to § 16 (4) AktG; equity and annual net income pursuant to HGB or local requirements
[2] Majority of voting rights
[3] No voting right majority
[4] Profit transfer/operating profit transfer agreement
[5] Added in financial year
[6] Control agreement or controlling influence
[7] Citizens' energy company

Further disclosures can be found in the list of shareholdings of MVV Energie AG.

40. Auditor's fee

The following fees were incurred in Germany for the services performed by the auditor of the consolidated financial statements, PricewaterhouseCoopers GmbH Wirtschaftsprüfungsgesellschaft, in the 2019 financial year:

Auditor's fee

Euro 000s	FY 2019	FY 2018
Audit	1,973	2,188
Other advisory services	252	486
Tax advisory services	63	101
Other services	56	357
	2,344	**3,132**

The audit services line item relates above all to the fees paid for the audit of the consolidated financial statements and the audit of the separate financial statements of MVV Energie AG and its subsidiaries. The fees paid for other audit services mainly relate to audits performed in accordance with energy industry requirements/attestations (EEG, KWKG) and voluntary certification services. The tax advisory services line item particularly involves fees for support provided in the context of external audits and tax advisory services in the field of transfer prices. The fees paid for other services chiefly include fees for market advisory services in connection with obtaining comparative figures.

41. Utilisation of § 264 (3) HGB

The following German subsidiaries will draw on the disclosure exemption provided for under § 264 (3) HGB for the 2019 financial year:

- BFE Institut für Energie und Umwelt GmbH, Mühlhausen
- MVV Alpha zwei GmbH, Mannheim
- MVV Alpha fünfzehn GmbH, Mannheim
- MVV Umwelt GmbH, Mannheim
- MVV Umwelt Ressourcen GmbH, Mannheim
- MVV Windenergie GmbH, Mannheim

42. Declaration of Conformity under § 161 AktG

The Executive and Supervisory Boards of MVV Energie AG have submitted their Declaration of Conformity with the recommendations of the German Corporate Governance Code pursuant to § 161 AktG and made this available to the company's shareholders.

The complete declaration is published on the internet at **www.mvv.de/investors.**

43. Information on concessions

In addition to the concession agreements between the City of Mannheim and MVV Energie AG (see Note 38 Related party disclosures), further concession agreements have also been concluded between MVV companies and local and regional authorities. The remaining terms range from one to 17 years. These agreements assign responsibility for operating the respective distribution grids and providing for their maintenance. Should these agreements not be extended upon expiry, the facilities for supplying the respective utility services must be taken over by the new concession holder upon payment of commensurate compensation.

44. Events after balance sheet date

MVV Trading acquired 100 % of the shares in the energy services provider EnDaNet GmbH, Erfurt, as of 1 October 2019. The acquisition of this company will enable MVV Trading GmbH to sustainably boost the growth trajectory in its energy services and municipal utility company business.

Mannheim, 12 November 2019

MVV Energie AG

Executive Board

Dr. Müller	Amann	Klöpfer	Dr. Roll

Responsibility Statement

"We affirm that, to the best of our knowledge, the consolidated financial statements give a true and fair view of the net asset, financial and earnings position of the Group in accordance with applicable accounting principles and that the group management report provides a fair view of the development and performance of the business and the position of the Group, together with a description of the principal opportunities and risks associated with the expected development of the Group."

Mannheim, 12 November 2019

MVV Energie AG

Executive Board

Dr. Müller Amann Klöpfer Dr. Roll

Directors and Officers

EXECUTIVE BOARD OF MVV ENERGIE AG

Dr. Georg Müller
CEO, Commercial Affairs
and Labour Director
(Labour Director until 31 July 2019)

Verena Amann
Personnel and Labour Director
(since 1 August 2019)

Ralf Klöpfer
Sales

Dr. Hansjörg Roll
Technology

SUPERVISORY BOARD OF MVV ENERGIE AG

Dr. Peter Kurz
(Chairman)
Lord High Mayor of City of Mannheim

Heike Kamradt [1]
(Deputy Chairman)
Chairman of Group Works Council

Johannes Böttcher [1]
Chairman of Works Council
of Energieversorgung Offenbach AG

Timo Carstensen [1]
Deputy Chairman of Works Council
of Stadtwerke Kiel AG

Ralf Eisenhauer
Construction and Project Manager at
MWS Projektentwicklungs-gesellschaft mbH, Mannheim

Peter Erni [1]
Trade Union Secretary at ver.di Rhine-Neckar

Detlef Falk [1]
Chairman of Works Council
of Stadtwerke Kiel AG

Gabriele Gröschl-Bahr [1]
Member of Federal Executive Board of ver.di
(since 1 October 2019)

Dieter Hassel
Member of Executive Board of RheinEnergie AG, Cologne

Barbara Hoffmann
Auditor, Tax Advisor

Prof. Dr. Heidrun Kämper
Academic Employee at Institut
für Deutsche Sprache, Mannheim

Brigitte Kemmer
Tax Advisor

Dr. Antje Mohr [1]
Trade Union Secretary at ver.di Kiel
(until 30 September 2019)

Dr. Lorenz Näger
Member of Executive Board of HeidelbergCement AG

Steffen Ratzel
Managing Director of BKV-Bäder- und Kurverwaltung
Baden-Württemberg, Anstalt des öffentlichen Rechts,
Baden-Baden

Peter Sattler [1]
Facility Management Officer at MVV Energie AG
(until 30 September 2019)

Bernhard Schumacher [1]
Head of Smart Cities Division at MVV Energie AG

Christian Specht
First Mayor of City of Mannheim

Katja Udluft [1]
Trade Union Secretary at ver.di Rhine-Neckar
(until 30 June 2019)

Prof. Heinz-Werner Ufer
Graduate in Economics

Susanne Wenz [1]
Deputy State Regional Director at
ver.di Baden-Württemberg
(since 11 July 2019)

Jürgen Wiesner [1]
Chairman of Works Council of MVV Energie AG

Positions held by Executive and Supervisory Board members on supervisory boards or comparable supervisory bodies are listed in detail on the following pages.

1 Employee representative

MEMBERS OF SUPERVISORY BOARD COMMITTEES AT MVV ENERGIE AG

Committee	Name
Audit Committee	• Prof. Heinz-Werner Ufer (Chairman) • Heike Kamradt (Deputy Chairman) • Peter Erni • Detlef Falk • Dr. Lorenz Näger • Steffen Ratzel (until 31 December 2018) • Christian Specht (since 1 January 2019)
Personnel Committee	• Dr. Peter Kurz (Chairman) • Heike Kamradt (Deputy Chairman) • Ralf Eisenhauer • Peter Erni • Steffen Ratzel • Jürgen Wiesner
Nomination Committee	• Dr. Peter Kurz (Chairman) • Ralf Eisenhauer • Barbara Hoffmann • Steffen Ratzel • Prof. Heinz-Werner Ufer
Mediation Committee	• Dr. Peter Kurz (Chairman) • Heike Kamradt • Steffen Ratzel • Jürgen Wiesner
New Authorised Capital Creation Committee	• Dr. Peter Kurz (Chairman) • Ralf Eisenhauer • Peter Erni • Dieter Hassel • Heike Kamradt • Steffen Ratzel • Christian Specht • Prof. Heinz-Werner Ufer

MEMBERS OF EXECUTIVE BOARD OF MVV ENERGIE AG

Name	Positions held on other statutory supervisory boards of German companies	Membership of comparable German and foreign company supervisory boards
Dr. Georg Müller	• Energieversorgung Offenbach AG, Offenbach (Chairman) • Grosskraftwerk Mannheim AG, Mannheim • Juwi AG, Wörrstadt (Chairman) • MVV Enamic GmbH, Mannheim (Deputy Chairman) • MVV Insurance Services GmbH, Mannheim (Chairman) • MVV Trading GmbH, Mannheim • MVV Umwelt GmbH, Mannheim • Saarschmiede GmbH, Völklingen • Stadtwerke Kiel AG, Kiel (Chairman)	
Verena Amann (since 1 August 2019)	• MVV Enamic GmbH, Mannheim (since 1 August 2019)	
Ralf Klöpfer	• Energieversorgung Offenbach AG, Offenbach • IDOS Software AG, Karlsruhe • Juwi AG, Wörrstadt • MVV Enamic GmbH, Mannheim (Chairman) • MVV Trading GmbH, Mannheim (Chairman) • Stadtwerke Ingolstadt Beteiligungen GmbH, Ingolstadt (Deputy Chairman) • Stadtwerke Kiel AG, Kiel	• BEEGY GmbH, Mannheim (Chairman) • MVV Energie CZ a.s., Prague, Czech Republic (Chairman) • Qivalo GmbH, Mannheim (Deputy Chairman) • Soluvia GmbH, Mannheim • Stadtmarketing Mannheim GmbH, Mannheim
Dr. Hansjörg Roll	• Energieversorgung Offenbach AG, Offenbach • Grosskraftwerk Mannheim AG, Mannheim (Chairman) • Juwi AG, Wörrstadt • MVV Netze GmbH, Mannheim (Chairman) • MVV Umwelt GmbH, Mannheim (Chairman) • Stadtwerke Kiel AG, Kiel	• MVV Energie CZ a.s., Prague, Czech Republic • Soluvia GmbH, Mannheim (Chairman)

MEMBERS OF SUPERVISORY BOARD OF MVV ENERGIE AG

Name Occupation	Positions held on other statutory supervisory boards of German companies	Membership of comparable German and foreign company supervisory boards
Dr. Peter Kurz (Chairman) Lord High Mayor of City of Mannheim	• Universitätsklinikum Mannheim GmbH, Mannheim (Chairman)	• GBG Mannheimer Wohnungsbau gesellschaft mbH, Mannheim (Chairman) • mg: mannheimer gründungszentren gmbh, Mannheim (Chairman) • MKB Mannheimer Kommunal-Beteiligungen GmbH, Mannheim (Chairman) • MWS Projektentwicklungsgesellschaft mbH, Mannheim (Chairman) • Popakademie Baden-Württemberg GmbH, Mannheim (until 31 January 2019) • Sparkasse Rhein Neckar Nord, Mannheim (Chairman) • Stadtmarketing Mannheim GmbH, Mannheim
Heike Kamradt (Deputy Chairman) Chairman of Group Works Council	• MVV Enamic GmbH, Mannheim • MVV Insurance Services GmbH, Mannheim • MVV Netze GmbH, Mannheim • MVV Trading GmbH, Mannheim • MVV Umwelt GmbH, Mannheim	• Soluvia Energy Services GmbH, Offenbach (since 3 July 2019)
Johannes Böttcher Chairman of Works Council of Energieversorgung Offenbach AG	• Energieversorgung Offenbach AG, Offenbach (Deputy Chairman)	
Timo Carstensen Deputy Chairman of Works Council of Stadtwerke Kiel AG	• Stadtwerke Kiel AG, Kiel	
Ralf Eisenhauer Construction and Project Manager at MWS Projektentwicklungsgesellschaft mbH, Mannheim	• Rhein-Neckar-Verkehr GmbH, Mannheim (since 23 July 2019)	• Sparkasse Rhein Neckar Nord, Mannheim • Stadtmarketing Mannheim GmbH, Mannheim (until 23 July 2019)
Peter Erni Trade Union Secretary at ver.di Rhein-Neckar		
Detlef Falk Chairman of Works Council of Stadtwerke Kiel AG	• Stadtwerke Kiel AG, Kiel	• Soluvia GmbH, Mannheim • Soluvia Energy Services GmbH, Offenbach (since 3 July 2019) • Soluvia IT-Services GmbH, Kiel (since 15 May 2019)

Name Occupation	Positions held on other statutory supervisory boards of German companies	Membership of comparable German and foreign company supervisory boards
Gabriele Gröschl-Bahr Member of Federal Executive Board of ver.di (since 1 October 2019)		• Supervisory Board of Federal and State Government Employees Retirement Fund (VBL), Karlsruhe (Chairman) • Board of Directors of Federal Employment Agency, Nuremberg
Dieter Hassel Member of Executive Board of RheinEnergie AG, Cologne	• BRUNATA-METRONA GmbH, Hürth • NetCologne Gesellschaft für Telekommunikation mbH, Cologne	• Agger Energie GmbH, Gummersbach • BELKAW GmbH, Bergisch Gladbach (Deputy Chairman) • Energieversorgung Leverkusen GmbH & Co. KG, Leverkusen • Gasversorgungsgesellschaft mbH, Rhein-Erft, Hürth • Rheinische NETZGesellschaft mbH, Cologne • Stadtwerke Leichlingen GmbH, Leichlingen (Deputy Chairman) • Stadtwerke Lohmar GmbH & Co. KG, Lohmar
Barbara Hoffmann Auditor, Tax Advisor		• Berliner Stadtreinigungsbetriebe, Anstalt des öffentlichen Rechts, Berlin
Prof. Dr. Heidrun Kämper Academic Employee at Insititut für Deutsche Sprache, Mannheim		• M:con – mannheim:congress GmbH, Mannheim (until 23 July 2019) • Stadt Mannheim Beteiligungs GmbH, Mannheim (until 23 July 2019) • MWS Projektentwicklungsgesellschaft mbH, Mannheim (until 23 July 2019)
Brigitte Kemmer Tax Advisor		
Dr. Antje Mohr Trade Union Secretary at ver.di Kiel (until 30 September 2019)	• Stadtwerke Kiel AG, Kiel	

Name **Occupation**	**Positions held on other statutory supervisory boards of German companies**	**Membership of comparable German and foreign company supervisory boards**
Dr. Lorenz Näger Member of Executive Board of Heidelberg Cement AG	• PHÖNIX Pharma SE, Mannheim	• Castle Cement Limited, Maidenhead, UK • Cimenteries CBR S.A., Brussels, Belgium • ENCI Holding N.V. ‚s-Hertogenbosch, Netherlands • Hanson Limited, Maidenhead, UK • Hanson Pioneer España, S.L.U., Madrid, Spain • HeidelbergCement Canada Holding Limited, Maidenhead, UK • HeidelbergCement Holding S.à.r.l., Luxembourg • HeidelbergCement UK Holding Lim-ited, Maidenhead, UK • HeidelbergCement UK Holding II Limited, Maidenhead, UK • Italcementi Fabbriche Riunite Cemento S.p.A., Bergamo, Italy • Lehigh B.V., 's-Hertogenbosch, Netherlands (Chairman) • Lehigh Hanson, Inc., Irving, TX, USA • Lehigh Hanson, Inc. Materials Limited, Calgary, Canada • Lehigh UK Limited, Maidenhead, UK • PHOENIX Pharmahandel GmbH & Co. KG, Mannheim, Germany • PT Indocement Tunggal Prakarsa Tbk., Jakarta, Indonesia
Steffen Ratzel Managing Director of BKV-Bäder- und Kurverwaltung Baden-Württemberg, Anstalt des öffentlichen Rechts, Baden-Baden		• Rhein-Neckar Flugplatz GmbH, Mannheim (until 23 July 2019) • Gemeinschaftskraftwerk Baden-Baden GmbH, Baden-Baden • Staatsbad Wildbad – Bäder- und Kur-betriebgesellschaft mbH, Bad Wildbad • Badenweiler Thermen und Touristi-kGmbH, Badenweiler
Peter Sattler Facility Management Officer at MVV Energie AG (until 30 September 2019)	• MVV Insurance Services GmbH, Mannheim (until 14 December 2018)	

Name Occupation	Positions held on other statutory supervisory boards of German companies	Membership of comparable German and foreign company supervisory boards
Bernhard Schumacher Head of Smart Cities Division at MVV Energie AG		• AVR Biogas GmbH, Sinsheim (Deputy Chairman) (until 30 June 2019) • Management Stadtwerke Buchen GmbH, Buchen (Deputy Chairman) • Stadtwerke Schwetzingen Verwaltung-sgesellschaft mbH, Schwetzingen • Stadtwerke Walldorf GmbH & Co. KG, Walldorf
Christian Specht First Mayor of City of Mannheim	• Universitätsklinikum Mannheim GmbH, Mannheim • Rhein-Neckar-Verkehr GmbH, Mannheim	• Verkehrsverbund Rhein-Neckar GmbH (VRN), Mannheim (Chairman) • MKB Mannheimer Kommunal-Beteiligungen GmbH, Mannheim (Chairman) (since 4 July 2019) • MV Verkehr GmbH, Mannheim (Chairman)
Katja Udluft Trade Union Secretary at ver.di Rhein-Neckar (until 30 June 2019)		
Prof. Heinz-Werner Ufer Graduate in Economics	• Amprion GmbH, Dortmund (Chairman)	
Susanne Wenz Deputy State Regional Director at ver.di Baden-Württemberg (since 11 July 2019)	• Bausparkasse Schwäbisch Hall AG, Schwäbisch Hall	• PSD Bank Karlsruhe-Neustadt eG, Karlsruhe
Jürgen Wiesner Chairman of Works Council of MVV Energie AG	• MVV Enamic GmbH, Mannheim • MVV Trading GmbH, Mannheim • MVV Umwelt GmbH, Mannheim	• Soluvia GmbH, Mannheim • Soluvia IT-Services GmbH, Kiel (since 15 May 2019)

Independent Auditor’s Report

To MVV Energie AG, Mannheim

REPORT ON THE AUDIT OF THE CONSOLIDATED FINANCIAL STATEMENTS AND OF THE GROUP MANAGEMENT REPORT

Audit opinions

We have audited the consolidated financial statements of MVV Energie AG, Mannheim, and its subsidiaries (the Group), which comprise the consolidated balance sheet at 30 September 2019, the consolidated income statement, statement of comprehensive income, consolidated statement of changes in equity and consolidated cash flow statement for the financial year from 1 October 2018 to 30 September 2019, and notes to the consolidated financial statements, including a summary of significant accounting policies. In addition, we have audited the group management report of MVV Energie AG, which is combined with the Company’s management report, for the financial year from 1 October 2018 to 30 September 2019. We have not audited the content of those parts of the group management report listed in the “Other information” section of our auditor’s report in accordance with German legal requirements.

In our opinion, on the basis of the knowledge obtained in the audit

- the accompanying consolidated statements comply, in all material respects, with the IFRSs as adopted by the EU and the additional requirements of German commercial law pursuant to § [Article] 315e Abs. [paragraph] 1 HGB [Handelsgesetzbuch: German Commercial Code] and, in compliance with these requirements, give a true and fair view of the assets, liabilities, and financial position of the Group at 30 September 2019, and of its financial performance for the financial year from 1 October 2018 to 30 September 2019, and
- the accompanying group management report as a whole provides an appropriate view of the Group’s position. In all material respects, this group management report is consistent with the consolidated financial statements, complies with German legal requirements and appropriately presents the opportunities and risks of future development. Our audit opinion on the group management report does not cover the content of those parts of the group management report listed in the “Other information” section of our auditor’s report.

Pursuant to § 322 Abs. 3 Satz [sentence] 1 HGB, we declare that our audit has not led to any reservations relating to the legal compliance of the consolidated financial statements and of the group management report.

Basis for the audit opinions

We conducted our audit of the consolidated financial statements and of the group management report in accordance with § 317 HGB and the EU Audit Regulation (No. 537/2014; referred to subsequently as “EU Audit Regulation”) and in compliance with German Generally Accepted Standards for Financial Statement Audits promulgated by the Institut der Wirtschaftsprüfer [Institute of Public Auditors in Germany] (IDW). Our responsibilities under those requirements and principles are further described in the “Auditor’s responsibilities for the audit of the consolidated financial statements and of the group management report” section of our auditor’s report. We are independent of the group entities in accordance with the requirements of European law and German commercial and professional law, and we have fulfilled our other German professional responsibilities in accordance with these requirements. In addition, in accordance with Article 10 (2) point (f) of the EU Audit Regulation, we declare that we have not provided non-audit services prohibited under Article 5 (1) of the EU Audit Regulation. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinions on the consolidated financial statements and on the group management report.

Key audit matters in the audit of the consolidated financial statements

Key audit matters are those matters that, in our professional judgment, were of most significance in our audit of the consolidated financial statements for the financial year from 1 October 2018 to 30 September 2019. These matters were addressed in the context of our audit of the consolidated financial statements as a whole, and in forming our audit opinion thereon; we do not provide a separate audit opinion on these matters.

In our view, the matters of most significance in our audit were as follows:

❶ **Recoverability of goodwill**
❷ **Accounting treatment of energy trading transactions**

Our presentation of these key audit matters has been structured in each case as follows:

① Matter and issue
② Audit approach and findings
③ Reference to further information

Hereinafter we present the key audit matters:

❶ **Recoverability of goodwill**

① Goodwill amounting in total to € 209 million is reported under the "Intangible assets" balance sheet item in the consolidated financial statements of MVV Energie AG. Goodwill is tested for impairment by the Company once a year or when there are indications of impairment to determine any possible need for write-downs. The impairment test is carried out at the level of the groups of cash-generating units to which the relevant goodwill is allocated. The carrying amount of the relevant cash-generating units, including goodwill, is compared with the corresponding recoverable amount in the context of the impairment test. The recoverable amount is generally determined using the value in use. The present value of the future cash flows from the respective group of cash-generating units normally serves as the basis of valuation. Present values are calculated using discounted cash flow models. For this purpose, the adopted medium-term business plan of the Group forms the starting point which is extrapolated based on assumptions about long-term rates of growth. Expectations relating to future market developments and assumptions about the development of macroeconomic factors are also taken into account. The discount rate used is the weighted average cost of capital for the respective group of cash-generating units. The impairment tests did not result in the identification of any impairment requirements.

The outcome of this valuation exercise is dependent to a large extent on the estimates made by the executive directors with respect to the future cash inflows from the respective group of cash-generating units, the discount rate used, the rate of growth and other assumptions, and is therefore subject to considerable uncertainty. Against this background and due to the complex nature of the valuation, this matter was of particular significance during our audit.

② As part of our audit, we assessed the methodology used for the purposes of performing the impairment test, among other things. After matching the future cash inflows used for the calculation against the adopted medium-term business plan of the Group, we assessed the appropriateness of the calculation, in particular by reconciling it with general and sector-specific market expectations. In addition, we assessed the appropriate consideration of the costs of Group functions. In the knowledge that even relatively small changes in the discount rate applied can have a material impact on the value of the entity calculated in this way, we also focused our testing on the parameters used to determine the discount rate applied, and assessed the calculation model. In order to reflect the uncertainty inherent in the projections, we evaluated the sensitivity analyses performed by the Company. Overall, the valuation parameters and assumptions used by the executive directors are in line with our expectations and are also within the ranges considered by us to be reasonable.

③ The Company's goodwill disclosures are contained in note "14 Intangible assets" of the notes to the consolidated financial statements.

❷ Accounting treatment of energy trading transactions
① Within the MVV Energie AG Group, the consolidated subsidiary MVV Trading GmbH has primary responsibility for the procurement of energy and emission rights and for hedging energy price risks for the Group companies MVV Energie AG, Stadtwerke Kiel AG, Energieversorgung Offenbach AG and Stadtwerke Ingolstadt GmbH. MVV Trading GmbH trades to a large extent on the spot and futures market for electricity, gas and emission rights on stock exchanges and on the over-the-counter market for these purposes. These contracts are classified as derivative financial instruments in accordance with IFRS 9, which are either accounted for at fair value through profit or loss (classified as financial assets or liabilities measured at fair value through profit or loss) or as pending transactions if the underlying for the derivative financial instruments will be received or delivered in future as part of the Company's own expected purchase, sale or usage requirements ("own use exception"). The accounting treatment for physically settled derivative financial instruments is determined with the aid of the risk management system of MVV Trading GmbH, which allocated these derivative financial instruments to their corresponding purpose and therefore to the appropriate accounting treatment from a Group perspective. Accordingly, physically settled derivative financial instruments that do not form part of the Group's own expected purchase, sale or usage requirements and all financially settled derivative financial instruments are measured at fair value through profit or loss. To some extent these derivative financial instruments for electricity, gas and emission rights are included as hedging instruments in the hedge accounting in accordance with IFRS 9 as so-called hedged cash flows. The underlying transactions are the purchase respectively the sale of electricity, gas and emission rights at variable prices within maximum four years.

The energy trading operations are supported by energy trading systems. These systems handle the process chain from the recording of trading transactions to the calculation and measurement of positions and the confirmation of trading transactions, as well as risk management. In view of the high volume of trading and the complexity of accounting for derivatives in accordance with IFRS 9 and IFRS 13, respectively, as well as its significant effects on the assets, liabilities, financial position and financial performance, this business area is of particular significance for the consolidated financial statements and the conduct of our audit.

② As part of our audit, among other things, we assessed the appropriateness of the internal control system established for the purpose of entering into and settling energy trading transactions, including the trading system used for this purpose. As part of our audit of the internal control system, we also evaluated the effectiveness of the controls established by the Company on a sample basis. We analysed the methodology for determining the fair values of the derivative instruments with respect to compliance with IFRS 13 and carried out an appraisal using our own valuations on a sample basis. With respect to the accounting treatment of the derivatives in accordance with IFRS 9, we evaluated the application of the own use exception for physically settled derivative financial instruments using the process implemented within the Group – from the submission of orders by the consolidated subsidiaries to MVV Trading GmbH to the processing of the data by MVV Trading GmbH – and satisfied ourselves that the own use exception is applied correctly on the basis of a random sample. We assessed the recognition of cash flow hedges and their accounting. Among other aspects, we evaluated the process used to assess the necessary effectiveness of the cash flow hedges and the correctness of the corresponding amounts recognised in equity as well as the reclassified amounts within the consolidated income statement. In our view, the accounting policies applied by the executive directors and the methodology for accounting for energy trading transactions are appropriate overall.

③ The Company's disclosures relating to energy trading and its effects on the consolidated financial statements are contained in section "35 Financial instruments" in the notes to the consolidated financial statements.

Other information
The executive directors are responsible for the other information. The other information comprises the following non-audited parts of the group management report:

- the statement on corporate governance pursuant to § 289f HGB and § 315d HGB included in the "Corporate Governance" section of the group management report
- the corporate governance report pursuant to No. 3.10 of the German Corporate Governance Code
- the non-financial declaration contained in the "Combined Non-Financial Declaration" section of the group management report pursuant to § 289b Abs. 1 HGB and § 315b Abs. 1 HGB

The other information comprises further the remaining parts of the annual report – excluding cross-references to external information – with the exception of the audited consolidated financial statements, the audited group management report and our auditor's report.

Our audit opinions on the consolidated financial statements and on the group management report do not cover the other information, and consequently we do not express an audit opinion or any other form of assurance conclusion thereon.

In connection with our audit, our responsibility is to read the other information and, in so doing, to consider whether the other information

- is materially inconsistent with the consolidated financial statements, with the group management report or our knowledge obtained in the audit, or

- otherwise appears to be materially misstated.

Responsibilities of the Executive Directors and the Supervisory Board for the consolidated financial statements and the group management report

The executive directors are responsible for the preparation of the consolidated financial statements that comply, in all material respects, with IFRSs as adopted by the EU and the additional requirements of German commercial law pursuant to § 315e Abs. 1 HGB and that the consolidated financial statements, in compliance with these requirements, give a true and fair view of the assets, liabilities, financial position, and financial performance of the Group. In addition the executive directors are responsible for such internal control as they have determined necessary to enable the preparation of consolidated financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the consolidated financial statements, the executive directors are responsible for assessing the Group's ability to continue as a going concern. They also have the responsibility for disclosing, as applicable, matters related to going concern. In addition, they are responsible for financial reporting based on the going concern basis of accounting unless there is an intention to liquidate the Group or to cease operations, or there is no realistic alternative but to do so.

Furthermore, the executive directors are responsible for the preparation of the group management report that, as a whole, provides an appropriate view of the Group's position and is, in all material respects, consistent with the consolidated financial statements, complies with German legal requirements, and appropriately presents the opportunities and risks of future development. In addition, the executive directors are responsible for such arrangements and measures (systems) as they have considered necessary to enable the preparation of a group management report that is in accordance with the applicable German legal requirements, and to be able to provide sufficient appropriate evidence for the assertions in the group management report.

The supervisory board is responsible for overseeing the Group's financial reporting process for the preparation of the consolidated financial statements and of the group management report.

Auditor's responsibilities for the audit of the consolidated financial statements and of the group management report

Our objectives are to obtain reasonable assurance about whether the consolidated financial statements as a whole are free from material misstatement, whether due to fraud or error, and whether the group management report as a whole provides an appropriate view of the Group's position and, in all material respects, is consistent with the consolidated financial statements and the knowledge obtained in the audit, complies with German legal requirements and appropriately presents the opportunities and risks of future development, as well as to issue an auditor's report that includes our audit opinions on the consolidated financial statements and on the group management report.

Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with § 317 HGB and the EU Audit Regulation and in compliance with German Generally Accepted Standards for Financial Statement Audits promulgated by the Institut der Wirtschaftsprüfer (IDW) will always detect a material misstatement. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these consolidated financial statements and this group management report.

We exercise professional judgment and maintain professional skepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the consolidated financial statements and of the group management report, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our audit opinions. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.

- Obtain an understanding of internal control relevant to the audit of the consolidated financial statements and of arrangements and measures (systems) relevant to the audit of the group management report in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an audit opinion on the effectiveness of these systems.

- Evaluate the appropriateness of accounting policies used by the executive directors and the reasonableness of estimates made by the executive directors and related disclosures.

- Conclude on the appropriateness of the executive directors' use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Group's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in the auditor's report to the related disclosures in the consolidated financial statements and in the group management report or, if such disclosures are inadequate, to modify our respective audit opinions. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Group to cease to be able to continue as a going concern.

- Evaluate the overall presentation, structure and content of the consolidated financial statements, including the disclosures, and whether the consolidated financial statements present the underlying transactions and events in a manner that the consolidated financial statements give a true and fair view of the assets, liabilities, financial position and financial performance of the Group in compliance with the IFRSs as adopted by the EU and the additional requirements of German commercial law pursuant to § 315e Abs. 1 HGB.

- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Group to express audit opinions on the consolidated financial statements and on the group management report. We are responsible for the direction, supervision and performance of the group audit. We remain solely responsible for our audit opinions.

- Evaluate the consistency of the group management report with the consolidated financial statements, its conformity with German law, and the view of the Group's position it provides.

- Perform audit procedures on the prospective information presented by the executive directors in the group management report. On the basis of sufficient appropriate audit evidence we evaluate, in particular, the significant assumptions used by the executive directors as a basis for the prospective information, and evaluate the proper derivation of the prospective information from these assumptions. We do not express a separate audit opinion on the prospective information and on the assumptions used as a basis. There is a substantial unavoidable risk that future events will differ materially from the prospective information.

We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

We also provide those charged with governance with a statement that we have complied with the relevant independence requirements, and communicate with them all relationships and other matters that may reasonably be thought to bear on our independence, and where applicable, the related safeguards.

From the matters communicated with those charged with governance, we determine those matters that were of most significance in the audit of the consolidated financial statements of the current period and are therefore the key audit matters. We describe these matters in our auditor's report unless law or regulation precludes public disclosure about the matter.

OTHER LEGAL AND REGULATORY REQUIREMENTS

Further information pursuant to Article 10 of the EU Audit Regulation

We were elected as group auditor by the annual general meeting on 8 March 2019. We were engaged by the supervisory board on 27 September 2019. We have been the group auditor of MVV Energie AG, Mannheim, without interruption since the financial year 2008/09.

We declare that the audit opinions expressed in this auditor's report are consistent with the additional report to the audit committee pursuant to Article 11 of the EU Audit Regulation (long-form audit report).

GERMAN PUBLIC AUDITOR RESPONSIBLE FOR THE ENGAGEMENT

The German Public Auditor responsible for the engagement is Andrea Ehrenmann.

Essen, 12 November 2019

PricewaterhouseCoopers GmbH

Wirtschaftsprüfungsgesellschaft

Ralph Welter	Andrea Ehrenmann
Wirtschaftsprüfer (German Public Auditor)	Wirtschaftsprüferin (German Public Auditor)