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Empirical Analysis of the Market for Energy Services, Energy Audits and other Energy Efficiency Measures

Summary of the 2023 Final Report – BfEE 20/04

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The Federal Energy Efficiency Center
Bundesstelle für Energieeffizienz (BfEE)
at the Federal Office for Economic Affairs and Export Control
(Bundesamt für Wirtschaft und Ausfuhrkontrolle, BAFA)

Frankfurter Straße 29-35
65760 Eschborn
Germany

http://www.bfee-online.de

Contact – BfEE:
Anja Happ, Louisa Döpking

Prognos AG
Dominik Rau (Project Management)
Friedrich Seefeldt
Malek Sahnoun
Nora Langreder
Paurnima Kulkarni
Mohammad Alkasabreh

ifeu
Dominik Jessing

Verian Deutschland
Arthur Guzy

Prognos AG

Headquarters
St. Alban-Vorstadt 24
4052 Basel
Switzerland

Other locations (selection)
Goethestr. 85
10623 Berlin
Germany

Werdener Str. 4
Düsseldorf
Germany

www.prognos.com

Commercial Register Number:
Berlin HRB 87447 B

ifeu – Institut für Energie- und Umweltforschung Heidelberg GmbH

Wilckensstraße 3
69120 Heidelberg
Germany

www.ifeu.de

Verian Deutschland
Mantle Germany GmbH

Landsberger Straße 284
80687 Munich
Germany

http://www.veriangroup.com/de

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1 Background and goals

To meet Germany's climate goals and achieve the *Energiewende* (energy transition), many different elements have to come together. Energy efficiency is a key element in this regard. The use of energy services (ES) and consideration of the energy services market (ES market) are essential to achieving energy efficiency goals. The market is subject to continuous changes – with new products, and the integration and separation of different business models – and hence covers a wide and heterogeneous range of services and products. According to Section 9(2)(5) of the Energy Services Act [*Energiedienstleistungsgesetz*, EDL-G], the Federal Energy Efficiency Center (Bundesstelle für Energieeffizienz, BfEE) is responsible for monitoring the market for ES, energy audits and other energy efficiency measures, as well as for developing proposals for the advancement of the market.

The BfEE has studied the market for ES annually since 2016. This study is the eighth of its kind. As shown in previous studies, the market under review is firmly established in Germany, and generates high sales. The services offered are diverse, and only some can be narrowly defined. Again this year, the focus was primarily on the product segments of energy consulting (EB), energy contracting (EC) and energy management (EnM). As in previous years, not only market participants from the supply side, but also demand-side companies and private households, and public sector stakeholders were interviewed for this study.

The figures in the marketing year 2022 (survey of 2023, this current report) present a mixed picture. While the market volume for EB continues to grow strongly and that for EnM is returning to higher levels after a sharp decline in the previous year, the market volume for EC is stagnating at an almost stable level. Nevertheless, the qualitative analysis continues to indicate a high level of satisfaction and growing interest.

2 Survey design

To monitor and assess the market for ES in Germany, an indicator-based survey design was created. In this context, information was obtained annually regarding the following overarching issues:

- Standardised key market indicators for all relevant products, enabling the analysis of the market's development over time (market monitoring);
- Supply-side and demand-side motivations, barriers and information channels, as well as expectations regarding the development of the market.

To capture the indicators described above and create a detailed overview of the market, a variety of methods were used. These included:

- Literature and document analysis;
- The collection of empirical data via standardised surveys by means of telephone interviews and an online questionnaire; and
- In previous years, the collection of qualitative information by means of structured interviews with experts.

The survey methodology and the questionnaire were continuously developed and refined. The changes reflected findings from previous studies and the involvement of interested experts. However, they were also limited to what was necessary in order to allow the creation of time series over multiple survey years.

A total of five standardised surveys were conducted. Surveys on the provider side were conducted online and by telephone. The online survey of providers was sent via a distribution list to around 12,000 relevant addresses. A selection of 266 companies on the provider side were interviewed by telephone, and 2,389 participated in the online survey of providers (see Table 1). On the demand side, Verian surveyed 2,750 companies, 2,529 private households and 493 public sector institutions by telephone.

Table 1: Number of standardised surveys conducted in 2023

	Sample	Short name
Supply side		Providers
By telephone	266	
Online (usable responses)	2,389	
Demand side		
Companies	2,750	Companies
Private households (with/without home ownership)	2,529	Households
Public sector	493	Public sector

With the exception of the public sector, all datasets were given a weighting variable to compensate for potential sample bias and to increase the representativeness of the results. Weighting is based on relevant variables that take into account aspects such as socio-economic criteria in the case of private households or company size in the case of companies. Quantitative analyses (e.g. market volume) were not weighted; qualitative analyses were weighted.

3 Results

The German ES market, with its three large segments, generated total annual revenues of €10 billion to €12 billion in 2022. Although there is a great range of fluctuation due to the methodology, overall the market is seen to be growing strongly. The largest absolute increases occurred in the area of EB, where revenue grew from around €893 million to around €1,038 million, representing a growth rate of around 16%.

Table 2 shows the market volume for the ES market and the three market segments for the past seven surveys. In this instance, it is important to consider that the survey always records the revenue from the previous year, i.e. the revenue generated in 2022 was surveyed for this 2023 market analysis. The methodological developments are explained in greater detail in the following sections. Detailed market figures and calculations are also presented for the individual market segments in the following sections.

Table 2: Overview of market volume

	2015	2016	2017	2018	2019	2020	2021	2022
EB (in € m)	Approx. 470–520	Approx. 790–850	Approx. 370–402	Approx. 360–403	Approx. 416	Approx. 654	Approx. 893	Approx. 1,038
EC (in € bn)	Approx. 7.2–8.4	Approx. 7.7	Approx. 7.2–8.6	Approx. 6.7–9.7	Approx. 7.4–9.0	Approx. 8.8–10.9	Approx. 9.5–10.6	Approx. 9.6–10.3
EnM (in € m)	–	Approx. 107	Approx. 110	Approx. 99	Approx. 88	Approx. 96	Approx. 76	Approx. 82
Total ES market (in € bn)	**7.9 – 9.1**	**8.9 – 9.0**	**8.0 – 9.5**	**7.2 – 10.2**	**7.9 – 9.5**	**Approx. 9.6–11.7**	**Approx. 11.4–12.5**	**Approx. 10.7–11.4**

3.1 Energy consulting

3.1.1 Market volume and development

The market volume for EB was mainly calculated based on three variables: for each type of consulting, the average number of cases per full-time equivalent was calculated and then multiplied by the estimated number of energy consultants who offer each service in Germany. The number of energy consultations conducted for each type of consulting was finally offset against the average price of such services.

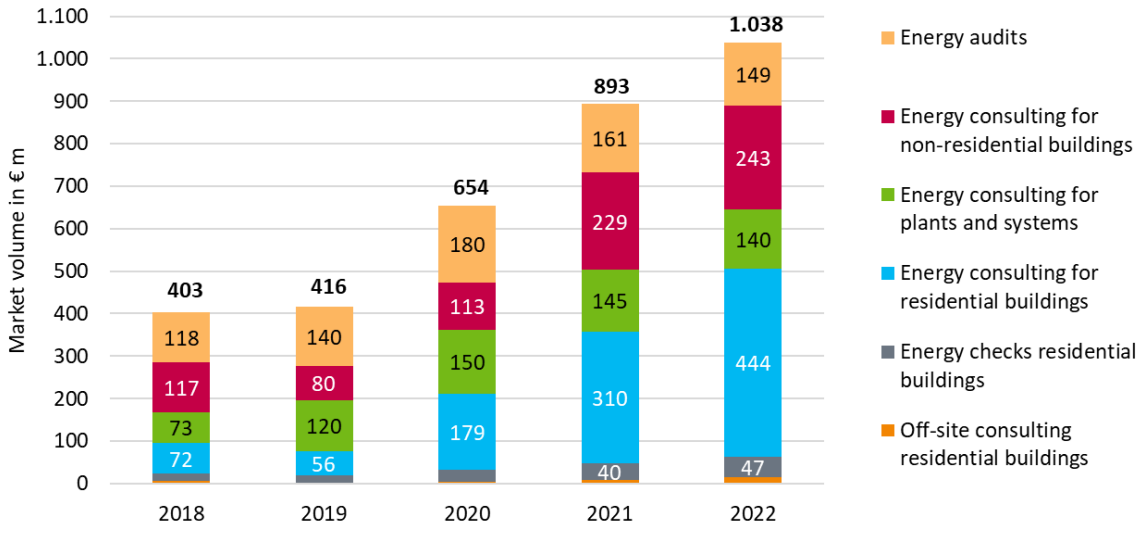
The basic methodology for determining the current market volume has not changed. However, there was a significant change in methodology in 2019. As a result, the market volume before 2019 can only be compared to a limited extent with the market volume from 2019 onwards in the time series analysis.

Table 3 provides an overview of the proportions of each type of consulting. As in previous years, EB for companies and the public sector dominated in terms of revenue. These included energy audits, consulting for non-residential buildings (NRB) and for plants and systems, and to a certain extent EB for residential buildings (RB). The latter now constitute the strongest single sector in terms of revenue.

Table 3: Extrapolated minimum market volume for energy consulting in Germany

Type of consulting	Revenue in € m (generated by 12,500 "active" energy consultants)
Energy audits according to DIN 16247-1	149
Energy consulting for NRB	243
Energy consulting for plants and systems	140
Energy consulting for RB	444
Energy checks	47
Off-site consulting	15
Total	**€1,038 m**

The minimum market volume grew strongly again compared to the previous year, exceeding €1 billion for the first time since the market study began (see **Fehler! Verweisquelle konnte nicht gefunden werden.**). This equates to an increase of 16%. Breaking down revenue into the different types of consulting, the market was dominated by consulting for companies. The importance of consulting for private individuals and RB continued to grow significantly. The market volume for more extensive on-site consultations for RB grew by 43% and nearly doubled for off-site consulting.



EES survey 2019 to 2023. market volume of energy consulting based on provider data

Figure 1: Market volume, based on the survey of providers, in million euros

Table 4 shows the average selling prices, the time energy consultants spent working on the task in hours, and the resulting hourly rates, broken down by type of consulting. The more complex and extensive types of consulting for companies fetched higher selling prices and took longer to complete. As a result, there was comparatively little variation in hourly rates between the different types of consulting. Consulting for plants and systems yielded the highest hourly rates. In contrast, off-site EB for RB generally indicated that aspects such as customer loyalty or the possibility of follow-up orders took precedence over the cost-effectiveness of the individual service.

Table 4: The selling price, effort and hourly rate prevailing in the different type of consulting

Type of consulting (averages in each case)	Selling price in €	No. of hours spent on task	Hourly rate in €	EB offered free of charge
Energy audits according to DIN 16247-1	10,350	78.2	132	0.0%
Energy consulting for NRB	6,450	47.5	136	0.1%
Energy consulting for plants and systems (voluntary energy audit DIN EN 16247)	7,480	54.4	138	1.0%
Energy consulting for RB	1,830	15.2	120	0.7%
Energy checks	300	3.0	101	4.7%
Off-site consulting	140	2.9	49	7.6%

Energy consultants were positive in their assessment of the market development in the coming years (see Figure 2). The mood was less euphoric than in the previous year.

The EB market for private households was considered to have the best chances of development. 85% of those surveyed anticipated a growing market, with 65% of respondents categorising it as a strongly or very strongly growing market. In the previous year, however, almost 80% expected strong or very strong growth. The market outlook for EB for companies and the public sector was considered to be similarly good.

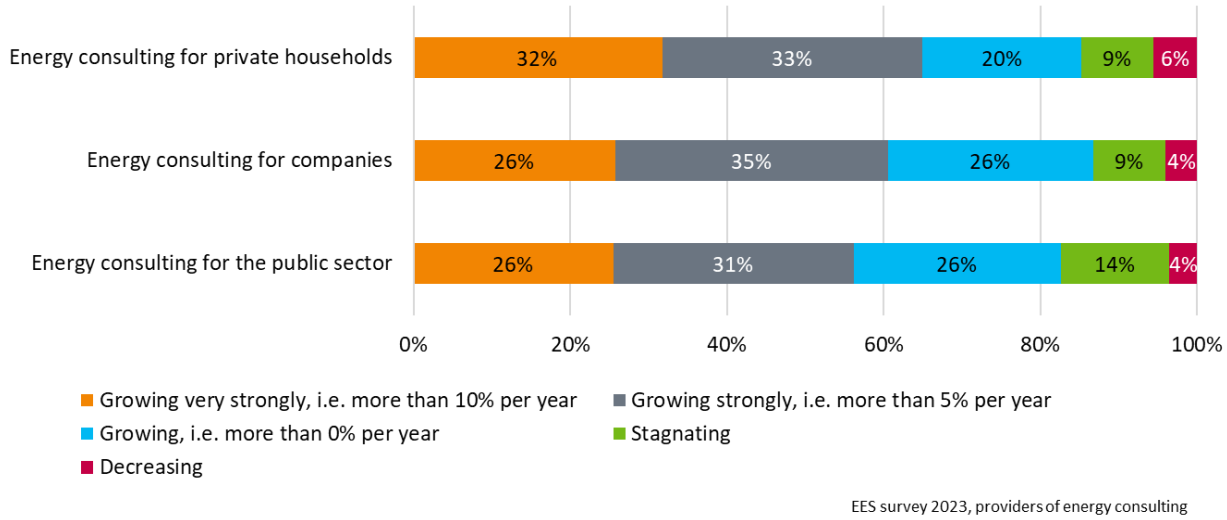


Figure 2: Providers: assessment of market development for EB

3.1.2 The supply side

The exact number of energy consultants operating in Germany is not known and cannot be reliably determined. This is the result of the unclear distinction between responsibilities due to the lack of nationally agreed definitions for energy consultants. The supply-side figures in this study are based on the statements of a sample generated from a pool of 12,507 individuals in Germany who are known either because they are registered as an energy auditor and/or because they applied to a federally funded consulting programme within the last five years. The study therefore considers a clearly defined section of a total market for EB that is anything but clearly definable. For example, these figures capture only a portion of consulting services provided by chimney sweeps, heating engineers, environmental consultants, municipalities, municipal utilities and sales specialists.

The energy consultants surveyed in this study often offer several types of EB. Based on the total number and factoring in the product ranges respondents gave in the survey results, for the defined consulting products Germany had at its disposal around 3,100 consultants that offered energy audits (2021: 2,700), around 5,400 providing EB for NRB (2021: 4,000), some 3,100 for plants and systems (2021: 2,600), and almost 9,900 offering consulting for RB (2021: 7,300). The availability of all types of EB therefore rose significantly compared to the previous year. The increase was particularly pronounced in EB for NRB and RB.

Types of companies

The energy consultants interviewed in the context of this study generally assigned their companies to one of two categories. Architecture, civil engineering and other engineering companies on the one hand, and dedicated EB firms on the other, accounted for two-thirds of all companies (see Figure 3). This concentration was found to be at a similar level in the previous years' surveys and even increased slightly from the previous year. In contrast, the proportion of craft enterprises fell slightly from 13% to 9%. Due to the overall increase in the number of players, however, the absolute operating figures in the survey barely declined. Power companies and municipal utilities accounted for 7% of the sample.

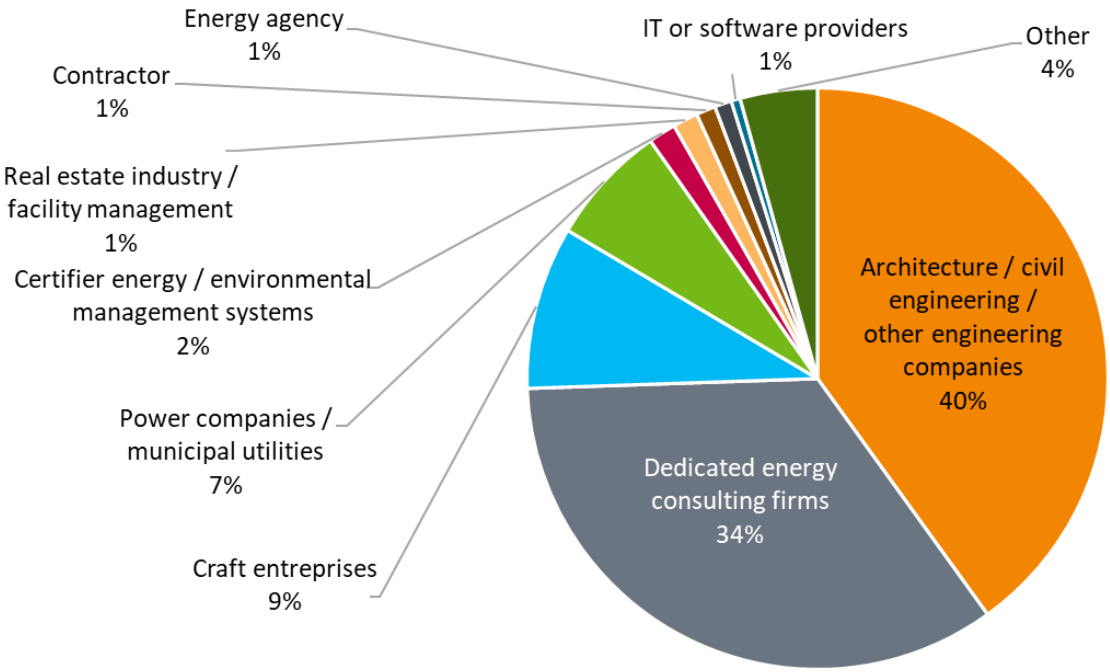


Figure 3: Providers: sector structure for EB

The development of the average revenue shares for EB, energy reports and energy audits also indicates a tendency for greater specialisation and professionalism in the sector. The revenue share rose slightly to 38% compared to the previous year (2021: 36.5%), increasing for the fifth year in a row.

Types of consulting offered

EB for RB was the most common type of EB, as shown in Figure 4. Around 79% of those surveyed offered this type of consulting, a further increase compared to previous years (2021: 76%). The share of respondents that offered EB for NRB also increased slightly compared to the previous year (2021: 42%). In contrast, the proportion of providers for plants and systems and for energy audits fell slightly. Due to the overall higher number of "active" energy consultants, however, there was also generally a wider range of services available for more complex business consultations and audits.

This confirms a trend in recent years towards an expansion of the offer of more extensive consulting for RB, without significantly limiting other forms of consulting in the range of services offered.

In terms of significance to total revenues, more extensive consulting for RB is now the most important single sector. EB for private households caught up with consulting for companies in terms of revenue in 2022, although the latter still generated significantly higher selling prices and slightly higher hourly rates.

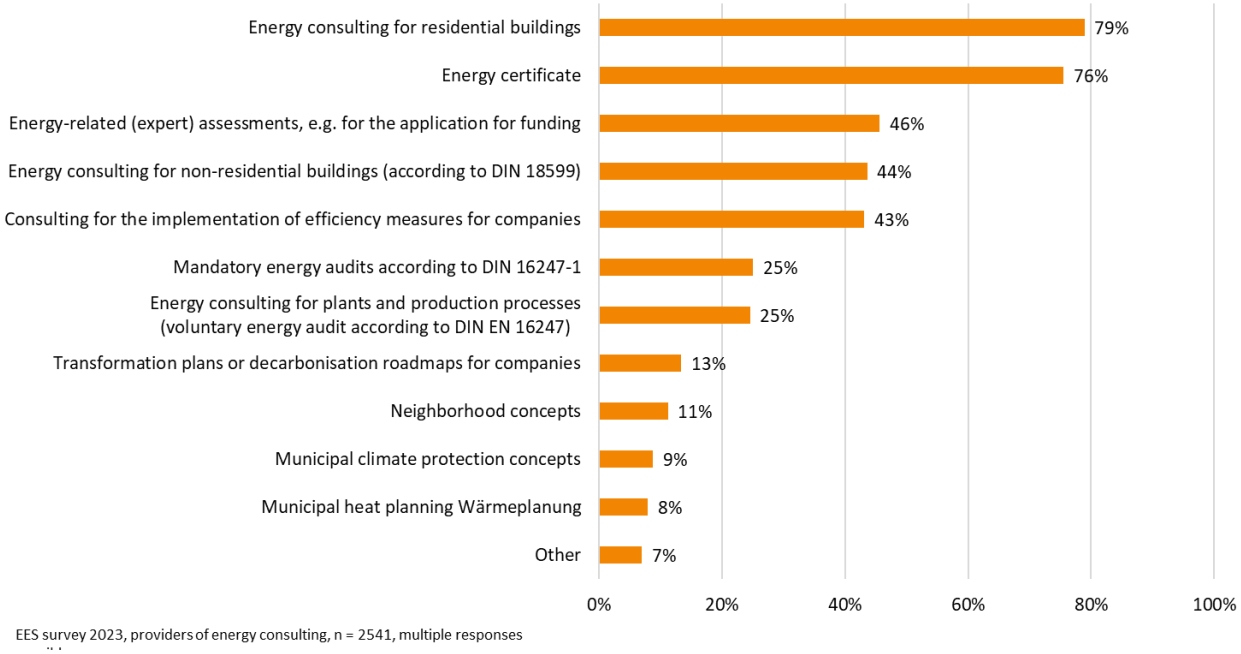


Figure 4: Providers: types of EB offered

3.1.3 The demand side

Target segments

From the perspective of energy-consulting providers, private households were the most important customer group in the market, followed by the real estate industry, which respondents named most frequently as the second most important customer group. Besides those two segments, there was a whole range of other customer groups that were particularly important for specialised companies, as well as for the market as a whole. These included, above all, industry; commerce, trade and services (CTS); and the public sector. In recent years, the relevance of private households as the most important customer group increased further for most respondents. This finding is consistent with its increasing share of the market volume for EB.

The areas of demand are considered separately below. For this purpose, the respective survey data of the target groups – households (owners and tenants), companies and the public sector – are used.

Households

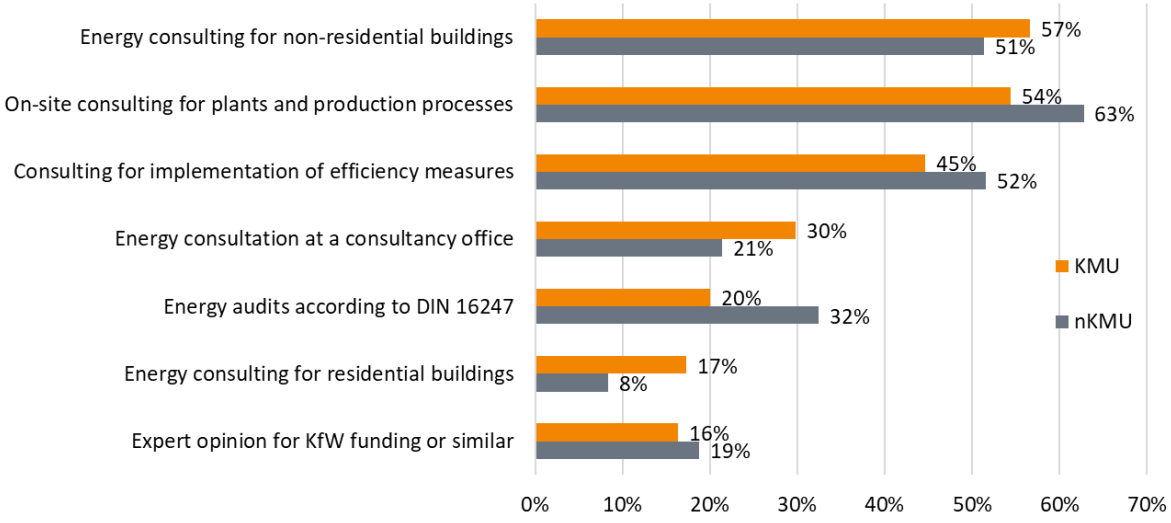
The issue of energy efficiency is generally very important to households. Since the start of the time series measurement, this issue has stood at more or less 7.5 on a scale of 1 (no significance) to 10 (great significance). In 2022, the issue increased in importance slightly to 7.9 among owner-occupied households and to as much as 8.2 among tenant households. In each case, these were the highest values measured since market monitoring began. In 2023, the significance value for both owner-occupied households and tenant households was 7.4, reflecting a decline in the importance of energy efficiency as an issue. Political and economic developments, such as Russia's attack on Ukraine and the resulting movement in energy prices, as well as the threat of a gas shortage, are likely to have been behind the initial rise and the current decline. Now that energy prices have stabilised and winter supplies are considered secure, other issues such as inflation and economic developments are becoming more prominent. However, current importance ratings remain very close to long-term averages. It is therefore wrong to speak of a loss of importance.

Among the owner-occupied households and tenant households surveyed, 24% and 17%, respectively, made use of EB in the last five years. For a further 8% and 6%, respectively, consulting was provided more than five years ago. This meant that two-thirds of owner-occupied households and no less than over three-quarters of tenant households had never used the EB services currently on offer.

Satisfaction with the EB services used was very high among both tenant and owner-occupied households, with 91% and 90% of the responses being “yes” or “generally yes”, respectively. There were very few dissatisfied customers. Compared to the previous year, fewer tenant and owner-occupied households voiced dissatisfaction (down 4%).

Companies

The entire range of services was requested by companies, as Figure 6 shows. The most frequently used types of consulting were EB for NRB, for plants and systems, and on the implementation of energy efficiency measures. Differences in use between small and medium-sized enterprises and large enterprises were mainly due to legal requirements for energy audits (mandatory for non-small and medium-sized enterprises, non-SMEs, subsidised for small and medium-sized enterprises, SMEs) and for inspections for air conditioning systems. There were changes in the frequency of use of individual types of consulting by larger enterprises compared with the previous year. For example, the use of EB for NRB and RB decreased by 9%. At the same time, the use of EB for plants and systems increased by 12%, while the use of EB to implement efficiency measures rose by 6%. In the case of SMEs, there was little change from the previous year.



EES survey 2023, companies, filter: if energy consulting was used, multiple answers possible, n = 1.001

Figure 5: Companies: types of consultancy procured

When EB was commissioned, the main reason mentioned was the need for investment planning support. Other important reasons included the wish to better control energy costs or to obtain information on the company’s technical status. The corporate strategy for environmental and climate protection and, especially for larger enterprises, the use of EB as a basis for obtaining funding were also frequently mentioned as reasons. In these cases, however, the proportion of mentions by large enterprises decreased by 7% and 8%, respectively, compared to the previous year, while mentions by SMEs remained constant.

Satisfaction with the EB services and energy audits procured continued to be high in 2023 among the companies surveyed. It is striking that large enterprises were clearly more satisfied than SMEs, with 8% and 11% stating that they were “rather dissatisfied” or “not at all satisfied”, respectively. This difference was particularly evident in the

case of energy audits (a total of 20% (rather) dissatisfied SMEs). Compared to the previous year, however, the difference was smaller because SMEs were more frequently satisfied, while large enterprises were more frequently dissatisfied. The situation is similar with regard to how the reasonableness of consulting costs was assessed. SMEs expressed similar or slightly more positive opinions compared to the previous year, while non-SMEs were significantly more likely to find the costs unreasonable than in 2022. The difference between company sizes was therefore smaller, although the overall acceptance of costs decreased slightly.

On the whole, the use of EB services by companies did not change significantly compared to the previous year. Consequently, the increase in market volume cannot be fully explained by corporate demand. Households evidently played a much more dominant role.

Nevertheless, EB services for companies have a clear growth potential. Two-thirds of the companies surveyed made no use of external EB services in recent years. At the same time, satisfaction with such services was usually high in cases where they were procured. Unlike households, some companies indeed have enough of their own expertise to generally avoid having to rely on external providers. This statement is true for at least half of the companies that made no use of external ES. Conversely, high energy costs and ever greater demands with regard to achieving climate goals are reasons that may trigger further growth in EB.

Public sector

More than two-thirds of the authorities surveyed had made use of external EB and planning services in the previous five years (municipalities: 68%, federal state authorities: 70%). External support was often sought when it came to technical planning for extensive building refurbishment projects. There was also frequent demand for EB for NRB, consulting and planning services for property energy concepts, and expert certification. In addition, more than half of the municipalities surveyed procured external support to develop their heating plans. Compared to the previous year, the largest increase was 57% (2022: 22%). Overall, the procurement of external services by municipalities increased steadily, while that by federal state authorities remained stable or decreased.

The main reasons given for using such services were to ease the burden on internal staff and to benefit from the particular expertise offered by the service providers. Municipalities also found it particularly important to use the external service as a basis for claiming funding. The federal state authorities surveyed referred in particular to the function of easing the burden on their staff.

3.1.4 Interim conclusions

The EB market continued to grow strongly for the fourth year in a row, increasing its market volume by 16% to more than €1 billion for the first time. However, the pace of growth slowed somewhat compared to previous years. This growth was driven by an increase in the number of “active” energy consultants and higher prices for all types of consulting. The main driver was more extensive EB for RB, while other areas tended to stagnate. An easing of material and staff shortages in the previous year also contributed to growth. Accordingly, there was no evidence of a systematic lack of qualified energy consultants in the marketing year 2022. As in previous years, satisfaction with the EB services procured remained high.

The majority of providers expected further growth in 2023. The market outlook remained very positive, although not quite as euphoric as in the previous year. However, a look at the provisional funding data for 2023 showed that the number of applications for important programmes such as EB for RB remains high, but is no longer growing. In the light of the above, a market volume above the €1 billion mark appears realistic for 2023. However, the strong growth of previous years is not expected to continue.

3.2 Energy contracting

3.2.1 Market volume and development

Market volume

By estimating the total number of providers and their average revenue from contracting per year, it is possible to roughly estimate market volume. In particular, (very) large enterprises can have a major impact on market volume. As only a random sample of the population is surveyed each year, the number of respondents in the highest revenue segment and their responses fluctuate greatly and can distort the result, even with statistical adjustment. Given this heterogeneity of the market, the projections are highly uncertain and provide only a rough estimate of the market size.

This study used the following method to determine market volume: First, a web crawler and association data were used to identify dedicated contracting providers. This was followed by obtaining company-specific figures for the sector, including revenue and employee numbers, from the Orbis and Dafne company databases. These figures were offset against the results of the ES survey to determine contracting revenues and the number of persons employed in the contracting market segment. The providers were assigned to sectors according to the Nomenclature of Economic Activities (NACE codes). Companies that generated most of their turnover from contracting were assigned manually to the "contractor" sector. This makes it a conservative approach.

A total of around 400 EC providers were identified. In 2022, these companies generated a total revenue of around €284 billion, with revenue from contracting accounting for some €9.9 billion. Compared to previous years, and for the first time since the first survey in 2016, a slight decrease in market volume was observed for 2022. In contrast, the total revenues of companies, especially power companies, increased significantly compared to the previous year (see Figure 6). To reflect the uncertainties in market volume and the influence of a few large players on revenue, a lower and an upper estimate were calculated for market volume. Consequently, market volume was between €9.6 billion and €10.3 billion. The lower estimate was considered to be more reliable.

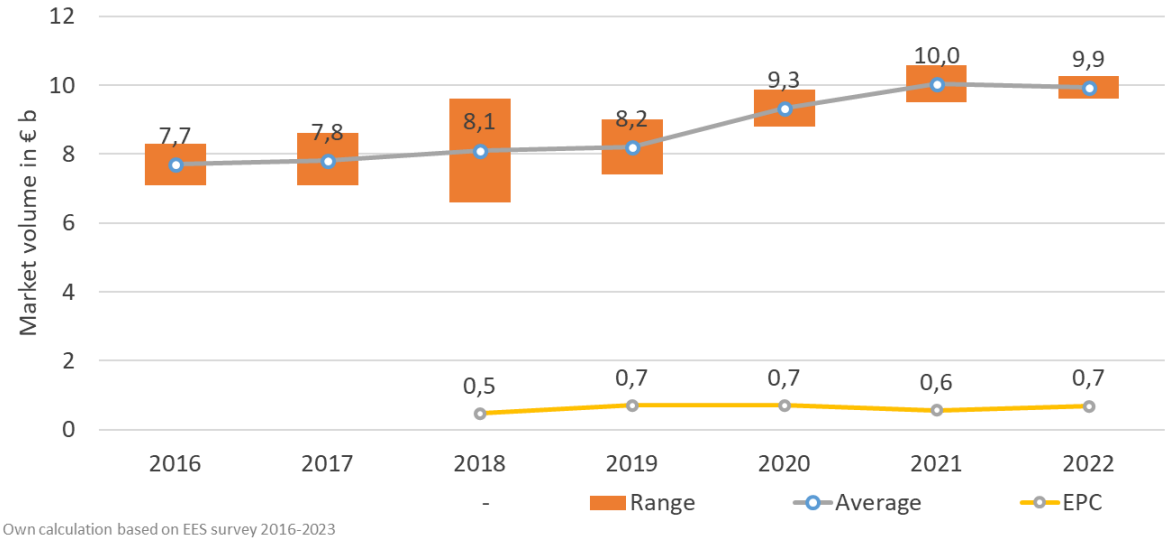


Figure 6: Development of the market volume of energy contracting over time

As a result of the web analysis and interviews, around 20 companies were identified that (also) offer energy performance contracting (EPC). The revenue share for EPC averages 9%, which is significantly lower than for energy supply contracting (ESC). In 2022, around €580 million of the total contracting revenue was generated in

the area of EPC, representing around 7% of the market volume. Revenues in the EPC segment increased slightly compared to the previous year (2021: €560 million).

ESC projects therefore account for the majority of the contracting market. In these projects, around half of the revenue generated is attributable to energy procurement. For methodological reasons, it is not possible to disclose the turnover attributable to service components alone.

The future development of the contracting market appeared positive according to players in the industry, as shown in Figure 7. Not only EPC and ESC, but also management contracting were considered by most contracting providers (around 75% to 85%) to be growing to (very) strongly growing. Just under 25% of providers expected the market to stagnate. The situation was assessed even more positively for ESC than for the other areas. Less than 9% of the market players expected a decline in EC, depending on the service. This outlook was less positive than it was in the previous year.

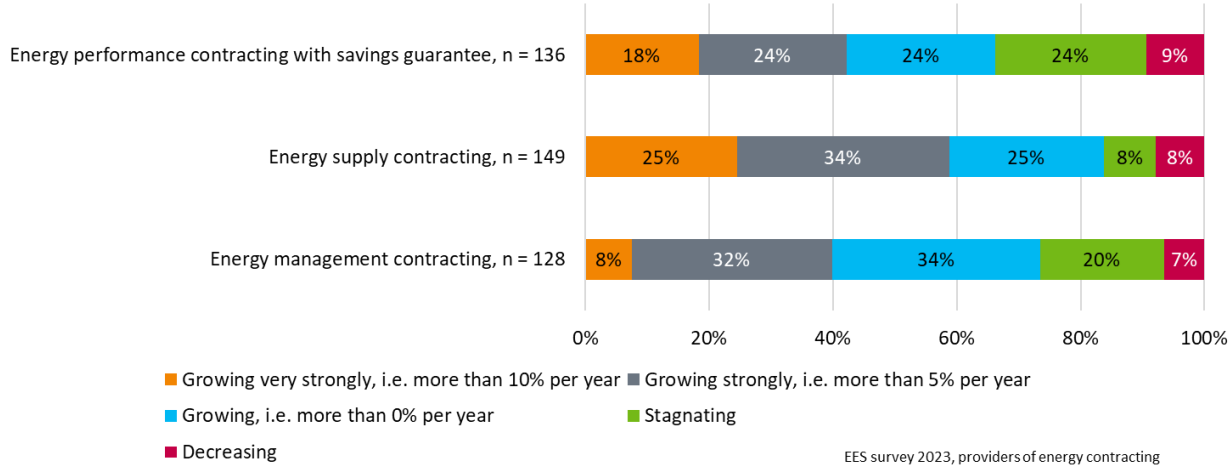
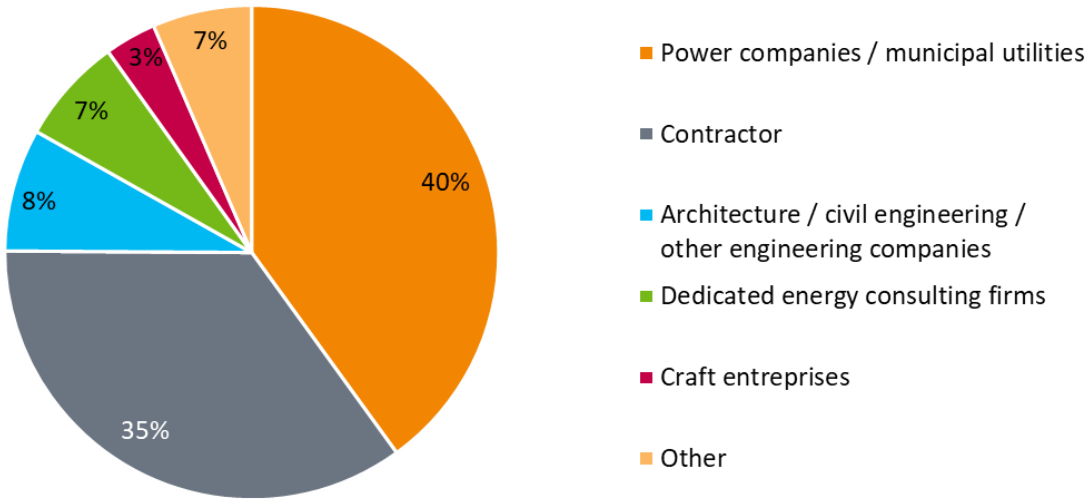


Figure 7: Assessment by providers of the future market development of EC

3.2.2 The supply side

Sector structure

Contracting was mainly offered by power companies (municipal utilities and other energy suppliers, 40% of providers) and companies that described themselves as “contractors” (35%) (see Figure 8). Architecture firms and energy consulting firms were another relevant group of providers, together accounting for 15%. Craft enterprises accounted for around 3% of the energy contracting providers. There was also a group of other providers (7%), comprising companies with a wide variety of key activities. These include energy agencies, IT or software providers, and manufacturers or suppliers of technical equipment.



EES survey 2023, providers of energy contracting , n= 154

Figure 8: Sectoral distribution of energy contracting providers

Number and type of contracting contracts

A wide range of responses were given regarding the number of ongoing contracting contracts (see Figure 9). A small number of highly active market participants cover the majority of the contracting market, whereas there were many small providers with correspondingly low sales figures. In the area of ESC, the average number of ongoing contracts was around 99 per provider, which was lower than in the previous years (2021: 277). The largest 15 providers held almost 80% of the market. In 2022, the five largest providers held more than 40% of these contracts. In the areas of EPC and management contracting, there were considerably fewer contracts, with respective averages of 23 and 15 ongoing contracts.

The number of ongoing contracts per company in each sector also exhibited a wide range of responses, which is why the average number of ongoing contracts is only of limited relevance. The median was therefore also identified, which was clearly below the average. In the financial year 2022, the median number of ongoing contracts among specialised contractors was 18, and 15 among power companies. Due to outliers, the average rose to 75 ongoing contracts among contractors. This points towards significant consolidation of the market, and a few major players generating a high proportion of revenue. Ongoing contracts among specialised contractors, as indicated by both the median and the mean, were significantly lower than in the previous year. The large number of providers with only a few ongoing contracts can be explained by a larger number of small players. In most cases, these small players were municipal utilities that offered contracting as a sideline business.

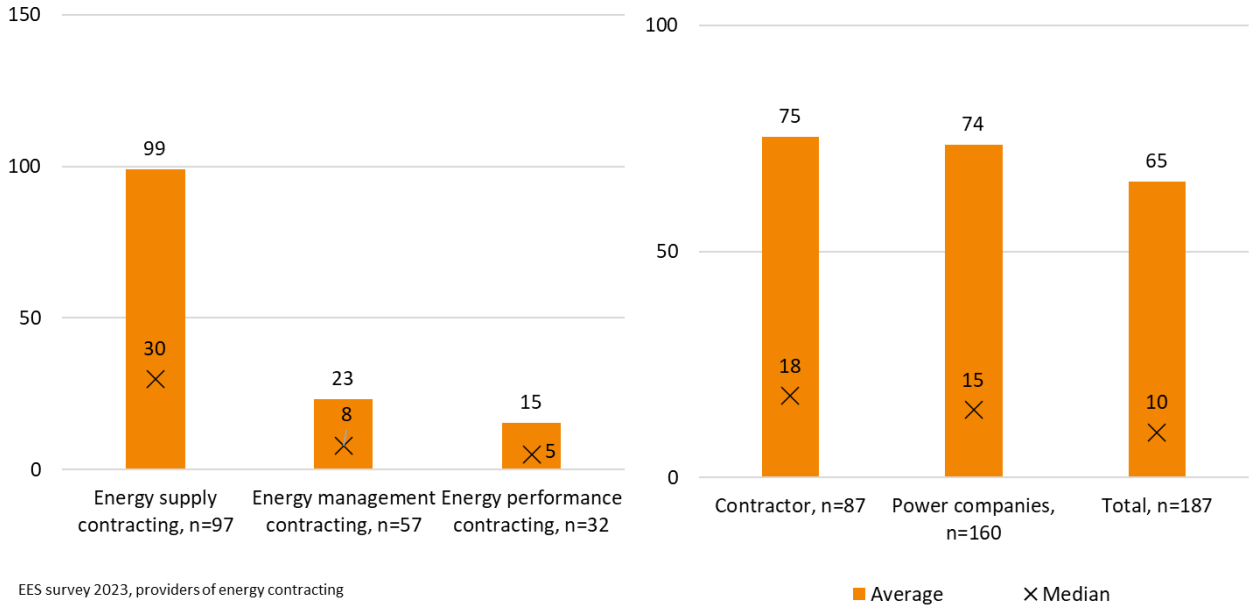


Figure 9: Number of ongoing contracts per type of EC and provider group

3.2.3 The demand side

Target segments

The most important target group for contractors according to the provider-side survey remained, as in previous years, the real estate industry. More than 50% of contracting providers considered this segment to be one of their two key customer groups. The second most important customer group was the public sector, which gained in importance compared to the previous year, followed by private households. The interviews conducted with large contractors revealed that heating contracting in the small power range for private households has also grown in importance. Other key customer groups were commerce and industry, and energy-intensive industry, which has grown in importance in recent years.

Utilisation of contracting

The hotel and hospitality sector and energy-intensive industry made the most frequent use of EC. The health sector and the real estate industry, which had led the way in the procurement of contracting in previous years, were less important this year (see Figure 10). Other large groups were companies from “Other industry” and the “Food trade”. The overall number of non-SMEs surveyed was significantly smaller. Among this group, the health sector in particular made use of EC.

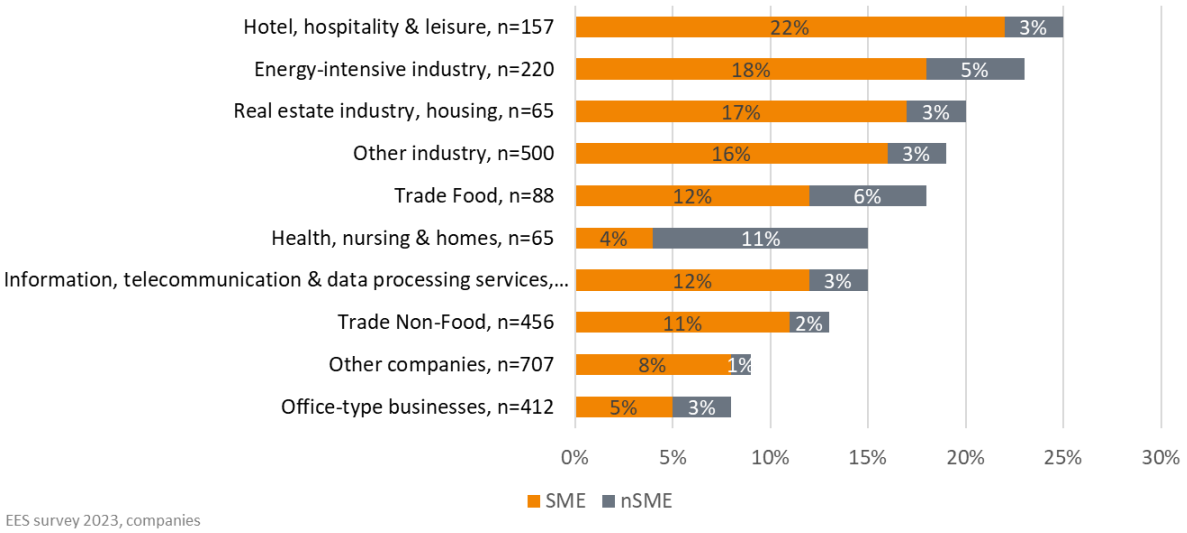


Figure 10: Utilisation of energy contracting by sectors

The percentages given in the figure are based on the absolute number of companies per sector that used contracting. For example, 15% of the 65 companies surveyed altogether from the health sector utilised contracting, with SMEs accounting for 4% and non-SMEs for 11%.

In contrast, private households used contracting much less frequently. Around 3% of the condominium owners surveyed stated that they had used heating rental or similar rental and lease models in the previous five years.

The majority of the SMEs surveyed that procured EC made use of ESC (65%), EPC (26%) and leasing or management contracting (10%). In comparison, among the non-SMEs that utilised EC, 62% used ESC, 27% EPC and 11% leasing or management contracting.

3.2.4 Interim conclusions

As in previous years, a lower and an upper estimate were calculated for market volume in the market survey of 2023, to reflect any potential uncertainties. According to the 2023 survey, the market volume for contracting in the financial year 2022 was between €9.6 billion and €10.3 billion, which represents a slight decrease compared to the previous year. EPC accounted for around 7% of this amount (€0.6 bn). The results indicate a total number of around 400 providers.

A large share of the contracting providers surveyed this year were (very) large companies with revenues of more than €10 million (around 50%). Small companies with revenues of up to €500,000 were represented less frequently (around 15% of all providers). The majority of providers were power companies or specialised contractors. On average, power companies generated 4% of their total revenue from contracting; for contractors, the figure was around 50%. The revenue shares of energy suppliers were considerably higher in recent years and decreased in 2022. Consequently, the EC market lost considerable momentum in 2022. The majority (around 75%, ESC 85%) of providers nevertheless predicted that market volume would continue to at least grow positively.

As in previous years, the market for contracting predominantly consisted of ESC. EPC, as well as leasing and management contracting, were also important. Contracting's strongest market penetration was found in the hotel and hospitality sector, energy-intensive industry, and the real estate industry. The use of contracting by the real estate industry – a demand sector that had been growing for years – declined in recent years. From the providers' perspective, however, the most important customer group continued to be the real estate industry. The second

and third most important groups were the public sector and private households, as well as segments with very high energy sales. Due to new legal requirements, especially for new heating systems, many providers were increasingly switching their services to renewable energies and district solutions with a sector coupling approach.

For around 70% of those surveyed, the main reason for using contracting was to save energy and take back control of energy consumption, respectively. The main barriers were the lack of stability in the legal framework, customers waiting for regulatory requirements, and the additional cost of efficiency solutions compared to standard solutions. The relevance of the high level of complexity surrounding subsidies and skills shortages as barriers declined. Most providers felt that poor quality or too much competition were not important obstacles to contracting.

In the public sector, the main reasons for procuring energy contracting were strategic decisions and facilitating investment. Reducing energy consumption was not as pivotal as in the previous year. Other important reasons for this segment, particularly among federal state authorities, were the desire to ease the burden on their staff and to benefit from the special expertise of service providers. The varying intensity of use of contracting services in the federal states and municipalities is due, on the one hand, to the scope for decision-making and, on the other, to the staff situation in the relevant institution. The complexity and scale of the contracting projects required staff commitment in the form of competent contact persons, as well as the support of all relevant municipal stakeholders to actively drive the project forward.

3.3 Energy management

3.3.1 Market volume and development

In previous years of the survey, two different approaches to calculating the market volume for energy management services were taken in parallel: a product-based method (bottom-up approach) and a revenue-based method (top-down approach). The two methods and the results obtained from them are presented below.

Product-based method

The product-based method, which takes a bottom-up approach, refers only to clearly defined energy management products. In this regard, providers were asked about the quantity sold and the respective prices. The demand side was also asked about the prices of these same products, enabling prices to be captured more accurately. The numbers of sales and certifications were extrapolated from the sample to the population using external statistics. Zeros and outliers that exceeded ten times the average were omitted from the calculation.

This method focused only on specifically defined products. This can only show us a part of the market, not representing all activities, in contrast to the otherwise open question of how much revenue was made from “energy management”, which is not precisely defined. As a result, the revenue figures calculated are significantly lower than those calculated using the revenue-based approach. The results for total market revenues based on this conservative approach are shown in Figure 11 below. A moderate increase of around 8% was observed for 2022 compared to 2021. A glance at the products surveyed showed that the demand figures for all energy management products, and especially in the areas of consulting (2022: €34 m, 2021: €27 m) and EnM software (2022: €13 m, 2021: €11 m), increased compared to the previous year. This rise can be explained by the increased requirements under the amended ISO 50001 standard for certified companies. The average prices of the products were comparable to the previous year – with the exception of consulting.

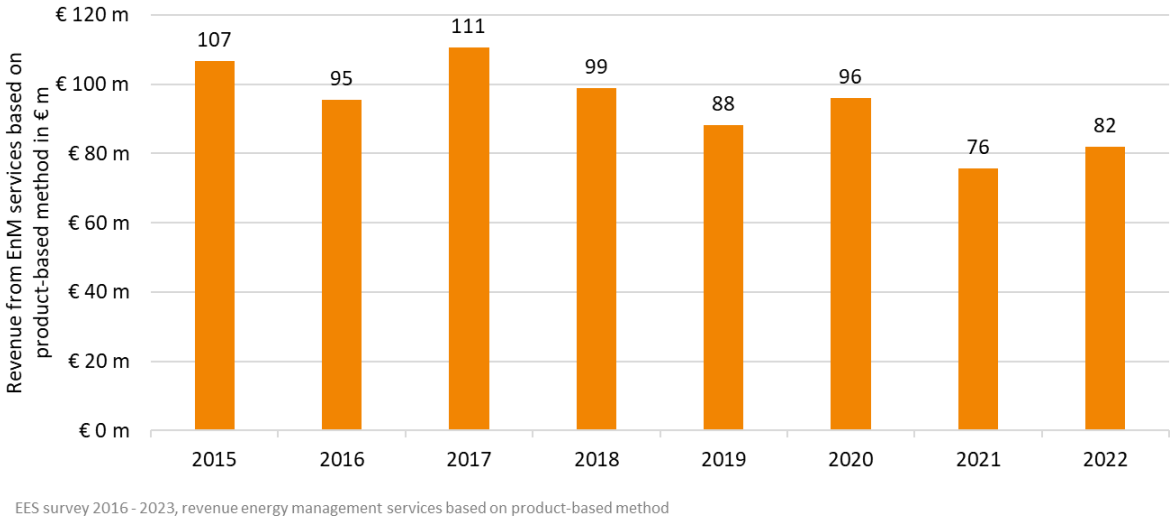


Figure 11: Revenue from EnM services per marketing year, based on the product-based method

Revenue-based method

The estimation of the market segment for EnM using provider responses follows a top-down approach. The method focuses on the number of providers and their respective revenue figures. Data on the distribution of providers among the sectors, as well as their revenues and revenue share for EnM, were available from the survey. These figures were then supplemented by external statistics (number of energy agencies[1]) and expert estimates in order to be able to extrapolate from the sample to the population of all EnM providers.

In the survey of 2023 (marketing and financial year: 2022), this revenue-based method led to revenues that once again increased to a new high compared to the previous year (see Figure 12).

1 https://energieagenturen.de/der-ead/mitglieder/

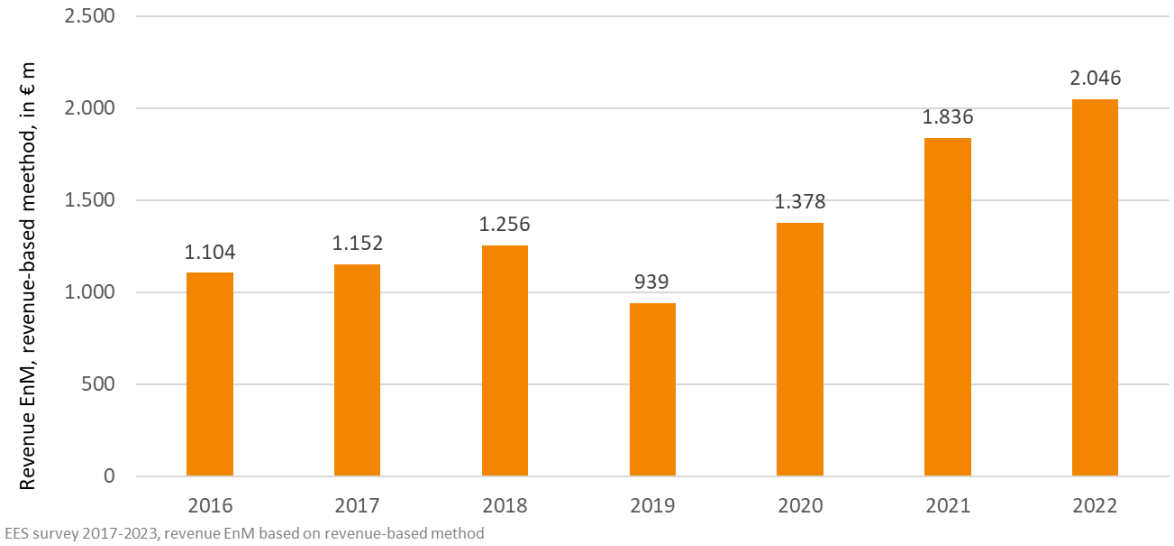


Figure 12: Revenue from EnM services per marketing year, based on the revenue-based method

This revenue-based method should therefore still only be regarded as a supplement to the product-based method. The more than 20-fold higher revenue resulting from the revenue-based method can be primarily explained by the very general question concerning EnM in the survey. Many companies that provide energy management services understand this to mean considerably more services than can be represented in these surveys and the definitions given above. This method should be seen as an upper bound estimate. The results show significant growth in the market, driven by increasing awareness of climate change and efficiency, as well as rising energy prices. These factors are driving the market for further solutions in the EnM sector, with or without certification. Suppliers of certifications, as well as additional EnM services and products, continued to be generally positive about the future development of the market (see Figure 13). Compared to the previous year, responses indicating at least strong growth in the market for other EnM services remained almost unchanged (2022: 58%; 2021: 61%), and a “growing” market was now expected in this area, similar to the situation in the previous year (2021: also 30%). Responses indicating at least strong growth in the market of certified EnM services increased compared to the previous year, to 52% (2021: 42%).

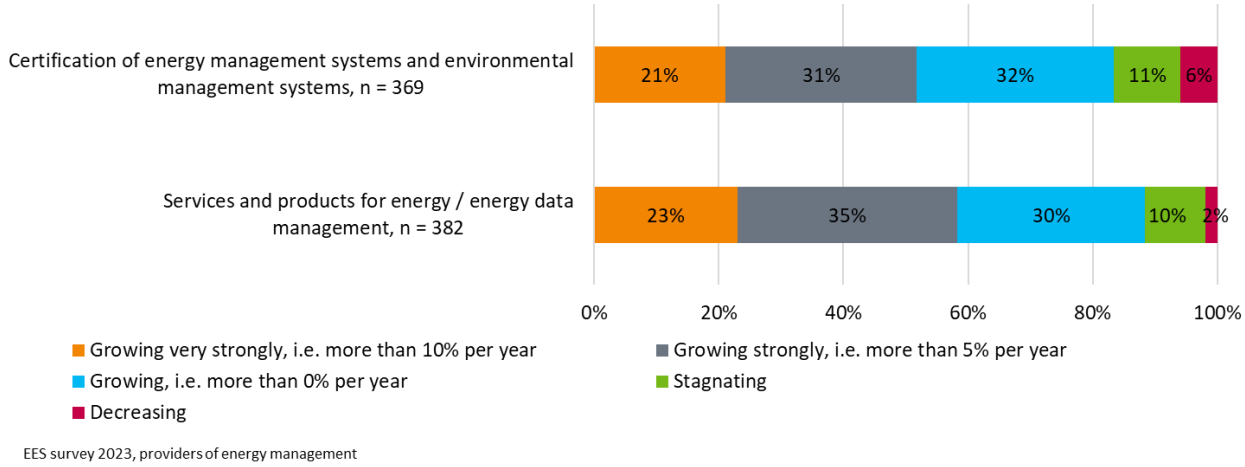


Figure 13: Assessment of market development in the area of EnM

3.3.2 The supply side

The supplier structure in the EnM market segment continued to be broadly diversified. As in previous years, the majority of suppliers are from the groups of planning and consulting companies as well as energy suppliers and certification companies (see Figure 14).

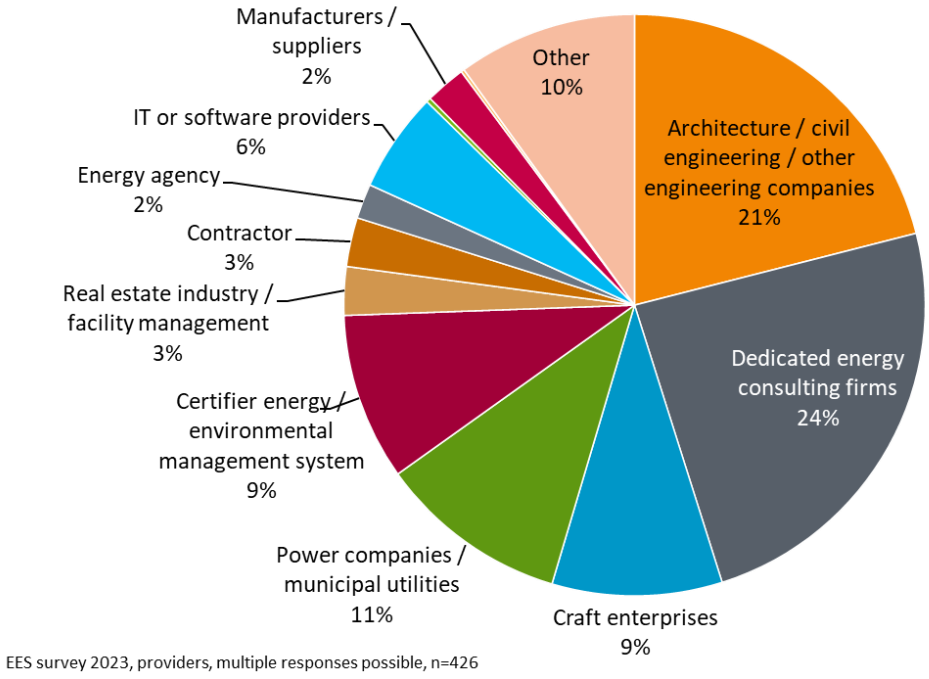


Figure 14: Distribution of sectors across EnM service suppliers

The products sold in the EnM sector were very diverse, as shown by the large difference in market volume estimates. The most common products were EnM solutions with certification (58%, see Figure 15), as in the previous years (2022: 60%, 2021: 61%). EnM without certification (energy controlling – 46%) moved down one place to third place compared to the previous year. Climate management / CO_2 monitoring was offered less frequently than in the previous year, at 36% (2022: 43%). On the whole, the differences are minor, and there are

no signs of long-term trends towards change. EnM software came fourth, followed by climate management / CO_2 monitoring. EnM still played a subordinate role in private households (17%), but there was seen to be a continuous increase in the range of smart home solutions in recent years (with the exception of the marketing year) (2018: 6%; 2019: 16%; 2020: 18%; and 2021: 19% and 2022: 16%).

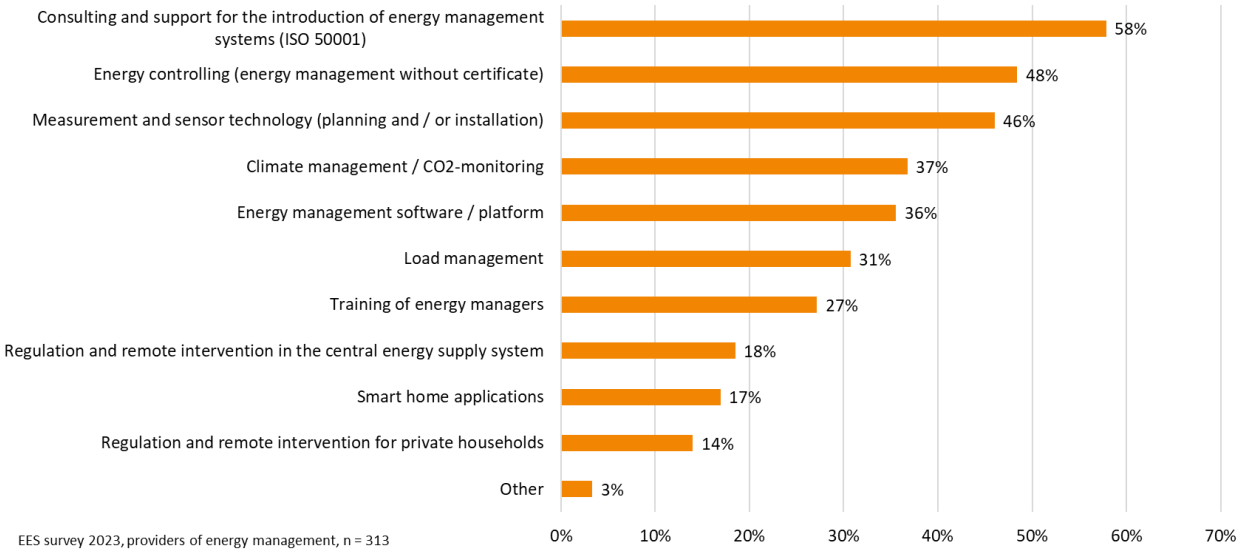


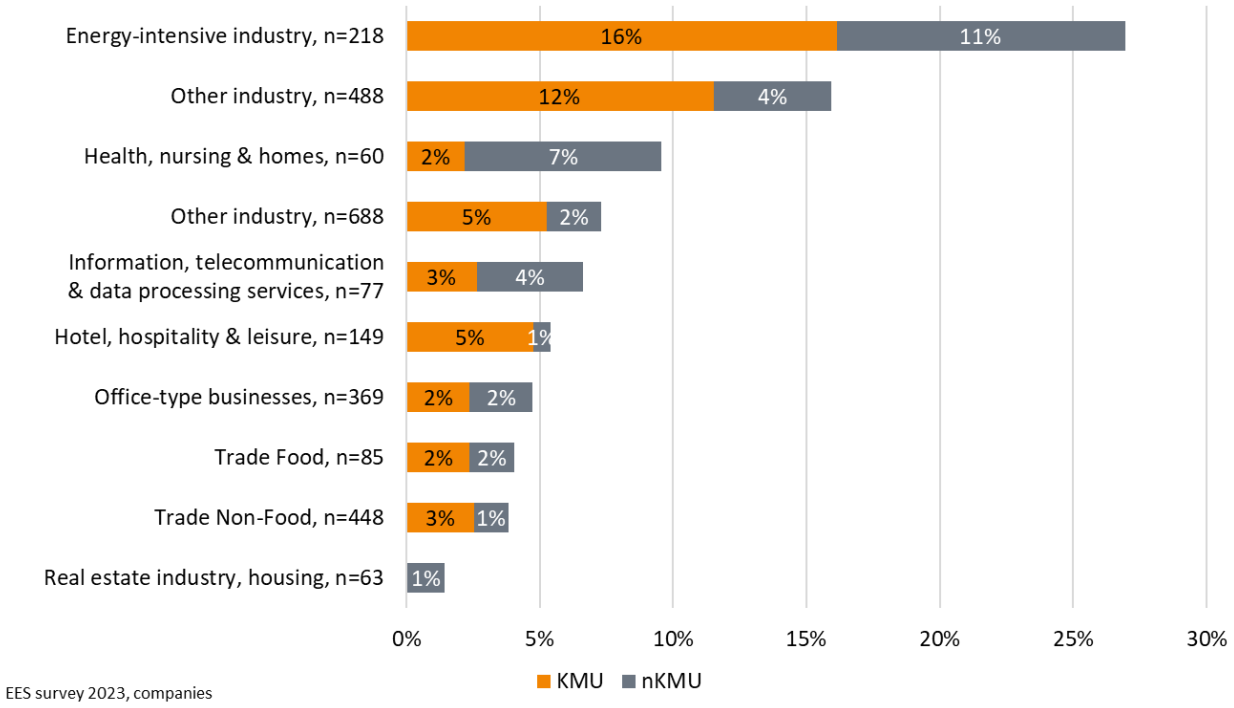
Figure 15: Supply of EnM services

3.3.3 The demand side

As with the previous two ES products, the demand side for EnM services among companies and in the public sector was investigated in more detail. The results for companies on the demand side have been weighted.

Companies

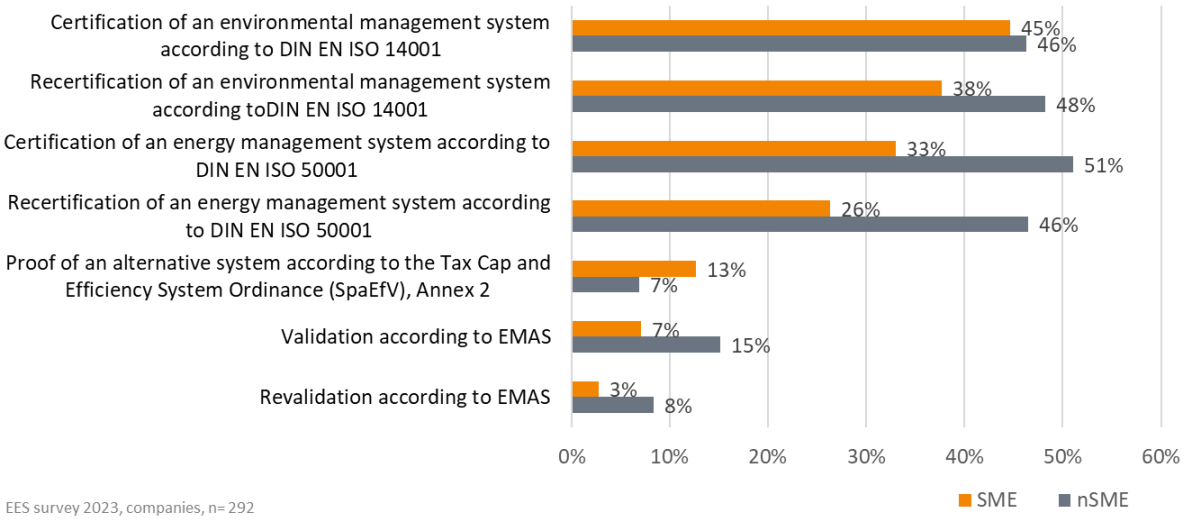
The sectors with the highest utilisation of services in the certification/validation of energy and environmental management systems within the last five years continued to be energy-intensive industry (27%) and other industry (16%), as shown in Figure 16. A slight increase in demand for certified EnM services was observed for these industries compared to the previous year (2022: energy-intensive industry – 24%, other industry – 15%). Uptake within the health and care sector remained constant at around 9%. Utilisation rates in companies from various other sectors was between 5% and 10%. In non-food trade, food trade and the real estate industry, very few companies made use of certified EnM. In the information and telecommunications sector, the uptake of certified EnM services played a minor role among the companies surveyed (7%). The Energy Efficiency Act [*Energieeffizienzgesetz* – EnEfG], which came into force in November 2023, now specifically targets data centres to optimise their energy consumption. This change was not yet relevant in the 2023 survey.



EES survey 2023, companies

Figure 16: Utilisation of certification/validation of energy and environmental management systems

The use of DIN EN ISO 50001 is shown in Figure 17. Uptake remained very high, especially among non-SMEs, whereby new certification and recertification showed a decrease compared to previous years, at 51% and 46%, respectively (2021: 62% and 61%, 2022: 57% and 56%). The number of mentions of certification and recertification in accordance with DIN EN ISO 14001 among both SMEs and non-SMEs remained constant.



EES survey 2023, companies, n= 292

Figure 17: Utilisation of energy management services

Energy data management services offered in addition to certification were utilised to different degrees (see Figure 18). Above all, the installation of measurement and sensor technology was the service used most frequently by both SMEs (55%) and non-SMEs (77%). Training for employees was among the most widely used services for large

enterprises, in contrast to small companies (non-SMEs: 75% and SMEs: 42%). The use of building automation by non-SMEs increased to 52% (2022: 46%) compared to the previous year.

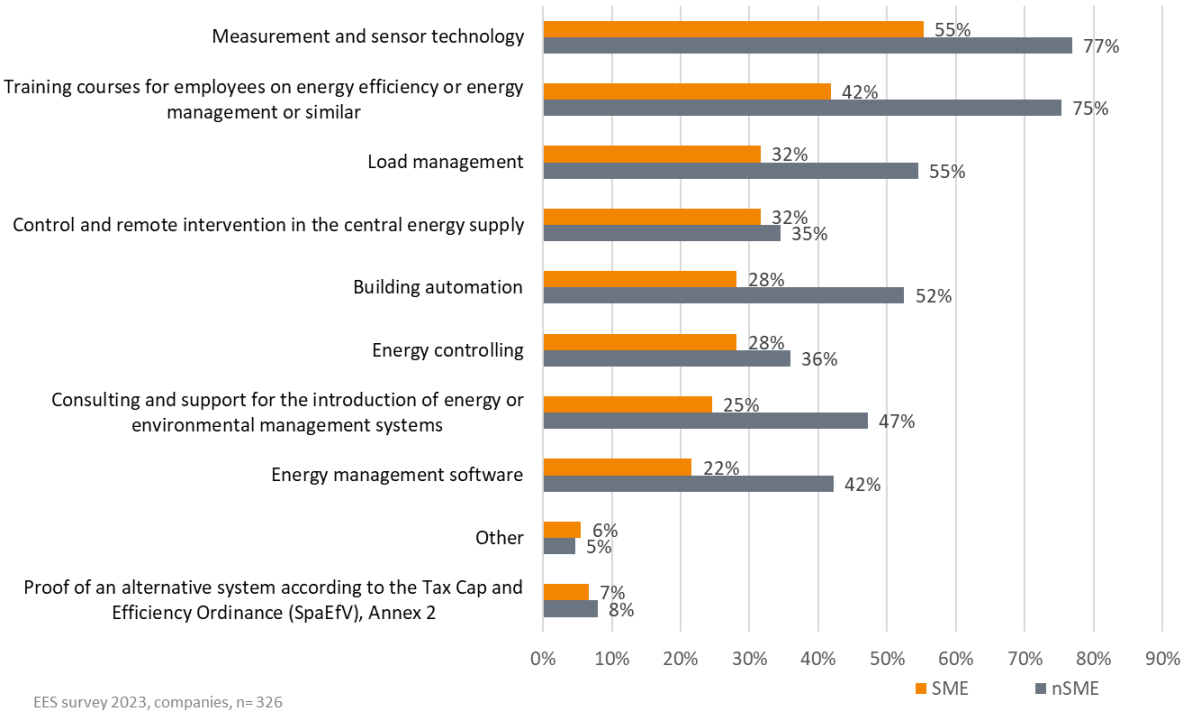


Figure 18: Utilisation of energy data management services

Many EnM services entailed suggesting measures that could lead to greater energy efficiency in the client's company. About 20-30% of those companies surveyed had already fully implemented these measures. In total, nearly 80% had at least partially or fully implemented such measures. The number of companies that had not implemented any measures remained at the same level as in the previous year.

For both large and small enterprises, the cost and viability of measures, as well as decisions to invest in measures, were key reasons why proposed measures were not implemented, according to their responses (see Figure 19). Organisational reasons, such as time or hierarchical challenges, were also cited frequently (premises are leased, too time-consuming, etc.). Obstacles on the supply side, such as technical or commercial uncertainty, were only rarely mentioned.

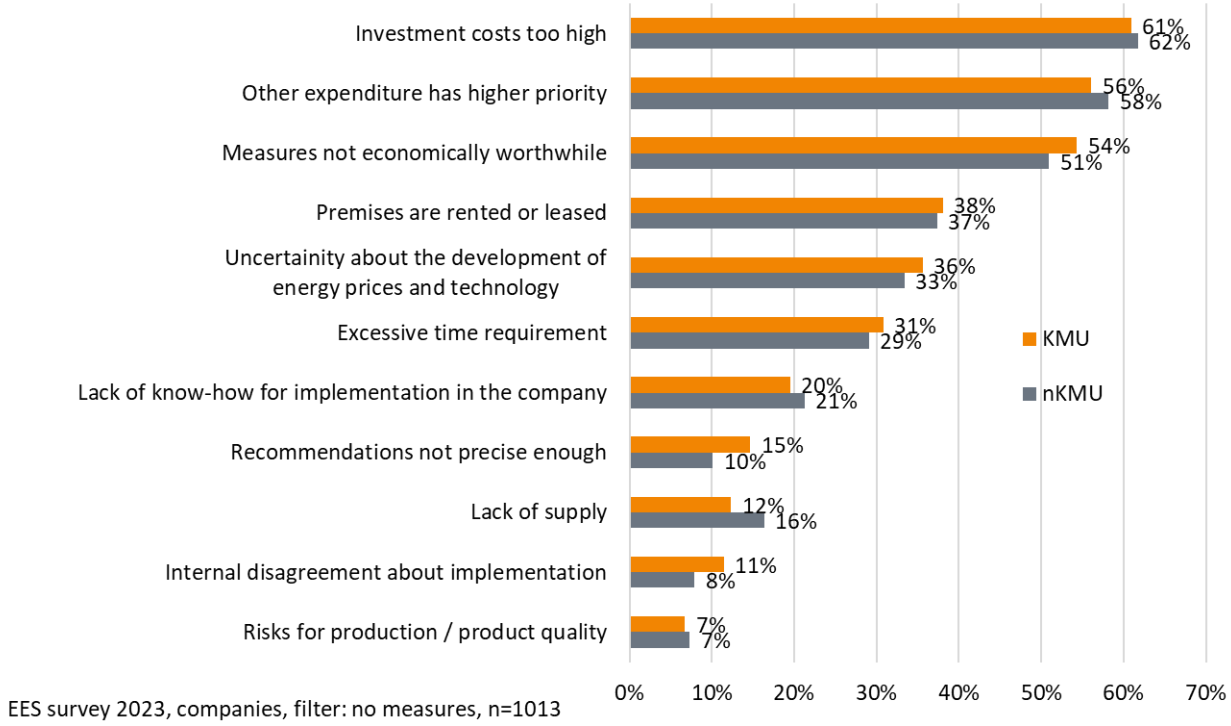


Figure 19: Reasons for not implementing measures

3.3.4 Interim conclusion

As in previous years, market volume in the EnM sector was determined using both a product-based approach and a revenue-based approach. The result from the product-based approach, almost €82 million in the marketing year 2022, was around 8% above that of the previous year. Both approaches suggest that the market for EnM is growing. The revenue figures calculated using the two approaches returned to a parallel trend this year, although the spread between the approaches has widened slightly.

Apart from the market volume calculations, the market changed only slightly compared to the previous years. The product range was supplied by similar sectors, and sold at similar prices to the same customer groups. Generally, the market segment of EnM can be described as rather stable and robust. The decline in the number of companies providing such services will have to be monitored further before any reliable statements can be made about trends.

In the coming years, the EnEfG will play an important role in the area of EnM, both for private and public companies and institutions, and will bring a new dynamic to the market.

4 Summary and outlook

Market-oriented ES represent a broad market segment, in which numerous *Energiewende* players are active in different sectors. It is a mix which is dominated – especially for consulting – by small architecture firms and engineering companies, or specialised energy consulting firms. Power companies, municipal utilities and increasingly specialised companies with ES as their core business operate in segments with more complex and demanding business-to-business (B2B) products. However, other provider groups come from more technologically oriented sectors (measurement, control and regulation technology; technical building equipment) as well as from service-oriented sectors (the real estate industry, facility management). While a few providers in the ES sector employ hundreds, sometimes thousands, of employees and have a mid seven-digit turnover, our study found no strong market concentration: the supply side continues to be primarily characterised by small and medium-sized enterprises. However, trends in the EC and EnM market segments can be observed over the years that point to a slightly consolidating market.

The three largest parts of the German ES market generate an annual turnover of around €10 billion to €12 billion. Compared to previous years, there continues to be strong growth, particularly in EB. In EC, the strong growth of the previous year was only confirmed, but not continued. The overall picture is of a market that is still in the process of stabilising after the energy crisis years of 2022 and 2023. In addition, the political debate surrounding the amended Buildings Energy Act [*Gebäudeenergiegesetz* – GEG] and the new Heat Planning Act [*Wärmeplanungsgesetz* – WPG] is undoubtedly a major factor in consumers' wait-and-see attitude.

As the market clearly shows, EB is particularly important in these rather unpredictable times, while the number of implementation measures tends to grow more slowly than usual. This uncertainty is also reflected in the expected market outlook, with last year's highs not expected to be reached and, in some cases, expected to be significantly lower. The next market survey will show whether these subdued expectations will materialise or whether the updated framework can reassure the market.