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

Summary of the 2021 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:

Martina Erler, Ann-Cathrin Horward

Prognos AG

Dominik Rau (Project Management)
Friedrich Seefeldt
Malek Sahnoun
Nora Langreder
Purnima Kulkarni

ifeu

Dominik Jessing
Michael Schneider

Kantar

Arthur Guzy

Prognos AG

Headquarters

St. Alban-Vorstadt 24
4052 Basel
Switzerland

Other locations (selection)

Goethestr. 85
10623 Berlin
Germany

Werdener Str. 4
40227 Düsseldorf
Germany

www.prognos.com

Commercial Register Number:

Berlin HRB 87447 B

ifeu - Institut für Energie- und Umweltforschung Heidelberg GmbH

Wilckensstraße 3
69120 Heidelberg

www.ifeu.de

Kantar

Landsberger Straße 284
80687 München

www.kantar.com/de

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1 Background and goals

Many pieces have to come together to meet Germany's climate goals and thus achieve the so called "Energiewende" (energy transition). Markets for energy efficiency and energy services (EES) build a key element in this respect. These markets are subject to continuous changes – with new products, and the integration and separation of different business models – and hence cover a wide and heterogeneous range of services and products. According to Section 9(2)(5) of the German Energy Services Act (*Energiedienstleistungs-Gesetz*, EDL-G), the Federal Energy Efficiency Center (*Bundesstelle für Energieeffizienz*, BfEE) is responsible for monitoring the market for energy services, 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 energy services annually since 2016. This study is the sixth of its kind. As shown in previous studies, the market is firmly established in Germany, and generates high sales. The services offered are diverse, and only some can be narrowly defined. This year's report again focuses on the product segments of energy consulting, energy contracting, energy management and energy efficiency information. As in previous years, not only market participants from the supply side, but also demand-side companies and households, as well as public sector stakeholders were interviewed for this study.

The figures in the marketing year 2020 (survey of 2021) reflect a strongly growing market in all three segments. Given that the study has been carried out for several years, increasingly meaningful time series can also be formed on single issues; these indicate a wide range of changes on the one hand, and stability in the market on the other.

2 Survey design

To monitor and assess the market for energy services in Germany, an indicator-based survey design was created to obtain information 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 market¹.

To capture the indicators described above and create a comprehensive 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 online questionnaires and
- The collection of qualitative information by means of structured interviews with experts in 2016 and 2018.

¹ Different priorities were pursued with these aspects (depending on the survey wave), based on current market developments. Since some of the framework conditions may change over time, time series are only possible to a limited extent.

The methodology and the questionnaire were continuously developed and refined. The changes reflected findings from previous studies but 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 in 2021. Surveys on the provider side were conducted online and by telephone. The online survey of providers was sent via a distribution list to almost 9.500 relevant addresses. A selection of 264 companies were interviewed by telephone, and 1.399 participated in the online survey. On the demand side, Kantar surveyed 2,752 companies, 2,618 private households and 506 public sector institutions by telephone. Moreover, the survey of the public sector was complemented on the federal and state levels by an optional identical online survey, with the aim of recruiting multiple respondents.

Table 1: Number of standardised surveys carried out in 2021

	Sample	Short name
Supply side		Providers
By telephone	264	
Online (usable responses)	1,399	
Demand side		
Companies	2,752	Companies
Private households (with/without home ownership)	2,618	Households
Public sector	506	Public sector

With the exception of the public sector, all datasets are 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) are not weighted; qualitative analyses are weighted.

3 Results

The German energy services market, with its three large segments, generated total annual revenues of €10 billion to €13 billion in 2020. Although there is a great range of fluctuation due to the methodology, overall, the market is seen to be growing strongly compared to the previous years (see Table 2).

The largest absolute increases occurred in the area of energy contracting, where revenue grew from an average of €8.2 billion to an average of €10.9 billion, representing a growth rate of around 30%. The largest relative growth can be seen in the area of energy consulting. This sector's relative growth of around 57% is partly due to the methodology adopted, but also to the fact that the market is growing in real terms. The market shares in the energy management segment, which had been declining, also recovered and have returned to roughly the same level as in 2018.

Table 2 shows the market volume for the energy services market and the three market segments for the past six 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 2020 was surveyed for this 2021 market analysis. The methodological developments will be explained in greater detail in the following sections. Detailed market figures and selected aspects are also presented for the individual market segments in the following sections.

Table 2: Market volume overview

All approx.	2015	2016	2017	2018	2019	2020
Energy consulting (in €)	470–520 m	790–850 m	370–402 m	360–403 m	416 m	654 m
Energy contracting (in €)	7.2–8.4 bn	7.7 bn	7.2–8.6 bn	6.7–9.7 bn	7.4–9.0 bn	9.6–12.2 bn
Energy management (in €)	-	107 m	110 m	99 m	88 m	96 m
Total energy services market (in € bn)	7.9–9.1	8.9–9.0	8.0–9.5	7.2–10.2	7.9–9.5	10.3–12.9

3.1 Energy consulting

3.1.1 Market volume and development

The market for energy consulting was mainly calculated based on three variables: for each type of consulting, the average number of consultancy sessions for every provider of the service offered was offset against the number of full-time equivalents (FTEs) that focus primarily on energy consulting, and the price of such services. This was multiplied by the estimated number of energy consultants who offer each product in Germany.

The basic methodology for determining market volume in 2020 did not change, but there was a significant change in methodology one year earlier. As a result, market volume in the time series analysis is not comparable throughout with previous studies.

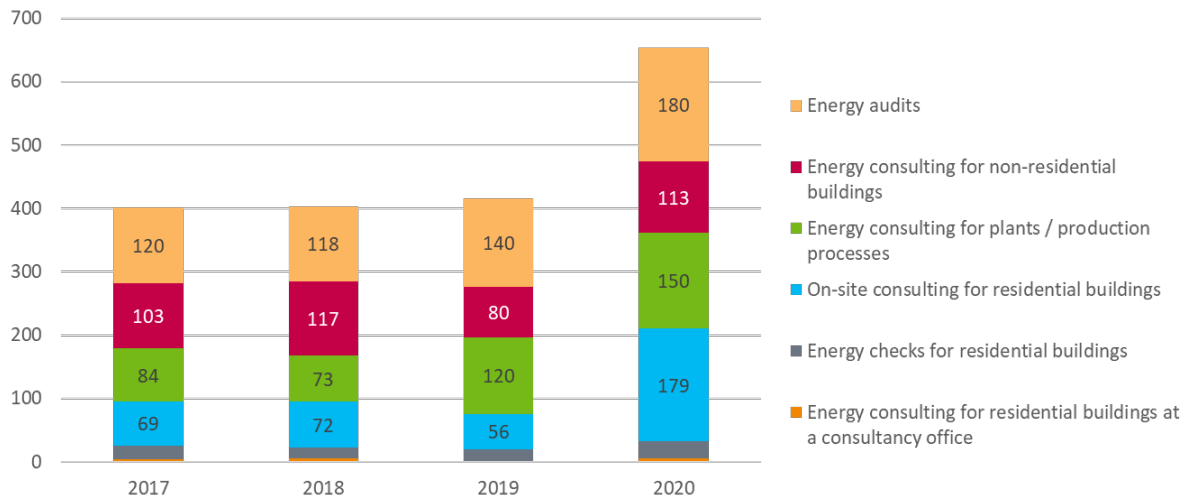
Table 3 provides an overview of the proportions of each type of consulting. As in previous years, energy consulting for companies and the public sector (energy audits, energy consulting for non-residential buildings and consulting for plants and production processes) dominate in terms of revenue.

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

Type of consulting	Revenue in € m (generated by 5,000 "active" energy consultants)
Energy audits according to DIN 16247-1	180
Energy consulting for non-residential buildings	113
Energy consulting for plants and production processes	150
Energy consulting for residential buildings	179
Energy checks	27
Off-site consulting	5
Energy consulting in total	€654m

The minimum market volume grew strongly compared to the previous year, reaching a value of €654 million. This equates to an increase of 57% compared to €416 million in 2019. Breaking down revenue into the different types of consulting, the market is dominated by consulting for companies, although the importance of consulting for private individuals and residential buildings has increased considerably. The market volume for more extensive on-site consultations for residential buildings tripled (see Figure 1).

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

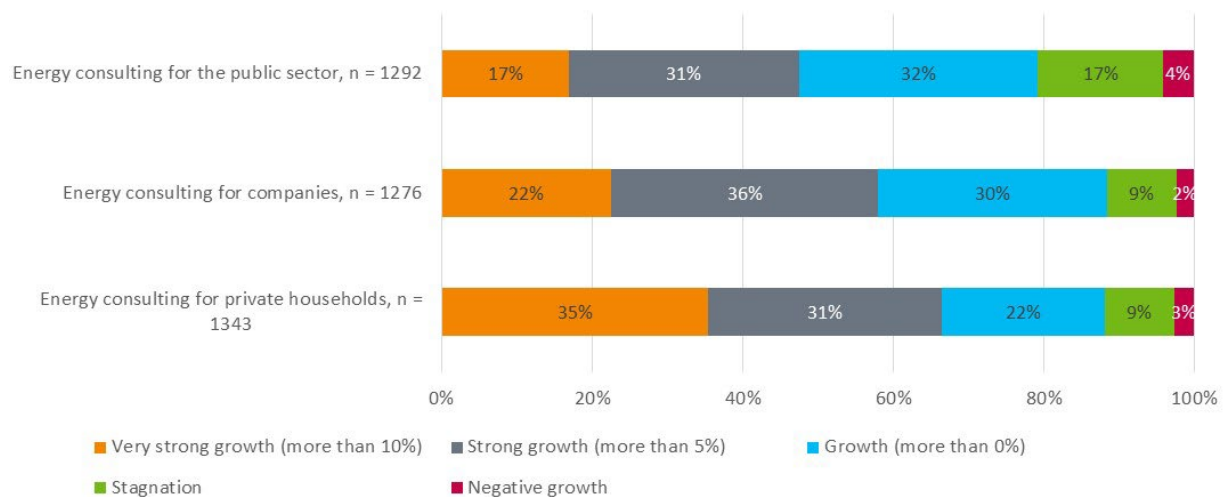


EES survey 2018 till 2021, volumes of sales based on survey results of providers of energy consulting

Energy consultants were generally very positive when predicting market development in the coming years (see Figure 2). Such an optimistic market outlook had never been recorded in the market survey before.

The energy consulting market for private households is considered to have the best chances of development. Almost 90% of those surveyed anticipated a growing market, with almost two-thirds of respondents categorising it as a strongly or very strongly growing market. In previous years, energy consulting for companies had repeatedly been the area that had met with the greatest optimism in terms of market development.

Figure 2: Providers: assessment of market development for energy consulting



EES survey 2021, Providers offering energy consulting services

The respondents' planning also matched the positive market outlook. More than two-thirds of those surveyed planned to increase their revenue from energy consulting and audits. Further dynamic growth can therefore be expected for the marketing year 2021. This is also indicated by the number of cases in the subsidy programmes.

3.1.2 The supply side

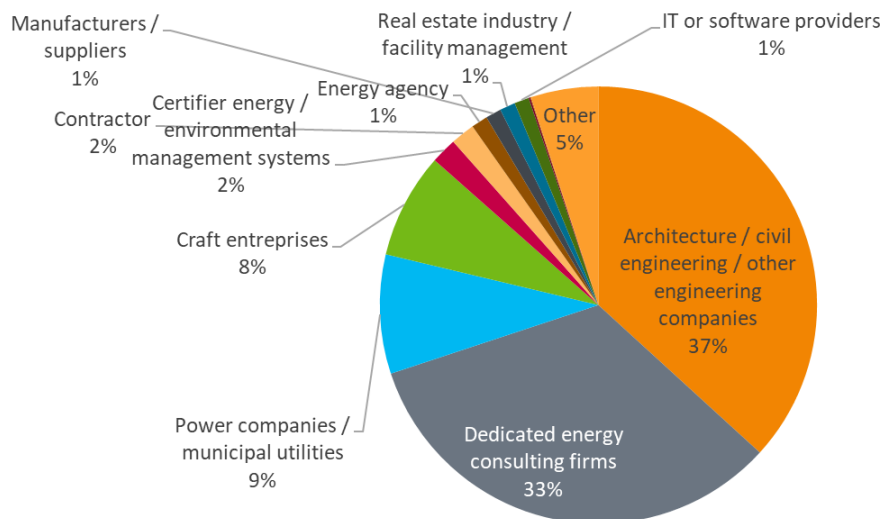
The exact number of energy consultants operating in Germany is not known and cannot be reliably determined due to the lack of nationally agreed definitions and the associated unclear distinction between responsibilities. As mentioned previously, the supply-side figures in this study are based on the statements of a sample generated from a pool of 8,001 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 energy consulting 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 energy consulting (see Figure 4). 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, around 3,500 providing energy consulting for non-residential buildings, some 2,300 for plants and production processes, and almost 5,600 for residential buildings. The availability of all types of energy consulting has therefore risen significantly compared to the previous year.

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 energy consulting firms on the other, accounted for 70% of all companies (see Figure 3). Compared to the market survey of 2020, this concentration has intensified, with both types of companies experiencing growth in terms of their market share. In contrast, power companies or municipal utilities and craft enterprises accounted for only 9% and 8%, respectively. Due to the overall increase in the number of players, however, the absolute operating figures are not in decline.

Figure 3: Providers: sector structure for energy consulting



EES survey 2021, providers of energy, n=1566

The organisational structure of the providers surveyed has also changed compared to 2020. This time, the majority of those surveyed indicated that energy services were the core activity of their business (55%), which represents an increase of almost 10% compared to the previous year. 16% of the respondents had a separate department for energy services, and in another 12%, the responsibilities for providing such services were distributed over multiple departments, sometimes even among multiple companies or subcontractors.

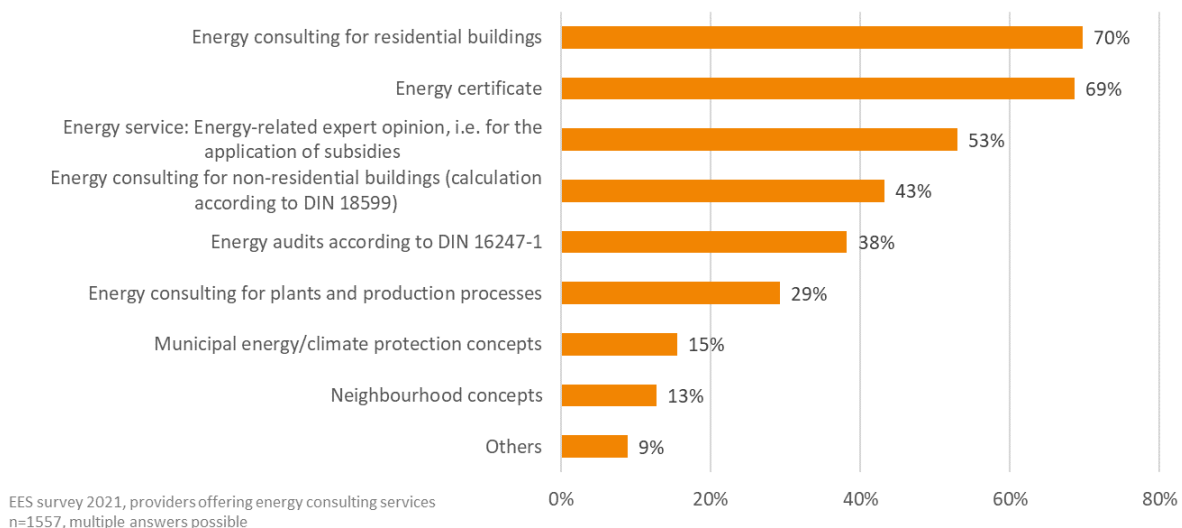
Types of consulting offered

Energy consulting for residential buildings was the most common type of energy consulting, as shown in Figure 4. Around 70% of those surveyed offer this type of consulting, which is well up on the previous year. The share of respondents that offer energy consulting for non-residential buildings remained stable, whereas the proportions for energy audits and consulting for plants and production processes each fell by around 10% compared to the previous year. Due to the overall higher number of “active” energy consultants, however, there is also generally a wider range of services available for more complex business consultations and audits.

However, due to different lengths of consultation and hourly rates, the shares of different types of energy consulting do not automatically result in similar revenue shares. On the contrary, although the more complex types of consulting were offered by fewer respondents, they account for significantly higher revenue shares in the total market than consulting for residential buildings. The latter, after all, can be offered by virtually all consultants using a relatively standardised process.

Special municipal services such as neighbourhood concepts or local climate action plans are offered by no fewer than 13% and 15% of the energy consultants, respectively. Given that these services are of little relevance to the market as a whole, however, they were not quantified further in the context of this study.

Figure 4: Providers: types of energy consulting offered

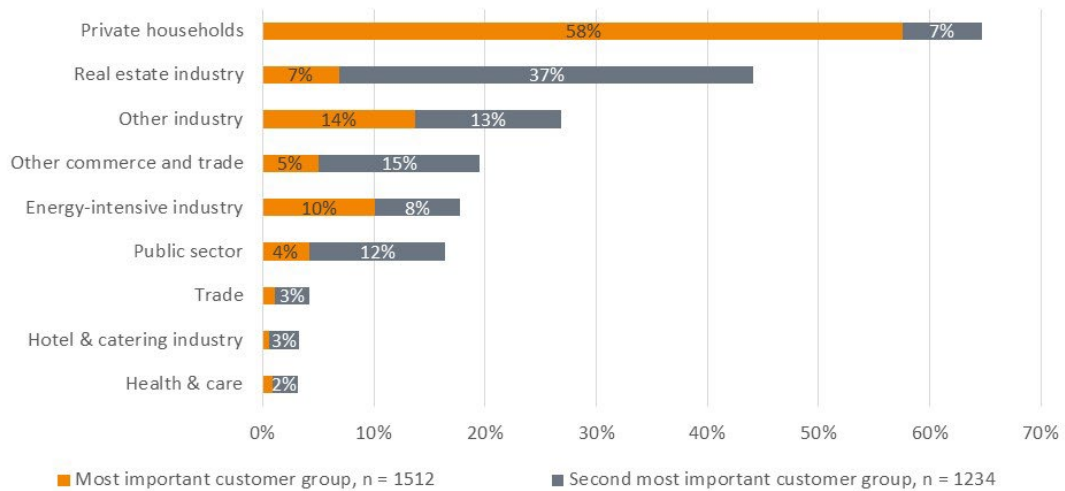


3.1.3 The demand side

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 (see Figure 5). 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. Compared to the 2020 survey, the relevance of private households as the most important customer group increased further for most respondents (see Figure 5).

Figure 5: Providers: most important customer groups according to providers



EES survey 2021, Providers of energy consulting

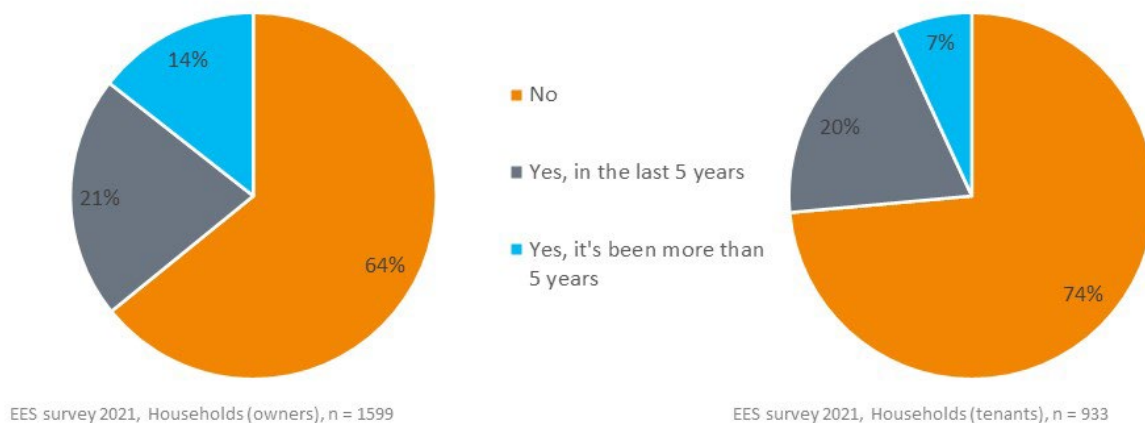
The individual areas of demand are considered separately below. For this purpose, the respective survey data of the target groups (households (owners and tenants), companies and the public sector) are used.

Households

The issue of energy efficiency is 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).

Among the owner-occupied households and tenant households surveyed, 21% and 20%, respectively, made use of energy consulting in the last five years, and for a further 14% and 7%, respectively, consulting was provided more than five years ago (see Figure 6). This meant that two-thirds of owner-occupied households and no less than three-quarters of tenant households had never used energy consulting services before.

Figure 6: Households: energy consulting services procured, owners (left) and tenants (right)



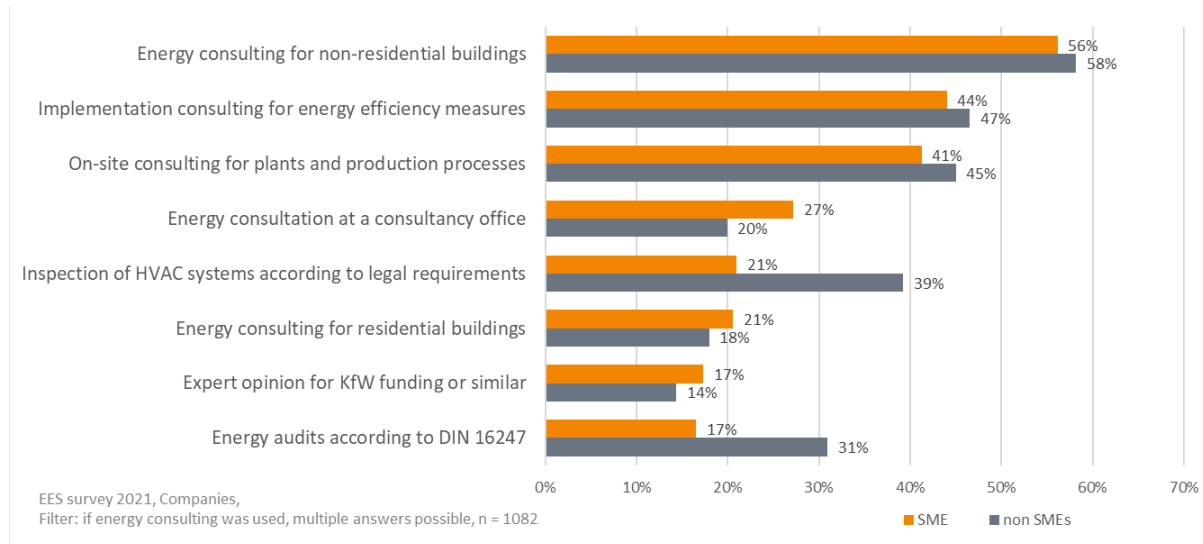
Looking at the development over time, the picture is different for owner-occupied and tenant households. While the share of energy consulting customers among tenant households decreased and the share of people who had used energy consulting more than five years ago stagnated, there is no clear picture for owner-occupied households. The proportion of energy consulting consumers increased between 2018 and 2020, reaching a peak in

line with the market volumes based on information from the providers. In 2021, however, there was a significant drop of 8% in the proportion of consulting consumers. A random blip can be largely ruled out. All values are weighted with socio-demographic data in the current and previous surveys, meaning that the results are representative from a nationwide perspective. One explanation for the decline could be the Covid-19 pandemic, which may have caused a reduction in the use of unsubsidised consultancy. At the same time, however, there was a new all-time high in federal funding for energy consulting for residential buildings.

Companies

The entire range of services was requested by companies, as Figure 7 shows. The most frequently used types of consulting were energy consulting for non-residential buildings, consulting on the implementation of energy efficiency measures, and energy consulting for plants and production processes. Differences in use between small and medium-sized enterprises (SMEs) and large enterprises (non-SMEs) were mainly due to legal requirements for energy audits (mandatory for non-SMEs, subsidised for SMEs). The use of energy audits decreased significantly compared to the previous year; in the 2020 survey, the proportions of respondents that made use of this service were almost twice as high for both SMEs and non-SMEs.

Figure 7: Companies: types of consultancies procured

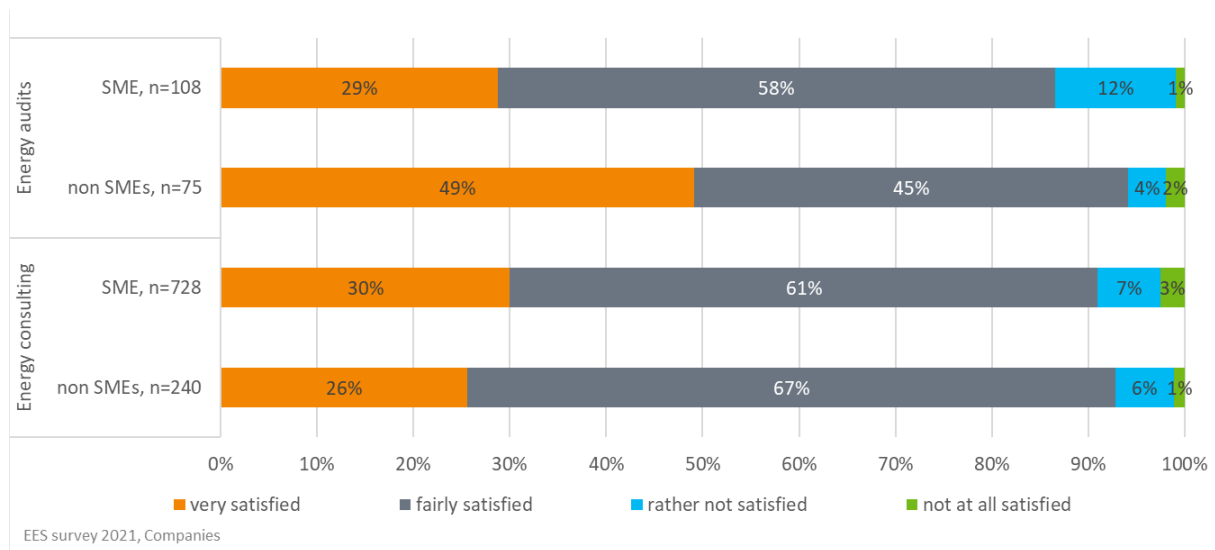


When energy consulting was commissioned, the main reason mentioned was the need for investment planning support. Other important reasons included the wish to better control energy costs or to take strategic decisions regarding environmental and climate protection. The latter factor has continued to gain in importance in recent years.

Satisfaction with the energy consulting services and energy audits procured was high among the companies surveyed. Only around 10% of the companies stated that they were rather dissatisfied or not at all satisfied (see Figure 8). The particularly high level of satisfaction with energy audits among large companies is striking; SMEs were also very satisfied, but to a lesser extent.

Although there is widespread satisfaction with the cost-benefit ratio of energy consulting and energy audits, it is not quite as pronounced as the general satisfaction with these services. The appropriateness of the cost of energy audits was contested more frequently, especially among SMEs.

Figure 8: Companies: satisfaction with energy consulting and energy audits



Considering the significantly higher use of energy consulting by companies, the increase in market volume calculated from information provided by the providers seems plausible. Given that two-thirds of the companies surveyed did not use external energy consulting services, and that the companies that did use such services were highly satisfied, there is still potential for further expansion of these services. Unlike households, some companies indeed have sufficient own expertise to generally avoid having to rely on external providers. However, the frequent mention of “implementation on our own” might in some cases also be a simple excuse that is not accompanied by any actual implementation of efficiency measures.

A special evaluation in the area of energy efficiency networks shows that energy services do indeed have a positive impact on the implementation of measures. Of the companies surveyed, 168 had participated in an energy efficiency network. These companies were then compared with the other companies in terms of the implementation of measures. One of the findings was that the companies that had participated in networks implemented more measures in all areas.

3.1.4 Interim conclusions for energy consulting

The market segment for the energy consulting services explored in this study is experiencing strong growth and, according to conservative estimates, amounted to a total volume of just over €650 million in the financial year 2020. This included brief “energy checks” as well as off-site energy consultations; it also included extensive energy consultations for non-residential and residential buildings as well as plant and production processes involving on-site visits and energy audits. The market volume determined for this market increased by more than 50%, after four consecutive years characterised by relatively stable market conditions. This growth is based on a significant increase in the number of “active” energy consultants, a larger number of consulting cases, and higher prices. Rather than having an overall negative impact on the market, the Covid-19 pandemic may actually have contributed to this surge in growth in spite of the contact restrictions in place. This is because on the demand side, the restrictions seem to have created capacities for modernising the energy efficiency of buildings and technical installations. In addition, lockdown situations are likely to have brought home to many people the value of a comfortable and energy-efficient housing situation. The entire range of consulting products were used in all areas of the demand side, and customer satisfaction with these services remained high. The surge in growth in the area of energy consulting services did not result in measurable bottlenecks on the supply side throughout Germany in 2020. There continued to be a sufficient supply for qualified energy consulting. There was little evidence of insufficient supply on the demand side. If growth continues at such a dynamic pace, however, bottlenecks are to

be expected because the number of people with the necessary skills for such a service is limited. However, there continues to be untapped potential among all customer groups, households, companies and the public sector, which could lead to market growth. This is especially relevant in light of Germany's national *Energiewende*, which has called for a substantial increase in energy efficiency efforts across all sectors, especially in the buildings and heating sector. Not only rising energy and CO₂ prices, but also a stricter regulatory framework will make energy efficiency measures both challenging and attractive. Professional energy consulting makes a valuable contribution in this context because it identifies, initiates and accompanies measures, as well as improving their quality. At the same time, the subsidy situation for energy consulting, and also for efficiency measures, has continued to improve in parallel with the increasing requirements. The "Federal Funding for Energy Advice for Residential Buildings" (*Bundesförderung für Energieberatung für Wohngebäude – EBW*) programme has been given special impetus in this regard. Significant changes in the energy consulting market are likely in future years, because Germany's new Federal Government has presented very ambitious plans concerning the speed and depth of the transformation towards a climate-neutral society. Rising energy prices reinforce this development. As a key driver of the energy transition, further dynamic market growth is very likely in the case of energy consulting. As a result, however, the associated risks become more prominent. These risks include rising prices for building materials, bottlenecks in the availability of materials and technology, and a growing shortage of qualified professionals.

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 the market volume. In particular, (very) large companies can have a major impact on market volume. In light of the heterogeneity of the market, as well as the quality of available data, the following projections are highly uncertain and only serve to roughly estimate 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 energy services survey, enabling the revenue from contracting and the number of employees who can be assigned to the contracting market segment to be determined.

A total of around 443 energy contracting providers were identified. In 2020, these companies generated a total revenue of around €220 billion, with revenue from contracting accounting for some €10.9 billion. Compared to the previous years, 2020 indicated a significant increase in market volume, due primarily to a growth in contracting revenue among power companies and municipal utilities. 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 represents a conservative approach.

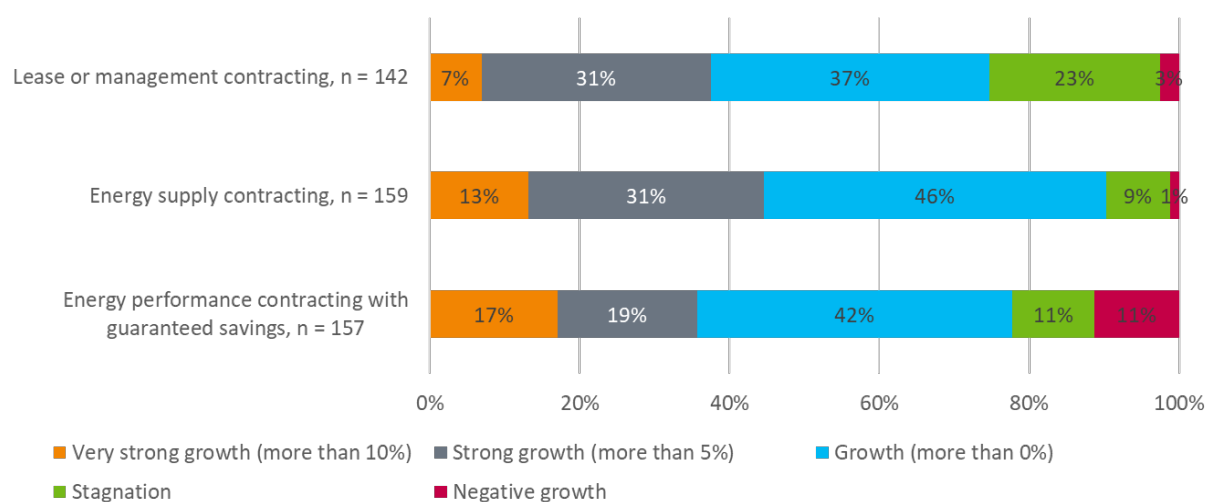
The number of providers has continuously declined in the past few years. If revenues remain the same, a consolidating market can be expected. Since a growing number of very large energy contracting providers have emerged in recent years, with revenues impacting heavily on the results of this methodological approach, information on contracting revenue derived from external sources (DFM 2019, financial statements) was used for some of the largest companies. This led to slight changes in the share of revenue from contracting compared to the survey results for sectors such as power companies, engineering companies and specialised contractors. The average revenue share by sector extrapolated to the total number of all providers was 22% (survey data: 27%).

Companies listed as passive members with vedec (Association for Energy Services, Efficiency and Contracting) were not allocated any energy contracting revenue.

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 is between €9.6 billion and €12.2 billion. The lower estimate is considered to be more reliable.

The future development of the contracting market appears positive according to players in the industry, as shown in Figure 9. Both the market for energy performance and energy supply contracting, and the market for management contracting were considered by most contracting providers (around 80%) to be growing to (very) strongly growing. Just under 15% of providers expected stagnation in the market. The situation was assessed slightly more positively for energy supply contracting than for the other areas. A decline in energy contracting was expected by only 3% to 11% of market players, depending on the service. This predominantly optimistic outlook has been relatively constant over the last few years.

Figure 9: Assessment by energy service providers of the future market development of contracting



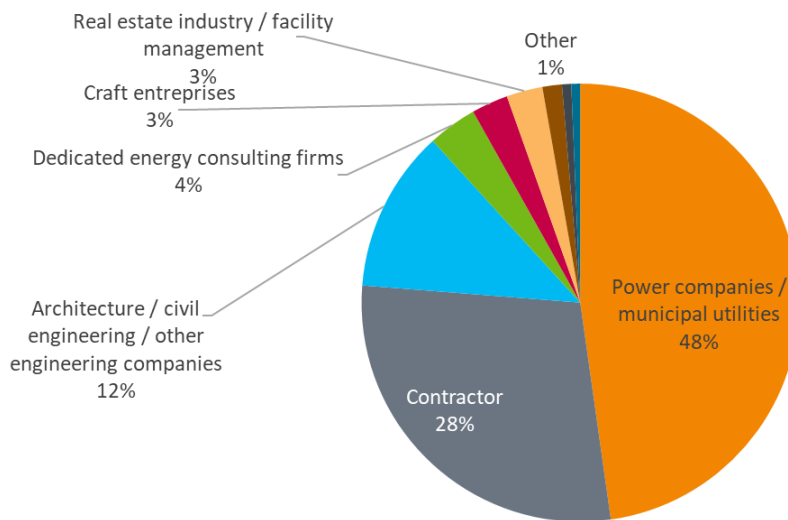
EES survey 2021, Providers offering energy contracting

3.2.2 The supply side

Sector structure

Contracting was mainly offered by power companies (municipal utilities and other energy suppliers, 48% of providers) and companies that described themselves as “contractors” (28%) as shown by Figure 10. Another small provider group comprised architecture, energy consulting and engineering companies, together making up 16%. Real estate and facility management companies made up another relevant provider group, accounting for around 3%. There was also a group of other providers (8%), comprising companies with a wide variety of key activities, such as energy agencies, IT or software providers, and craft enterprises.

Figure 10: Sectoral distribution of energy contracting providers



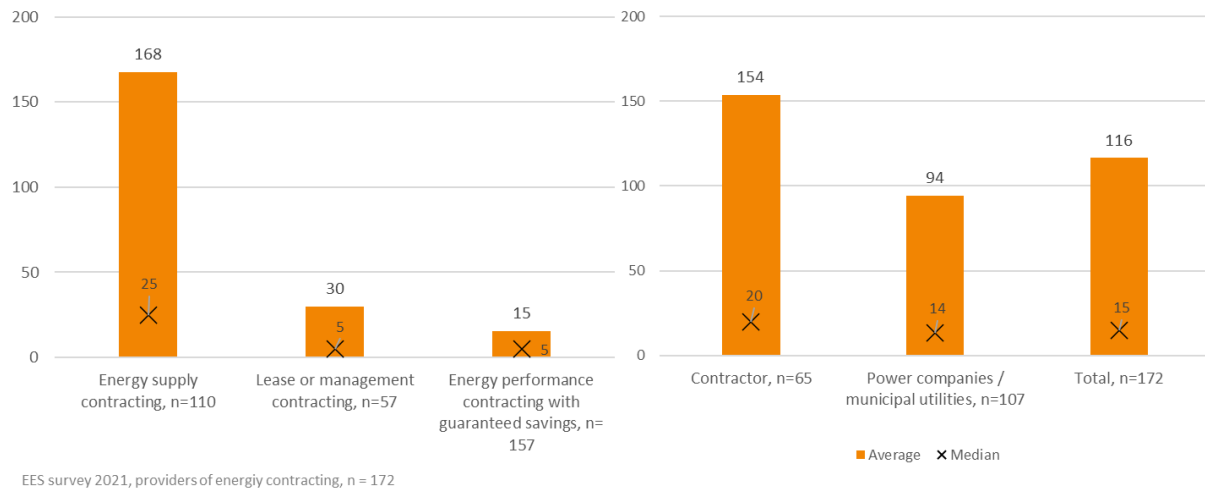
EES survey 2021, providers of energy contracting, n=184

Number and type of contracting contracts

A wide range of responses were given regarding the number of ongoing contracting contracts (see Figure 11). A small number of highly active market participants also covered a very large part of the contracting market, though there were many small providers with correspondingly low sales figures. In the area of energy supply contracting, the average number of ongoing contracts was around 168 per provider. The largest 15 providers held almost three-quarters of the market. In 2020, the five largest providers held more than 30% of these contracts. In the areas of management and energy performance contracting, there were considerably fewer contracts, with respective averages of 30 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 (see Figure 11) is only of limited relevance. The median was therefore also identified (see Figure 11), which was clearly below the average. The number of energy supply contracts of specialised contractors was above the average for all sectors. In the financial year 2020, the median number of ongoing contracts for specialised contractors was 20, and 14 for power companies. Due to outliers, the average rose to 154 ongoing contracts among contractors. This points towards significant consolidation of the market, and fewer large players generating larger shares of revenue. The large number of providers with only a few ongoing contracts can be explained by a larger number of small players. In this area, the significance of municipal utilities has grown considerably in recent years.

Figure 11: Average number of ongoing contracts per provider and provider group



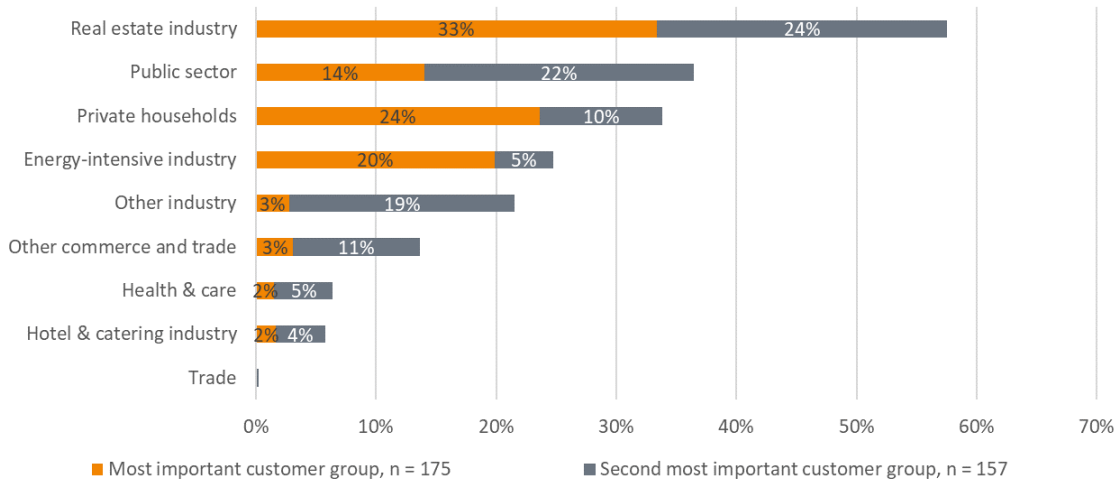
3.2.3 The demand side

Target segments

The most important target group for contractors according to the provider-side survey remained, as in previous years, the real estate industry (see Figure 12). About 57% of contracting providers considered this segment to be one of their two key customer groups. The second most important customer group remained the public sector, which was named by almost 36% of those surveyed. The third most important customer group was private households, which represented an important customer group for no fewer than 34% of contractors. For a quarter of respondents, they were even the key customer group. Considering the rather limited number of contracting projects in owner-occupied residential buildings, respondents may have understood this to include projects in the property market (e.g. landlord-to-tenant electricity supply). Additional important customer groups were commerce and industry, as well as the energy-intensive industry, a customer group that also increased strongly compared to the previous year. Trade, a key customer group in the previous year, declined in importance this year, bringing up the rear.

Unlike in the previous year, the third most important customer group was no longer surveyed in 2021. The figures are therefore different compared to the previous year, but the order of the first three customer groups is similar.

Figure 12: Most important customer groups for energy contracting providers

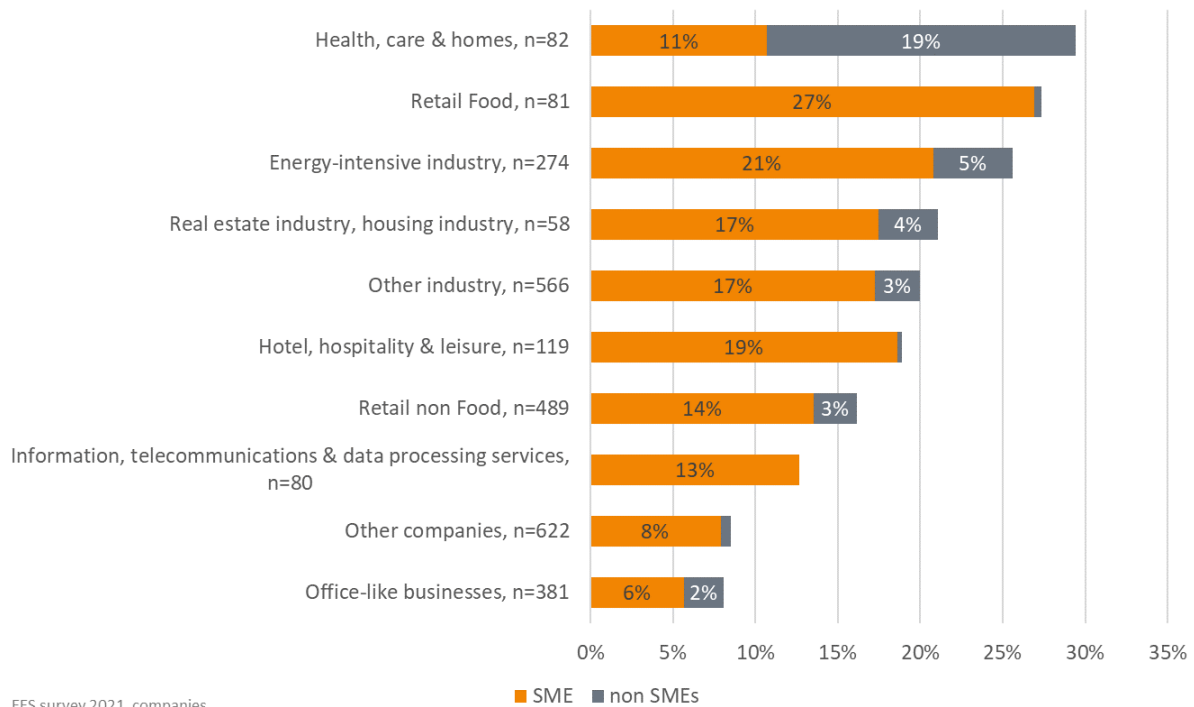


EES survey 2021, providers of energy contracting

Utilisation of contracting

In the survey of energy service users, the health sector ranked first this time in terms of the utilisation of contracting. It was primarily the non-SMEs in this sector that made use of contracting. The real estate industry, which ranked first in the previous five years, is now in fourth place. Among the SMEs surveyed, however, the “Energy-intensive industry” and the “Food trade” utilised contracting even more frequently, at more than 20% (see Figure 13). Other large groups were SMEs from the real estate sector and “Other industry”. The overall number of non-SMEs surveyed was significantly smaller. In this case, not only “Energy-intensive industry” predominated, but also the “Health, care & nursing homes” sector, which accounted for a larger share compared to the previous year.

Figure 13: Utilisation of energy contracting



EES survey 2021, companies

The percentages given in Figure 13 are based on the absolute number of companies per sector that used contracting. For example, 30% of the 82 companies surveyed altogether from the health sector utilised contracting, with SMEs accounting for 11% and non-SMEs for 19%.

Private households used contracting much less frequently. Around 4% of the condominium owners surveyed stated that they had used heating rental or similar rental and lease models in the previous five years. This share remained constant compared to the previous year but decreased slightly compared to earlier years.

The utilisation of energy services in the public sector shows that energy contracting was used far more frequently in the federal states (21%) than in the municipalities (8%).

The main reasons for both SMEs and non-SMEs to use energy contracting were to take back control of energy costs and to reduce energy consumption. Other important reasons for around 50% of the companies surveyed included relieving the company of energy production tasks as well as strategic decision-making in favour of environmental and climate protection. Around 50% of the respondents considered the future increase in the CO₂ price to be an important reason. The future tightening of legal requirements (49% and 42%) and strategic decision-making in favour of environmental and climate protection (57% and 50%) were considered to be more important reasons for non-SMEs than for SMEs, respectively. This indicates a higher demand and use of external service providers or contractors by large companies. Reasons for this could include legal requirements (e.g. requirements from the Renewable Energy Sources Act (*Erneuerbare-Energien-Gesetz* EEG), mentioned by 31% of non-SMEs) or a more professional approach to the involvement of external service providers taken by large companies.

3.2.4 Interim conclusions for energy contracting

As in previous years, a lower and an upper estimate were calculated for market volume in the market survey of 2021, to reflect any potential uncertainties. According to the 2021 survey, the market volume for contracting in the financial year 2020 was between €9.6 billion and €12.2 billion, which represents a significant increase compared to the previous year. This increase is mainly due to higher revenue shares and contracting sales from energy suppliers and municipal utilities. The results indicate a total number of around 440 providers.

A large share of the contracting providers surveyed this year were (very) large companies with revenues of over €10 million (around 55%). Small companies with revenues of up to €30,000 were represented less frequently in this year's sample compared to the previous years (less than 10% of all providers). The majority of providers were power companies or specialised contractors. On average, power companies generated 15% of their total revenue from contracting; for contractors, the figure was almost 60%, representing a significant increase for power companies compared to the previous year. The majority of providers (around 80%) predicted that market volume would continue to at least grow positively.

As in previous years, the market for contracting predominantly consisted of energy supply contracting. Energy performance contracting, as well as leasing and management contracting, were also important. Contracting's strongest market penetration was found in the health sector, energy-intensive industry, and hotel, hospitality & leisure. The use of contracting by the real estate industry – a demand sector that has been growing for years – declined this year. For providers, the most important customer group was also the real estate industry; the second and third most important groups were the public sector and private households, which represented the segments with the largest energy sales.

For around 70% of those surveyed, the main reason for using contracting was to take back control of energy consumption and to save energy, respectively. The main barriers were the lack of stability in the legal framework, the additional cost of energy efficiency technology, and having to wait for future legal regulations. Most providers felt that poor quality or too much competition were not significant as obstacles to contracting.

In the public sector, the main reasons for using energy contracting were also of a strategic nature, as well as the wish to take back control of energy consumption. Reducing energy consumption declined somewhat in importance compared to previous years. Other important reasons for this segment included the financial enabling of investments and the easing of the burden on their own staff. 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 contracting projects require staff commitment in the form of established contact persons and “drivers”, as well as support and consensus among all relevant municipal stakeholders.

3.3 Energy management

3.3.1 Market volume and development

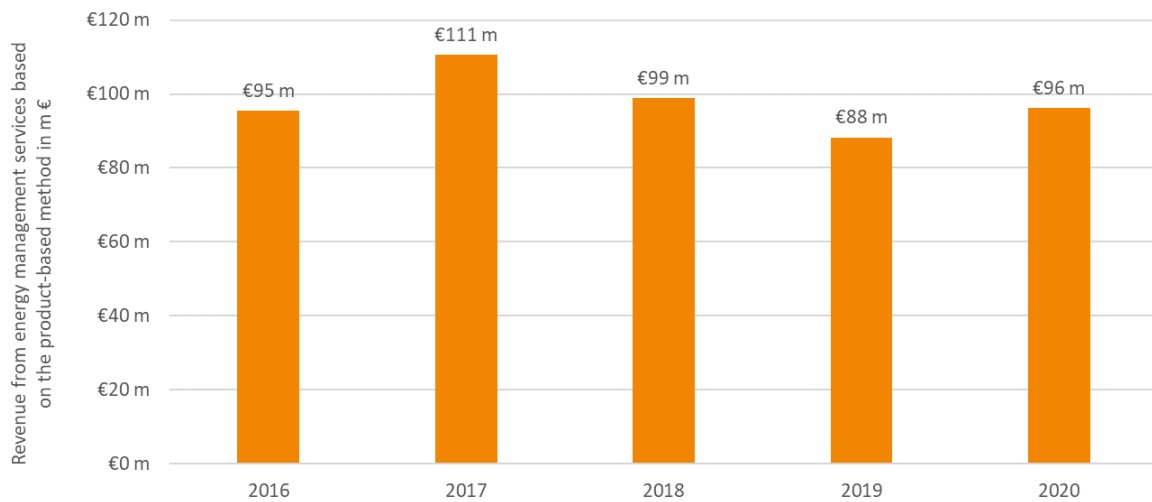
In previous years of the survey, two different approaches for calculating the market volume for energy management services were carried out in parallel, which continue to be pursued with improved methodology. The two methods and the results obtained from them are presented in this section.

Product-based method

The first methodical approach refers only to information requested on the individual subareas. For these clearly defined energy management products, 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 focuses on products with very specific definitions. 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; this makes it a conservative approach. As expected, the results for total market revenues were lower (than the second revenue-based approach described below) and are shown in Figure 14 below. An increase in volume of around 10% was observed this year compared to the previous year. A glance at the products surveyed shows that the demand figures for all sub-products increased compared to the previous year. This increase can be partly explained by the four-year cycles resulting from the obligation to perform an energy audit. In addition, however, the Covid-19 pandemic delayed the performance of external certification audits, in some cases by a year or more.

Figure 14: Revenue from energy management services per marketing year, based on the product-based method



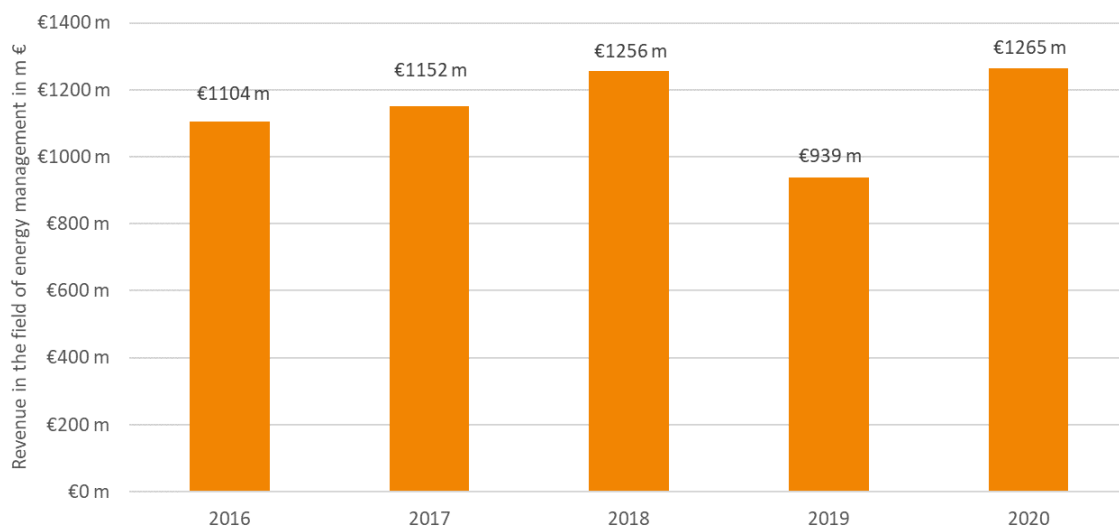
EES survey 2021, revenue based on the product-based method

Revenue-based method

The estimation of the market segment for energy management using provider data from the survey 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 energy management, are available from the survey. These figures are then supplemented by external statistics and expert estimates in order to be able to extrapolate from the sample to the population of all energy management providers.

In the survey of 2021 (marketing and financial year: 2020), this method led to revenues that, after dropping sharply in 2019 (compared to previous years), increased again to the previous all-time high.

Figure 15: Revenue figures from the past five years in the field of energy management



EES survey 2021, revenue based on the revenue-based method

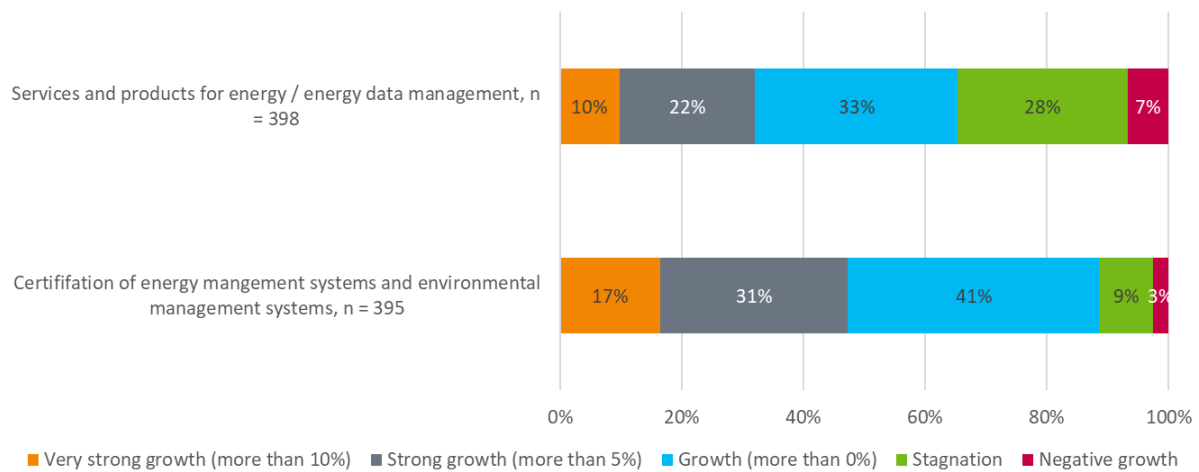
Nevertheless, this approach should still only be regarded as a supplement to the product-based method. The more than tenfold higher revenue resulting from the revenue-based method can be explained above all by the fact that energy management in general was surveyed, and not specific products. Many companies that provide energy management services understand this to mean considerably more of their services than can be represented in

these surveys. This method should be seen as an upper bound estimate, whereas the product-based method provides a better and more reliable calculation of the core market.

It should be noted that both methods demonstrate growth in the current survey. As already mentioned, possible reasons for this are the four-year cycles due to the obligation to perform an energy audit, and the postponement of external certification audits due to the Covid-19 pandemic.

Suppliers of certifications, as well as additional services and products in the area of energy management, continued to estimate that the further development of the market will be generally positive (see Figure 16). Compared to the previous year, responses indicating at least strong growth in the market for other energy management services rose slightly (from 42% to 48% of respondents), and a “growing” market was now expected in this area, similar to the situation in the previous year. The dynamics in the market for certified energy management services were similar, but less pronounced.

Figure 16: Assessment of market development in the field of energy management

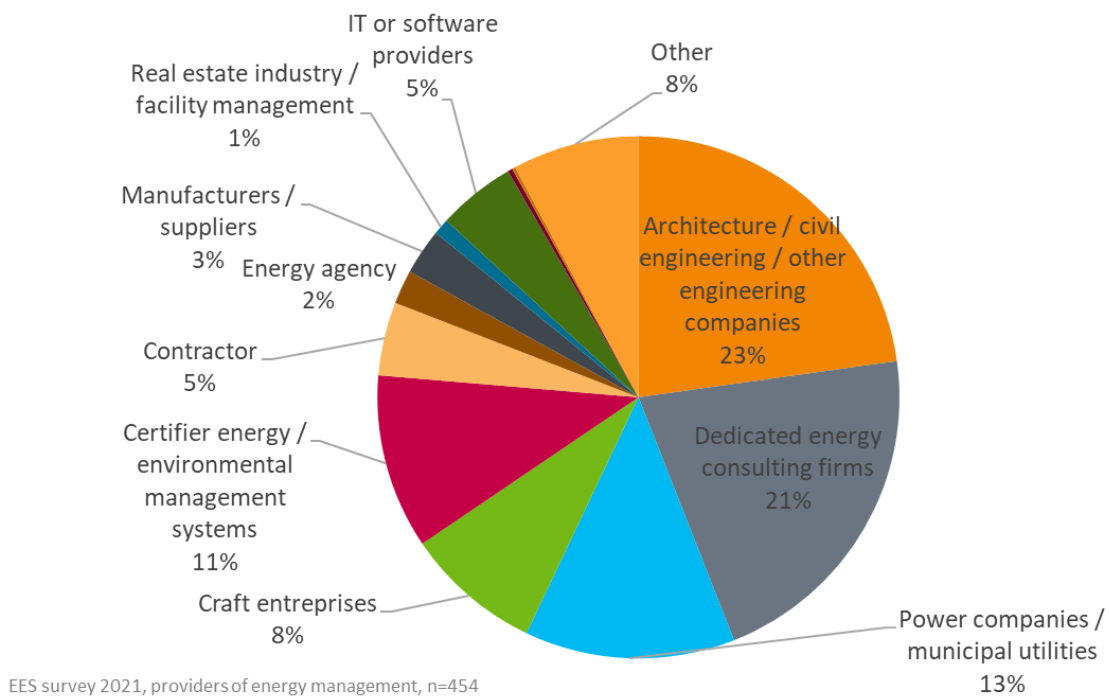


EES survey 2021, providers of energy management

3.3.2 The supply side

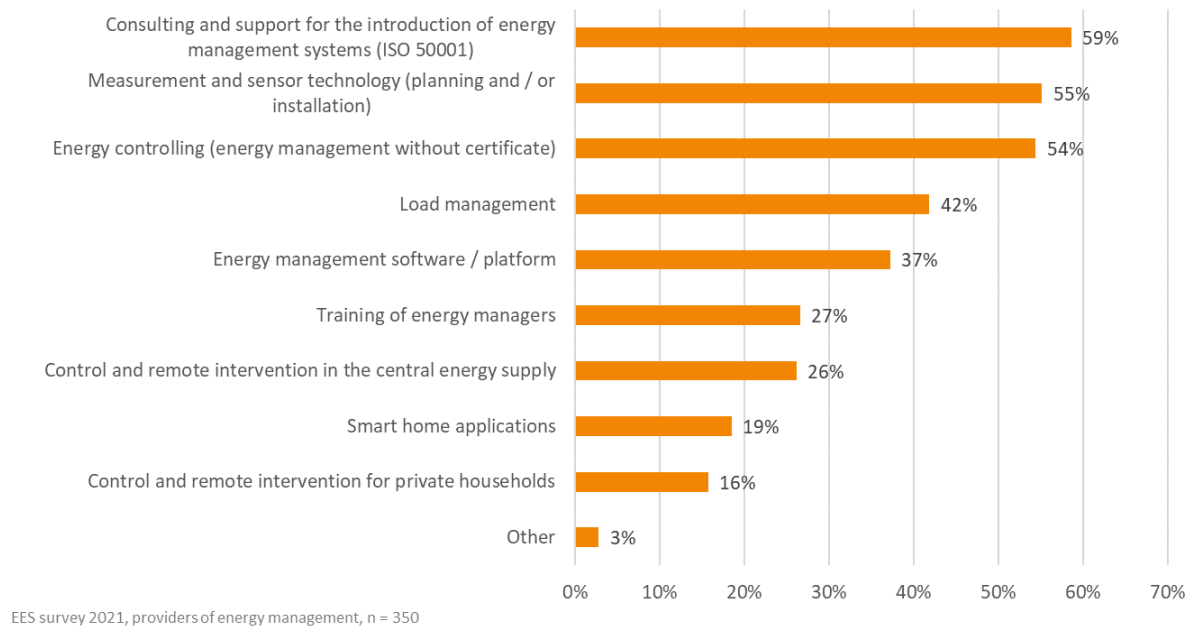
The supplier structure in the energy management market segment continued to be broadly diversified. However, as in previous years, the largest shares were concentrated on planning and consulting companies, as well as energy suppliers and certification companies (see Figure 17).

Figure 17: Distribution of sectors across energy management service suppliers



The products sold in the energy management sector varied widely. The most common products were energy management solutions with certification (59%) and planning and/or installation of measurement and sensor technology (55%) (see Figure 18). These two products each moved up one place compared to the previous year. Certified services in the context of the mandatory audit introduced in 2015 are usually required in a four-year cycle, in line with the validity of certification. On the whole, however, the differences were minor, and no long-term trends were discernible. Energy management without certification (energy controlling) came third, followed by more technically sophisticated solutions such as load management or energy management software. Although energy management continued to play a subordinate role in private households, we observed a continuous increase in the range of smart home solutions in recent years (2018: 6%; 2019: 16%; 2020: 18%).

Figure 18: Supply of energy management services



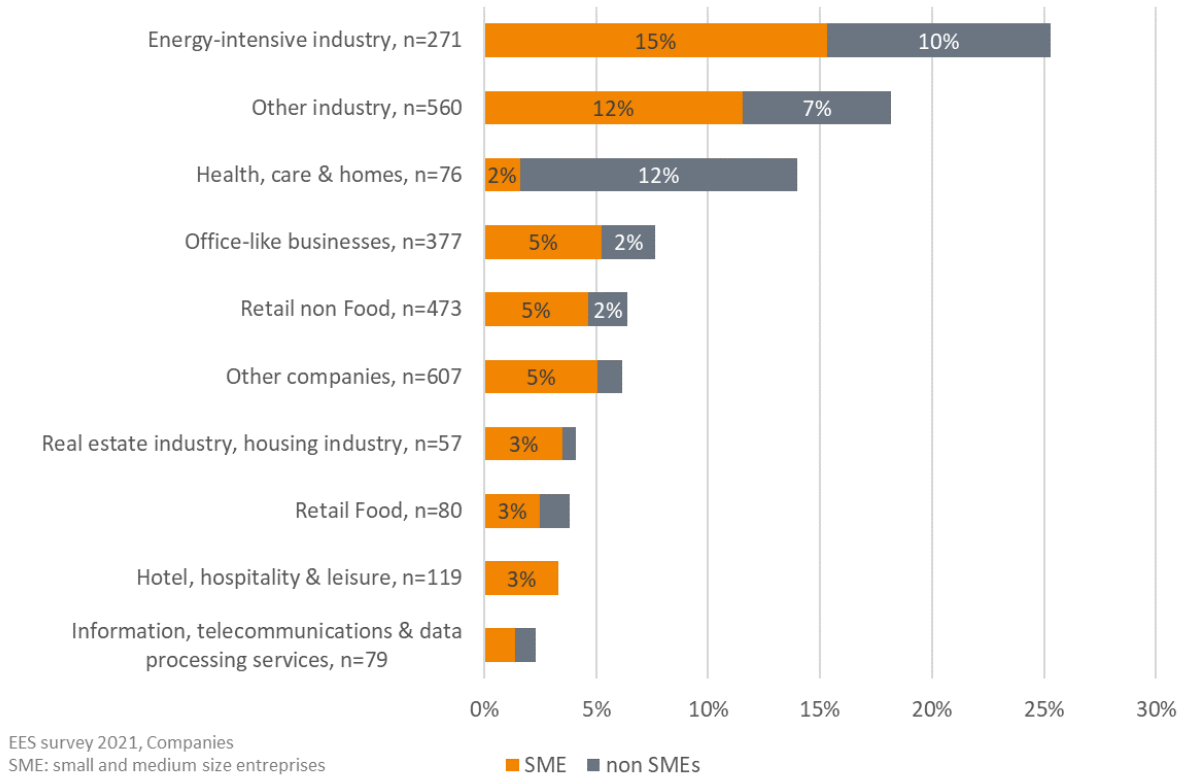
3.3.3 The demand side

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

Companies

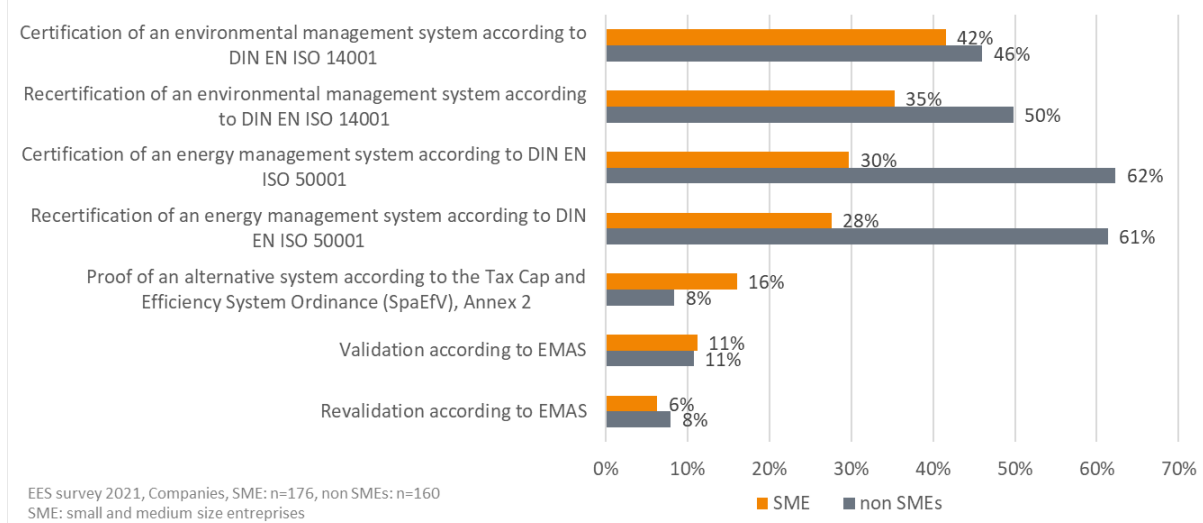
As in previous surveys, the sectors with the highest utilisation of services in the certification/validation of energy and environmental management systems within the last five years were energy-intensive industry (25%) and other industry (19%), as shown in Figure 19. Both sectors indicated a less frequent use of certified energy management services compared to the previous year. There was a significant increase in the utilisation of these services in the health and care sector, from around 8% in the previous year to 14% this year. Utilisation rates in companies from various other sectors was between 5% and 10%. Certification played a minor role in hotels and office operations. In the field of information and telecommunications, the use of certified energy management services was mentioned by less than 3% of the companies surveyed, a significant drop compared to the previous year.

Figure 19: Utilisation of certification/validation by companies



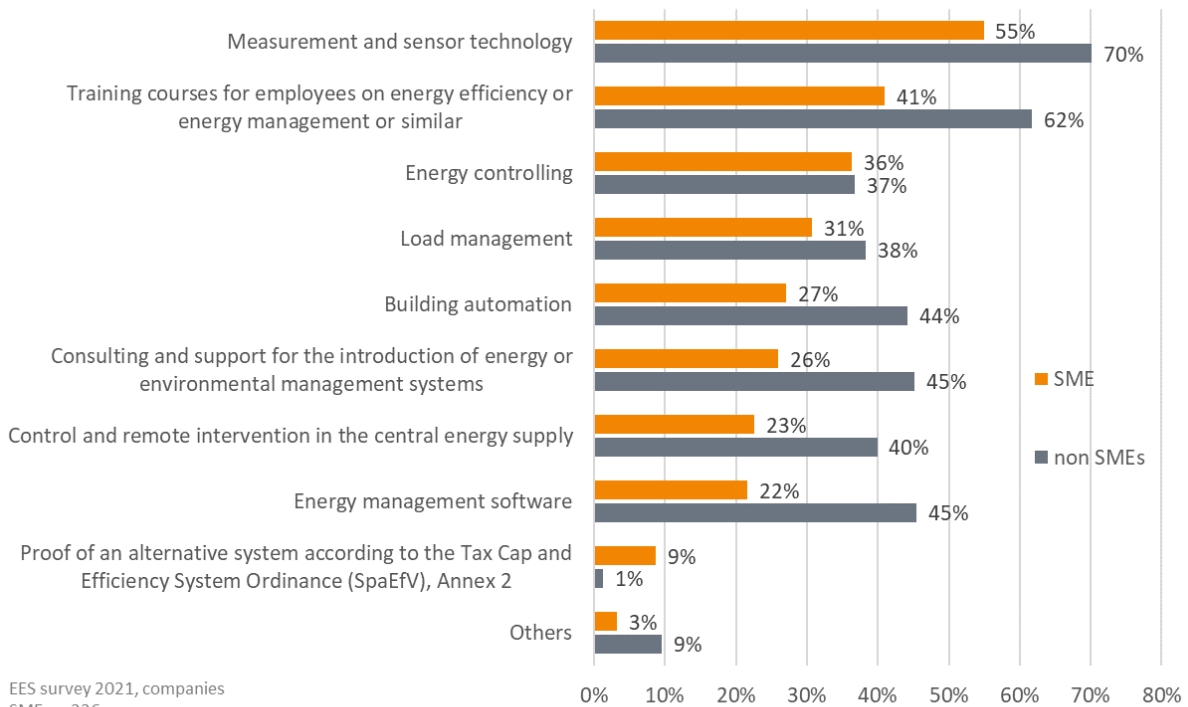
The use of DIN EN ISO 50001 remained very high, especially among non-SMEs. Above all, their certification and recertification are at about the same level as in the previous year, at 62% and 61%, respectively. The number of mentions among SMEs declined slightly, especially for certification and recertification in accordance with DIN EN ISO 14001. The number of mentions continued to rise in the case of recertification in accordance with DIN EN ISO 14001 for non-SMEs. Revalidation under EMAS was conducted less frequently in 2020.

Figure 20: Utilisation of services in energy management



Other energy management services offered in addition to certification were utilised to different degrees (see Figure 21). Above all, the installation of measurement and sensor technology was the service used most frequently by both SMEs (55%) and non-SMEs (70%). Training for employees was among the most widely used services for large enterprises, in contrast to small companies (62% compared to 41%). A large decrease from 60% to 45% compared to the previous year was recorded for the use of consulting and support for the introduction of energy management systems.

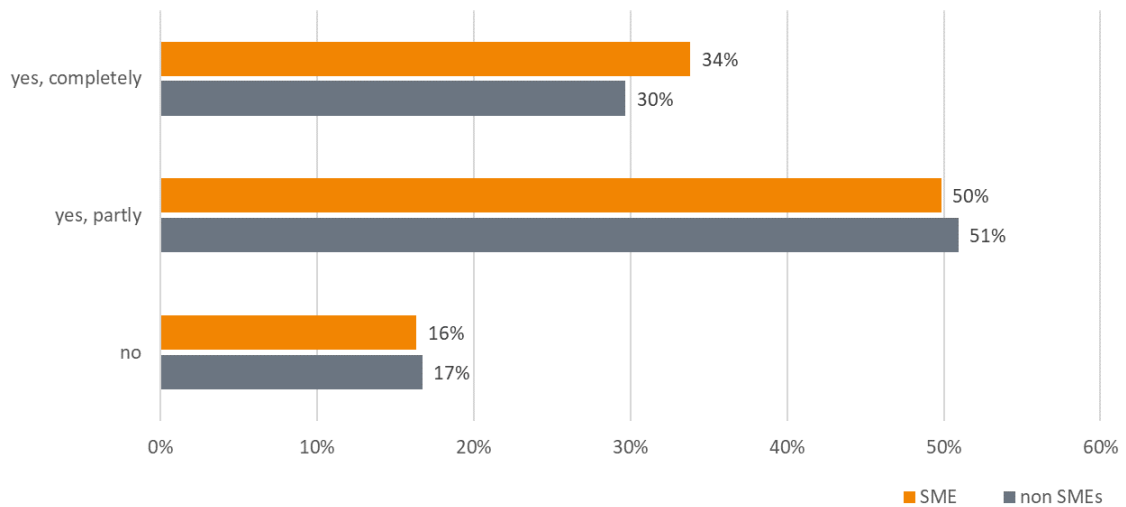
Figure 21: Services used in the field of energy data management



EES survey 2021, companies
 SME: n=226
 non-SMEs: n=144

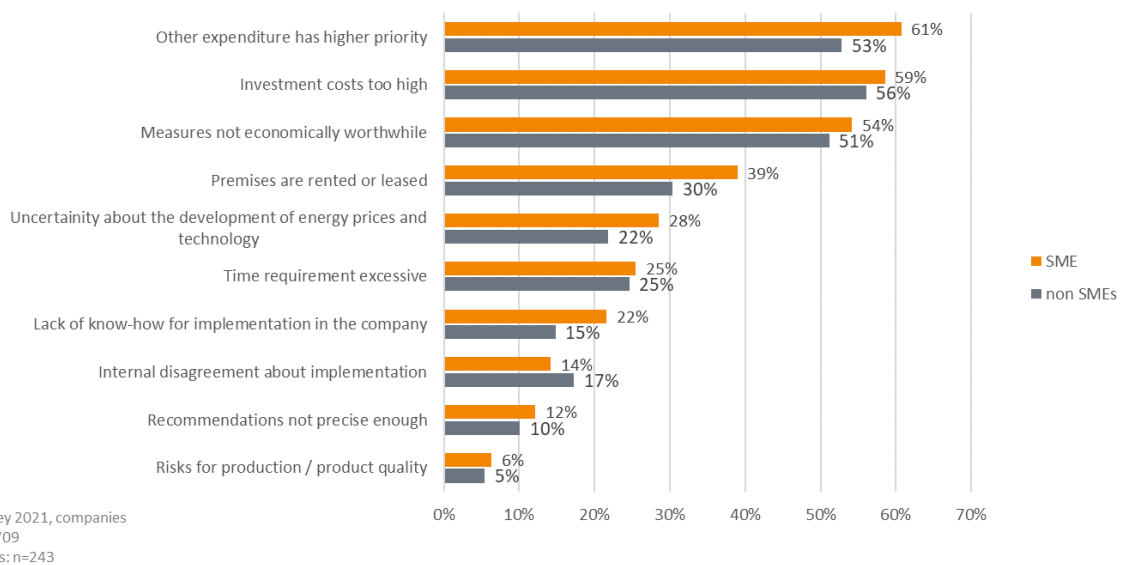
Many services in the energy management area entail suggesting measures that could lead to greater energy efficiency in the client's company. About a third of those companies surveyed had already fully implemented these measures (see Figure 22). In total, nearly 80% had at least partially implemented such measures. The difference between SMEs and non-SMEs was negligible. The number of companies that did not implement any measures increased compared to the previous year. Other changes compared to the previous year were marginal.

Figure 22: Implementation of proposed measures



For both large and small enterprises, the economic viability of measures was a crucial reason why suggested measures were not implemented, according to their responses (see Figure 23). Organisational reasons, such as time or hierarchical challenges, were also cited frequently. Obstacles from the supply side, such as technical or commercial uncertainty, were only rarely mentioned.

Figure 23: Reasons for not implementing measures



3.3.4 Interim conclusions for energy management

This year, market volume in the sector of energy management was determined using the product-based approach and the revenue-based approach - yet again. The result from the product-based approach, almost €96 million in the marketing year 2020, was around 10% above that of the previous year. The revenue-based approach yielded a market volume of just under €1.2 billion as the upper bound estimate, which corresponds to an increase of around 35% compared to the previous year.

Overall, 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 energy management can be described as very 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.

The further development of the market, also in the direction of climate management, will be taken into account as the project progresses – particularly in view of the political goal of achieving climate neutrality.

4 Summary and outlook

4.1 Summary

Energy services continue to play an important role for investments in energy efficiency. Since 2016, the Federal Energy Efficiency Center (*Bundesstelle für Energieeffizienz– BfEE*) has regularly monitored and evaluated this market with research support from a team of evaluators (Prognos AG, ifeu Institut, Kantar).

The spectrum of energy service providers and energy service products is broad; the latter in particular is not always clearly defined and therefore hard to capture. For this reason, the BfEE and its team of researchers focused on specific energy services. The market structure resulting from this consists of three segments – energy consulting, energy contracting and energy management.

This survey was mainly conducted using computer-aided telephone interviews based on guided questionnaires for both the supply and the demand side. The demand side of German energy service markets was addressed by surveying 2,161 households (tenants and owners), 2,751 companies of various sizes, and 514 authorities (federal, state and municipal).

As in previous years, the methodology of the study has been further refined this year; selected issues remain a challenge nonetheless. While the survey presented overwhelmingly stable, robust and replicable results in many areas (especially in comparison to previous years), the extrapolation of market volume remains afflicted with uncertainty. At these points, complementary methodological approaches, such as the utilisation of a web crawler (for contracting providers), were able to establish an additional empirical basis. Uncertainties remain, however, even when taking a great deal of care.

The three largest parts of the German energy services market generate an annual turnover of around €10 billion to €13 billion. Compared to previous years, growth can be observed in all market segments for 2020.

Market-oriented energy services 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 and engineering companies, or specialised energy consulting firms. Energy suppliers, municipal utilities and increasingly specialised companies operate in the more complex and demanding segments of energy contracting and energy management. Other provider groups come from more technologically oriented sectors (such as 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 energy services 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 energy contracting and energy management market segments can be observed over the years that point to a slightly consolidating market.

For every market segment, the regional availability of providers was analysed by processing site and delivery radius. Energy service providers in Germany are generally evenly distributed across all regions, with higher concentrations in economically and demographically strong regions in the south and west of Germany, such as

Baden-Württemberg, Bavaria and North Rhine-Westphalia. Overall, there are still no regions in Germany with a supply shortage.

As in the previous studies, the critical weakness in the market remains on the demand side. This implies that the quotas for using energy services have not been exhausted. In all product groups, utilisation rates are far below 50%, indicating that there is significant untapped market potential. Although energy services are highly relevant to the issue of energy efficiency, in-house implementation remains the biggest competitor to the utilisation of external energy services. Private and public sector investors remain hesitant about using energy services. This reflects a general hesitancy, which has also been observed in the case of energy efficiency products: they are mainly products that would be useful and helpful for achieving Germany's energy and climate goals; however, there is not much pressure on players to act. This changes noticeably when looking at more energy-intensive industries, or those sectors in which there are specific incentives or requirements to use energy services.

4.2 The future energy services market

Whether and to what extent the markets will manage to take advantage of the favourable energy and climate policy environment, and further exploit the potential for energy services, depends on several factors:

- The further elimination of barriers and imbalances in regulatory frameworks,
- The creation of incentives, transparency and trust, especially on the demand side and
- The further development and provision of future-proof energy services products.

Regulatory frameworks

In recent years, regulatory barriers have been systematically removed, but there are still issues that need to be addressed. For some subsidy programmes, particularly in the case of the "Federal Funding for Efficient Buildings" (*Bundesförderung für effiziente Gebäude – BEG*) programme, access to subsidies has improved, also for energy service providers, now that they can be granted free of aid. The extent to which such solutions can be transferred to other subsidy programmes should be systematically reviewed. The current amendment of the State Aid Directive could lead to a further improvement.

With regard to energy prices, legislators are working at the European level to amend the Energy Taxation Directive in such a way as to place greater emphasis on the climate impact of different energy sources. At the national level, there is talk of (partially) abolishing the Renewable Energy Sources Act (EEG) surcharge. This would, above all, also lead to a reduction in the higher burden of electricity supply by third parties (e.g. contractors) compared to self-supply. Moreover, the currently high wholesale prices are already causing a sharp decline in the EEG surcharge. Overall, the ultimate goal should be to achieve the systematic equal treatment of in-house and external services in all areas ("level playing field").

In real estate projects, criticism continues to be voiced about the narrow leeway for projects involving commercial heat supply (particularly "cost neutrality"). In this context, the aim should be to achieve a heat supply regulation that is more oriented towards the future (e.g. "comparison of costs with future costs") as well as a level playing field compared to self-supply. A systematic (mandatory) installation of heat meters in rented properties should create greater transparency with regard to the quality of heat supply. Above all, the added value of commercial energy supply should be made transparent to tenants, especially if significant cost components are passed on to tenants (Prognos et al. 2021).

In the case of public-sector projects, the aim should also be for the public procurement of professional energy services to be just as much a matter of course in the future as the implementation of such services. This also entails the reliable procurement of service contracts with longer contract terms, simplified in terms of budgetary law.

The demand side

The greatest challenges for the market continues to be on the demand side. Energy efficiency – and therefore also energy services – continue to receive too little attention from the “typical SME” or “average landlord”. For the vast majority of commercial companies (with the exception of energy-intensive ones only), this is mainly due to the low share of energy costs in total revenues – in spite of high energy prices.

In the real estate industry, energy costs continue to be passed on in full to tenants, while the requirements for energy-efficient modernisation in existing buildings are inadequately enforced by the state. There are now state subsidies available for energy modernisation on an unprecedented scale. In many cases, however, the use of subsidies is unattractive for (solvent) landlords from an economic point of view, especially since investment restraint is likewise an economic option in very tight markets. Similarly, refinancing by means of a full modernisation allocation will almost always be more economical than modernisation using subsidies. As a result, the preference to “sit back and do nothing” is the greatest challenge, not only from the perspective of energy services markets, but for the energy transition as a whole.

In view of this, the effects of rising prices and the CO₂ price are hardly felt by a large number of players, or these effects are highly cushioned. Strategically, this can be addressed through a “push-push-pull” strategy: first, the corresponding price incentives must resonate with stakeholders who have the ability to invest (“push”); second, regulatory provisions should be geared to the long term, and ultimately also enforced (“push”). Only then will investors be motivated to tailor their investment to the future and to make planned use of the attractive funding programmes (“pull”) made available in the third step. Last but not least, in the last step, investors should be free to take “make-or-buy” decisions without being penalised either way, i.e. the strategic question of whether they should realise the investment themselves or whether they should use the support of energy services offers for the purpose of implementation.

A final key aspect for activating demand is the need to create transparency and trust. As the recent evaluation of the Heat Supply Regulation (*WärmeLV*) shows, most of the stakeholders involved are not aware of the operational efficiency of either old or new systems. It is therefore hardly surprising that customers’ trust and willingness to pay remain limited. In this respect, an important prerequisite is that the operational efficiency of existing systems is recorded and made known, e.g. through the mandatory rollout of heat meters. Existing uncertainty about the allocation of energy services costs can only be reduced on the basis of “transparent added values and services”.

Future-proof energy services products

This study primarily refers to established services such as energy consulting, energy management and energy contracting. For methodological reasons alone, questions can only be asked about products for which there is a common understanding and an established vocabulary. A standardised broad survey is methodologically less appropriate for identifying the latest trends. A supplementary digital analysis was carried out on the internet (“web crawler”) to identify new products. It goes without saying, however, that established products (e.g. management, energy supply) also dominate in this case.

It is generally encouraging that the current survey identified market growth for all established products. However, it should be noted that a large part of the market continues to be dominated by “traditional energy supply”: 90% of the identified market volume is driven by energy contracting; in turn, 60% of the contracting market, i.e. about half of the total market, is generally dominated by traditional energy supply.

The following current developments are shaping the markets for energy in general, and for energy services in particular:

- Following the decision of the Federal Constitutional Court, the last Federal Government set stricter climate and energy turnaround targets (“climate neutrality by 2045”), backed by a programme for immediate action to help achieve these more ambitious targets.
- The new Federal Government, and especially the Federal Minister for Economic Affairs and Climate Action, announced further measures for the first six months of 2022, following his “opening statement” in January 2022. In part, this may also involve the implementation of stricter requirements at the EU level, which are currently still under discussion.

Since late autumn 2021, prices on conventional energy markets have been rising steeply, primarily driven by economic and geopolitical effects. Even if these effects normalise in the short to medium term, current prices are likely to make many consumers particularly aware of their dependence on fossil fuels. These dynamics present special challenges for energy services providers, but they also offer special opportunities:

- Many end consumers will take the current price shock as an opportunity to reconsider their energy supply options in the short term and, above all, to switch to future-proof energy sources. Price developments can already be observed on the markets for renewable heat, some of which are in line with conventional markets and some of which are also encountering tangible shortages.
- According to plans of the new Federal Government, all new heating systems are to feature a minimum of 65% renewable energies from 2025. Even now, this will lead to increased demand for future-oriented solutions, in some cases for electricity-based systems based on heat pumps, in others for bivalent or multivalent heating systems, with several generation options. The market is therefore called on to offer reliable technical systems that can be used to meet these requirements and operate installations reliably in the long term. Integrating the relevant share of renewables poses particular challenges, particularly when it comes to converting large multiple dwellings.
- This results in planning complexity, given that the future-oriented modernisation of heat supply can no longer be considered independently of measures on the building side. Going beyond boiler room conversions, this requires integrated strategies for energy refurbishment, including thermal insulation measures, as well as the modernisation of secondary systems.
- If energy services markets want to use and shape these developments in the context of commercial heat supply, this requires closely coordinated consultation with owners and tenants alike. Besides the technical complexity, there is also contractual complexity and a certain amount of extra effort involved in the transaction and implementation stages.
- Overall, all energy services (energy consulting, energy management and energy contracting) as well as the conventional channels of implementation (“in-house”) will face a major challenge to implement the desired dynamics. Last but not least, all players are already encountering a noticeable shortage of qualified professionals to implement measures.

To summarise, it can be said that the current framework conditions are capable not only of sparking desirable transformation dynamics, but also of actually demanding them. To ensure that such dynamics lead to the implementation of measures, and not to new or additional market bottlenecks, joint and coordinated efforts on the part of all players are required.