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

Summary of the 2020 Final Report – BfEE 17/2017

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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

www.bfee-online.de

Contact – BfEE:

Stela Ivanova

Prognos AG

Friedrich Seefeldt (Project
Management)

Dominik Rau

Malek Sahnoun

Nora Langreder

ifeu

Dominik Jessing

Dimitris Tsoutsoulopoulos

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

Germany

www.ifeu.de

Kantar

Landsberger Straße 284

80687 Munich

Germany

www.kantardeutschland.de

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1 Background and goals

To meet Germany's climate goals and achieve the *Energiewende* (energy transition), many pieces have to come together. Markets for energy efficiency and energy efficiency services (EES) are two key pieces. These two 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. According to Section 9(2)(5) of the German Energy Services Act (*Energiedienstleistungsgesetz*, EDL-G), the Federal Energy Efficiency Center (Bundesstelle für Energieeffizienz, BfEE) is – among other duties – responsible for monitoring the market for energy services, energy audits and other energy efficiency measures, as well as for developing proposals for the further development of the market.

The BfEE has studied the market for energy efficiency services annually since 2016. Emphasis is placed on the product segments of energy consulting, energy contracting and energy management. This study is the fifth one in a row. 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 concretely defined. As in previous years, not only market participants from the supply side, but also demand-side companies and households, and public sector stakeholders were interviewed for this study.

2 Survey design

The goal of this study is to monitor and assess the development of the market for energy services in Germany. To this end, the project created an indicator-based survey design 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- and demand-side motivations, barriers and information channels, as well as expectations regarding market development¹.

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 an online questionnaire; and
- The collection of qualitative information by means of structured interviews with experts in 2016 and 2018.

The method 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 continue to allow the creation of time series over multiple survey years.

A total of five standardised surveys were conducted. Surveys on the supply side were conducted online and by telephone. The online survey was sent via a distribution list to almost 7,000 relevant addresses. On the provider side a selection of 261 companies were interviewed by telephone, and 493 participated in the online survey of

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

providers (see Table 1). On the demand side, Kantar surveyed 2,751 companies, 2,483 private households and 514 public sector institutions by telephone. 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 2020

	Sample	Short name
Supply side		Providers
By telephone	261	
Online (usable responses)	493	
Demand side		
Companies	2,751	Companies
Private households	2,483	Households (tenants/owners)
Public sector	514	Public sector

With the exception of the public sector, all datasets are given a weighting variable to compensate for potential sample biases 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 such as market volume are not weighted; qualitative analyses are weighted.

3 Results

The German energy services market, with its three large segments, generated a total annual turnover of €7 to 10 billion. Although there is a great range of fluctuation due to the methodology, overall the market is still seen to be robust and stable. Table 2 shows the market volume for the energy services market and the three market segments over the past five years. In this instance, it is important to consider that the survey years are one year later than the fiscal year under review. This 2020 market analysis (current report) therefore reports figures for 2019. The methodological challenges will be explained in greater detail in the following sections. Detailed market figures and selected aspects are also presented for the individual market segments.

Table 2: Market volume overview

In euros	2020 market analysis	2019 market analysis	2018 market analysis	2017 market analysis	2016 market analysis
Energy consulting	~ 416 m	~ 360–403 m	~ 370–402 m	~ 790–850 m	~ 470–520 m
Energy contracting	~ 7.4–9.0 bn	~ 6.7–9.7 bn	~ 7.2–8.6 bn	~ 7.7 bn	~ 7.2–8.4 bn
Energy management services	~ 88 m	~ 99 m	~ 110 m	~ 107 m	No comparable value available
Total	7.9–9.5 bn	7.2–10.2 bn	8.0–9.5 bn	8.9–9.0 bn	7.9–9.1 bn

3.1 Energy consulting

3.1.1 Market volume and development

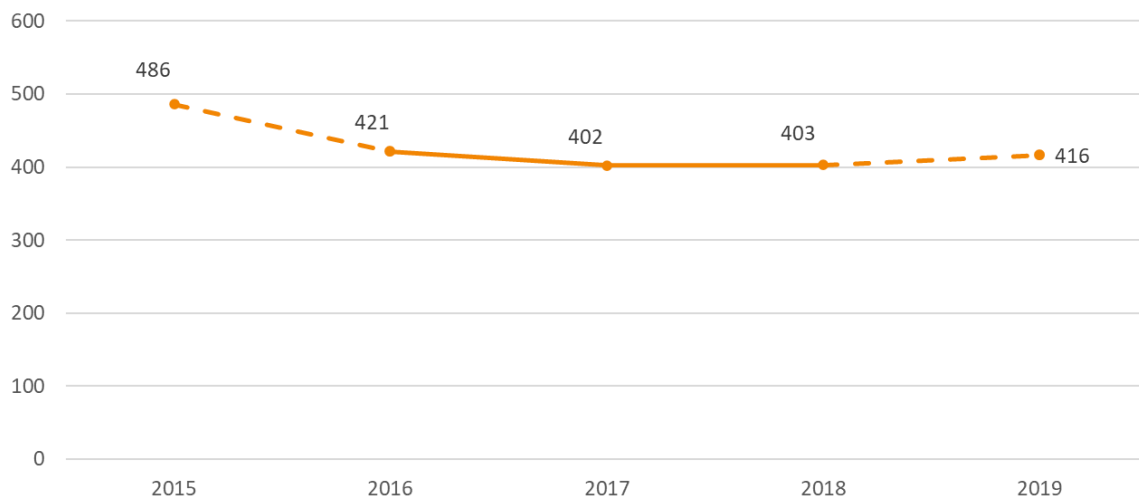
The total market for energy consulting was stable in previous years; conservative estimates place the total volume in 2019 at around €400 million. This figure was mainly calculated based on three variables: for each type of

consulting, the average number of consultancy sessions for every provider of the respective service 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 2019 did not change; the sample, however, changed in that different input data was used. Consequently, the most obvious difference compared to the earlier studies is that, for 2019, the key figures were only extrapolated with the known number of 5,000 “active” energy consultants. The new method of random sampling focuses on registered energy auditors and energy consultants who submitted at least one funding application under a federal funding programme over the last five years. This narrowed the sample down to current cases only, enabling much more precise statements on the topic of energy consulting. As a result, market volume is not comparable with that of previous studies because the perspective of the market analysis has changed.

At €416 million, the minimum market volume was close to the result of previous years, albeit with significantly fewer “active” providers in the projection. However, these providers conducted more consultations on average, and generated higher revenues. This compensates for the smaller number of actors. Figure 1 below shows the development over time. It is important to consider that the survey methodology changed between the market surveys for 2015 and 2016, and, as already mentioned, between 2018 and 2019, meaning that the figures are only comparable to a limited extent.

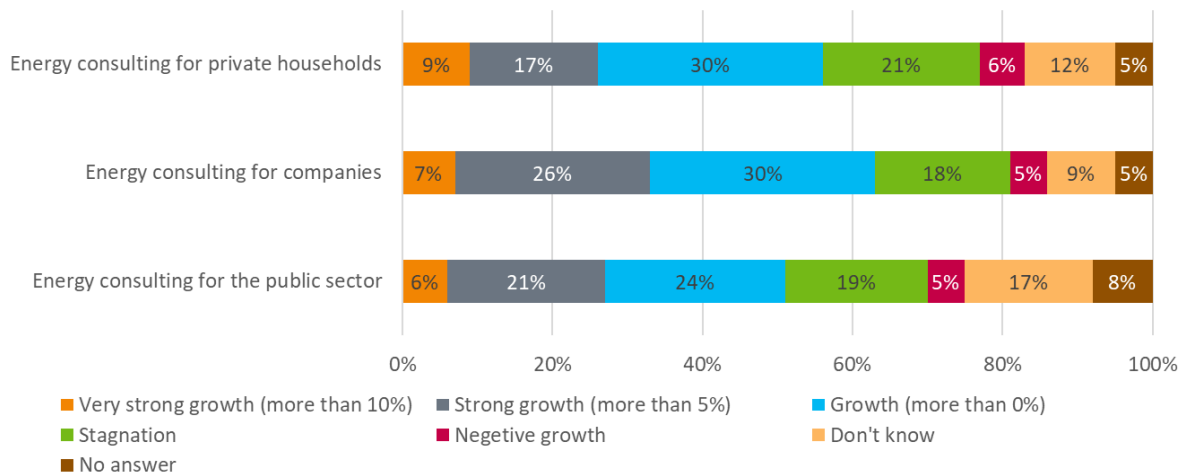
Figure 1: Minimum market volume, based on the survey of providers (in million euros)



EES survey 2016 till 2020, Providers of energy consulting

Energy consultants were generally positive when predicting market development in the coming years (see Figure 2). As in previous years, they are still expecting significant growth in energy consulting for companies (63% categorised it as “growing”, “growing strongly” or “growing very strongly”). Almost 60% of those surveyed also anticipated an increase in the demand for energy consulting for private households. The development of the energy consulting market for the public sector was assessed more conservatively. 51% of those surveyed expected growth in this market. As such, the result is broadly comparable to last year’s market study.

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



EES survey 2020, Providers offering energy consulting services, n=656

The respondents' planning also matched the positive market outlook. Around half of them planned to increase their turnover from energy consulting and audits.

3.1.2 The supply side

As mentioned previously, the supply-side figures in this study are based on a sample generated from a pool of 5,026 "active" energy experts in Germany who are known either because they are registered as an energy auditor 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 consultation provided by chimney sweeps, heating engineers, environmental consultants, municipalities, municipal utilities and sales specialists.

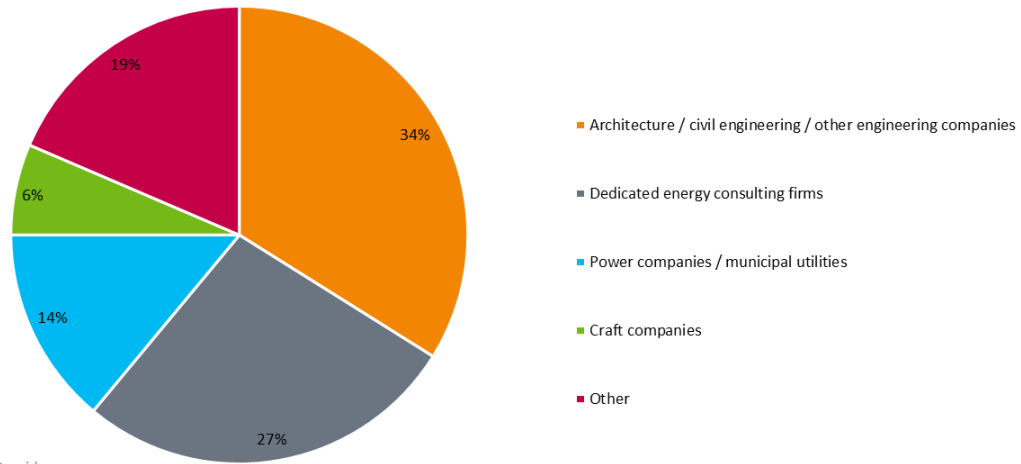
The energy consultants surveyed in this study often offer several types of energy consulting (see Figure 4). Based on the total number and factoring in the product ranges respondents gave in the survey results, for the defined consulting products Germany had around 2,500 consultants that offered energy audits, around 2,200 providing energy consulting for non-residential buildings, some 1,900 for plants and production processes, and almost 3,000 for residential buildings.

Compared to the market analyses from previous years, the change in the input data for the survey of providers (see Section 3.1.1) had a clear impact on the sample and on the key market indicators on the supply side. In particular, the representation of auditors, which was now significantly stronger, had an influence on many key figures.

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 more than 60% of all companies (see Figure 3). Power companies / municipal utilities and craft enterprises accounted for 14% and 6%, respectively. Compared to the market survey of 2019, power companies and municipal utilities were now represented somewhat more frequently in the sample, while the share of architecture and engineering companies decreased.

Figure 3: Sector distribution of energy consulting providers



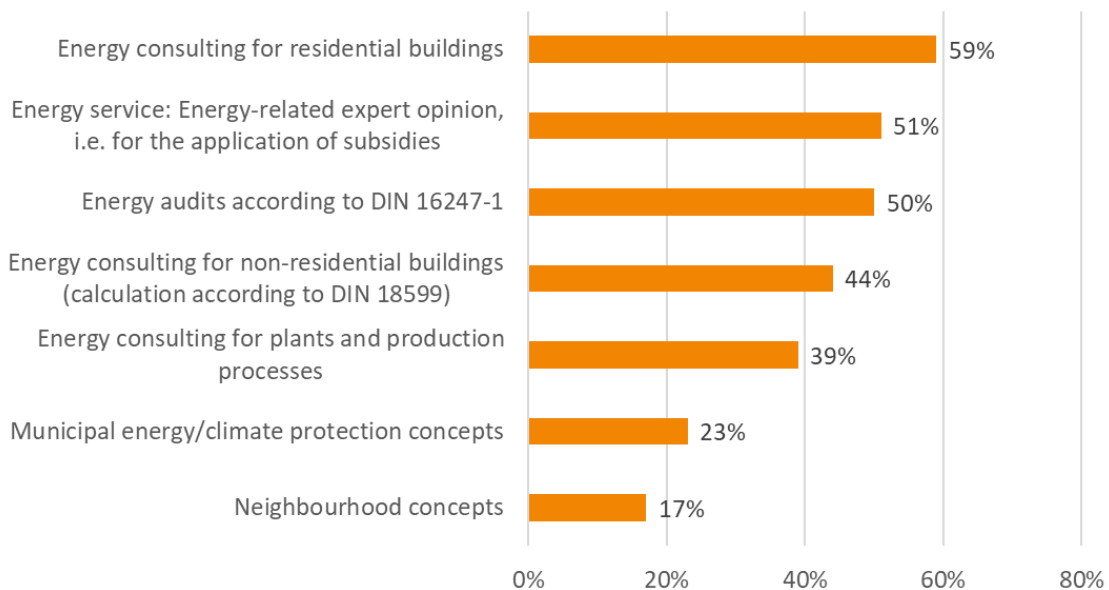
EES survey 2020, Providers,
Filter: Only providers offering energy consulting services, n=656

The organisational structure of the providers surveyed shows little change compared to 2019. 46% of those indicated that energy services were the core activity of their business. 16% had a separate department for energy services, and in another 17%, 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. Half of the respondents also offered energy-related assessments or energy audits. In this area, the share of supply companies in the sample increased significantly by 18% compared to the previous year. Energy consulting for non-residential buildings fell slightly, but remained a popular service. Consulting for plants and production processes was offered by 39% of those surveyed – an increase of 11% compared to the previous year.

Figure 4: Types of energy consulting offered

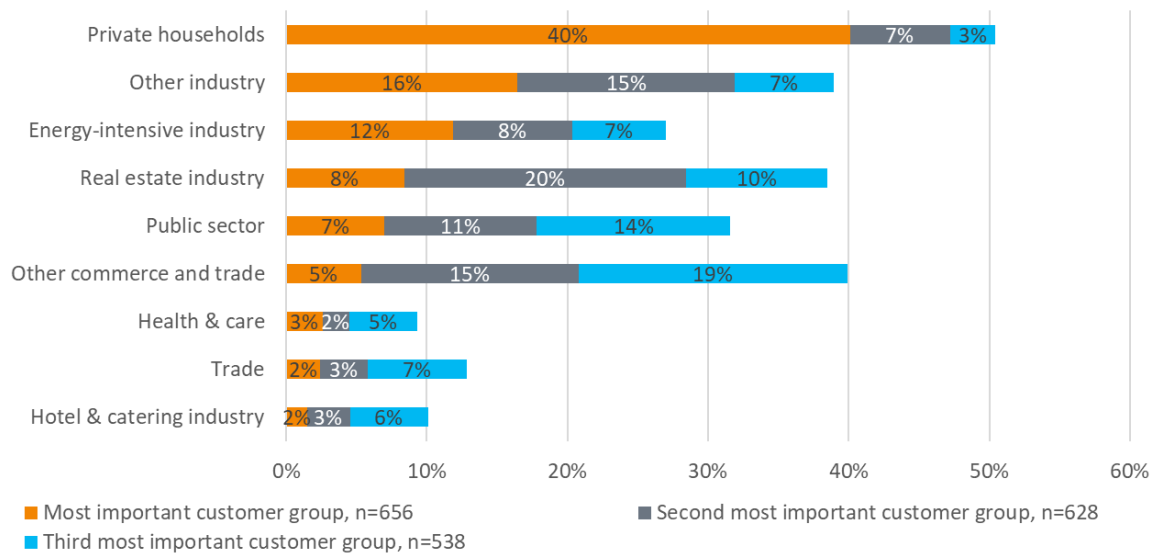


EES survey 2020, Companies, Multiple answers possible,
Filter: only providers offering energy consulting services, n=656

3.1.3 The demand side

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, however, there was a whole range of other customer groups that were particularly important for the energy consulting market. These included, above all, industry; commerce, trade and services (CTS), and the public sector.

Figure 5: Most important customer groups according to providers



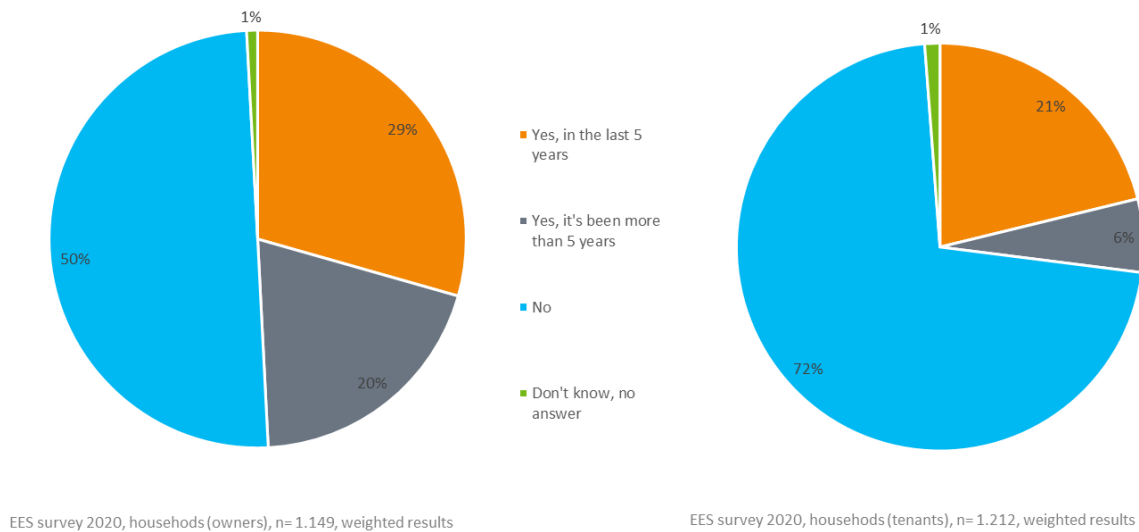
EES survey 2020, Providers of energy consulting

On the demand side, different sectors assessed the importance of energy efficiency very differently. The issue was of greatest importance to households, whereas companies were comparatively less interested in energy efficiency. In addition to the respondents' different assessment of importance, each sector gave very different reasons for using energy consulting. The mere fact that these respondents considered the issue to be "relevant" did not mean that there was any active demand for services.

Households

Among the owner-occupied households surveyed, slightly more than a quarter made use of energy consulting in the last five years, and for a further 20%, consulting was provided more than five years ago (see Figure 6). This meant that half of these households had never used energy consulting services before.

Figure 6: Households: energy consulting services procured



In the case of tenant households, the proportion that had used energy consulting in the last five years or more was lower than for owner-occupied households. Overall, more than two-thirds of tenant households had never used energy consulting before.

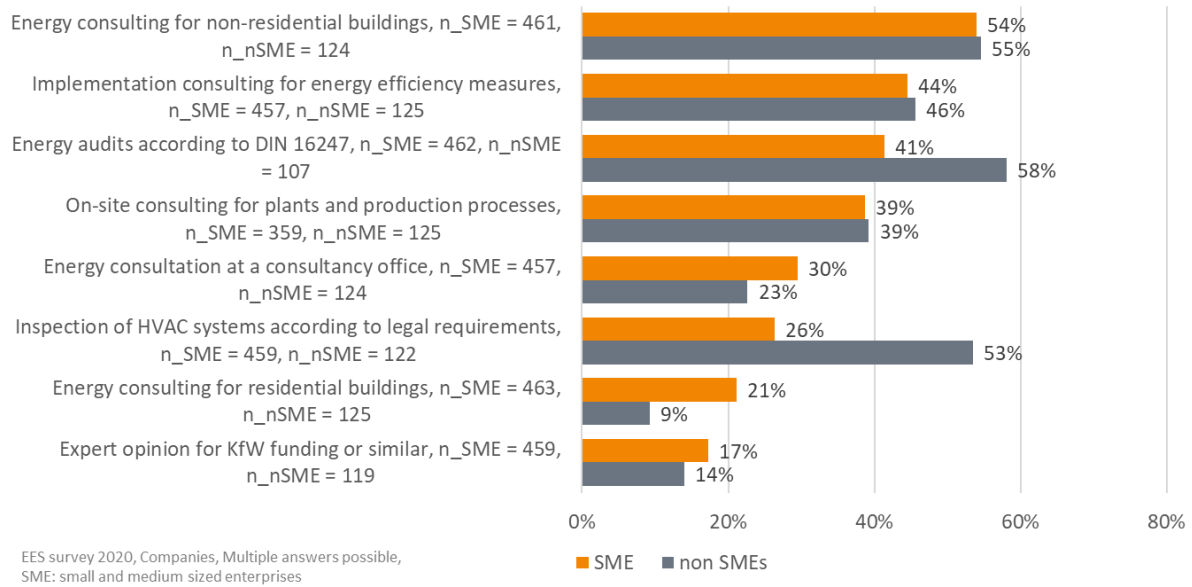
Looking at the development over time, the picture is different for owner-occupied and tenant-occupied households. While the share of energy consulting customers among tenant households decreased (especially between 2019 and 2020), the share among owner households increased.

Companies

According to the results of the current survey, only a small proportion (22%) of the companies surveyed used energy consulting or energy audits according to DIN 16247 as an external service over the past five years. The figure increased slightly compared to the 2019 survey, confirming a positive trend, but remained significantly lower than in 2017. However, it should be taken into account that the question was slightly altered between the 2017 and 2018 surveys: in 2017, separate questions were asked about the use of energy consulting and the use of energy audits, for which the take-up was 44% and 12%, respectively. As of 2018, only one joint question has been asked regarding their use.

When consulting services were used, the entire range of services was requested, 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, energy audits and energy consulting on plants and production processes. Differences in use between small and medium-sized enterprises (SMEs) and large enterprises were mainly due to legal requirements for energy audits (mandatory for non-SMEs, subsidised for SMEs) and inspections for air conditioning systems.

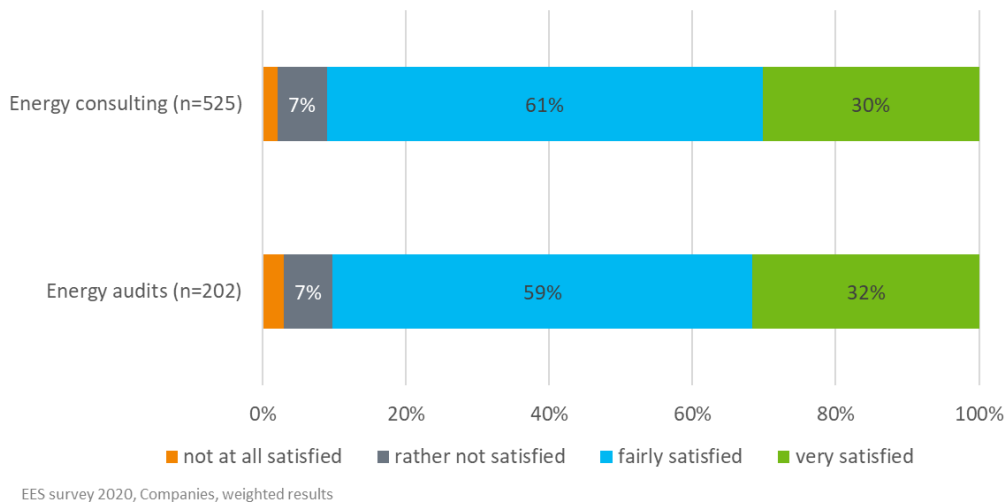
Figure 7: Companies: types of consultancy procured



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 gained 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 surveyed were rather dissatisfied or not at all satisfied in each case (see Figure 8).

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



Considering the low use of energy consulting services by companies, and how, at the same time, those companies that have used these services nevertheless signalled a high satisfaction rate, it seems that a more active approach to the market by providers might lead to an increase in energy consulting on the market. Unlike households, some companies indeed have enough of their 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.

3.1.4 Interim conclusions

According to conservative estimates, the market segment for the energy consulting services explored in this study amounted to a total volume of just over €400 million in the financial year 2019. 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 overall market volume determined for this market has therefore remained stable for the fourth year in a row; this is also true for the number of suppliers and consultations, consulting costs and hourly rates. However, the change in methodology makes it difficult to draw direct comparisons with previous years.

The entire range of consulting products were used in all areas of the demand side, and customer satisfaction with these services was high.

There was sufficient supply throughout Germany for current demand for qualified energy consulting. There were no signs on the demand side that supply may be insufficient. However, there appears 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. Professional energy consulting firms could facilitate additional activities, or otherwise guide and qualitatively improve them. These facts add to an impression that a stable, yet less dynamic market for energy consulting does not match future goals. 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. Besides there being additional demand, there is also additional funding available.

Significant changes in the energy consulting market are likely in future years. The new Buildings Energy Act (*Gebäudeenergiegesetz*, GEG), which came into force at the end of 2020, sets out for the first time the requirement for buyers or owners to undergo an obligatory free energy consultation when single- or two-dwelling buildings are sold or are to undergo major renovation. The coronavirus pandemic may also have an impact, which is not yet apparent due to the retrospective nature of the market analysis, but which also suggests a change in demand. On the cost side, increased subsidy rates and tax relief for energy efficiency measures are likely to have a positive impact on the market. In addition, the introduction of a CO₂ price provides a price signal – albeit weak at first, but increasing over time – that seeks to accelerate modernisation and the switch to renewable energies in the long term. In view of this, the market for energy consulting is likely to grow in future years.

3.2 Energy contracting

3.2.1 Market volume and development

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 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 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 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 480 contracting providers were identified. In 2019, these companies generated a total revenue of around €240 billion, with revenue from contracting accounting for some €8.2 billion. The providers were assigned to sectors according to the Nomenclature of Economic Activities (NACE codes). Companies that generated most of

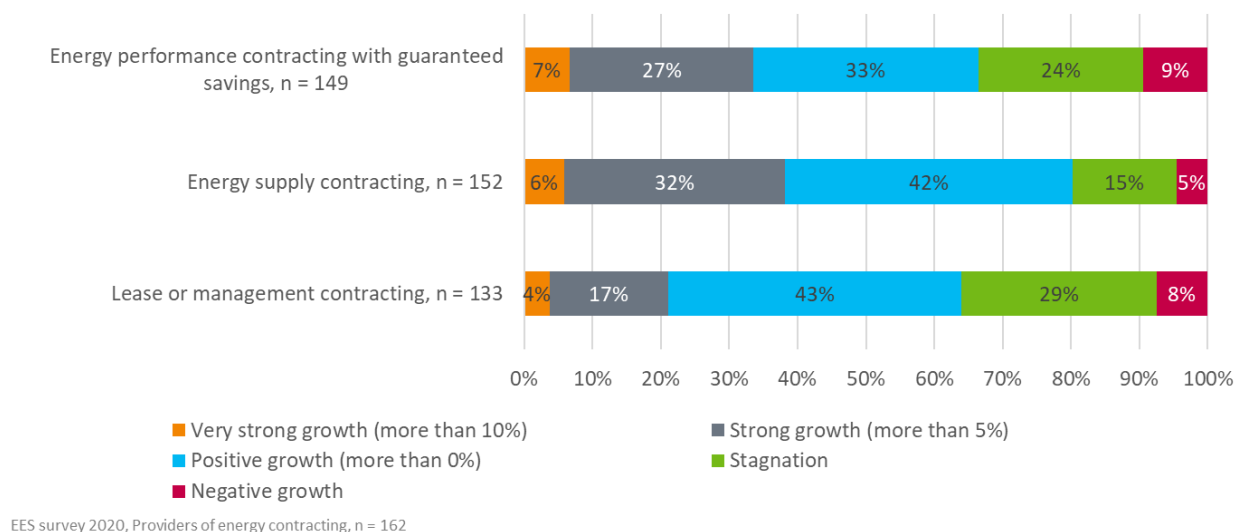
their turnover from contracting were assigned manually to the “contractor” sector. This represents a conservative approach.

The number of providers has steadily declined in recent years. If turnover remains the same, a consolidating market can be expected. Since these developments have led to the emergence of several very large energy contracting providers 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 changes in the share of revenue from contracting compared to the survey results, particularly for engineering companies, manufacturers and equipment suppliers of technical systems, and dedicated contractors. The average revenue share by sector extrapolated to the total 483 providers was 14% (survey data: 23%). Companies that could not be assigned to a sector were neglected in the market volume estimation because, in most cases, they were (very) small companies that have little influence on the overall result.

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, as in previous years. Consequently, market volume is between €7.4 and 9.0 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. Energy performance and energy supply contracting, as well as management contracting, were considered by most contracting providers (around 70%) to be growing or (very) strongly growing. Almost a quarter 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 5% to 10% 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



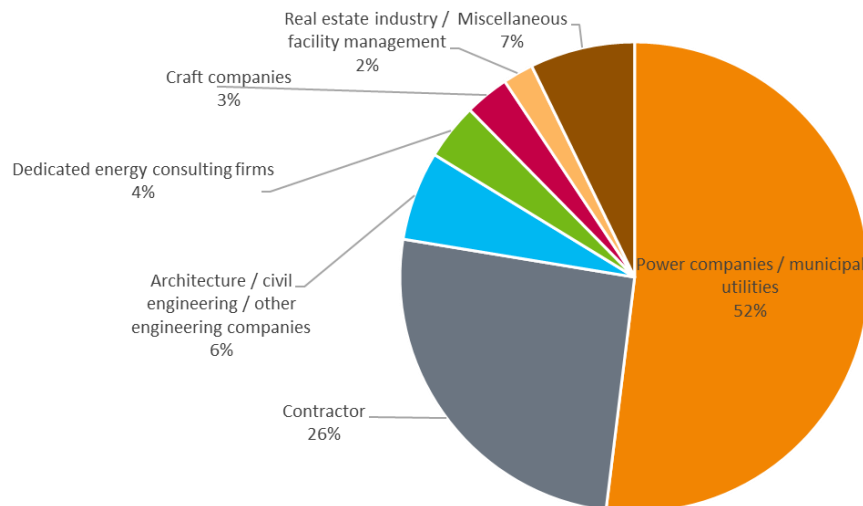
3.2.2 The supply side

Sector structure

Contracting was mainly offered by power companies (municipal utilities and other energy suppliers, 52% of providers) and companies that described themselves as “contractors” (26%) (see Figure 10). There were therefore significantly more power companies active in the market in 2019 than in the previous year (2018: 38%). Another

small provider group comprised architecture, energy consulting and engineering companies, together making up around 10%. Real estate and facility management companies made up another relevant provider group, which was somewhat less represented this year (2%) than in the previous year (2018: 6%). There was also a group of other providers (3%), 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



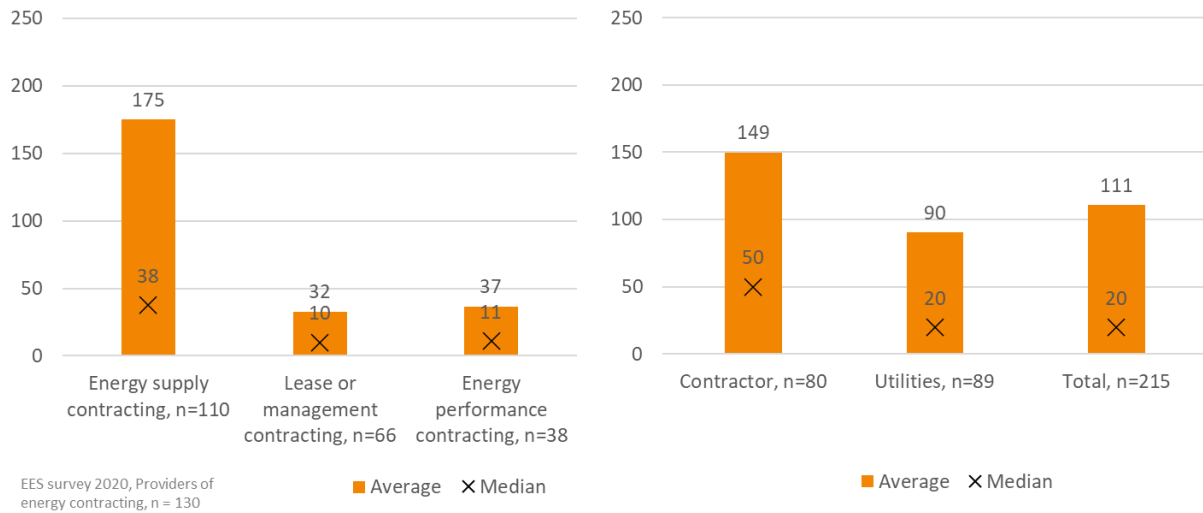
EES survey 2020, Providers of energy contracting, n = 162

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 covered a very large part of the contracting market, though there were also many small providers with correspondingly low sales figures. In the area of energy supply contracting, the average number of ongoing contracts was around 175 per provider (2018: 167). The largest 15 providers held almost 70% of the market. In 2019, the five largest providers held more than 45% of these contracts. In the areas of management and energy performance contracting, there were considerably fewer contracts, with respective averages of 32 and 37 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. The number of energy supply contracts of specialised contractors and power companies was above the average. In the financial year 2019, the median number of ongoing contracts for specialised contractors was 50, and 20 for power companies. Due to outliers, the average rose to 149 ongoing contracts among contractors. Both figures point 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 continues to grow considerably. In the previous year's survey, the average number of new contracts for energy supply contracting was 167 per year (power companies: 208; specialised contractors: 137), while the figure was 175 contracts per provider in the current survey.

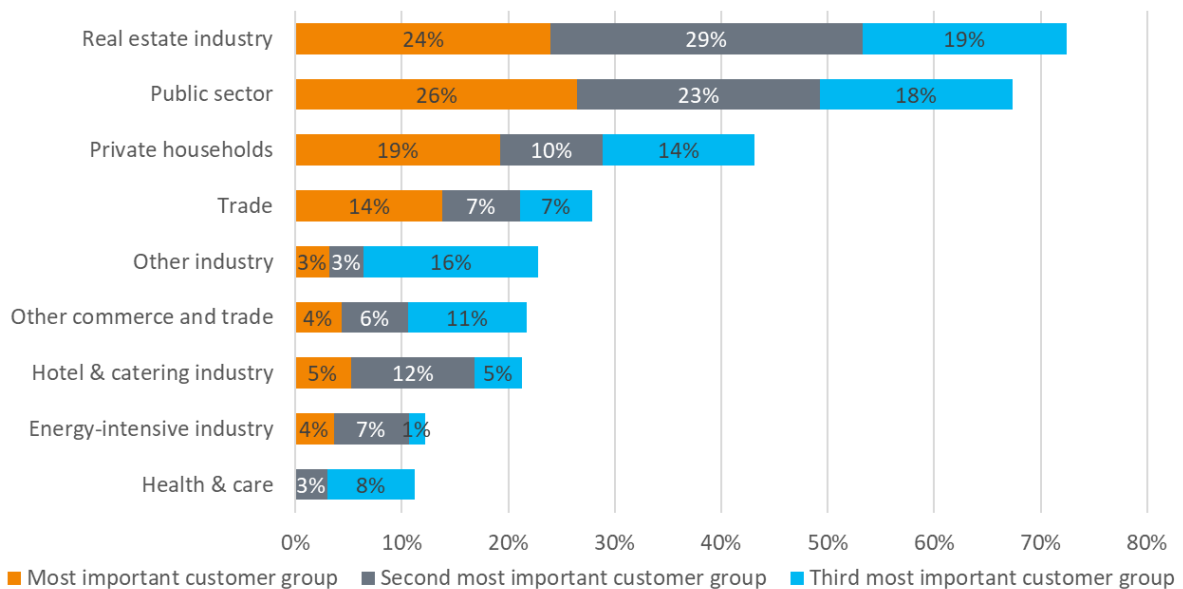
Figure 11: Average number of ongoing contracts per provider and provider group



3.2.3 The demand side

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). A good 70% of contracting providers considered this segment to be one of their three key customer groups. This trend has steadily increased in recent years (from 50% in 2016). The second most important customer group remained the public sector, which was named by almost 70% of those surveyed, and has steadily increased in percentage terms (from 46% in 2016). However, there have also been changes in both segments, especially with respect to stating the most important customer group: while 43% of contractors named the real estate industry as their most important customer group in the previous year (currently 24%), mentions of the public sector increased from 12% to 26%.

Figure 12: Most important customer groups for energy contracting providers



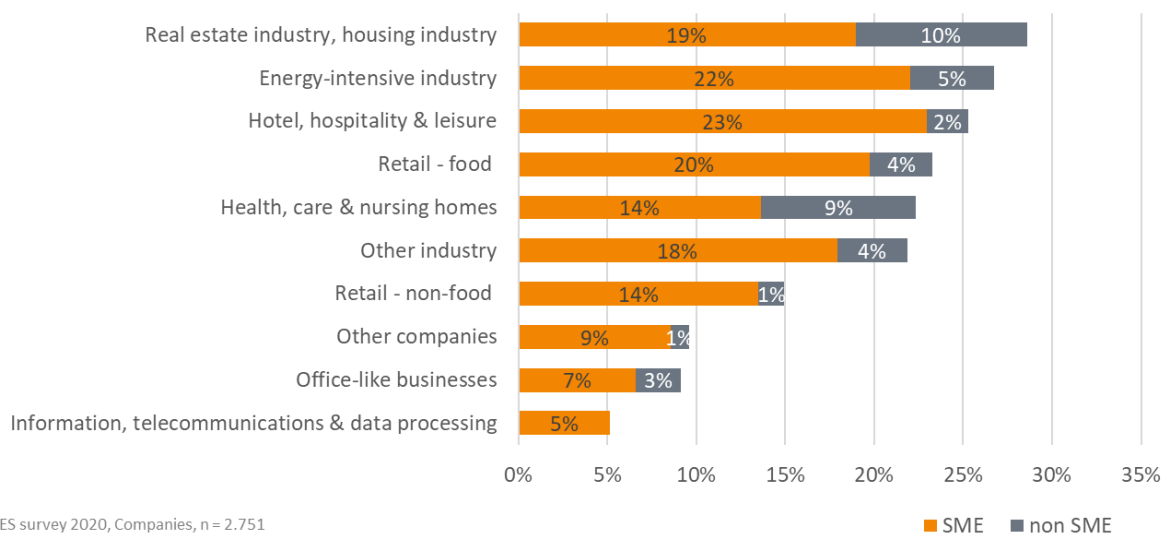
The third most important customer group was private households, which represented an important customer group for more than 40% of contractors. For one fifth of respondents, they were even the key customer group.

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). Trade increased significantly as a customer group compared to the previous year (2018: under 5%). Additional important customer groups were commerce and industry, as well as hotels and hospitality, a customer group that also increased slightly compared to the previous year.

Utilisation of contracting

In the survey of energy service users, “Real estate industry, housing industry” also ranked first overall among SMEs and non-SMEs in terms of the utilisation of contracting in the last five years. Among the SMEs surveyed, however, “Energy-intensive industry” and “Hotel, hospitality & leisure” utilised contracting even more frequently, at more than 20% (see Figure 13). Other large groups were SMEs from “Retail – food” and “Other industry”. The overall number of non-SMEs surveyed was significantly smaller; in this case, not only the real estate industry, but also the “Health, care & nursing homes” sector predominated, although the latter sector decreased compared to the previous year (2018: 25%).

Figure 13: Utilisation of energy contracting by companies



The percentages given in the figure are based on the absolute number of companies per sector that used contracting. For example, 29% of the 80 companies surveyed altogether from the real estate industry utilised contracting, with SMEs accounting for 19% and non-SMEs for 10%.

In contrast, private households used contracting less frequently. Around 4% of the building 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 compared to earlier years. The share in 2017 and 2016 was 6% and 7%, respectively.

In the public sector, external contracting was used by 31% and 7% of the state offices and municipal institutions surveyed, respectively. Compared to companies, the public sector used energy performance contracting far more often (36%).

The main reasons for companies (both SMEs and non-SMEs) to use energy contracting were to reduce energy consumption and take back control of energy costs. 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. 57% of non-SMEs considered the use of the service provider’s special

expertise to be an important reason, as opposed to 44% of SMEs. In the public sector, the main reason for using energy contracting was to reduce energy consumption (two-thirds of municipalities and 84% of state offices). Other important reasons for this segment included the financial enabling of investments (63%) and strategic decisions (around half of the mentions).

3.2.4 Interim conclusions

The market survey of 2020 used two ways to determine total market volume, both of which presented some uncertainties. Both methods – our survey results as well as our secondary research (using the web crawler, the integration of datasets from different databases, and the available literature) – confirmed last year’s results in terms of scale: according to the 2020 survey, the market volume for contracting in the financial year 2019 was between €7.4 and 9.0 billion. The results indicate a total number of around 480 providers.

A large share of the contracting providers surveyed this year were (very) large companies with revenues between €10 and 250 million (around 45%). However, many small companies with revenues of up to €30,000 were also included (28% of providers). The majority of providers were power companies or specialised contractors. Power companies generated around 6% of their total revenue from contracting; for contractors, the figure was almost 60%, representing a slight decrease for power companies and a significant increase for specialised contractors compared to the previous year. The majority (around 70%) of providers 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 real estate industry, which has been a growing demand sector for years. Other important demand groups were “Energy-intensive industry” and “Hotel, hospitality & leisure”. For the 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 75% of those surveyed, the main motivation to use contracting was to save energy. The main hindrances were the high level of complexity surrounding subsidies, skills shortages within the company, and frequent changes to the legal framework conditions, as well as other economic reasons. Most providers felt that poor quality or too much competition were not important as obstacles to contracting.

3.3 Energy management

3.3.1 Market volume and development

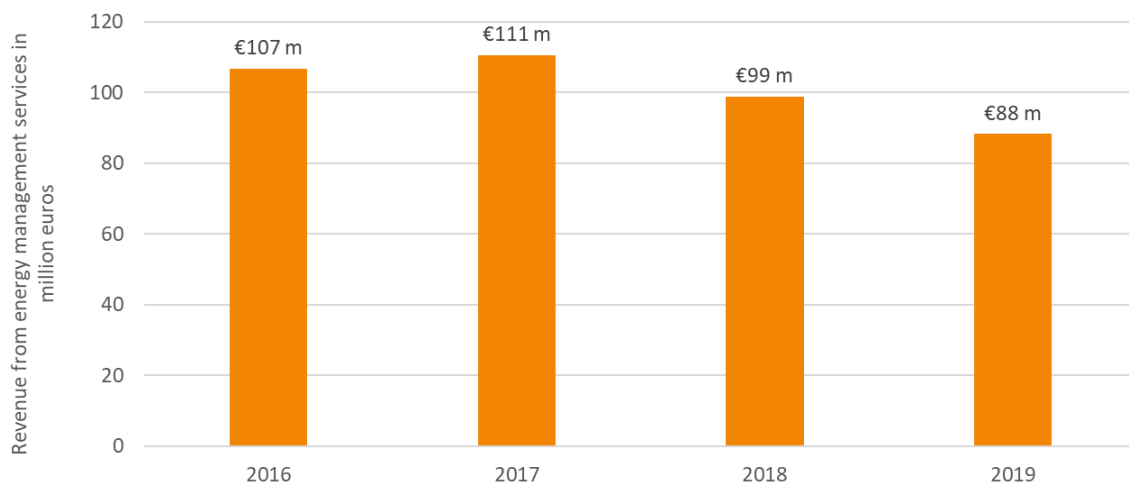
In previous years of the survey, two different approaches to calculating the market volume for energy management services were carried out in parallel. Due to the increasingly unstable results of the revenue-based method, it was not conducted this year, and a new method will be developed in the course of the next survey.

Product-based method

The chosen method 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. As in the other sections, these figures also omitted zeros as well as outliers that exceeded ten times the average.

This method focused solely 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 – at this point undefined – “energy management”; this makes it a conservative approach. The results for total market turnover, shown in Figure 14 below, were therefore lower, as expected. As in the previous year, a further decline of around 10% was observed this year. Once again, a further decline in the total number of ISO 50001 certifications was observed in parallel. Despite this, the number of new certifications was still not estimated to be zero, but instead the figures imply that the number of departures was higher than the number of new certifications. The demand figures for all other sub-products also declined compared to the previous year. It remains to be seen whether there will be cycle phenomena from the coming year onwards due to the legal obligations, or whether the decline will be perpetuated. The years refer to the fiscal year, as shown in Figure 14. Therefore, the amount for 2019 was calculated this year as part of the 2020 survey.

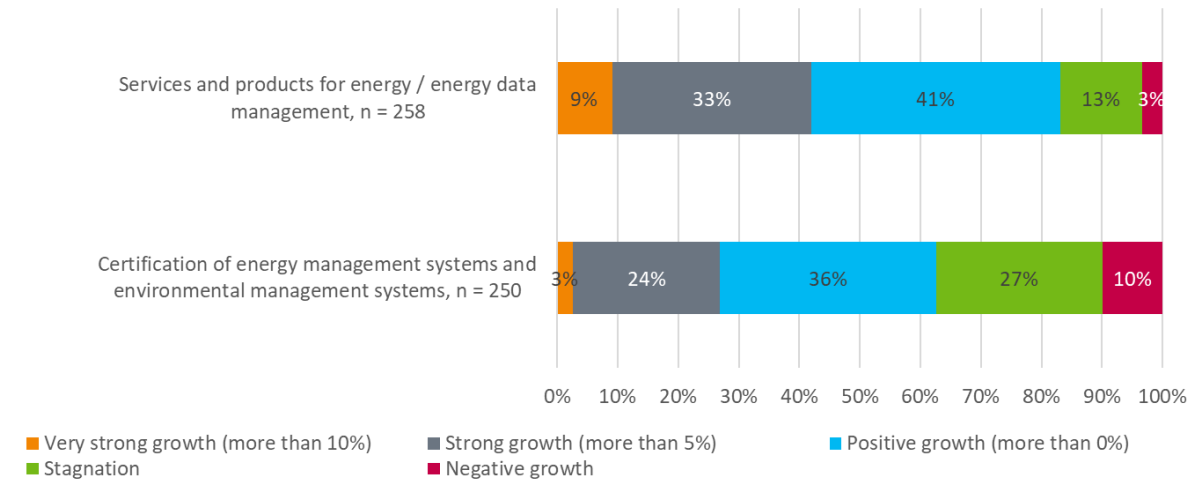
Figure 14: Revenue from energy management services per marketing year, based on the product-based method



EES survey 2017-20, Revenue EnM based on product-based method

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 15). Compared to the previous year, however, responses indicating at least strong growth in the market for other energy management services declined slightly (from 51% to 42% of respondents), and a “growing” market was now increasingly expected in this area (from 34% to 41%). The dynamics in the market for certified energy management services were similar, but less pronounced.

Figure 15: Assessment of market development in the field of energy management

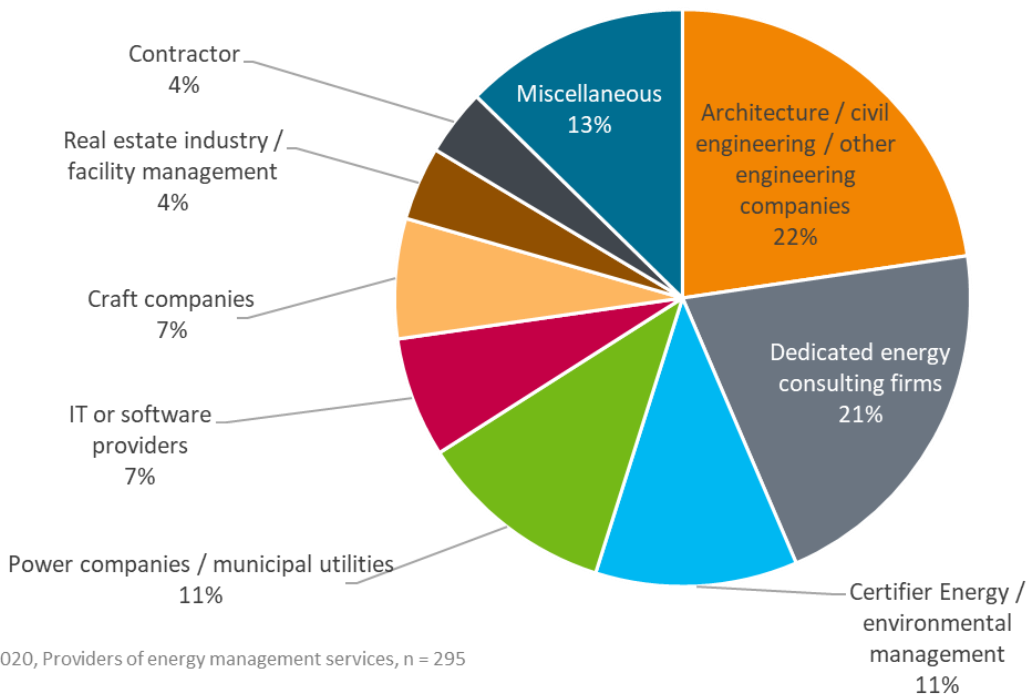


EES survey 2020, Providers of energy management

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 16).

Figure 16: Distribution of sectors across energy management service suppliers

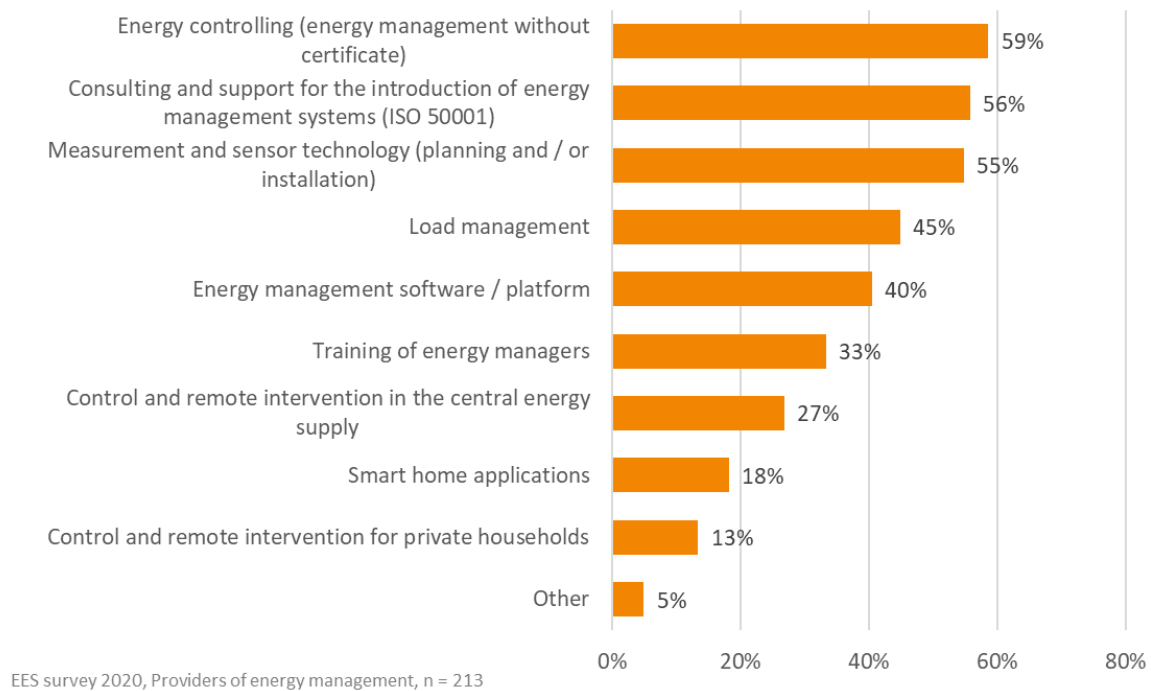


EES survey 2020, Providers of energy management services, n = 295

The products sold in the energy management sector varied widely. The most common products were energy management solutions, either with (56%) or without (59%) certification (see Figure 17). Compared to the previous year, these two products swapped places, and energy management without certification was now the most frequently offered service. 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. Given that the survey has only been conducted for exactly four years, more detailed assessments and trends will only be discernible from next year onwards. On the whole, however, the differences were minor, and no long-term trends were discernible. These two products were followed by more technically sophisticated solutions such as load management, or measurement technology/sensors, which almost half of the respondents offered. Although energy management continued to play a subordinate role in private households, the range of smart home solutions has been rising steadily in recent years (2018: 6%; 2019: 16%) and has now reached its highest level to date (18%).

Figure 17: Supply of energy management services



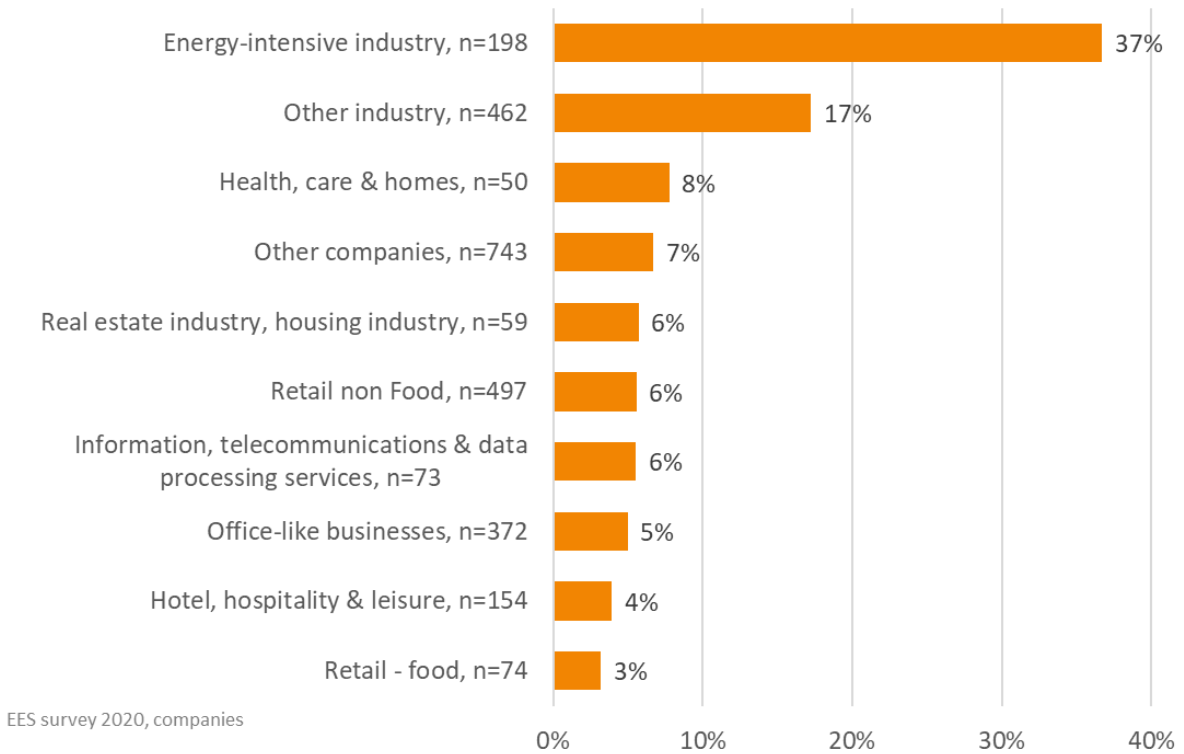
3.3.3 The demand side

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, as described above.

Companies

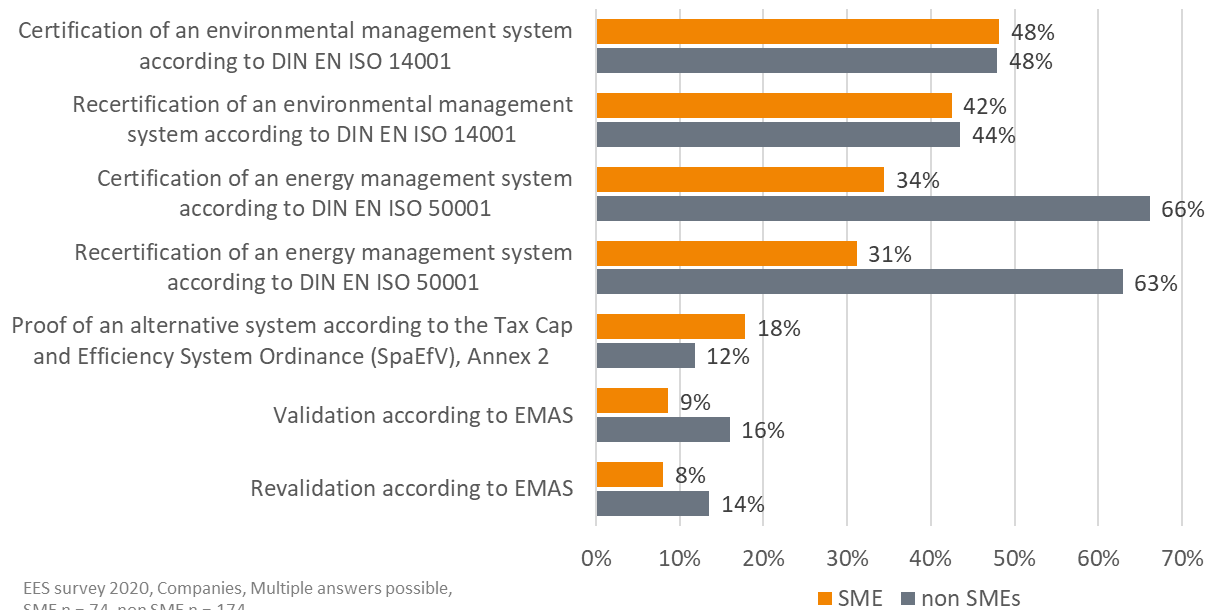
The sectors with the highest utilisation of services in the certification/validation of energy and environmental management systems within the last five years were, as described in previous surveys, “Energy-intensive industry” (37%) and somewhat trailing but still above average, “Other industry” (17%), as shown in Figure 18. Both sectors indicated a more frequent use of certified energy management services compared to the previous year, in some cases even to a significant degree (2019: energy-intensive industry 26%, other industry 15%). 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 food trade (“retail – food”), the use of certified energy management services was mentioned significantly less frequently (3%) than in the previous year (2019: 8%).

Figure 18: Utilisation of certification/validation by companies



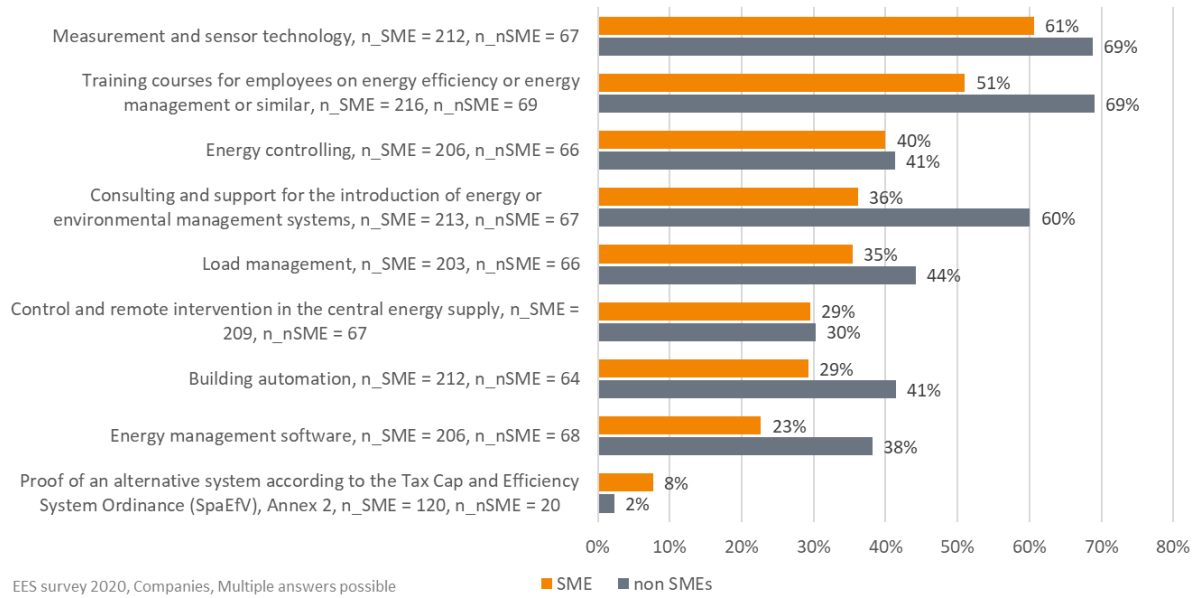
The use of DIN EN ISO 50001 remained very high, especially among non-SMEs. In particular, there was a substantial increase in recertification, from 44% to 63%, compared to the previous year. The number of mentions among SMEs also continued to rise, especially for certification and recertification in accordance with DIN EN ISO 14001. Revalidation under EMAS was conducted less frequently in 2019, but its use among non-SMEs was higher than in the previous year.

Figure 19: Utilisation of services in energy management



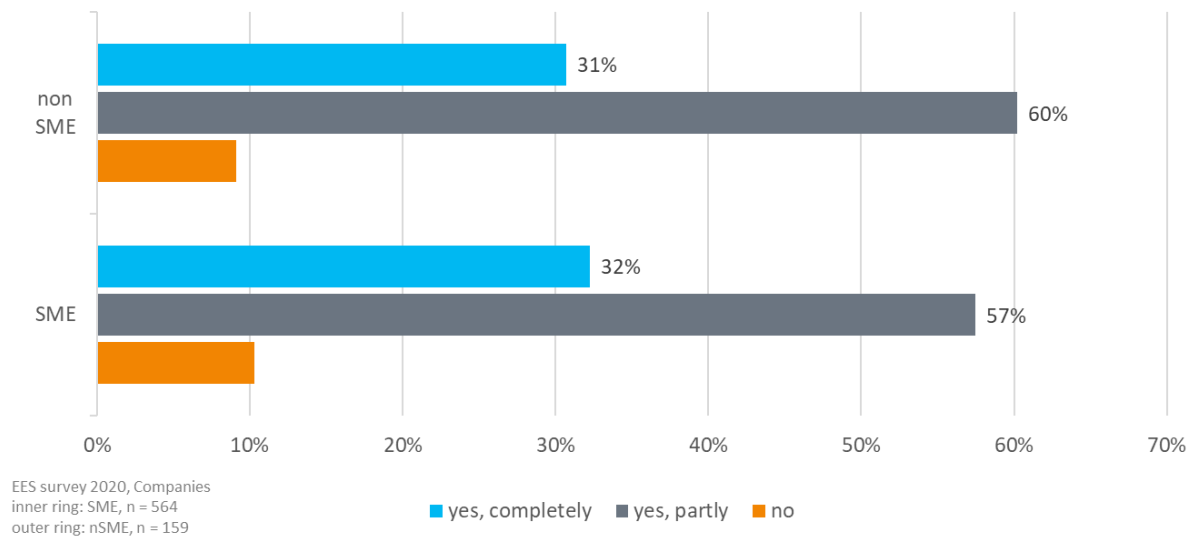
Other services in the sector of energy management that were offered in addition to certification were utilised to different degrees (see Figure 20). Training for employees was among the most widely used services for both small and large enterprises (51%-69%). For SMEs in particular, this was only surpassed by the installation of measurement technology and sensors (61%), which non-SMEs ranked equally with training. A sharp increase from 35% to 60% compared to the previous year was recorded for the use of consulting and support for the introduction of energy management systems.

Figure 20: Services used in the field of energy data management



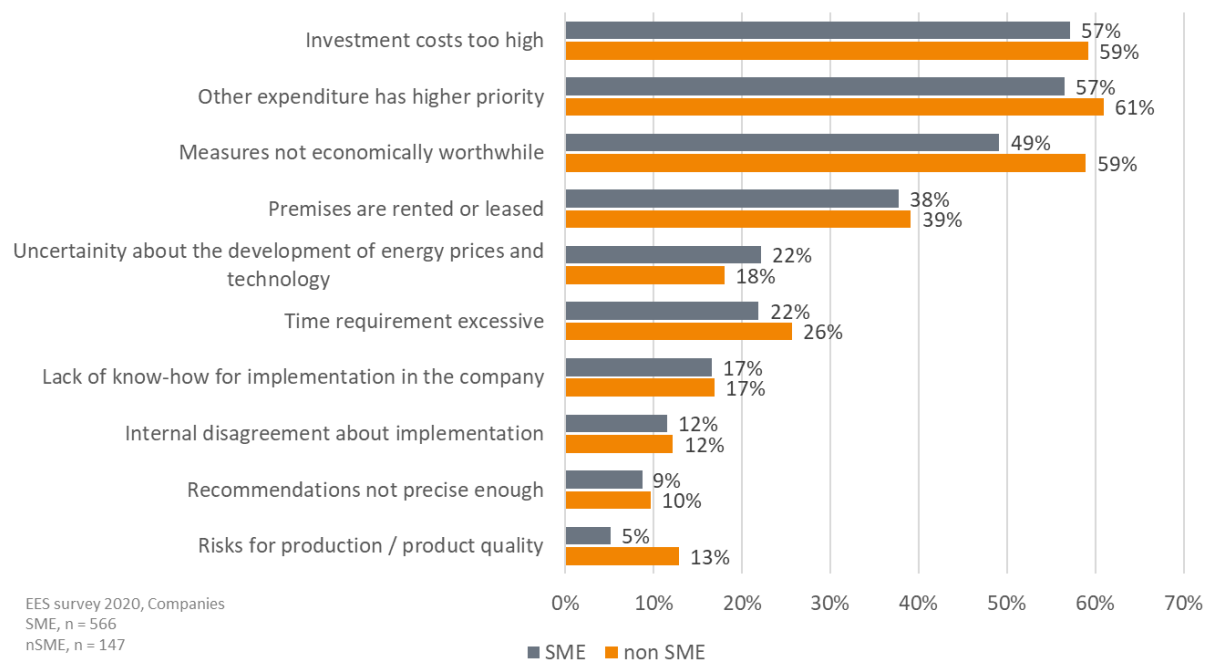
Many services in the energy management area entail suggesting measures that could lead to more energy efficiency in the client’s company. About one third of those companies surveyed had already fully implemented these measures (see Figure 21). In total, nearly 90% had at least partially implemented such measures. The difference between SMEs and larger enterprises was negligible. Changes compared to the previous year were marginal.

Figure 21: 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 22). 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 22: Reasons for not implementing measures



3.3.4 Interim conclusions

This year, market volume in the sector of energy management was determined using only the product-based approach. The result, almost €90 million in the marketing year 2019, is around 10% below that of the previous year.

In total, there have been few changes across the board over the last few 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.

Accordingly, further development must also be made to ensure the market growth that suppliers expect. Customer outreach must go beyond the recommendations of other customers and become more proactive. New business models could also be developed to appeal to those sectors of the market that have so far shown lower demand for such products, especially less energy-intensive areas of commerce and households.

4 Summary and conclusions

Energy services continue to play an important role for investments in energy efficiency. Since 2015, the 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 main areas – energy consulting, energy contracting and energy management.

This survey was mainly conducted using computer-aided telephone interviews based on guided questionnaires for both provider and demand sides. Multiple approaches were pursued simultaneously: the demand side of German energy service markets was addressed by surveying 2,161 households (tenants and owners) and 2,751 companies of various sizes, as well as 514 authorities at the federal, state and municipal levels.

As in previous years, the methodology of the study has been refined; in particular, the focused survey in the area of energy consulting now takes a closer look at active market participants, which improves the key figures and assessments. While the survey (especially in comparison to previous years) presented overwhelmingly stable, robust and replicable results in many areas, the extrapolation of market volume remains afflicted with uncertainty. At these points, complementary methodological approaches, such as the utilisation of a web crawler, were able to establish an additional empirical basis, but uncertainties remain, even when taking a great deal of care. Significant size differences in some instances among the various companies surveyed led to fluctuations for key market indicators (employee numbers and revenue shares in the energy services segments). However, the continuous extension of the database each year makes it increasingly easier to classify the results.

The three largest parts of the German energy services market generate an annual turnover of around €7 to 10 billion. Looking at the previous years, it is apparent that the German energy services market is robust and stable. There continues to be little movement in market figures. On the whole, suppliers in all market segments are generally (very) positive about further growth prospects.

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. In segments with more complex and demanding B2B products, more and more power companies and municipal utilities have become active. Other suppliers have 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 or 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 – indeed, the opposite was the case: the provider market continues to be primarily characterised by small and medium enterprises.

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. There is no region of Germany with a supply shortage.

At the same time, just like in previous studies, market weakness was observed 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. However, both private and public sector investors remain hesitant about using energy services. This phenomenon replicates that which has been observed concerning energy efficiency: such hesitancy mostly affects products that would be useful and helpful for, e.g. the achievement of Germany's energy and climate goals; however, in light of low energy prices and energy's relatively low contribution to expenses, 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 clear incentives or even requirements to use energy services.

Necessary measures were taken in the form of the introduction of a CO₂ price, the gradual improvement of the attractiveness of numerous subsidy programmes, and the tax deductibility of efficiency measures. The mix of instruments is to be further supported by systematically activating the demand side. There must be understanding and acceptance of technically and financially complex solutions, and the added value of the service providers offering them needs to be communicated. The market for energy services currently remains supply-driven, but

many steps have been taken to increase demand. The further development, offering new opportunities but also obstacles, therefore remains to be observed.