



cutting through complexity

Decentralised energy industry: Opportunity or threat to energy companies?

Summary of results

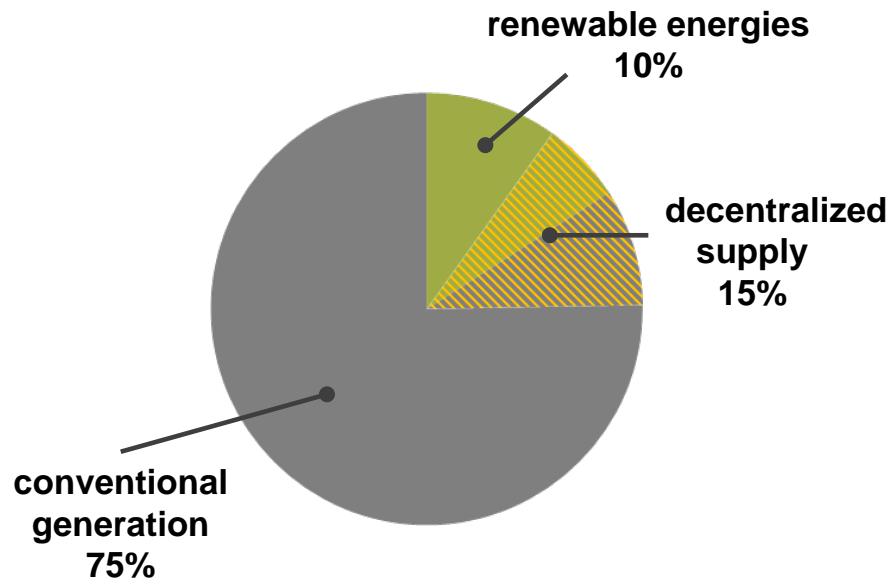
Berlin, April 2015



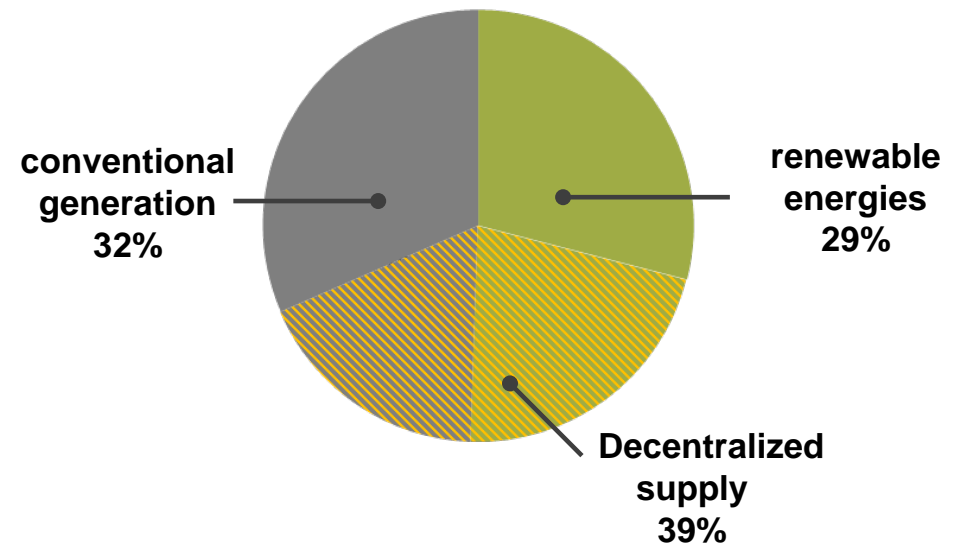
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Development of the energy market (share of the gross electricity generation)

Energy market 2010



Energy market 2030



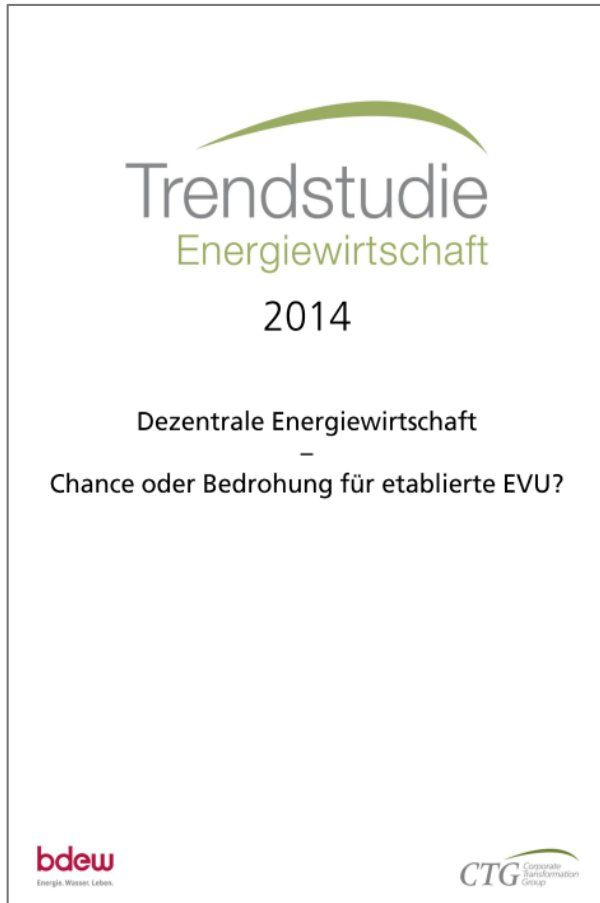
The conversion of the energy market increases the pressure on the established business models of the energy companies. A successful positioning in the increasing decentralized market is essential.

conventional/decentral: CHP, heat pumps
 renewable energy/decentral: PV roof, Wind Onshore (NSN/MSN[< 30kV]), biomass

Source: BMU 2008, BMU 2011, Fraunhofer ISE 2011, CTG

BDEW_Dezentrale_Energieversorgung_Alle_FINAL.pptx

Status-quo of the energy companies



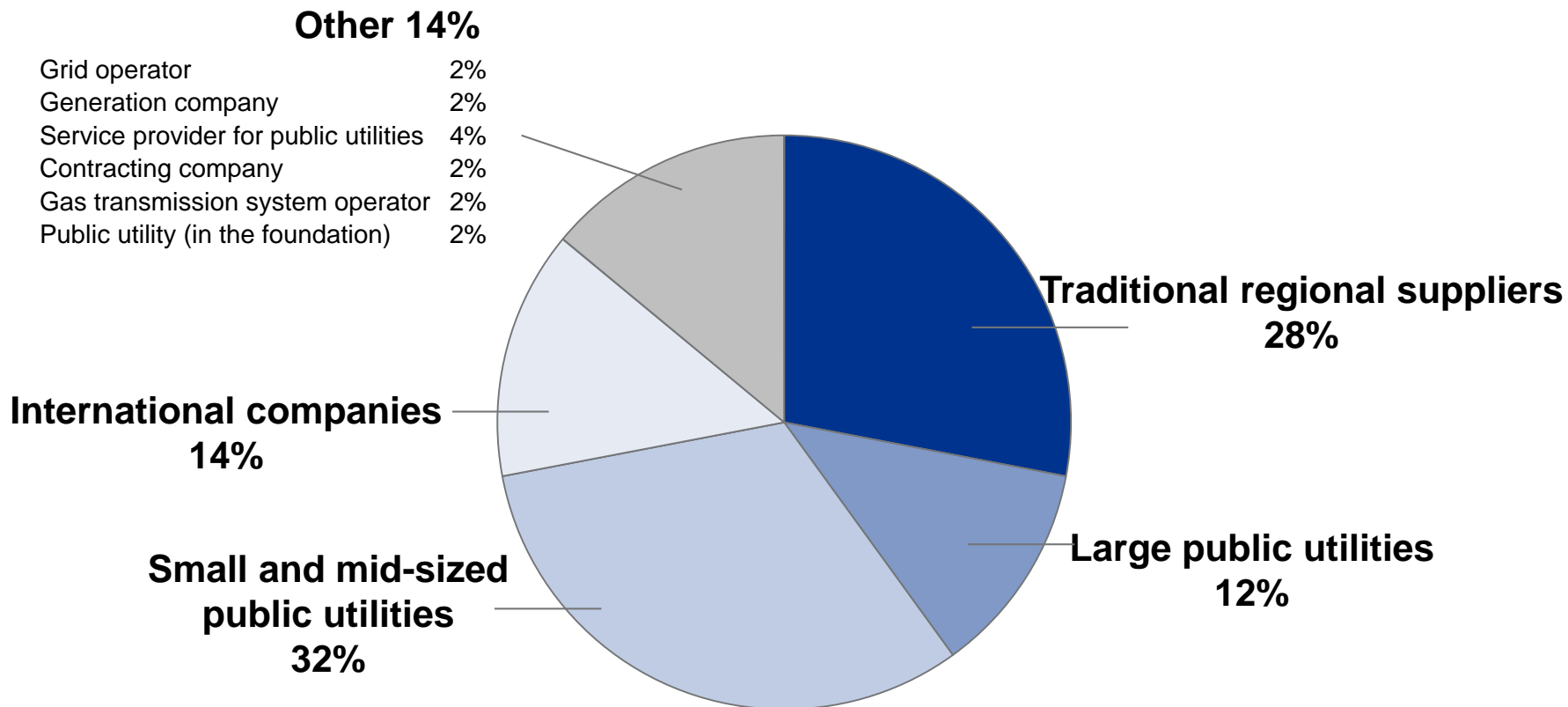
Present issues

- Development / importance of technologies
- Social, market related, regulatory, technical drivers
- Product range in the decentralised utility market
- Future business models and areas
- Market player: Who is a competitor, who is a potential partner?
- Needed capabilities of potential cooperation partners
- Systematic analysis of the decentralised market?

Methodology

- Survey among managers of international companies, traditional regional suppliers and public utilities (large, mid, small)
- Collection of the results using a structured questionnaire
- Response: of the 285 contacted companies, 50 participated

Which group of companies in the energy industry does your company belong to?



n = 50

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Summary

Market characteristics

Most important drivers behind the decentralised energy supply are of an economic and political nature. Challenges are difficulties in forecasting developments of drivers, an increase of customer demands and shorter life cycles of products / business models.

Importance of the market

The market for decentralised energy solutions is a growing. It is expected that the increase in decentralised energy will lead to a higher demand of solutions dealing with the integration of energy into the energy market.

Product portfolio

Characteristic of the products in a decentralised market are the combination starting from technical and commercial services to financing. The important business areas have been recognized but the orientation of the companies towards these areas happens reluctantly.

Market players

The market players belief that the best development opportunities have the specialized full-range suppliers, traditional regional suppliers and SMEs. Preferred cooperation partners are technology providers whereas competitors are mainly other energy companies.

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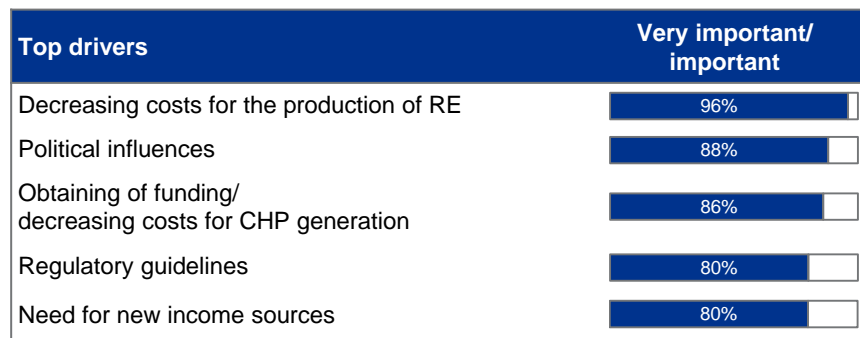
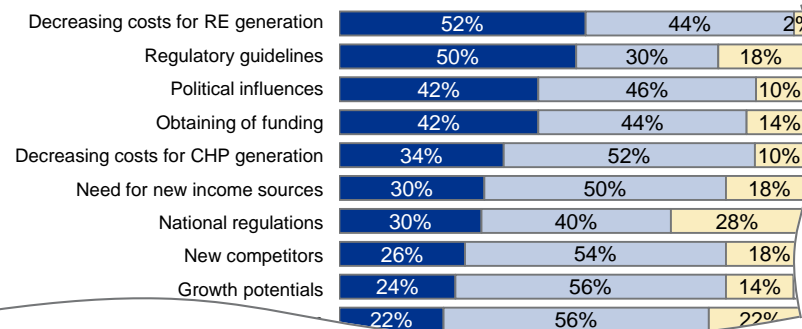
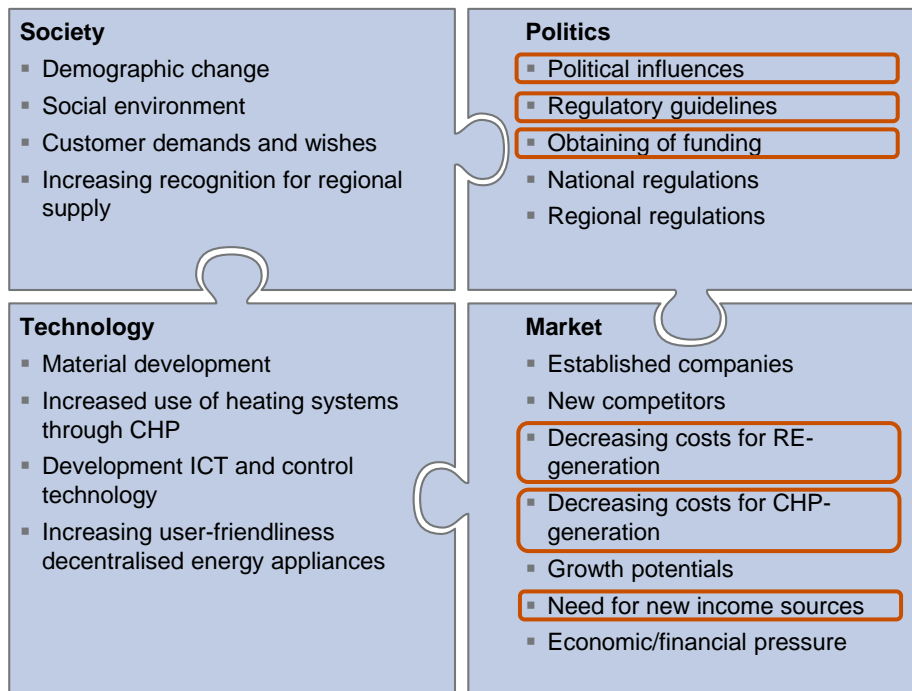
Market characteristics

Most important drivers behind the decentralised energy supply are **economic** and **political** issues. Challenges are the difficulties in forecasting developments of drivers, more demanding customers and shorter life cycles of products / business models.

- The relevant drivers behind the decentralised energy supply are economic and political issues. From the companies perspective the main drivers are e.g. obtaining subsidies, regulatory guidelines or decreasing costs of renewable energy and CHP generation.
- The contribution of each driver for a successful development of the segment „decentralised energy supply“ is clearly recognisable. Nevertheless forecasting these drivers remains the biggest challenge for the energy industry.
- The participants can see opportunities and risks in that market. For example opportunities exist in the fact, that customers honor the regional commitment/identity. According to the participants the main risks are seen in the skills and resources needed (IT-know-how, high service orientation) for the implementation of the new business models.
- The market players think that the decentralised energy market is characterized by the following main features:
 - a rather low “protection” for new products/ business models (life cycle decreases to a few years) and
 - customers who try disconnect themselves from general price trend with their own decentralised generating plants and
 - customers, who prefer “everything from one source”-products (planning, delivery, operation, services, etc.).

Main drivers behind the development of the segment of the decentralised energy market

Drivers



Question: What are the most important social, market related, regulatory or technical drivers behind the development of the segment "decentralised energy supply"?

n = 50 ■ very important ■ important ■ less important ■ no importance

Opportunities and risks until 2025

Top-3 Opportunities

- Regional commitment/identity is honored by the customer.
- In the future energy supplier will operate multiple business models simultaneously.
- Regional/local energy supplier are recognized more fairly compared to supra-regionally operating companies.

- The market shares of the traditional energy supply segment will decrease.
- New business models need different skills and resources for their implementation (e.g. IT-Know How, higher service orientation)

Top-2 Risks

n = 50.

The assessments of the characteristics of the decentralised energy industry are based on a total of 16 responses. The top 3 characteristics of the decentralised energy industry result from over 90% % entirely or in part agreement of the answers.

Characteristics of decentralised energy industry

Top-3 Confirmations

- Low „protection" for new products/ business models (life cycle decreases to a few years)
- Customers want to be independent from the general price trend by installing their own decentralised generating plants.
- Customers are calling for a full service supplier, who offers planning, delivery, operation, services etc..

- Bundled service-products are too complex for the customers and require a lot of explanation.
- Energy storage will be marketable in 2020 (Grid-parity).
- The decentralised supply will be promoted with local promotion instruments by municipal and local politics.

Top-3 Refusals

n = 50;

The assessments of the opportunities and risks on the energy market until 2025 are based on a total of 19 responses. The Top-3 opportunities and risks of the decentralised energy industry result from 80% entirety or in part agreement of the answers.

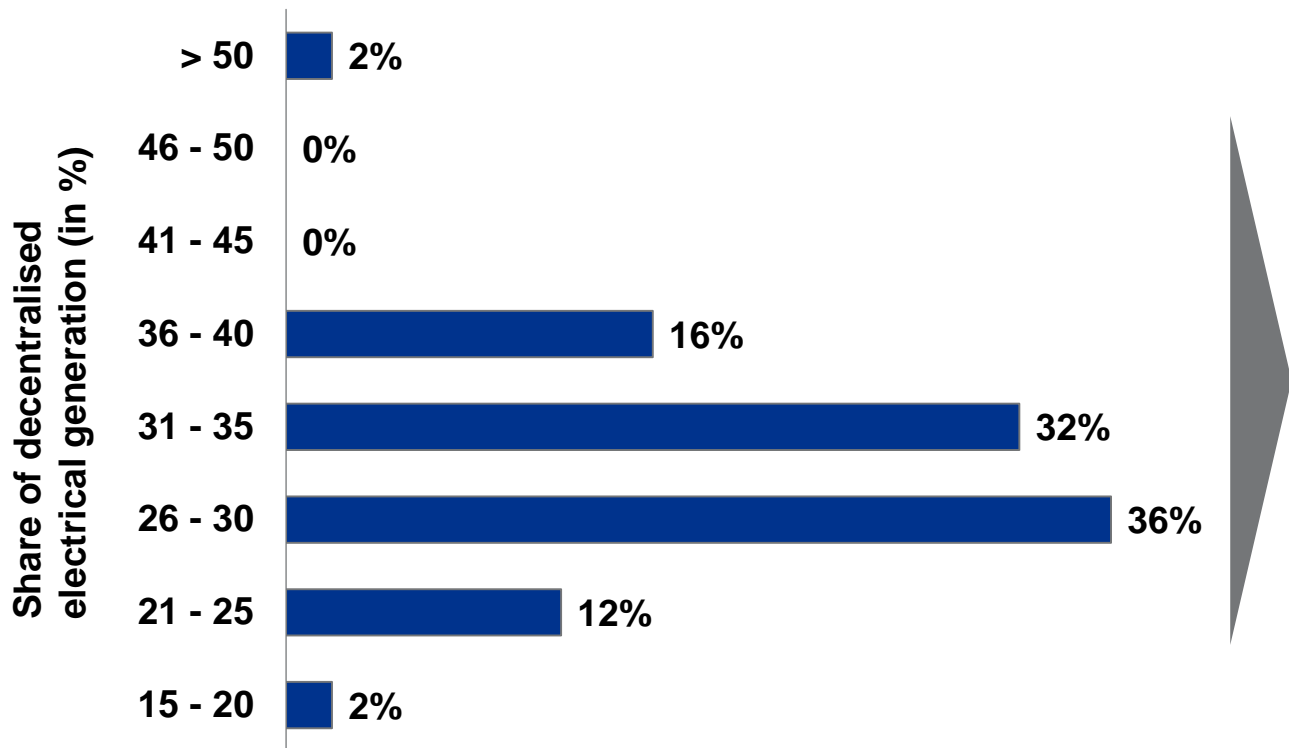
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Importance
of the market

The market for decentralised energy is a growing. The increase of renewable energy plants (wind, pv) will lead to a higher amount of fluctuating electricity feed-in that has to be integrated into the energy market.

- The companies consider that until 2025 the shares of the decentralised energy industry of the total gross electricity production will **increase from about 15% (2010) to 26-35%**.
- Today revenues for the decentralised energy industry are below 15% for most companies (88%). However they expect a strong increase in importance for decentralised energy industry until 2025.
- The participants expect a **decrease in electricity sales** for their own company due to decentralised energy structures. Sales of natural gas will be less affected.
- The increase of renewable power generation compared to the share of conventional power generation of total electricity generation will lead to a higher importance of decentralised generation solutions for the power supply of homes and work places..

Share of decentralised energy industry of total gross electricity production 2025



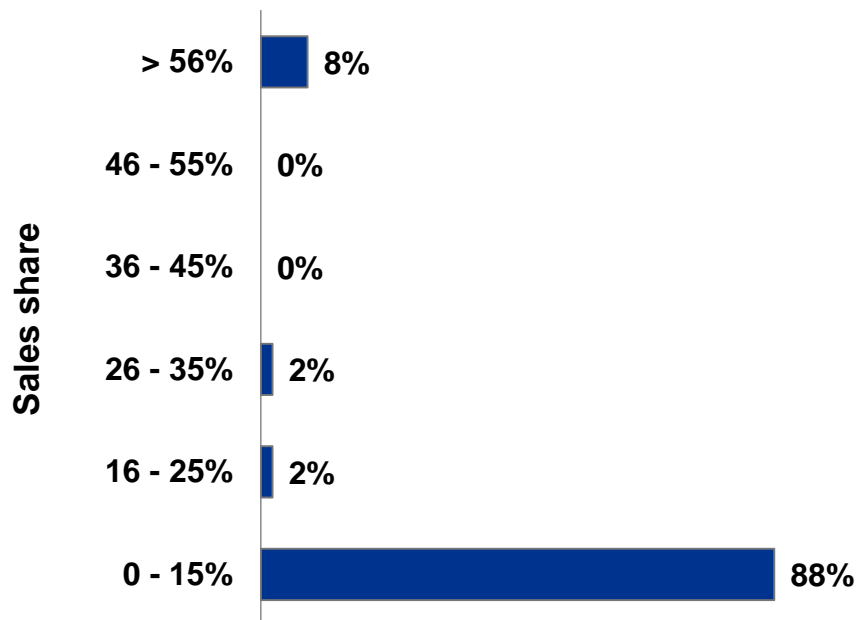
- In 2010 the share of decentralised energy supply was 15%.
- The participants expect the share of the decentralised energy industry to double.

n = 50

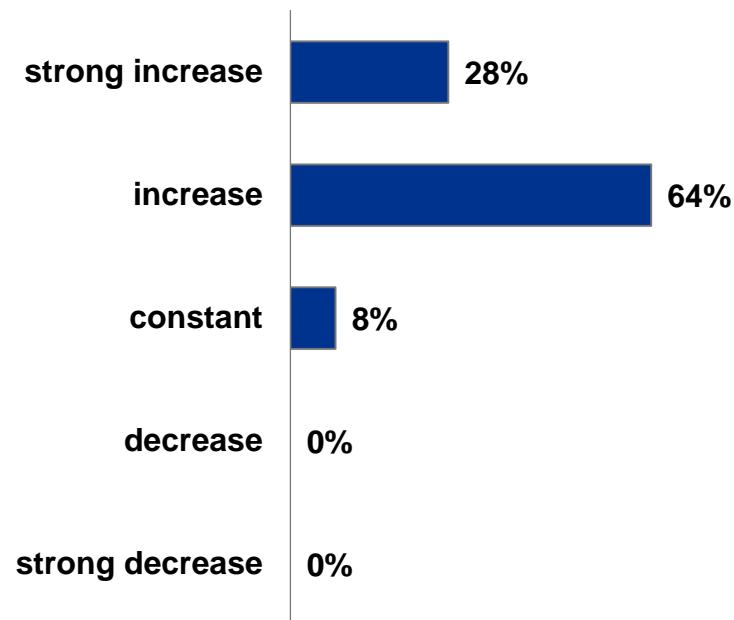
In this study decentralised plants are local, close to consumers forms of supply. These are plants and systems, which are connected to the low-voltage grid or medium-voltage grid and have a power of < 1 MW. These are small wind and hydro-electric power plants as well as biomass systems, PV-plants and CHPU. Therefore the decentralised generation includes both the renewable and fossil forms of energy generation.

Importance of decentralised energy industry 2014 and 2025

Sales share of the decentralised energy industry 2014



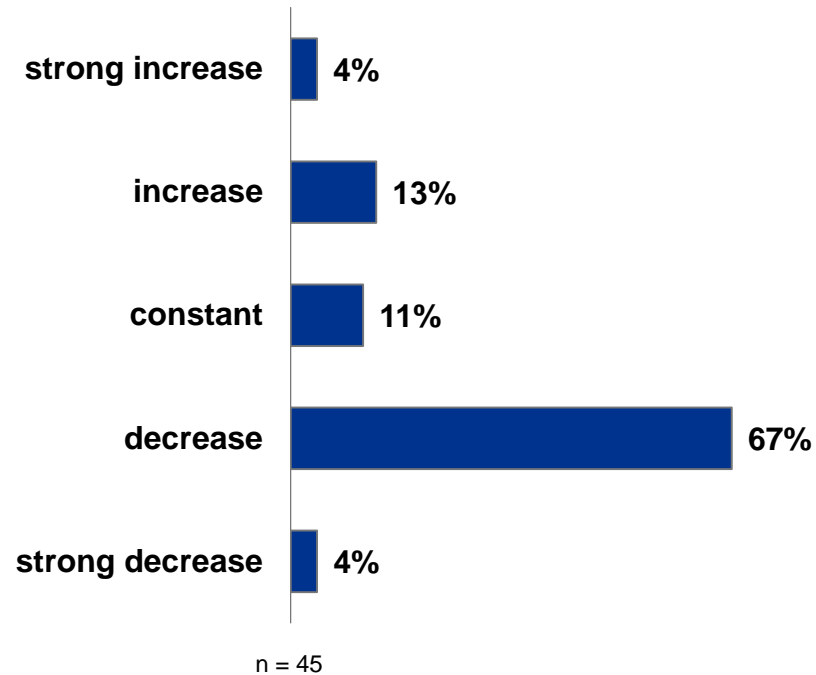
Development of the importance of the decentralised energy industry for the companies until the year 2025



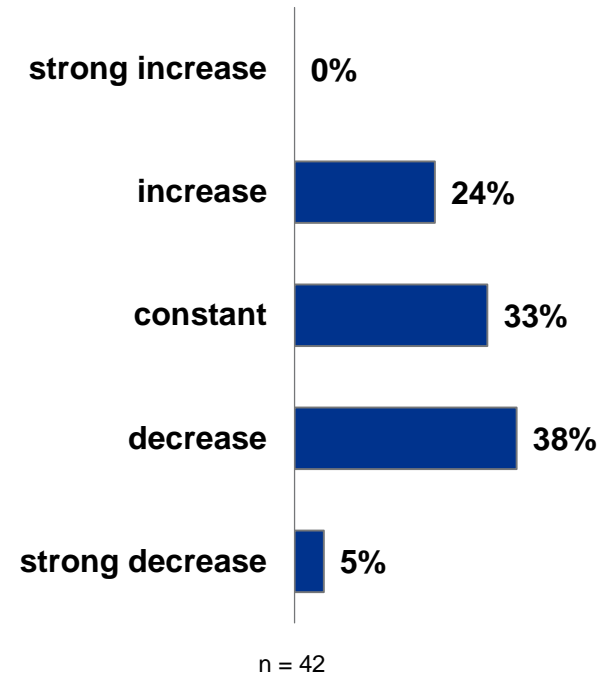
n = 50

Change of electricity and natural gas sales in 2025 (compared to today)

Change in electricity sales

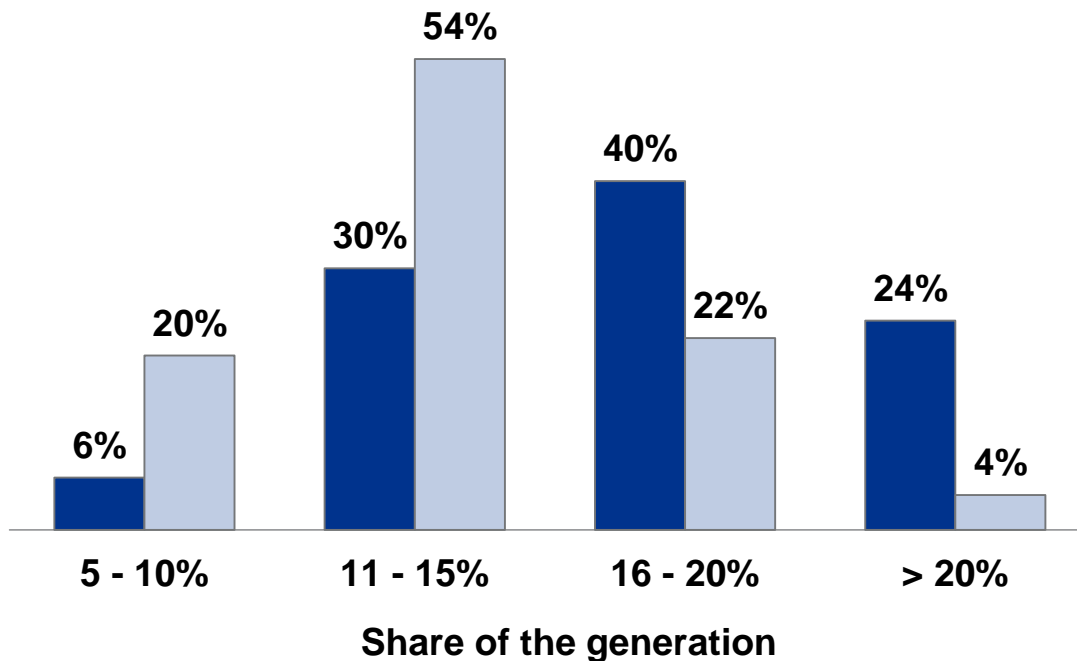


Change in natural gas sales



Decentralised generation is connected to higher shares of renewable energy generation.

Distribution of energy generation from decentralised generation plants 2025



- The majority expects a share of decentralised conventional generation of maximum 15%
- With a high decentralised generation share of over 16% renewable energy plants are predominantly used

n = 50 ■ share of decentralised renewable energy generation in 2025 ■ share of decentralised conventional energy generation

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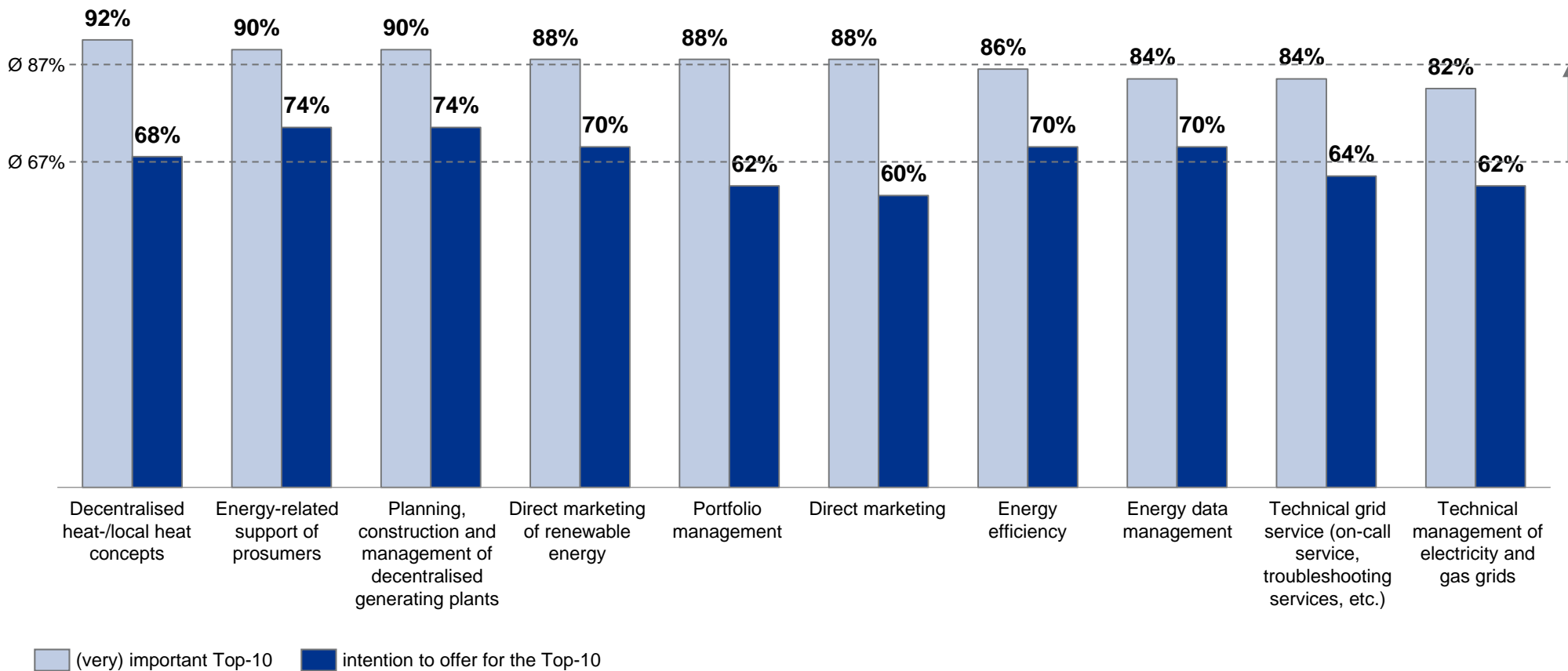
Product portfolio

Characteristic of products in a decentralised market are the **combination ranging from technical and commercial services to financing decentralised energy solutions**. The important business areas have been recognized but the orientation towards those areas happens hesitantly.

- The market players identify several business segments as of great importance in 2025: “**decentralised heat-/local heat concepts**“, “**energy-related support of prosumers**“, “**planning, construction and management of decentralised generating plants**“ as well as “**direct marketing**“ and “**portfolio management**“. However, the actual intention to focus on those relevant business segments is less pronounced by the market players.
- The customer and his needs are in the focus of products in the decentralised market. In particular new participants and non-energy suppliers have a need for different services ranging from:
 - the supply and installation of plants,
 - technical services (operations and maintenance),
 - commercial and energy-related services (energy forecasts, balancing group management, billing etc.) to financing incl. subsidies.

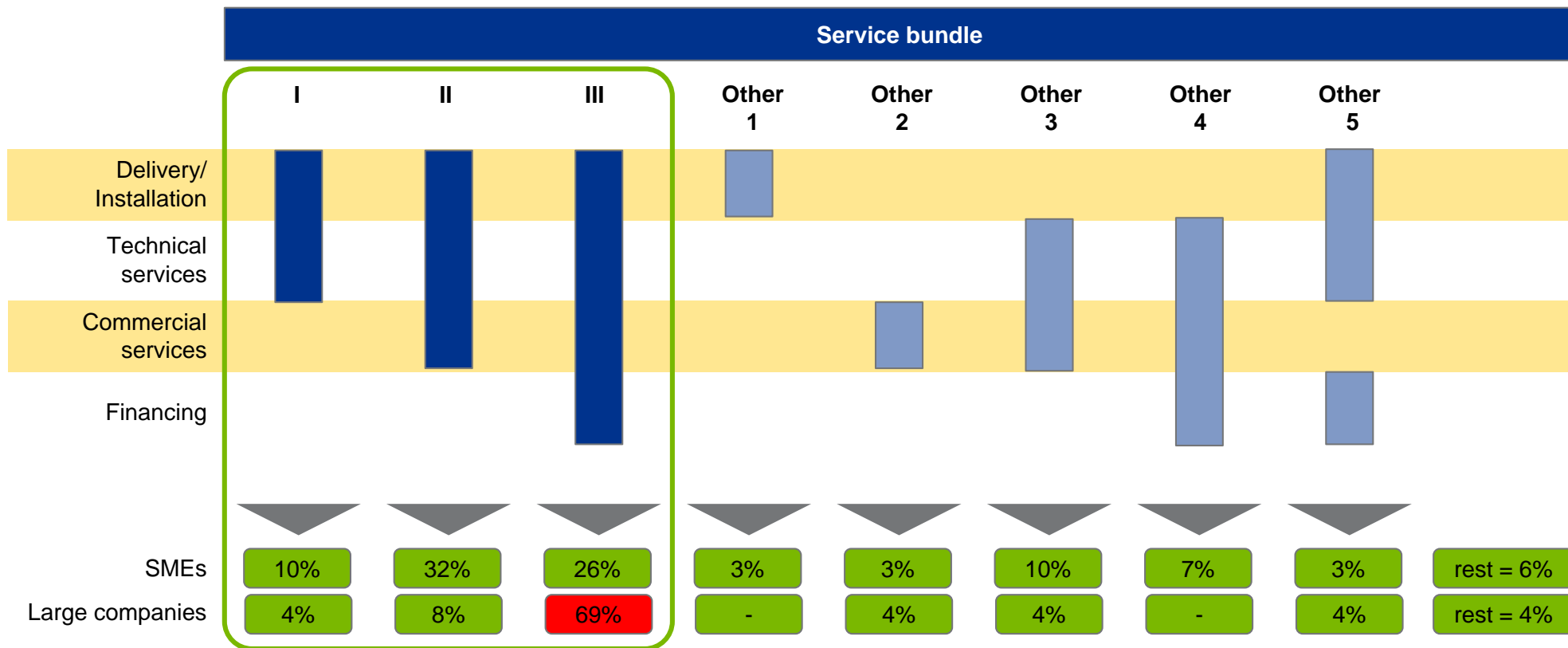
The market players intend to offer total range of technical services as bundle products, whereby in particular larger market players consider also the financing as part of the service package.
- The market players assess CHPU, PV, heat-storage, power-to-heat and solar thermal systems as marketable technologies without subsidies in 2025. Other technologies like biogas plants and biomass plants and fuel cells will not be marketable without subsidies in the near future. Technologies like the methanisation of hydrogen are still be considered as early stage technologies.

Importance of the business segments in the portfolio 2025



n = 50

Importance of listed services as a bundle



SMEs n = 31 large companies n = 26

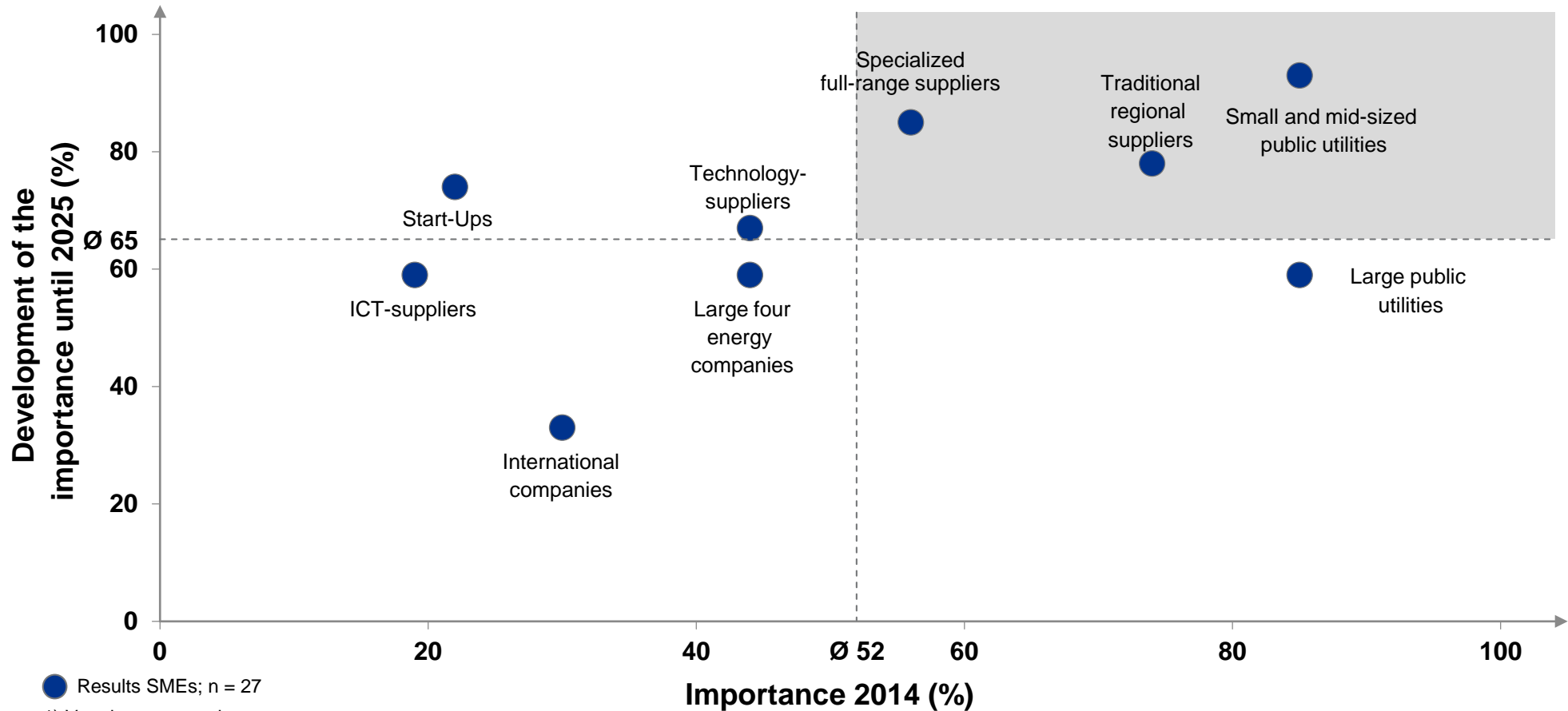
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Market players

Specialized full-range suppliers, traditional regional suppliers and SMEs are seen to have the best development opportunities. **Technology providers seen to be preferred cooperation partners whereas other energy companies are perceived as competitors.**

- Currently public utilities (large, SMEs) are seen as the most important market players in the decentralised energy industry. Therefore, specialized full-range suppliers, traditional regional suppliers and SMEs are believed to have the best development prospects in the decentralised energy market.
- The organizational implementation of monitoring trends in the market is more pronounced in larger companies in comparison to the SMEs. In addition, large companies deal with that topic on a more frequently basis and with a much higher frequency than SMEs.
- Market players believe in technology suppliers as preferred cooperation partners. In order to improve market development in the field decentralised energy solutions and to improve products and services, energy suppliers are seeking to achieve cost advantages, customer proximity, customer access, service networks and the development of new products with cooperation partners.
- The competition in the decentralised energy market is mainly seen between the four large energy suppliers and the traditional regional suppliers. Only then come new market players like start-ups or specialized full-range suppliers. ICT-suppliers are classified as less relevant.

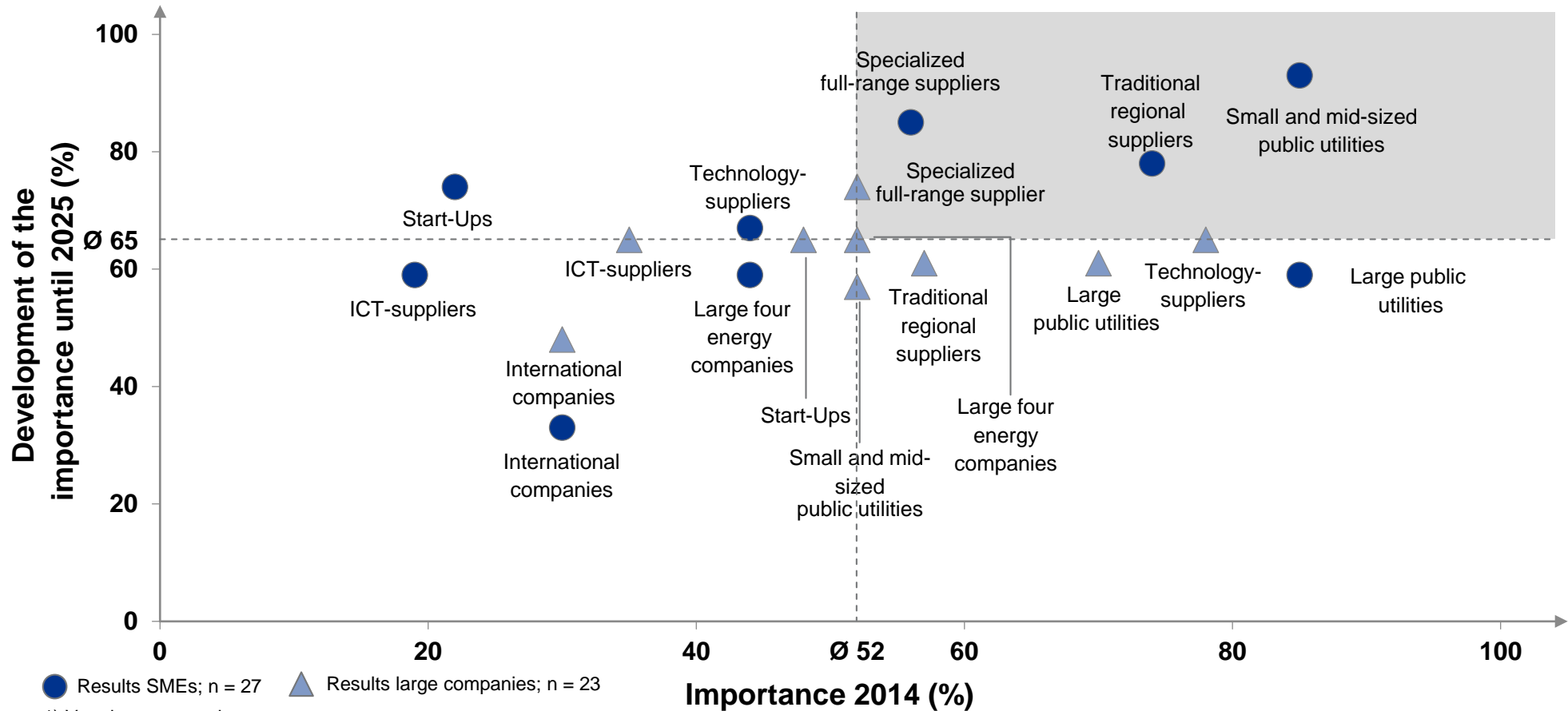
Importance¹⁾ of market players 2014 and development of their significance until 2025 SMEs and large companies



1) Very important or important

..., whereas the large companies see themselves weaker. Both groups assess one another differently.

Importance¹⁾ of the market players 2014 and the development of the importance until 2025 -evaluation of smes and large companies-



1) Very important or important

Organizational implementation for monitoring trends in the decentralised energy industry

SMEs

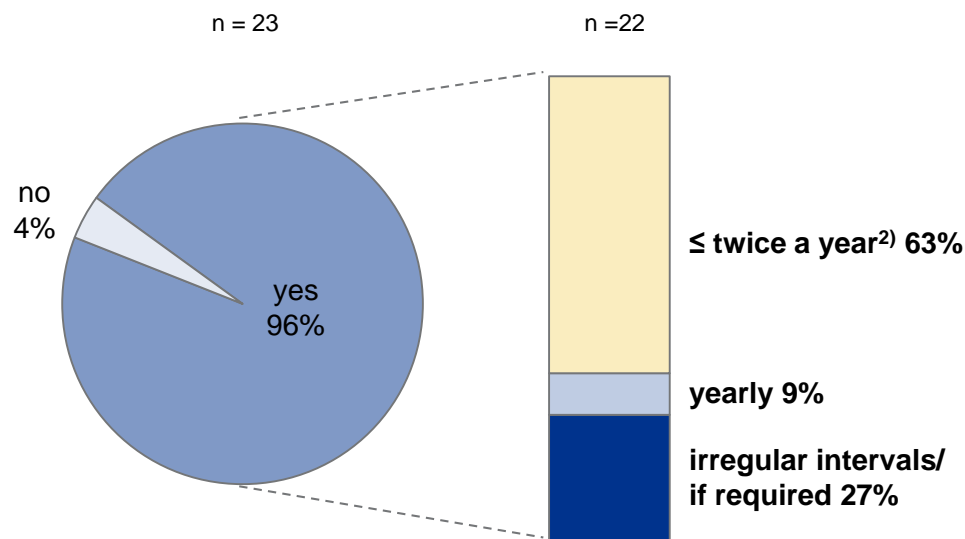
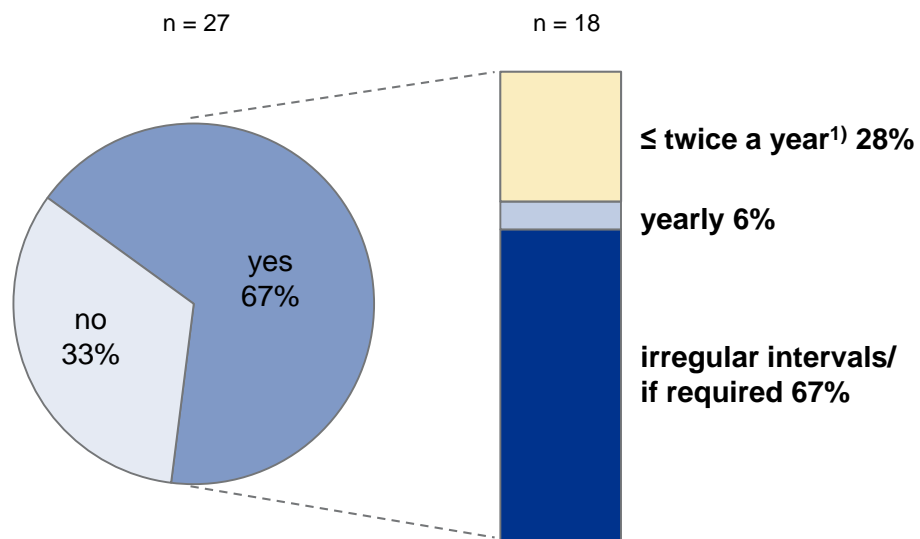
Large companies

Organizational implementation

Frequency of dealing with that topic

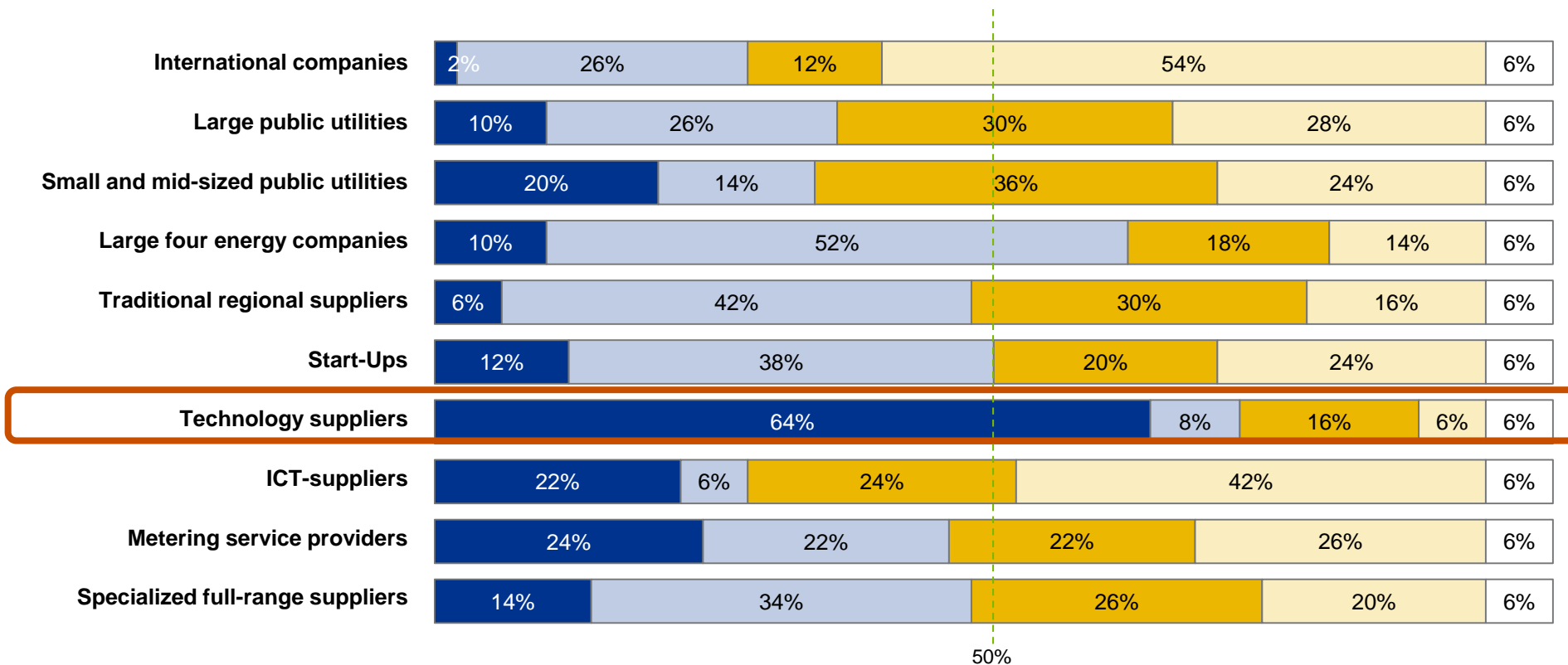
Organizational implementation

Frequency of dealing with that topic



1) One company claims that it deals with that topic more frequently than twice a year.
2) Four companies claim, that they deal with that topic more frequently than twice a year.

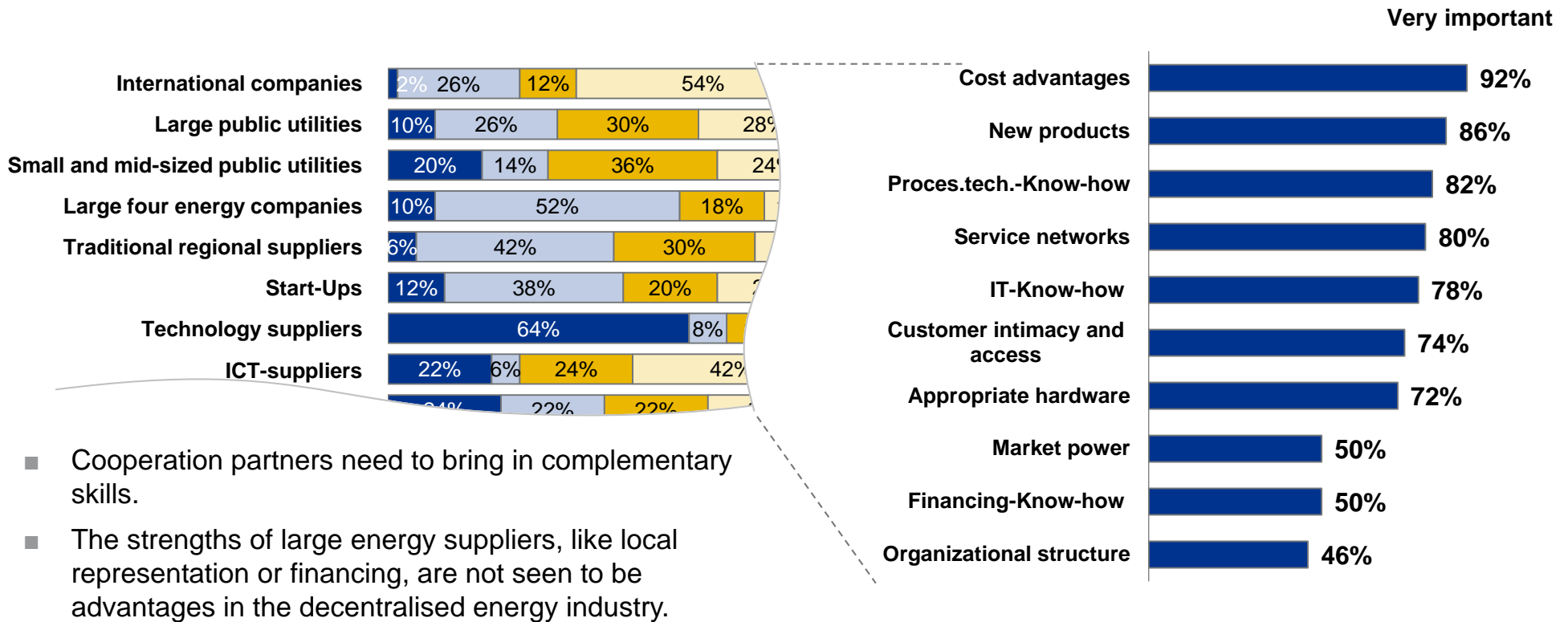
Perception of the market players



n = 50 Partner Competitor both neither n/a

Energy companies expect significant contributions from cooperation partners in order to improve the presence on the segment of the decentralised energy industry.

Importance of the reasons for cooperating



- Cooperation partners need to bring in complementary skills.
- The strengths of large energy suppliers, like local representation or financing, are not seen to be advantages in the decentralised energy industry.

n = 50 ■ very important ■ important ■ less important ■ no importance

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Definition of “decentralised energy plants/systems“

- Decentralised plants/systems are close to the consumer. These plants and systems are connected to the low-voltage grid or medium-voltage grid and have a power below 1 MW. These are small wind and hydro-electric power plants as well as biomass systems, PV-plants and combined heat and power unit (CHPU) . Therefore the decentralised generation includes both renewable and conventional power generation.

Technology suppliers

- e.g. Siemens, Viessmann

Specialized full-range suppliers

- e.g. Voltaris, Energy2market

Start-ups

- e.g. buzzn, thermondo



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