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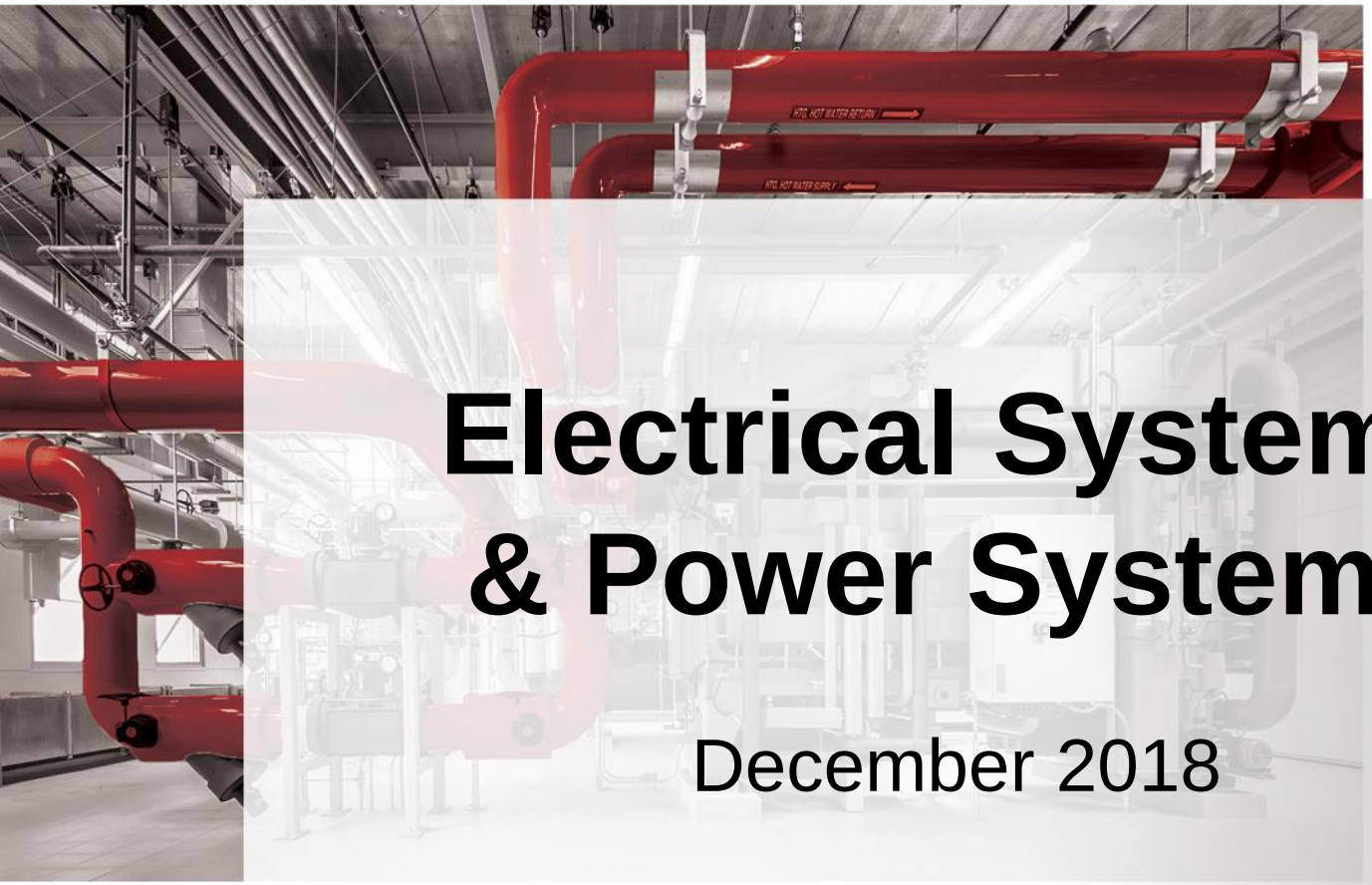

Electrical Systems & Power Systems

December 2018

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Introduction and methodology

Objective

The study was completed by *Consulting-Specifying Engineer* to evaluate the use of electrical and power systems by consulting engineers. By gathering data about the dollar amounts of electrical and power systems specified, the types of electrical and power systems selected, and the challenges that electrical and power system designers face, *Consulting-Specifying Engineer* provides a snapshot of the engineering community's outlook on electrical and power systems.

Sample

The sample was selected from recipients of *Consulting-Specifying Engineer* for whom email addresses were available. Only respondents involved in the specification of electrical or power systems were asked topic-related questions.

Method

Subscribers were sent an email asking them to participate in this study. The email included a URL linked to the questionnaire.

- **Data collected:** Sept. 25, 2018, through Oct. 4, 2018
- **Number of respondents:** 231
  - *Margin of error: +/- 6.4% at a 95% confidence level*
- **Incentive:** Survey participants were offered the opportunity to enter a drawing for a chance to receive a $100 Amazon.com gift card.

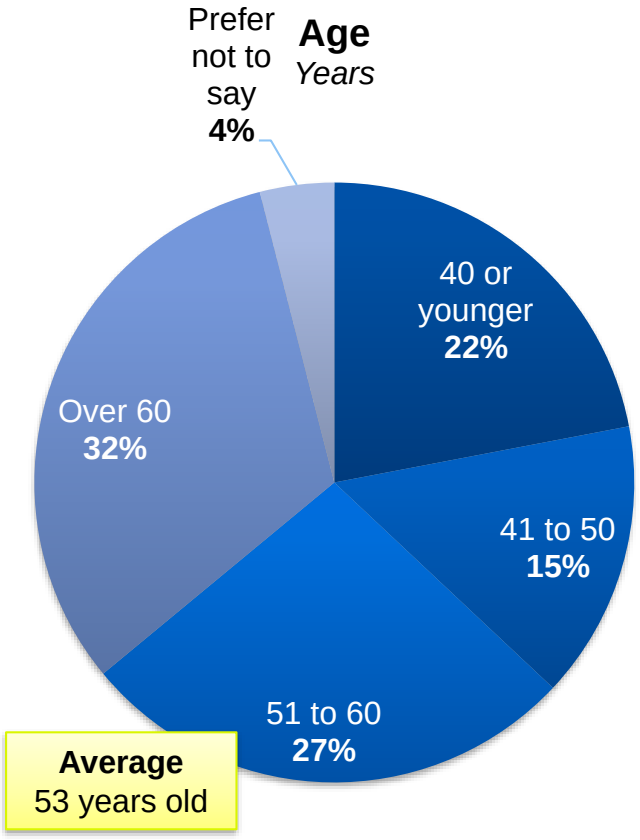
Summary of findings

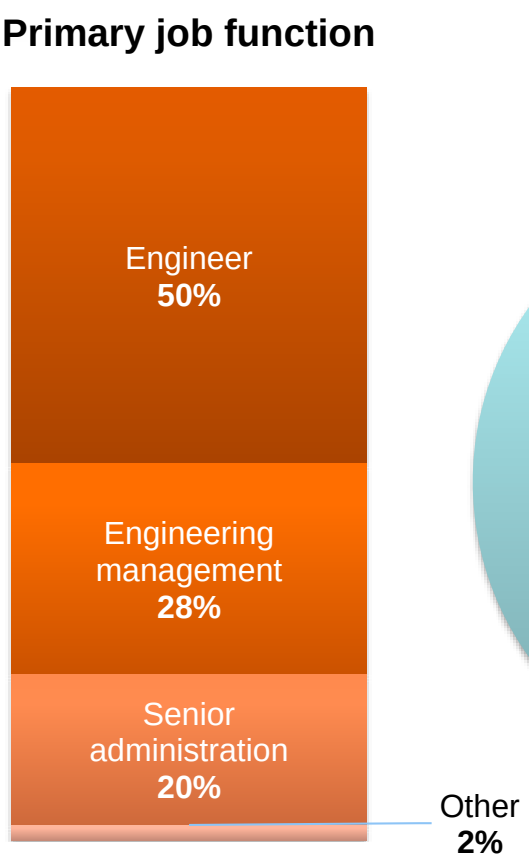
- **Electrical, power revenue:** The average engineering firm specifies about $2.98 million annually for electrical and power systems in new and existing buildings, up 4.4% over 2016 data.
- **Systems specified:** Eight in 10 engineers currently specify circuit breakers, fuses, etc.; cable, wire, etc.; and electrical distribution systems or equipment.
- **Selection involvement:** Eight-three percent of respondents are responsible for determining the requirements/writing specifications for electrical or power systems. Another 68% research and evaluate options, while 65% recommend the brand or supervise/consult on projects.
- **Specifications:** Twenty-eight percent of respondents always write performance electrical or power specifications, and another 46% frequently write this type of specification.
- **Design factors:** Ninety-seven percent of engineers agree that product quality is the most important factor to their specification of one electrical or power system over another, followed by technical advantage (87%), service support (86%), and manufacturer's reputation (86%).
- **Top challenges:** Eight in 10 engineers agree that an inadequate budget for high-quality design is a difficult challenge affecting the future of electrical and power systems, engineers, and/or the industry; other top challenges include speed of project delivery (73%), and energy efficiency (66%).
- **Building types:** The top three building types for which respondents specify, design, or make product selections are office buildings, industrial/manufacturing facilities/warehouses, and hospitals/health care facilities.

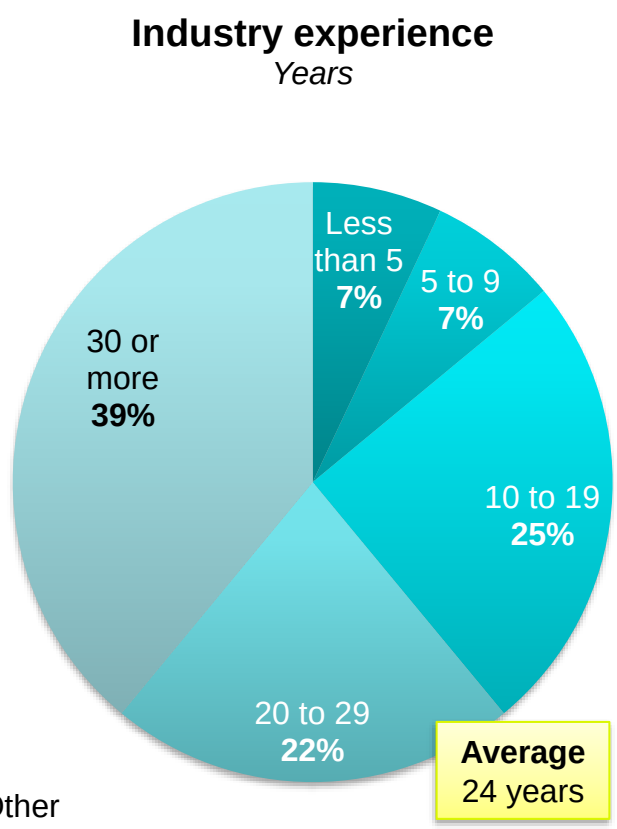
Respondent profile

Age, primary job function, experience

The average respondent is 53 years old, with 24 years of industry experience. Forty-eight percent of respondents have senior administration or engineering management primary job functions; 50% are professional engineers.



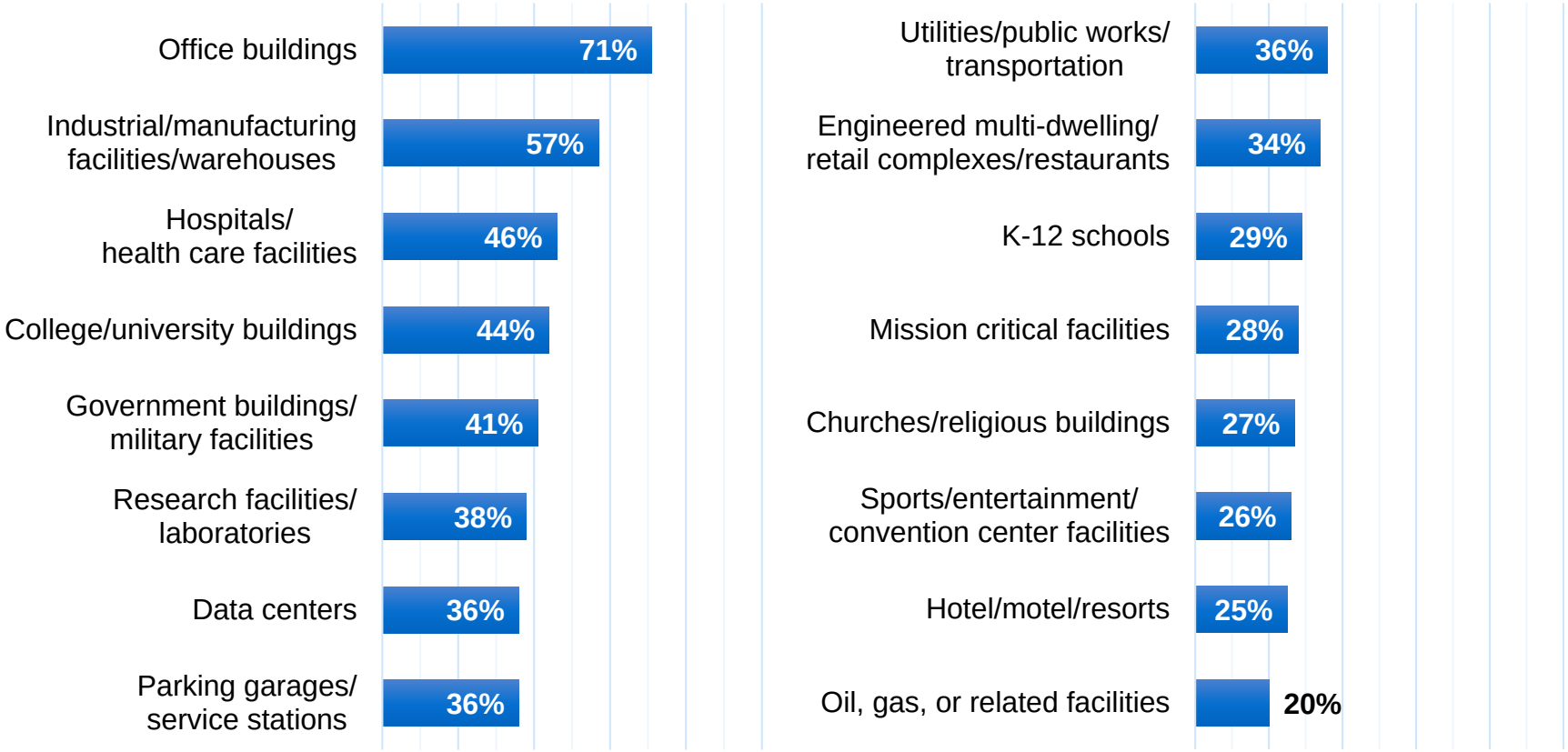




Q: Which of the following ranges includes your current age? (n=226);
Q: Which of the following best describes your job title? (n=189); Q: For approximately how many years have you worked in electrical and power systems? (n=226)

Building structures

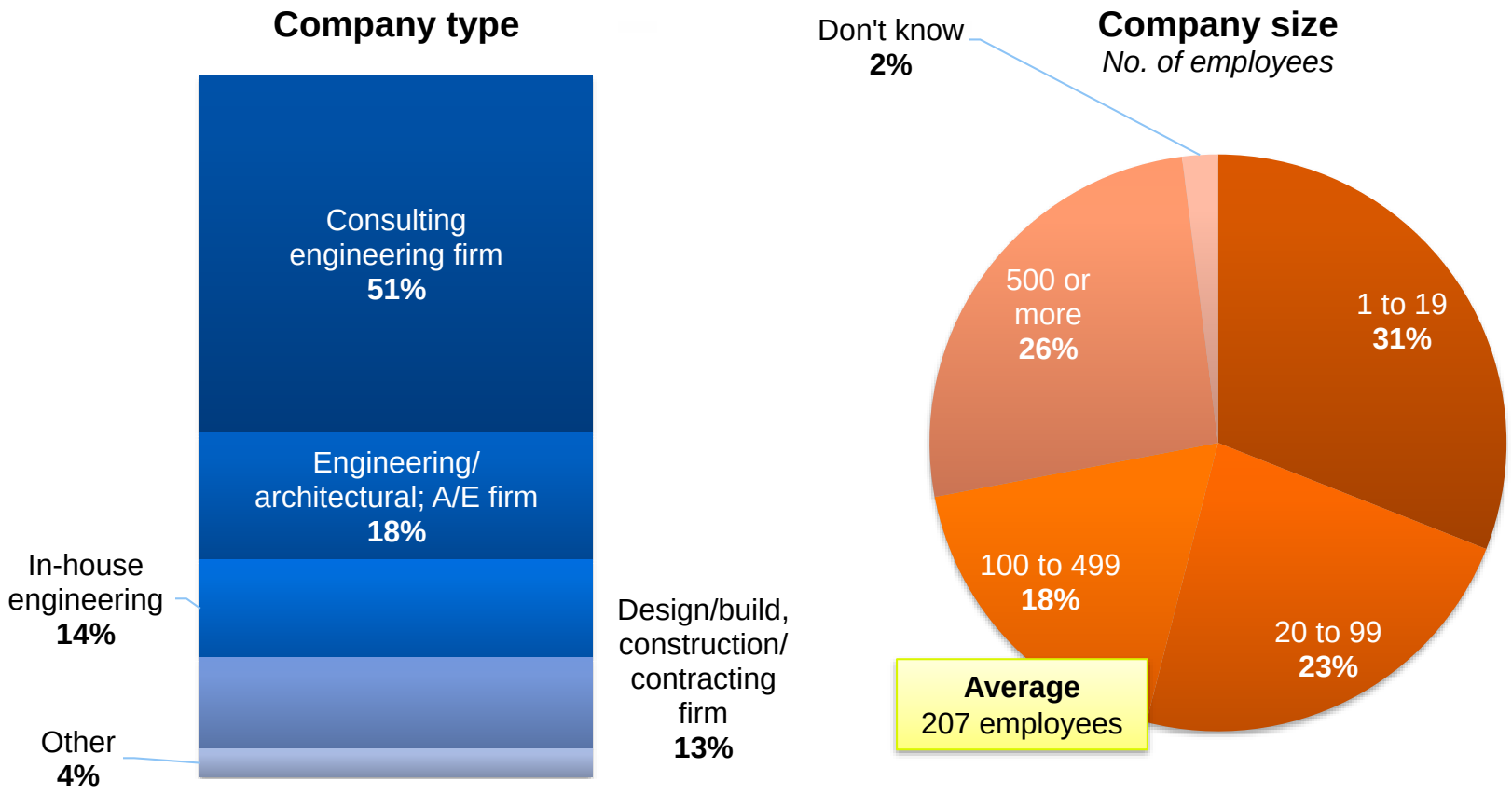
The top structures that respondents specify, design, or make product selections for are office buildings (71%), industrial or manufacturing facilities or warehouses (57%), and hospitals or health care facilities (46%).



Q: For which of the following types of building structures do you specify, design or make product selections? Check all that apply. (n=231)

Company profile

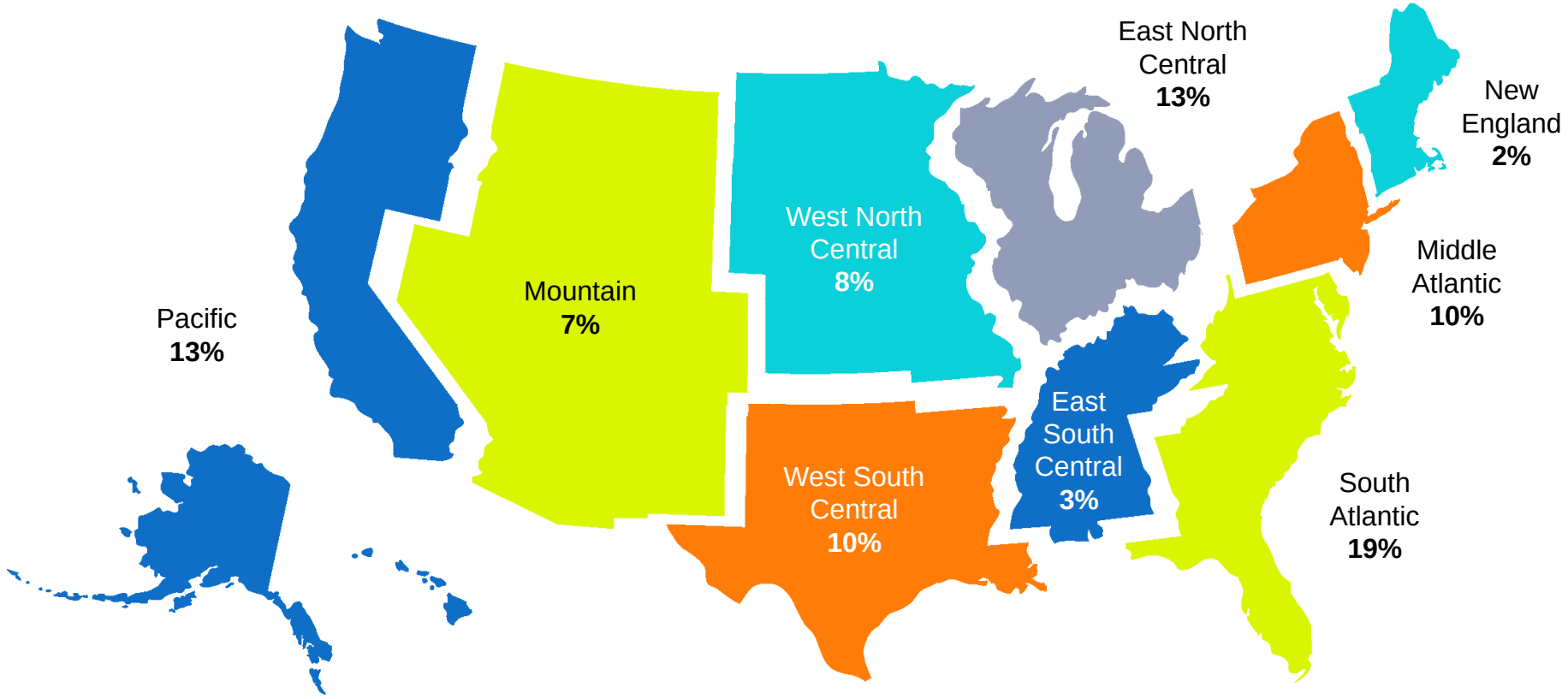
Fifty-one percent of respondents work for a consulting engineering firm, and 54% indicated that their firm employs fewer than 100 people; the average firm employs 207 people.



Q: Which of the following best describes your company? (n=189); Q: Approximately how many people are employed by your firm? (n=226)

Location

Thirty-one percent of respondents are located along the East Coast of the U.S., and another 13% reside beyond the U.S. border. Other countries represented include Brazil, Canada, and India.

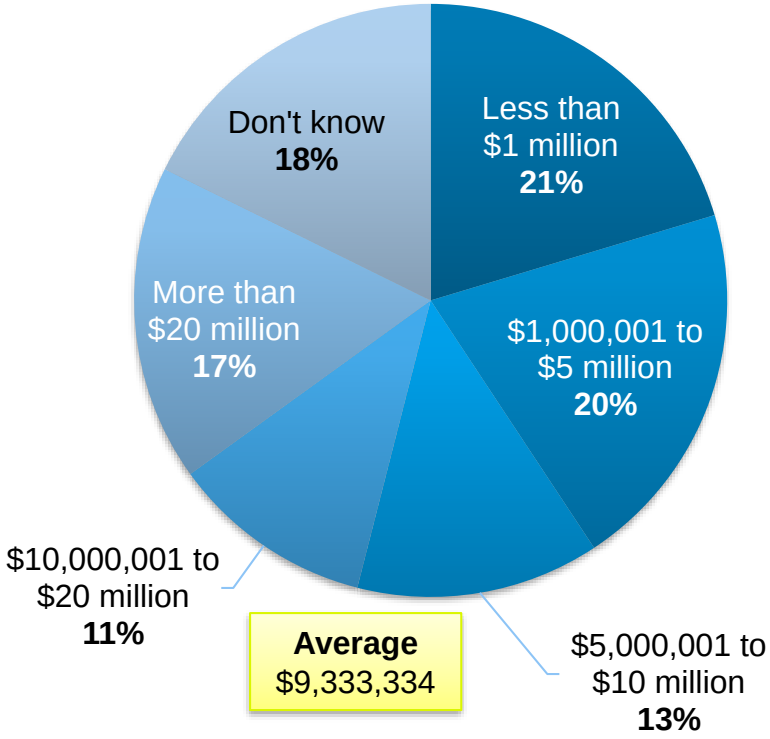


**Data gathered by matching respondents to their* Consulting-Specifying Engineer *audience profile.*

Annual MEP/FP design revenue

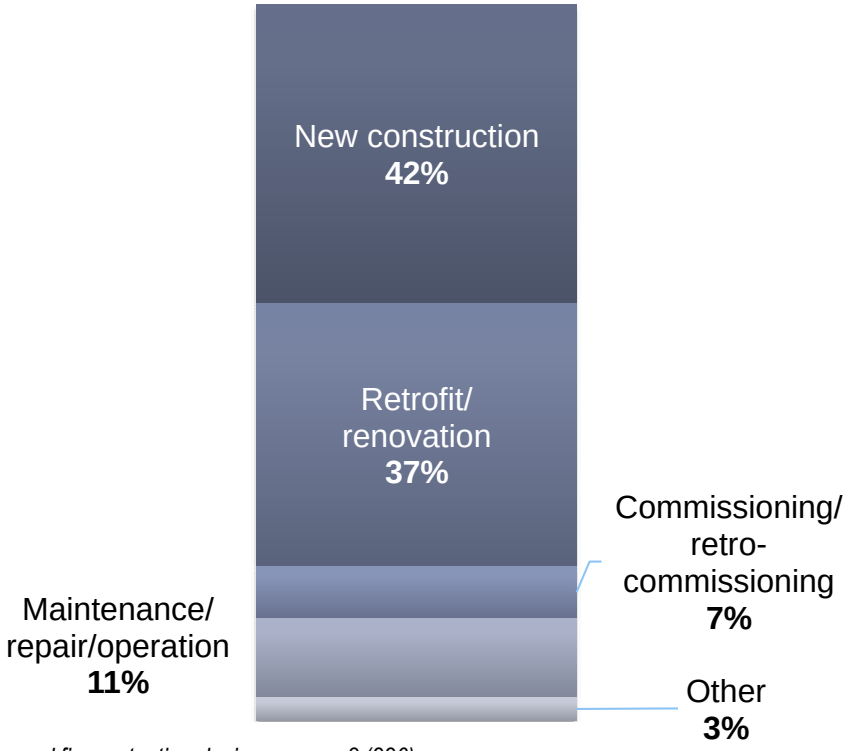
The average firm generated $9.3 million in mechanical, electrical, plumbing, and fire protection (MEP/FP) design revenue in 2017. Most MEP/FP design projects in 2017 were new construction or retrofit/renovations.

Total MEP/FP design revenue



MEP/FP design billings

Average

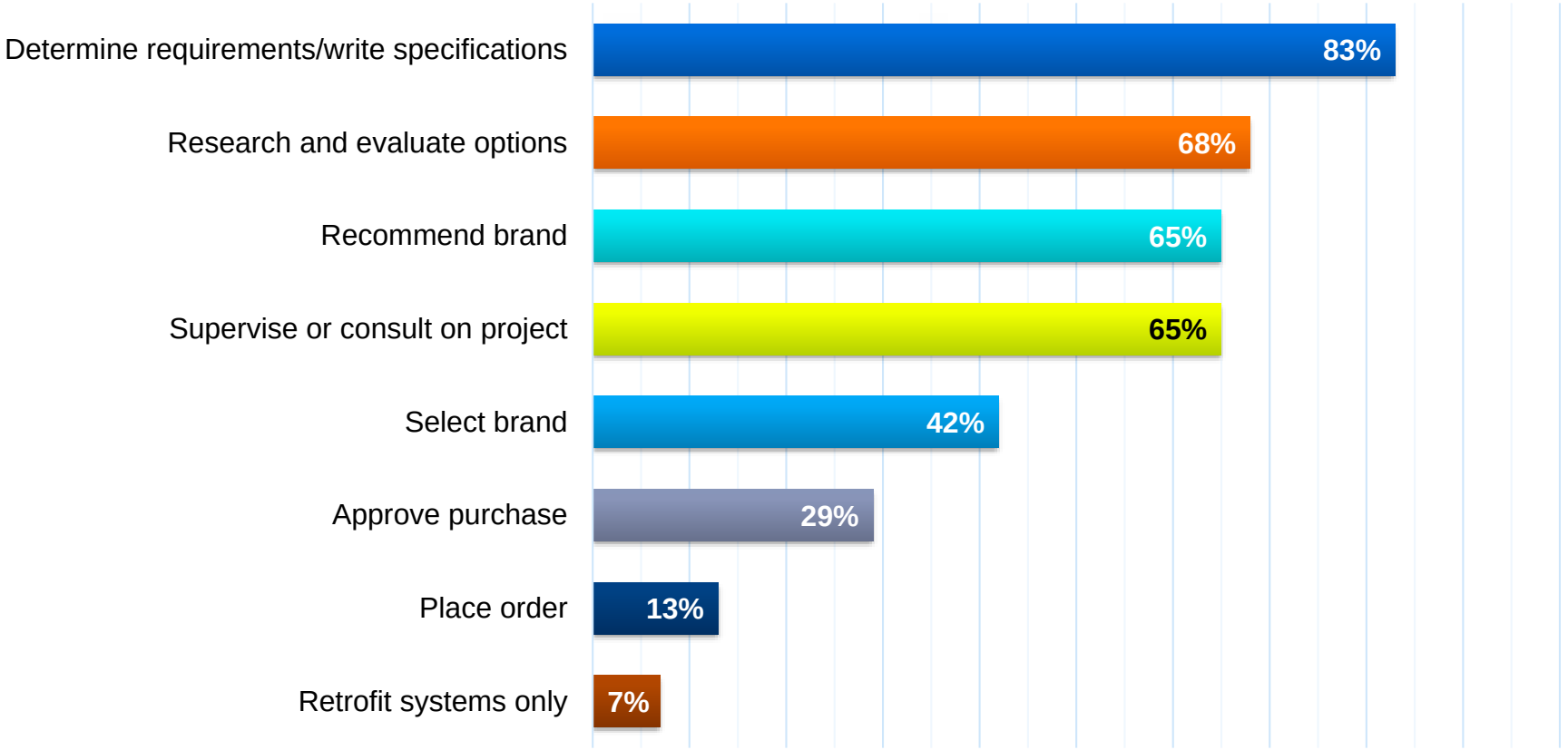


Q: Which of the following ranges best describes your firm's annual mechanical, electrical, plumbing, and fire protection design revenue? (226);
Q: Define the percentage of last year's design revenue that was spent in each of the areas shown. (n=209)

Electrical systems and power systems

Involvement in product selections

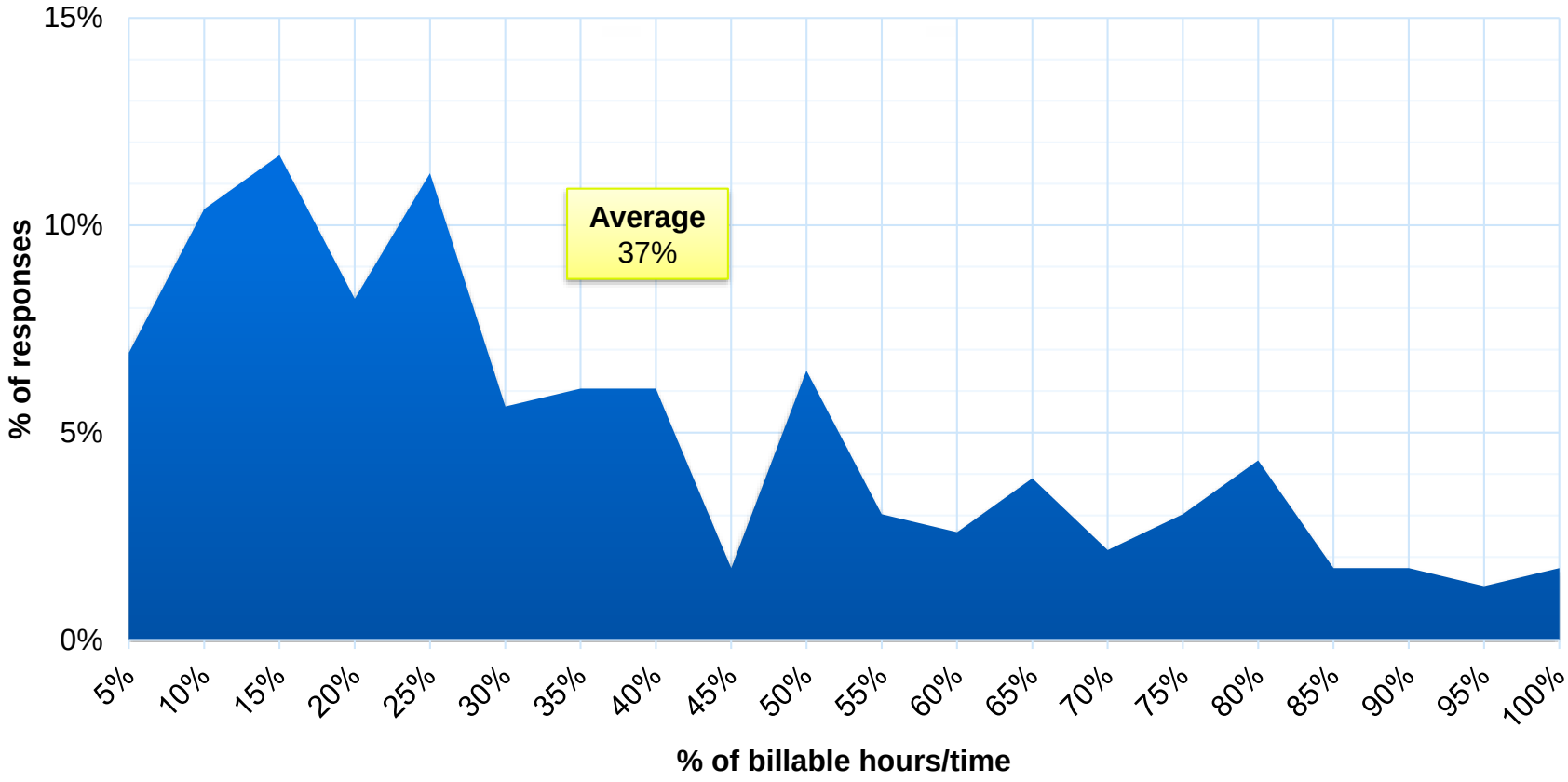
Eighty-three percent of respondents are involved in determining requirements/writing specifications in the selection of electrical or power systems.



Q: In what ways, if any, are you involved in the specification of electrical or power systems? Check all that apply. (n=231)

Time spent researching/specifying

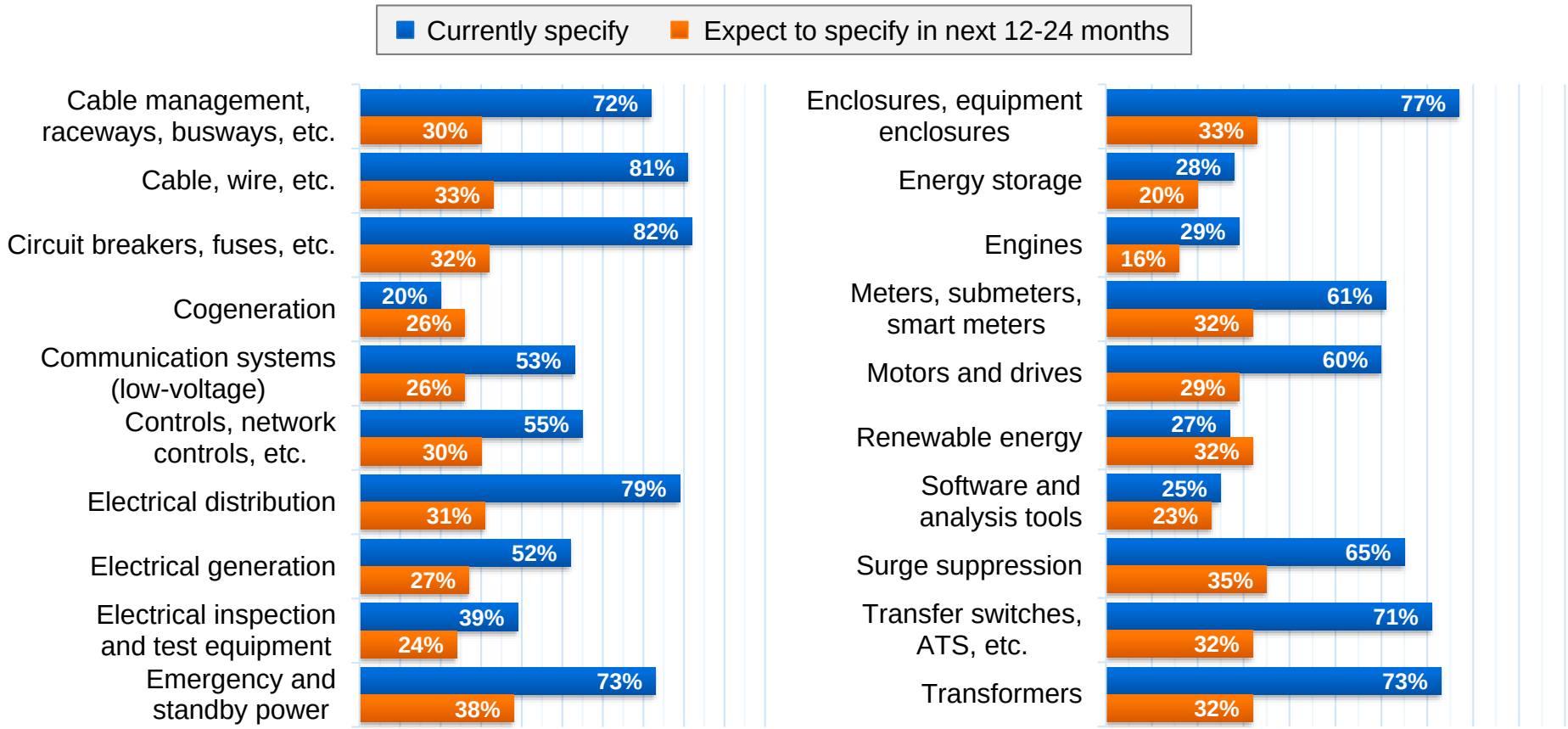
On average, respondents spend 37% of their billable hours/time at work researching and/or specifying electrical and power systems.



Q: What percentage of your billable hours/time at work is spent researching and/or specifying electrical and power systems? (n=231)

Electrical, power systems specified

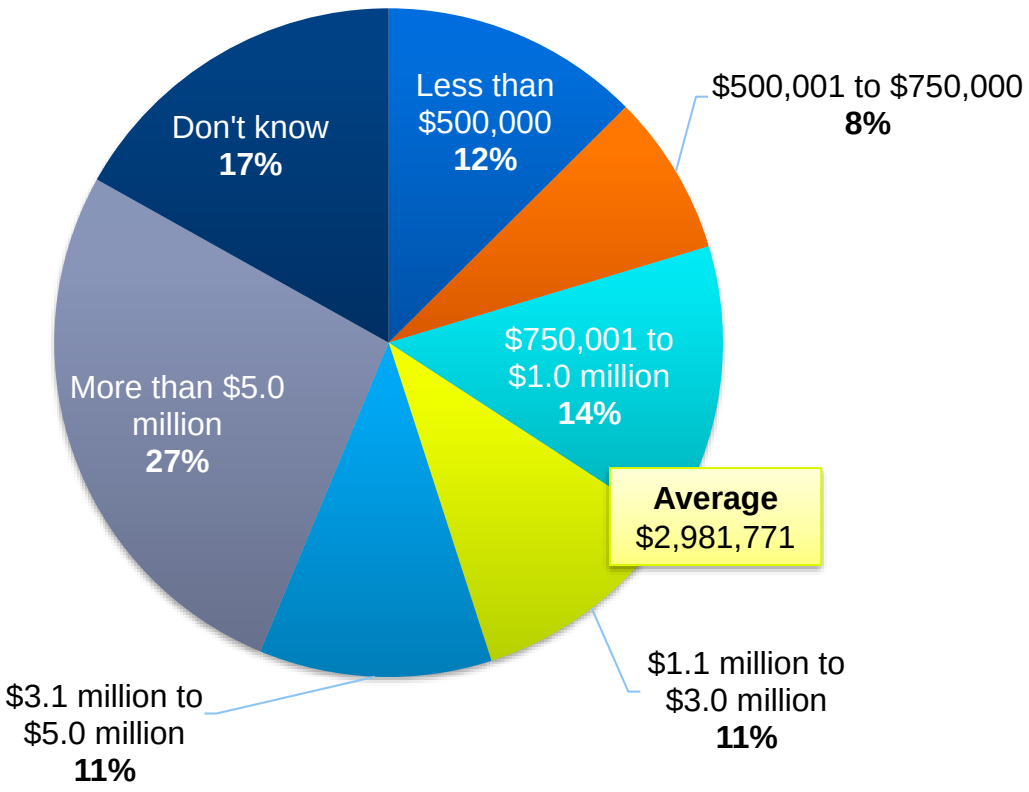
The top electrical and power systems currently being specified by respondents are circuit breakers, fuses, etc. (82%) and cable, wire, etc. (81%).



Q: What types of electrical and power systems do you currently specify? What types of electrical and power systems do you expect to specify within the next 12 to 24 months? Check all that apply for each row and column. (n=231)

Dollar amount specified for electrical, power systems

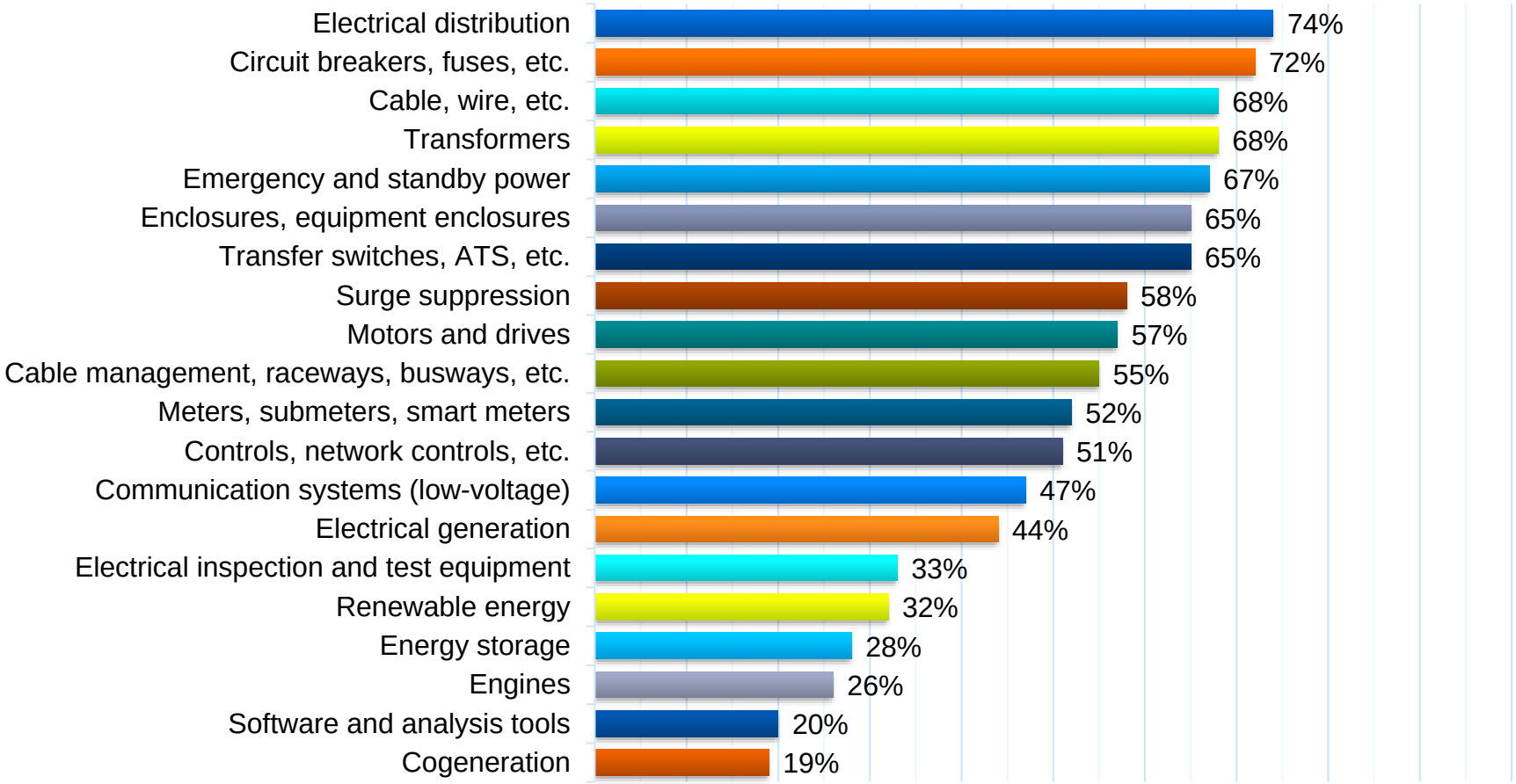
Forty-nine percent of electrical and power systems specified by respondents' firms for new and existing buildings were valued at more than $1 million annually.



Q: What is the total annual dollar amount of electrical or power systems specified by your firm for new and existing buildings? (n=231)

Revenue generation

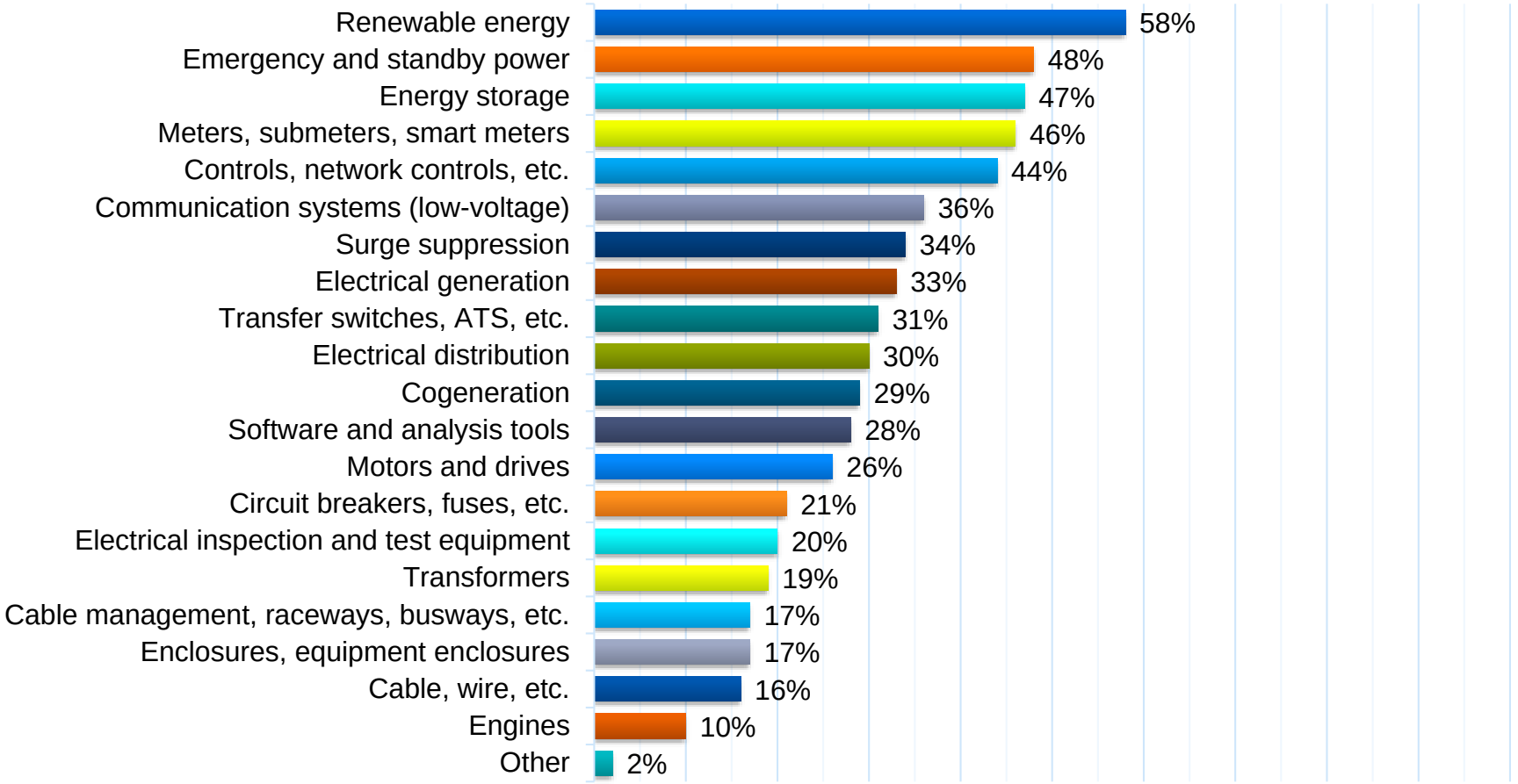
In the past year, firms have obtained design revenue for projects involving electrical distribution systems (74%); circuit breakers, fuses, etc. (72%); cable, wire, etc. (68%); and transformers (68%).



Q: In the past year, for what types of electrical and power systems has your firm obtained design revenue? Check all that apply. (n=231)

Technologies in demand

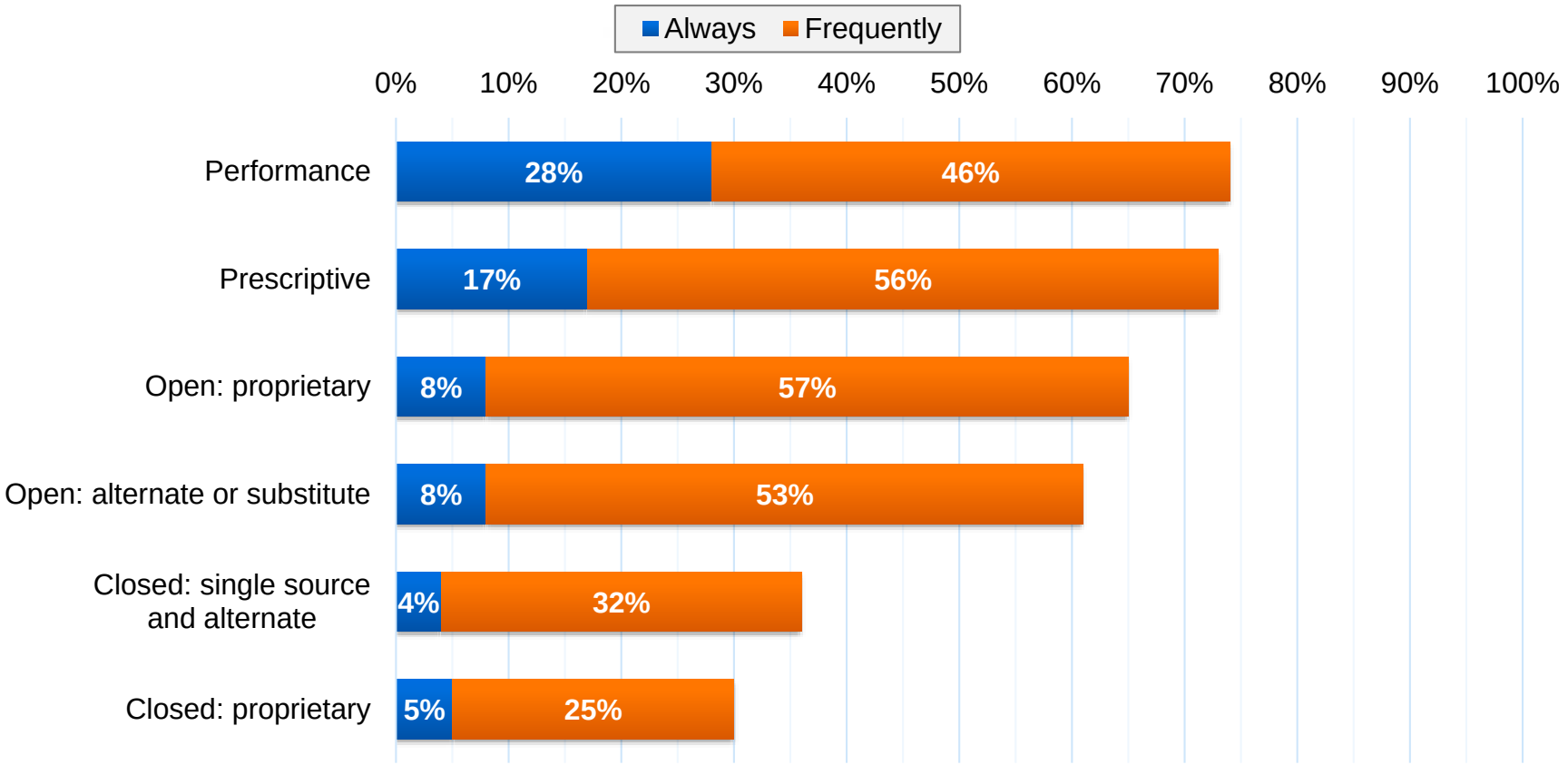
More than half of respondents expect to see an increase in renewable energy technologies in upcoming projects; other in-demand systems include emergency and standby power and energy storage.



Q: For which technologies do you expect to see an increase in projects? Check all that apply. (n=231)

Types of electrical, power specifications written

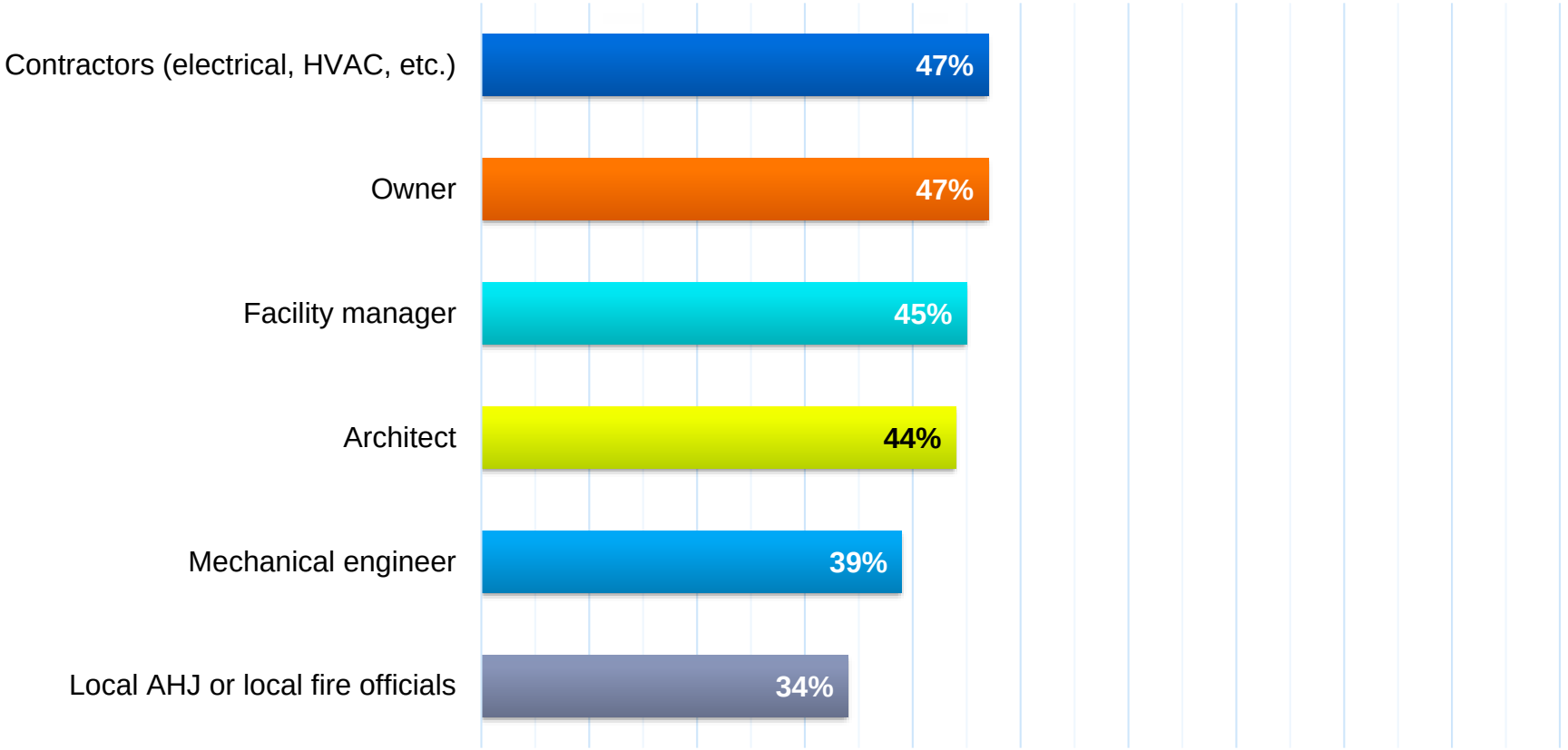
Performance electrical or power specifications—those in which the text is restricted to stating the performance that must be achieved by the completed work—are used by 74% of respondents, and 73% generally write prescriptive specifications.



Q: Of the total electrical or power systems specifications issued by your firm, how often are you using each of the following? (n=231)

Design coordination

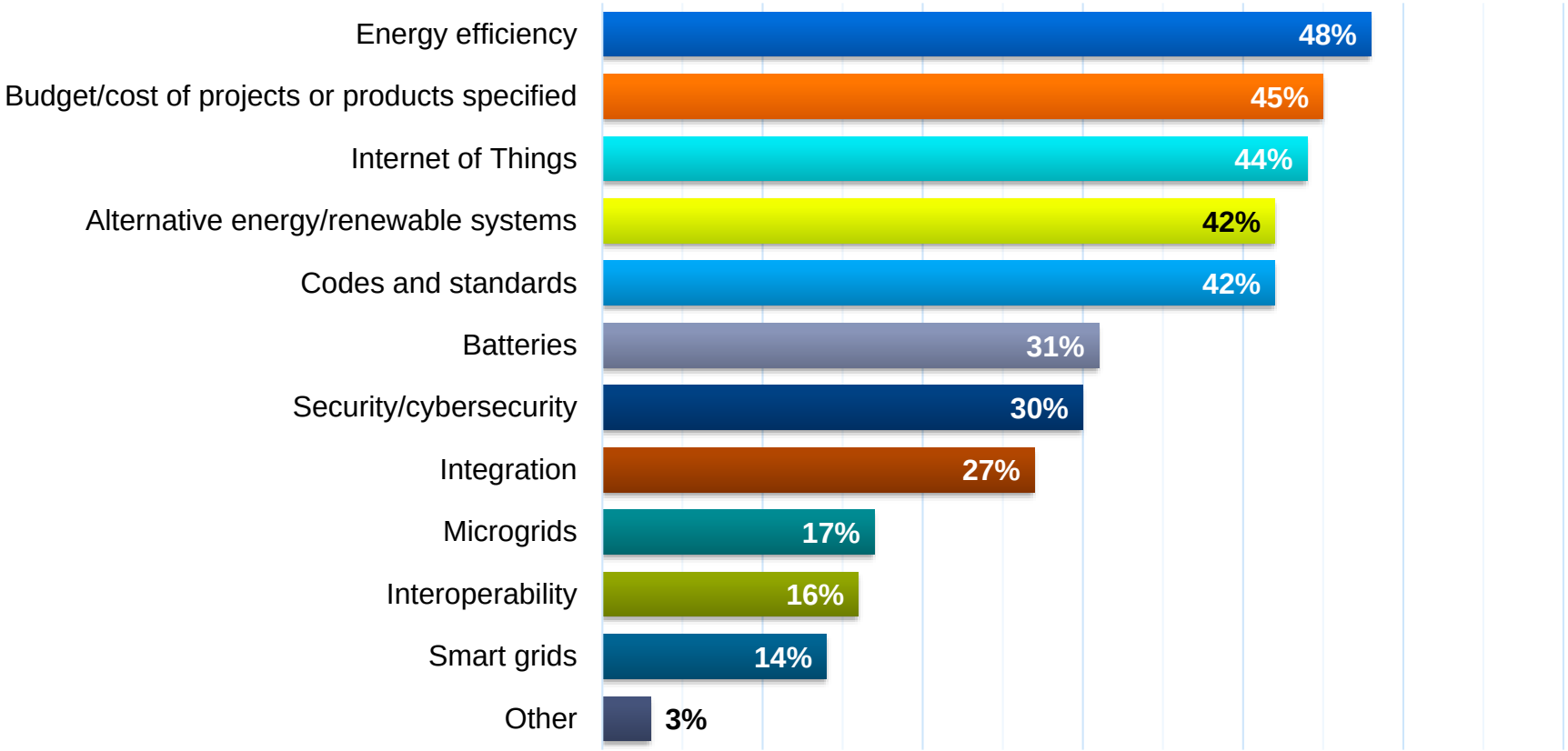
Forty-seven percent of respondents reported contractors (electrical, HVAC, etc.) or owners as having the most input and impact on their electrical and power system designs.



Q: Which of the following disciplines have the most input and impact on your electrical and power system design? Check all that apply. (n=231)

Recent changes in electrical, power system design

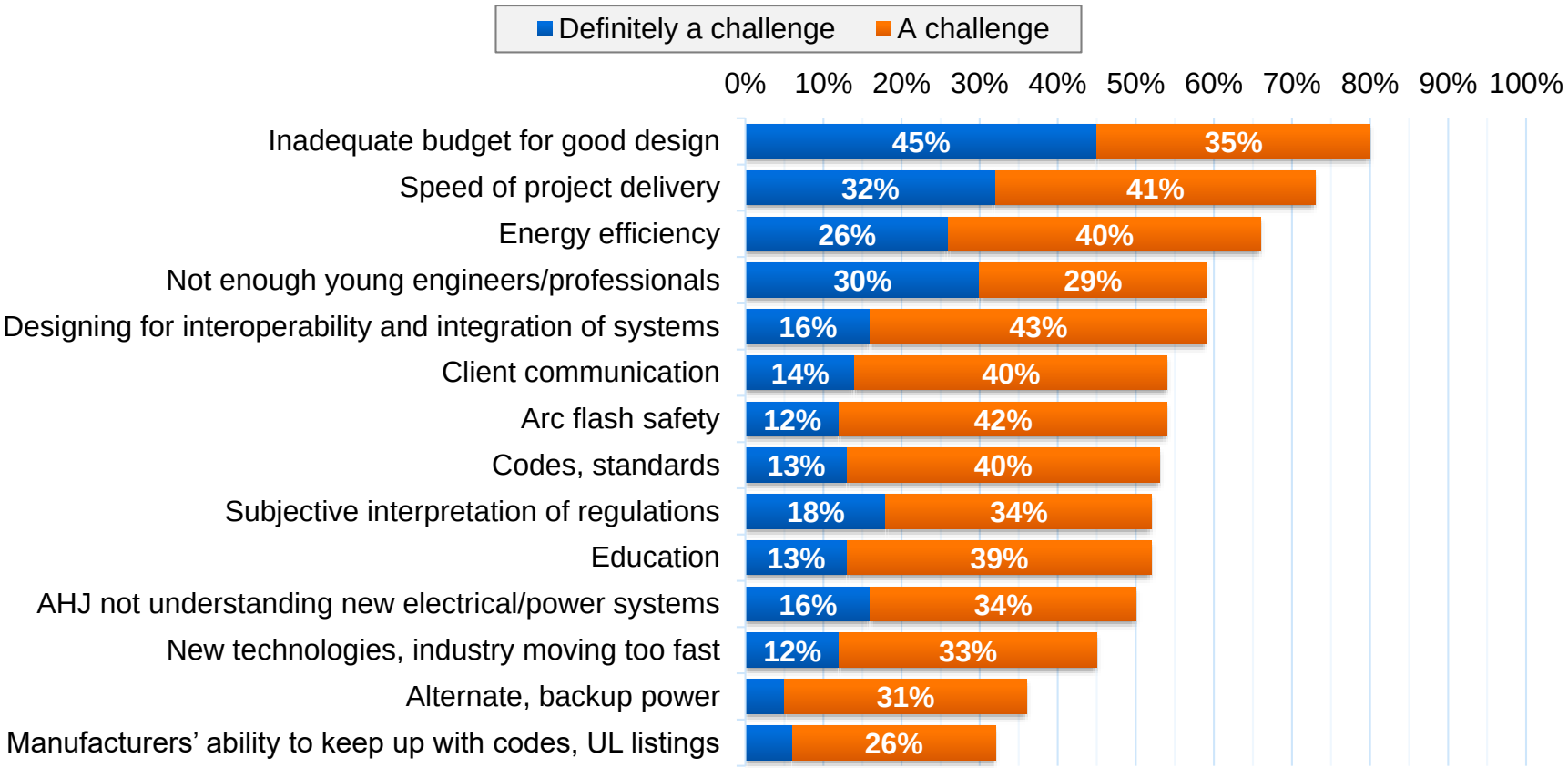
The top changes that respondents have observed in electrical and power systems during the past 12 to 18 months are those to energy efficiency, budget/cost of projects or products specified, and the Internet of Things.



Q: What are the biggest changes in electrical and power systems that you've observed during the past 12 to 18 months? Check all that apply. (n=231)

Challenges facing engineers

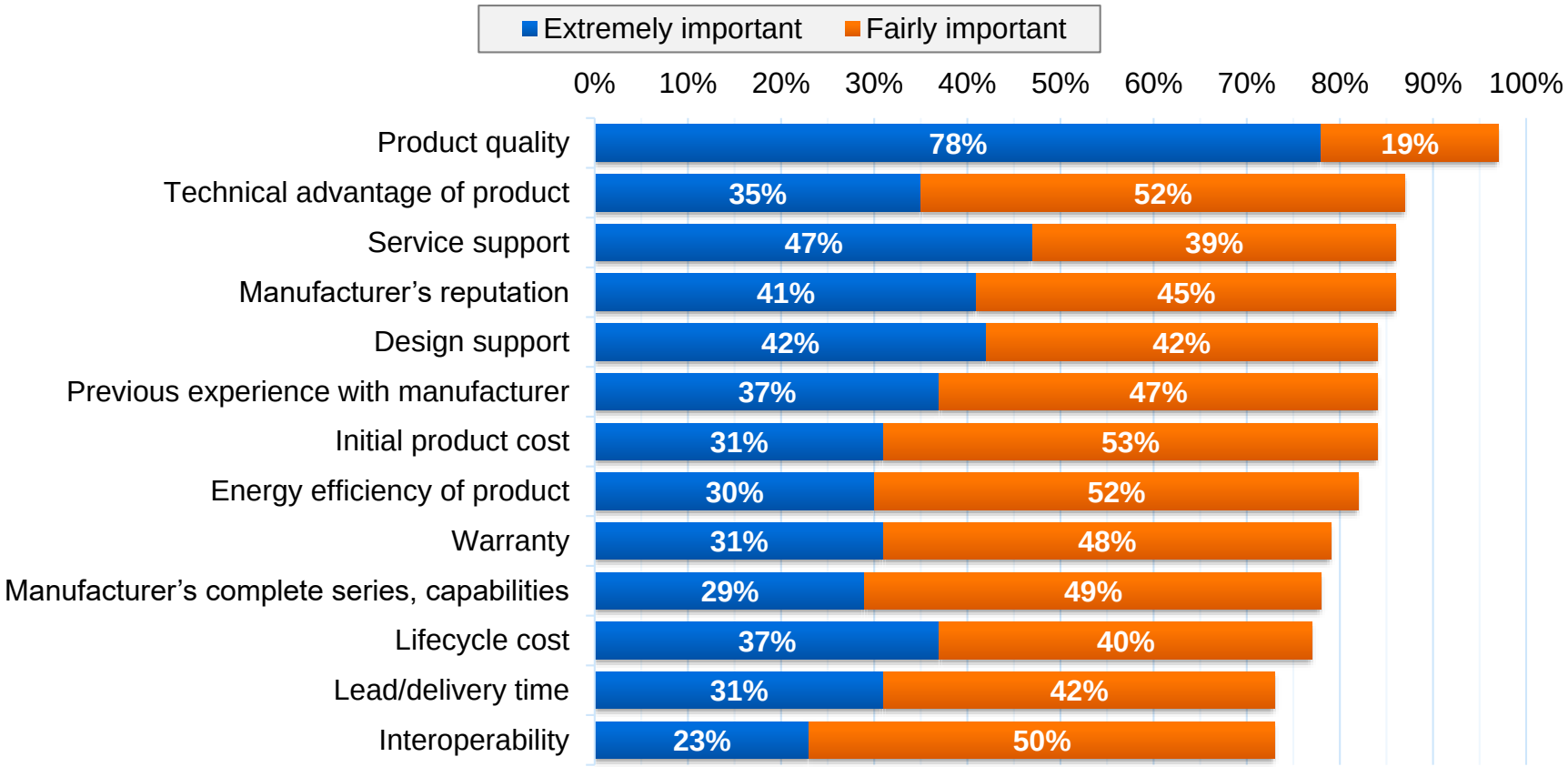
Inadequate budgets and the speed of project delivery remain critical challenges faced by engineers when specifying electrical and power systems.



Q: What are critical challenges or issues affecting the future of electrical and power systems, engineers, and/or the industry? (n=231)

Important product factors

The most important factors to respondents' selection of electrical or power systems are product quality (97%), technical advantage (87%), service support offerings (86%), and manufacturer's reputation (86%).



Q: In your design/specification activity, how important is each of the following factors to your specification of electrical or power systems over another? (n=231)

Additional resources

Thank you for downloading the *Consulting-Specifying Engineer* 2018 Electrical & Power Study. Use the links below to access additional information on fire and life safety news, products, and research.

Electrical and power news, articles, products

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