IEEE PES VISION 2050 PROJECT
Research Summary

From the impacts of climate change to the development of the next generation of engineers, the IEEE PES Vision 2050 research project aims to understand the dynamics that shape the world's energy future, as well as the role of IEEE PES, its members and engineers.

This unprecedented research effort includes PES members, industry experts and energy consumers from around the world, with the analysis of tens of thousands of data points gathered from focus groups, in-depth interviews and quantitative surveys to identify key insights.

When completed, this global research project will provide an invaluable blueprint to help IEEE PES identify key energy priorities among its membership and energy consumers. This will better prepare its current and prospective members for the energy needs of the future.

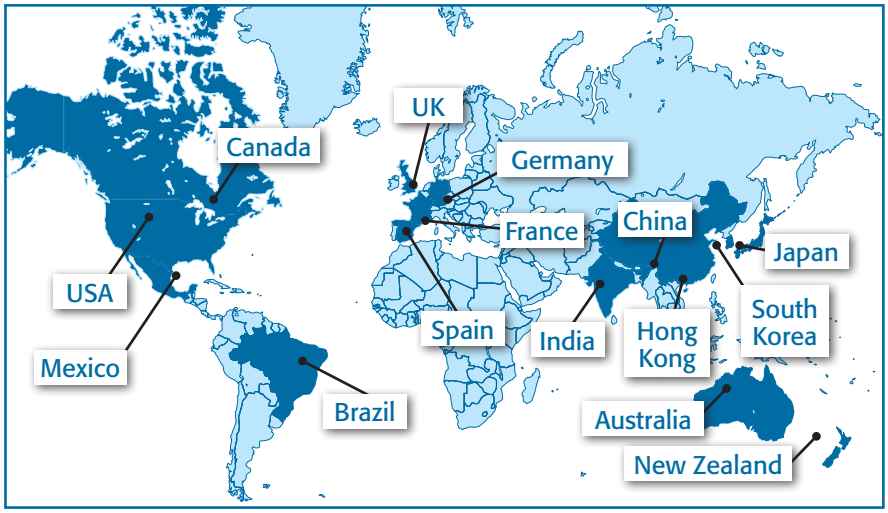
A. Global Consumer Focus Groups

30 focus group sessions

500+ respondents

600+ hours of guided discussion

4,000+ pages of written exercises



B. In-Depth Interviews (IDIs) with Energy Experts

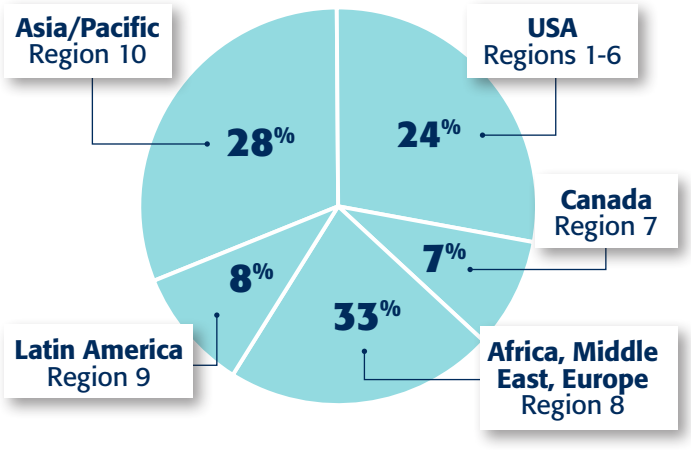
200+ participants

100+ hours of interviews

40+ countries represented

400+ pages of key responses coded and analyzed

IDI Participants by PES Region



Most Represented Countries

1. USA
2. China
3. India
4. Canada
5. Australia
6. France
7. UK
8. Mexico
9. Germany
10. Nigeria

C. Quantitative Surveys with PES Members & Consumers

4 total surveys conducted **11K+** total respondents **101** countries represented

Sources: US Energy Consumers, Oct. 2024; *Global PES Members,* Feb. 2025 + Feb. 2026; *Global Energy Consumers,* March 2026

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Seven Initial Research Findings

1. **Reliable baseload power is a constant need and key to the energy transition.** The debate lies in what is the most feasible and effective source, especially between fossil fuels and nuclear.
2. There is consensus among energy experts and consumers that **technological limitations are not the primary obstacle in accomplishing desired energy goals**.
3. **Energy affordability and greater access to clean energy are consumers' top priorities** for engineers and policymakers.
4. **North American consumers are more likely to prioritize affordability** above "clean" energy for meeting growing demand, while **European and Asian consumers are more likely to prioritize "clean."**
5. **Energy security**, or energy independence, has become an **increasingly popular argument for investing in alternative power sources**, as opposed to simply reducing emissions.
6. **Multi-disciplinary experience and education pathways** that advance engineering professionals' understanding of digitalized power grids is believed to be even more important with the advent of AI, virtual power plants, and growing number of electric vehicles and inverter-based resources.
7. **Consumers are extremely trusting of electrical engineers** when compared to other organizations/actors in the energy sector.

2026 Global Energy Consumer Survey

81%
are **optimistic** that scientists and **engineers can develop technologies** that will **address climate change** on a global level.

51%
agree that electrical engineers should have greater influence over the decisions made about **their country's energy grid**.

65%
believe **solar power** is the **most important source** to meet their **country's energy needs in the future**. Coal was seen as the least important.

2026 PES Member Survey

58%
believe that meeting **growing demand from AI/data centers poses the most significant challenge** for engineers to solve over the next decade.

97%
believe it is important for electrical engineers to help educate the public on energy issues like infrastructure challenges and clean energy.

90%
are **concerned** that the **cost of infrastructure investments will be passed on to residential & small business** consumers.

Top Infrastructure & Resiliency Investment Priorities

1. Protecting the energy grid against cyberattacks and physical threats
2. Increasing energy / battery storage
3. Modernizing substations and related equipment
4. Deploying microgrids and distributed energy resources