

The Free Electrons Utility Partners have pulled together some examples of the topics of interest to their businesses in 2023 and beyond. These should help to illustrate some of the key areas of interest and help guide you in your responses as you fill in the 2023 application form. We appreciate that there is a lot of cross over between categories, so please select the best fit in your view. Good luck!

1) Connectivity and Communication Solutions

- Grid edge technologies including smart inverters, telemetry, sensing and control
- Leveraging captive utility customers for new services beyond electricity generation, transmission, and/or distribution
- Distributed energy resource aggregation as a service

2) Energy Management and Efficiency

- Easy to use platforms to manage disparate energy generating assets and loads, before and behind the meter to optimize energy efficiency
- Platform to trade energy offsets
- Services or technologies that support energy efficiency as a service across commercial and industrial customers

3) Facility and Asset Management

- Disaggregation of loads for predictive/preventative maintenance
- Solutions to help forecast grid impacts to extreme weather events
- Tools that enable the remote evaluation of assets (from single family homes, commercial buildings, city quarters to complex business/industrial sites) on energy reduction potentials
- Smart emissions reduction solutions for municipalities, commercial & industrial customers

4) Next Generation Clean Energy

- Distributed generation including micro/modular nuclear, modular CHP, feeder/community-level storage and low cost BTM solar + storage
- Long duration energy storage solutions with total installed costs <US\$100/kWh
- Mobile long duration energy storage solutions
- Innovative fuel cell technologies (e.g., small SOFC)
- Innovative sector coupling/seasonal storage technologies

5) Smarter Grids and Energy Communities

- Virtual Power Plant/advanced demand side management - including technologies & service models that support residential, commercial or industrial applications
- Provision of services, devices and connectivity for energy/peak awareness, automated energy conservation and market participation/monetization
- Packaged reliability & resiliency solutions for residential, SMB and commercial customers
- Services & technologies that enable optimized planning, operation and maintenance of electricity, gas and district heating grids

6) Sustainable Alternative Fuels and Carbon Management

- Modular green/blue hydrogen or alternate energy carriers that support seasonal storage and/or adjacent industry feedstock needs
- Innovative and scalable carbon accounting, reporting & visualisation tools (scope 1-3) covering the whole supply chain
- Innovative negative emission technologies for carbon capture & removal for utility scale generation and/or industrial applications
- Innovative production technologies of low carbon hydrogen
- Hydrogen utilization for transport (land, water, air)
- Acceleration of cost curve for hydrogen installations e.g. solutions for rapid learning across the EPC industry to understand & minimize risk during estimation, solutions for rapid learning to provide cost effective deployment of hydrogen installations

7) Transport & Industry Electrification

- Services or technologies that support the customer lifecycle (awareness, consulting, engineering, procurement, financing/capital, ownership, maintenance) for fleet, commercial or industrial electrification
- Service and technology combinations for unique approaches to reducing energy for decarbonization or cost savings
- Services and technologies for electrification and fuel switching, beyond fleets that help industry achieve cost or carbon goals
- Energy adjacent product or service offerings/models for promotion of electrification/ decarbonization and user experience in using/consuming non-carbon generation sources

8) Green Heat Solutions for B2B and B2C

- Services and technologies to provide heat with a low or neutral contribution to CO₂ emissions, e.g., biomass, solar and geothermal (including ambient heat from heat pumps)
- Services and technologies that enable residential/SME/industrial customers to reduce dependency on natural gas
- Services and solutions that enable increased efficiency in heat generation, utilization and storage e.g. waste heat recovery technologies
- Technologies that enable green heat (e.g. steam) production at industrial order of magnitude and at higher temperature levels

9) Other

- Innovative solutions for the “renovation challenge” e.g. making renovations faster, cheaper, easier and more efficient
- Retrofit solutions for heating and cooling in buildings
- Remote lead / potential identification and qualifications tools