A high-angle, top-down view of a person looking up through a circular opening in a grey, tiled ceiling. The opening reveals a lush, green living wall of plants. A bright orange arc is superimposed over the top and right sides of the circular opening. A white sphere is positioned at the top left of the orange arc. The text 'FREE ELECTRONS PROGRAM OVERVIEW' is centered in the opening in white, bold, sans-serif font.

FREE ELECTRONS PROGRAM OVERVIEW

ABOUT THE PROGRAM



ABOUT FREE ELECTRONS

Heading into its 8th edition, Free Electrons is a globally recognized open innovation program that brings together progressive utilities with pioneering startups/scaleups working in energy and adjacent industries to co-create the future of energy. The program focuses on working to pilot projects, commercially deploy products, facilitate investment opportunities, learning and development.

Over the past seven editions, the program has invested over **\$118M USD** and received applications from more than **91** different countries.



91
Markets
Reached



\$15M
Invested in
Pilots



\$67M
Invested in
Deployments



\$36M
Direct
Investment



\$118M
Generated
Value



ABOUT THE UTILITY PARTNERS

The Free Electrons utility partners are leaders in delivering cutting edge solutions.

The current partners consist of CLP, EDP, E.ON, ESB, Hydro Quebec, Jera and Origin.



82+
Million
Customers



173+
Billion USD
in revenue



218+
MW of owned
and contracted
capacity

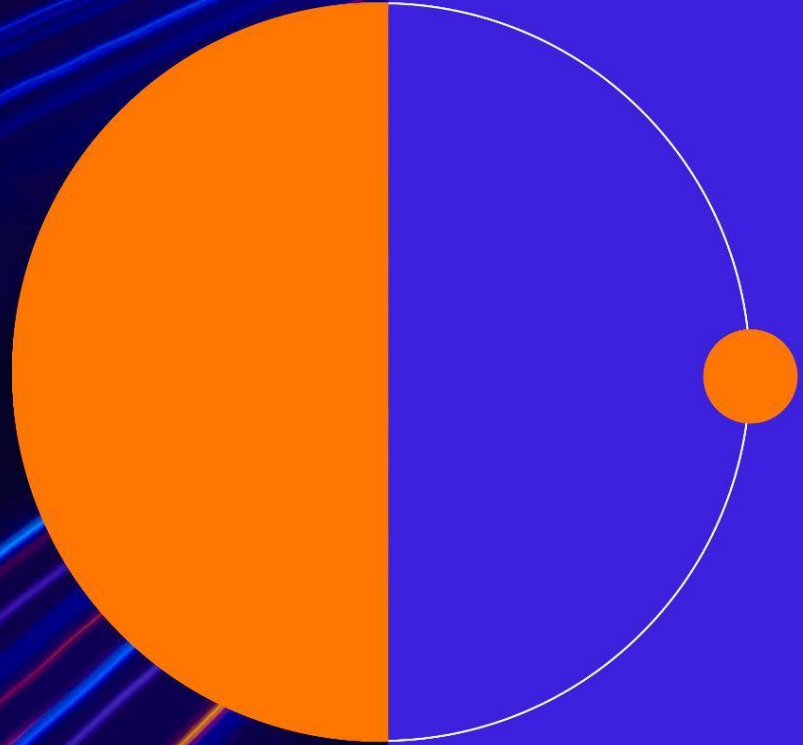


1,915K+
KM
of transmission
& distribution lines

THE UTILITIES



FREE ELECTRONS



TARGET AUDIENCE



- **Cutting-edge startups** from diverse backgrounds, ready to collaborate with industry leaders and revolutionize the energy landscape.
- **World leading utilities** in non-competing geographies eager to work with startups and peer partners to shape the future of energy.



- **Industry experts & mentors** from varied educations willing and able to impart their wisdom and expertise to facilitate more informed business propositions.



VISION



- Source disruptive ideas and technologies that have potential so re-shape the energy industry.
- Facilitate successful collaborations and partnerships between utilities, startups and other relevant stakeholders.
- **Provide effective innovation management and comprehensive Support to startups.**



- Foster a culture of thought leadership, continuous learning, and knowledge sharing.
- Build and maintain vibrant and interconnected communities

VALUE PROPOSITION



- Successfully execute pilot projects and deploy innovative energy solutions within utility businesses, driving practical implementation and impact.
- Drive positive change and contribute to shaping the global energy landscape towards a more sustainable and efficient future.
- **Engage in peer-to-peer learning and collaboration.**



- Heighten startup potential by collaborating with other startups, pooling resources, and fostering knowledge exchange.
- Maintain a fair working environment for startup businesses - startups maintain ownership of their IP.

PROGRAM STRUCTURE

Before March

March - October



APPLICATIONS



PITCH EVENT

60 startup companies showcase their solutions to the Free Electrons expert panel at the international Pitch Event (virtual). This event is a chance for startups to catch the attention of industry leaders and create connections for future collaborations.



BOOTCAMP

30 startup companies attend (in person) an intensive 3 day Bootcamp event, collaborating closely with utility partners and startup companies from around the world. Together, they shape the future of energy and build invaluable partnerships.



MASTER MODULE

The Master Module is a dynamic event where the energy ecosystem comes to life. The top 15 startup companies engage with industry experts & mentors, exchange insights, and explore innovative solutions that can transform the energy landscape and address utility partner challenges.



FINALE

At the Grand Finale, the top 15 startups present their refined solutions, to an extended guest list at the Open Day. It's an opportunity to shine and secure vital support for their venture's growth by further expanding their network.

PROGRAM CHALLENGES



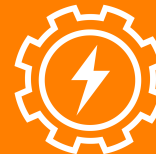
CONNECTIVITY AND COMMUNICATION SOLUTIONS

- 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.



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.



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.

PROGRAM CHALLENGES



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.



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.

PROGRAM CHALLENGES



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.



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.

PROGRAM CHALLENGES



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.

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.

2024 COHORT

ai advanced
infrastructure



ALLYE

axle
energy



Electriq

ENERGY
ROBOTICS



enjoyelec

enliteAI

Fost Sense

GRID WRAP



mixergy

MCSST



OverEasy
Solar

PIX.
FORCE

PolyAI

QEA
BuildingEnvelope.AI



reLi

RIVUS
power that flows

SENERGY
DELIVERING THE POWER OF NATURE

tepeo

tethys
ROBOTICS

Uali

VEIR

STARTUP OF THE YEAR OF PREVIOUS EDITIONS

2017 EDITION



2018 EDITION



2019 EDITION



2020 EDITION



2021 EDITION



2022 EDITION



2023 EDITION





**THANK
YOU**