Enabling Airports’ Energy Resilience – Electric Aviation

Laura Leoncini, Senior Business Developer
Electric Aviation
• What will be the main challenges an airport will face during its electrification process?
• Who is going to pay for it?
• What are the hurdles of electric air mobility?
• What lessons have we learnt from the automotive industry?
The future is now

Charging infrastructure and networks of CPOs for general aviation already in place in Europe.
Requirement for Charging Infrastructure, By Aircraft Type

Based on discussions held with customers

- **General Aviation**
  - **Passenger Capacity**: 1-4
  - **Commercialization**: Commercial
  - **Charging Power Requirement**: 22kW - 250 kW

- **eVTOL**
  - **Passenger Capacity**: 5-8
  - **Commercialization**: >2025
  - **Charging Power Requirement**: 250kW – 2 MW

- **Small Commercial Aircraft**
  - **Passenger Capacity**: 5-20
  - **Commercialization**: >2028
  - **Charging Power Requirement**: 500kW - 3 MW

- **Medium Commercial Aircraft**
  - **Passenger Capacity**: 20 - 90
  - **Commercialization**: >2030
  - **Charging Power Requirement**: 1-3 MW
## Global Electrical Aircraft

### Global Markets: 2023-2036

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Source: Internal Analysis
Global Aircraft Chargers Market
Global Markets: 2023–2036 – Cumulative Opportunity

Cumulative Aircrafts Chargers (Units)

Cumulative Aircrafts Chargers, By Aircraft Type (Units)

Source: Internal Analysis
# Average Chargers Installed, by Aircraft type (Units)

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**Source:** Internal Analysis

**Assumption:**

- During the initial years, the number of new chargers installed will be higher as compared to the number of new aircraft, in order to create a favorable infrastructure. However, as the infrastructure develops, the average number of new chargers required per new aircraft will be lower over the period.
Solar, Storage & EA Charging: The Holy Trinity of Building Energy Management

- Electrification of mobility happens in the context of already very loaded electrical grids
- As electrical experts, we have learned from the deployments of charging infrastructures that there are challenges tied to the multiplication of electric vehicles, both going on road and in the sky
- For small and for bigger airports, charging aircraft is likely to result in a substantial overload of the electrical infrastructure of the airport

We need to foster a holistic view: to provide the charging capacity to an airport, managing the various loads, local production (PV) and storage to balance availability of energy.
Airport as a Grid

Converting airports into energy hubs (microgrids) where self generated energy can be utilised to its maximum with the help of energy storage, energy management and highly efficient charging of vehicles and airplanes.
Airport as a Grid:

- **Energy Storage System**
- **Solar Power Generation**
- **Charging System (EV & EA)**
  - AC
  - DC
- **Electric Vehicle and E-Aircraft Charging Infrastructure**
- **Power Distribution Backbone**
- **Energy Management Software**
  
  *(Measure – Optimize – Manage)*
• To be ready in time, TCO
• Subsidies
• Certification, Standardisation
• Chicken-egg dilemma
Thank you!

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