First e-mobility pilots in Smart Otaniemi

Marko Paakkinen, VTT

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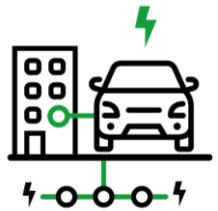
Smart EV charging



Collaboration with other WP's
- AI in prediction of flex potential
- Connectivity pilot
- Building intelligence

SMART OTANIEMI

Challenge

Electric car charging can have a significant impact on the electric grid load without smart charging.

Goals

1. Research on charging (basic, fast and wireless) technologies and use cases.
2. Learn to use EV charging stations as providers of flexibility for the energy market in collaboration with the aggregator pilot.

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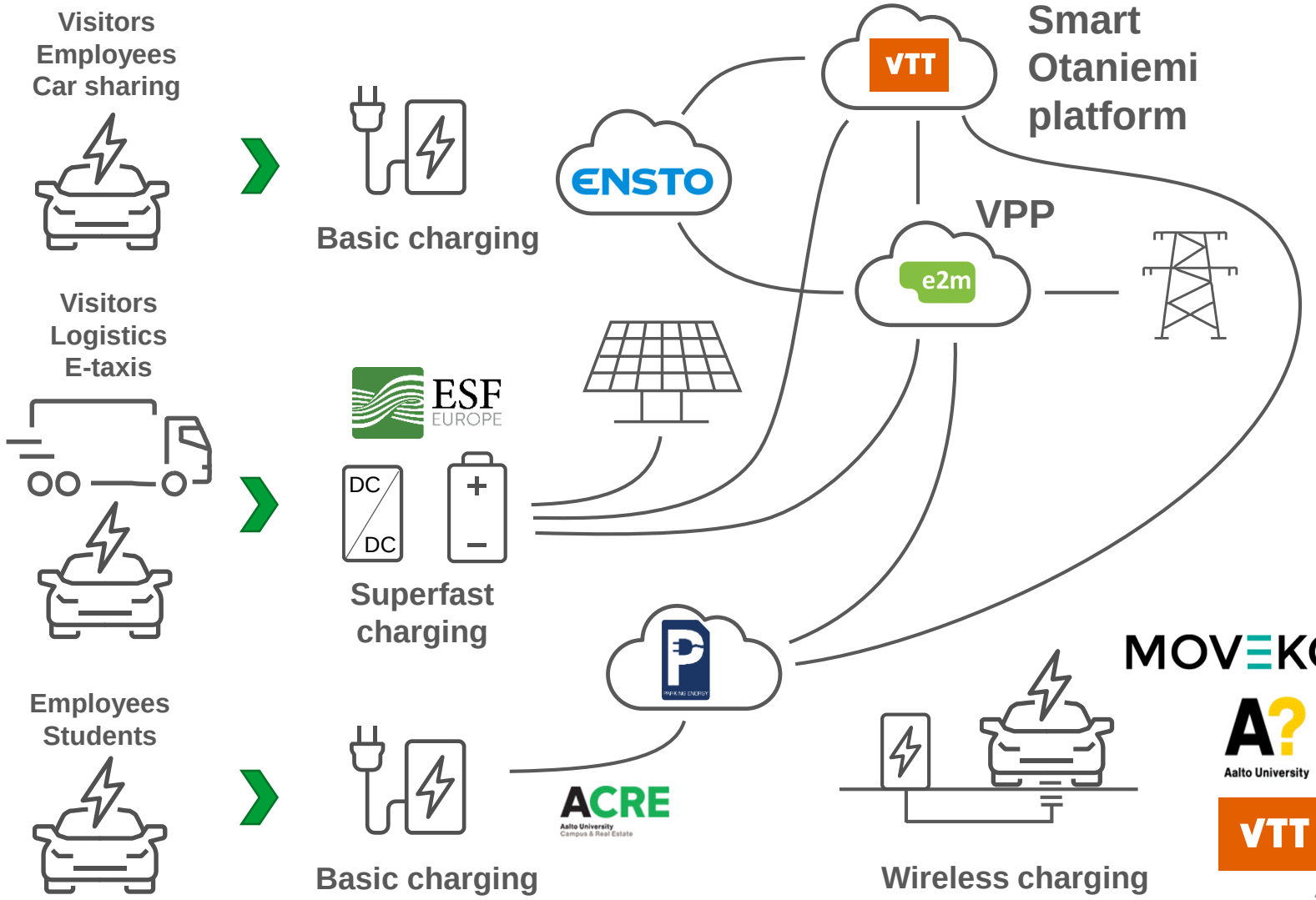


Silent Refuse Truck

Challenge

Refuse collection is causing noise, congestion and emissions in city centers.

Goals

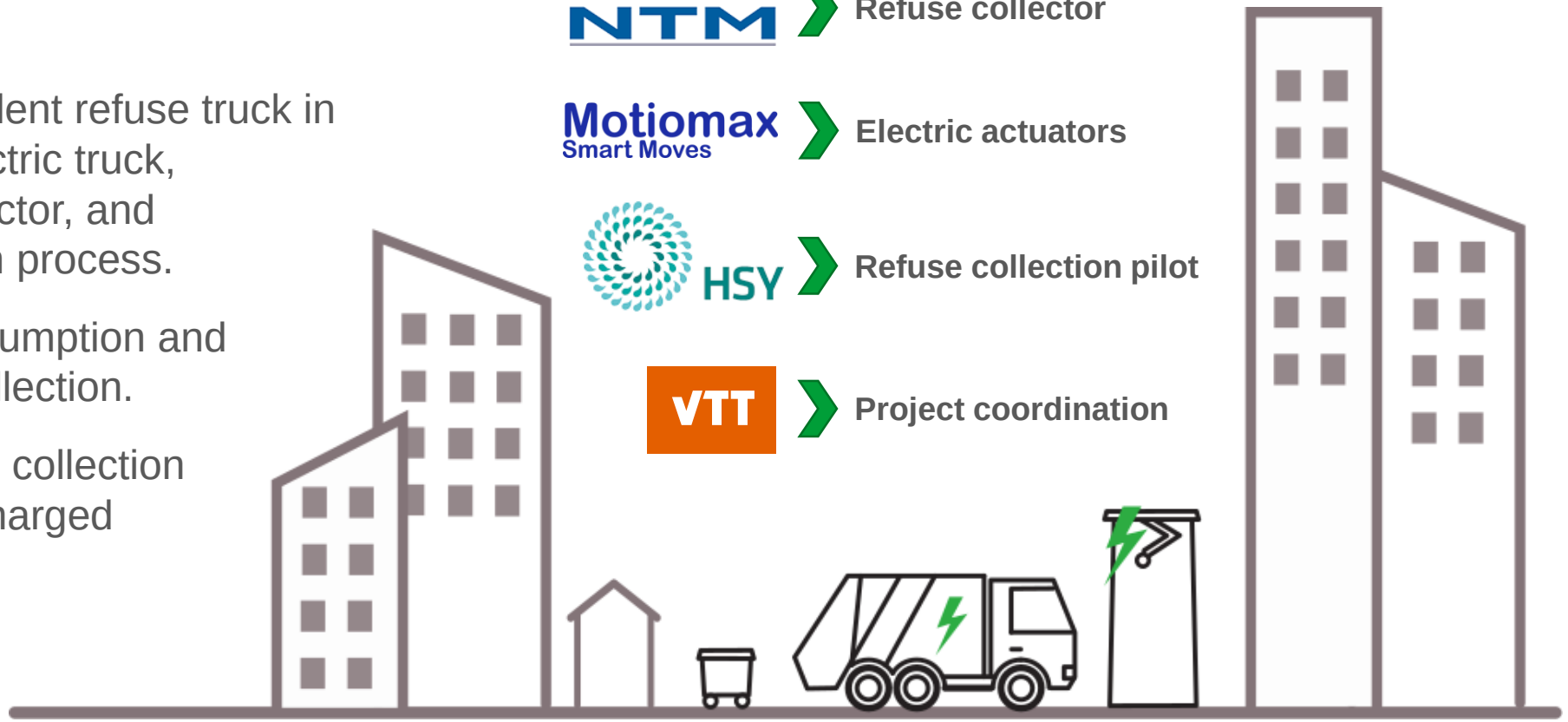
1. To develop the most silent refuse truck in the world using an electric truck, an electric refuse collector, and a more silent collection process.
2. Decrease energy consumption and emissions in refuse collection.
3. Learn about the refuse collection process using a fast charged electric truck.

NTM › Refuse collector

Motiomax Smart Moves › Electric actuators

HSY › Refuse collection pilot

VTT › Project coordination



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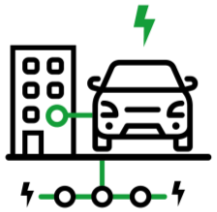
Progress and obstacles

- Role of the Smart Otaniemi research platform in EV charging needs clarification
  - How to fit the research platform with commercial operation?
  - Start with data collection of the existing charging points
  - VTT continues to develop the platform solution
- Ownership and availability of parking spaces in Otaniemi
  - New parking facilities coming in the future, but schedule is outside the limits of our pilot
- Incentivization of real estate investors and building owners to invest in EV charging infrastructure can be challenging
- Existing electrical infrastructure capacity in buildings can be limiting
  - Separate grid connection for EV charging limits the use of EV charging as a local flexibility element in buildings
- **Situation in short**: Infrastructure to be used for the EV charging aggregation pilot is not yet available in Otaniemi
- **Short term solution**: Aggregation pilot to utilize existing infrastructure outside Otaniemi
- The goal is still to continue the development of the EV charging infrastructure in Otaniemi, and to have a large-scale installation in the future

Initial piloting

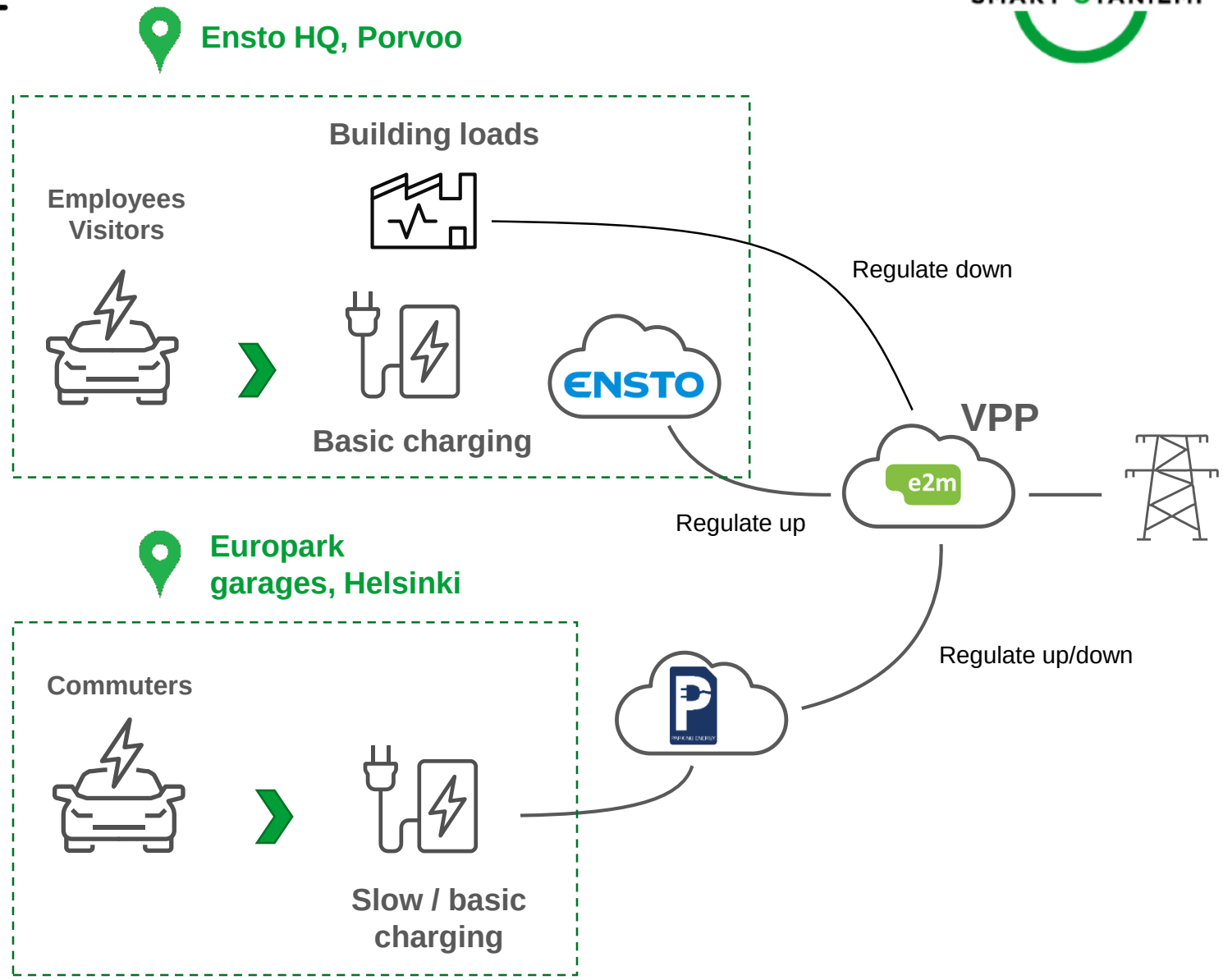


Plan

Ready for bidding aggregated EV charging in the FCR-N market by the end of 2019.

Goals

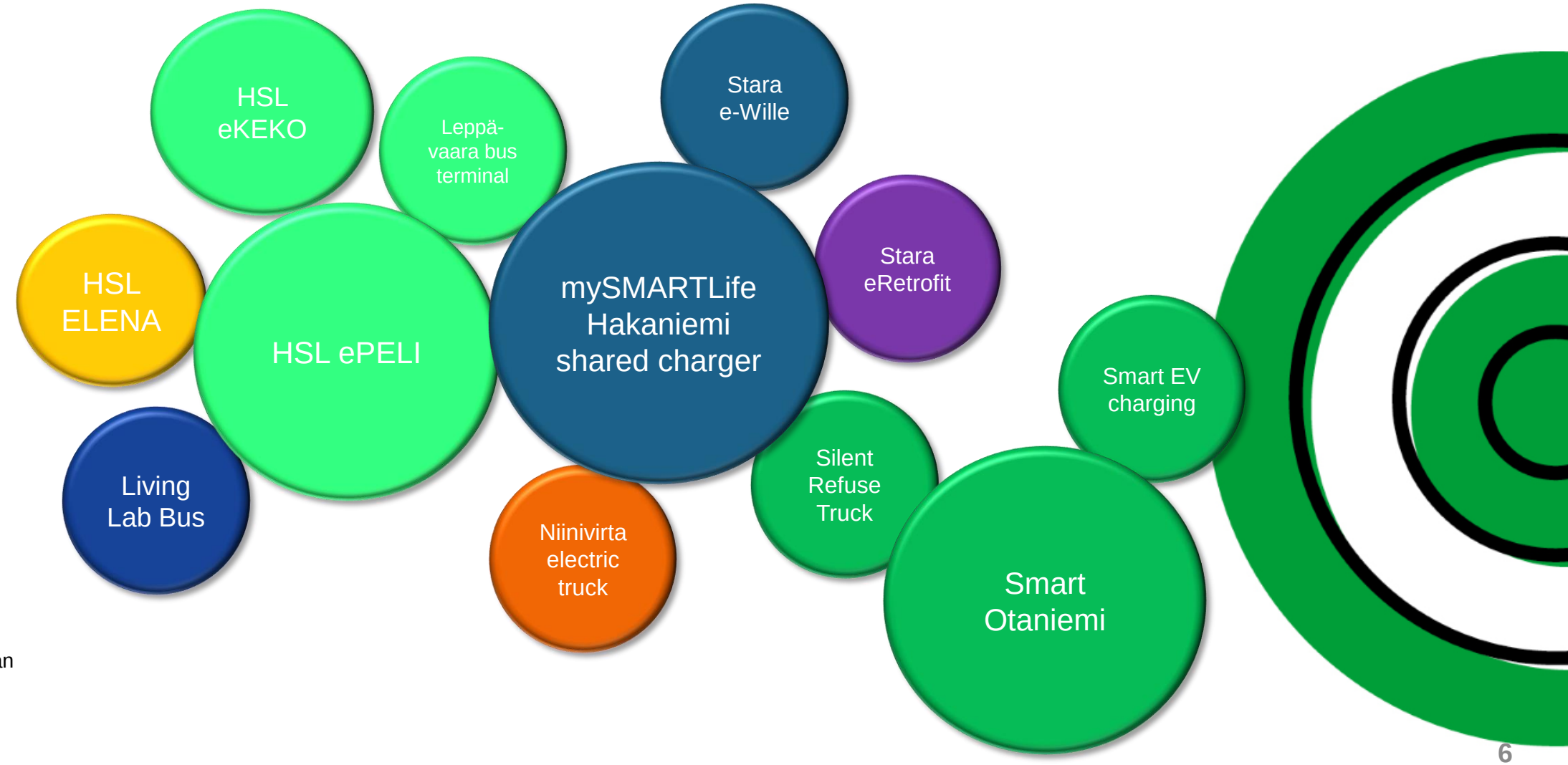
1. Bid ±100 kW flexibility
2. Bid only the best hours during weekdays (probably 9-10)
3. Test bidding for at least a month
4. For symmetry, Ensto to include building loads for regulating down



Connecting and growing ecosystems

Funding

- Helsinki City innovation fund
- EU – H2020 mySMARTLife project
- Helsinki Region Transport (HSL)
- EIB / ELENA
- Business Finland Living Lab Bus
- Business Finland Smart Otaniemi
- Niinivirta European Cargo Oy

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