# The GridMotion Project

## A hands-on demonstration project with commercially available technologies

Parker project end seminar

November 22nd, 2018

Denmark

# OUTLINE

1. Introduction
2. Project framework
3. Customer experience
4. Project planning
5. Energy service roadmaps
6. Lessons learned and conclusion

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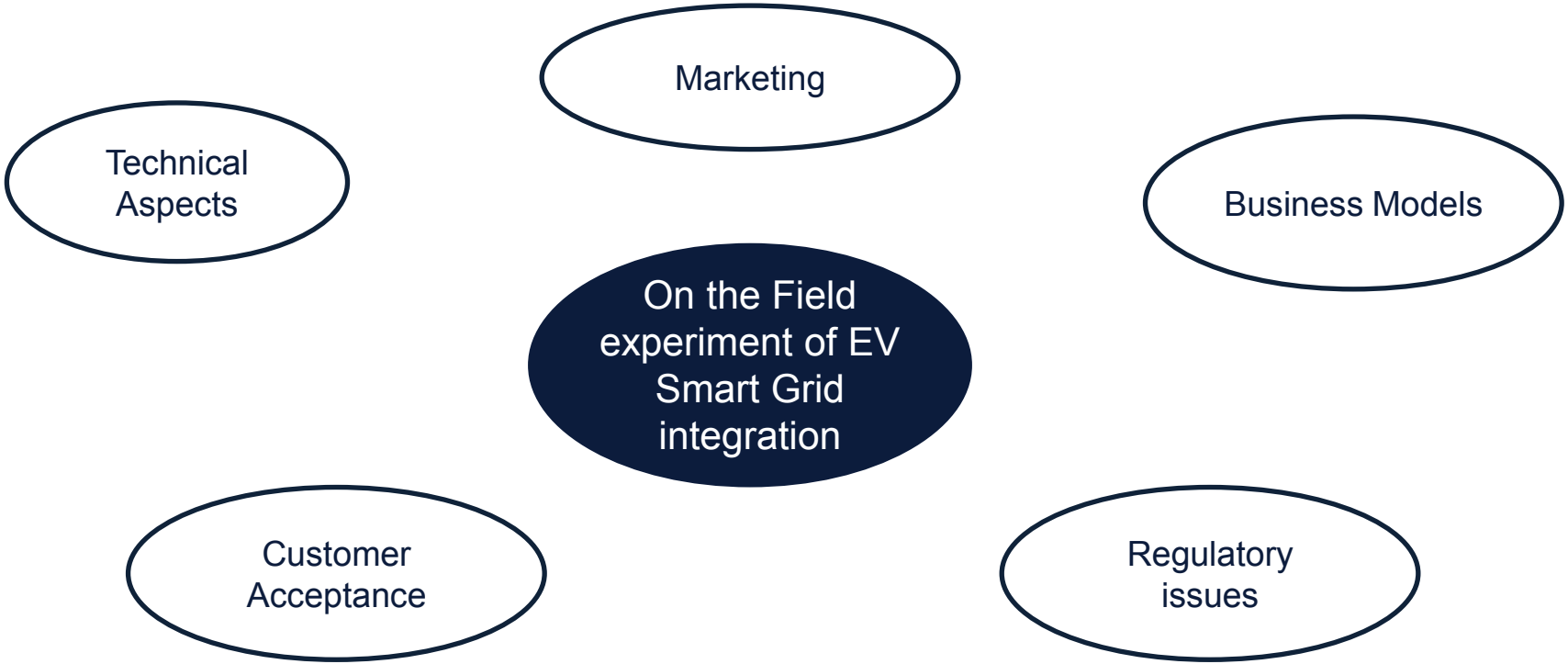
# OBJECTIVES OF THE GRIDMOTION PROJECT



With the support of:

- ➔ Complete value chain
- ➔ Main international V2G experts

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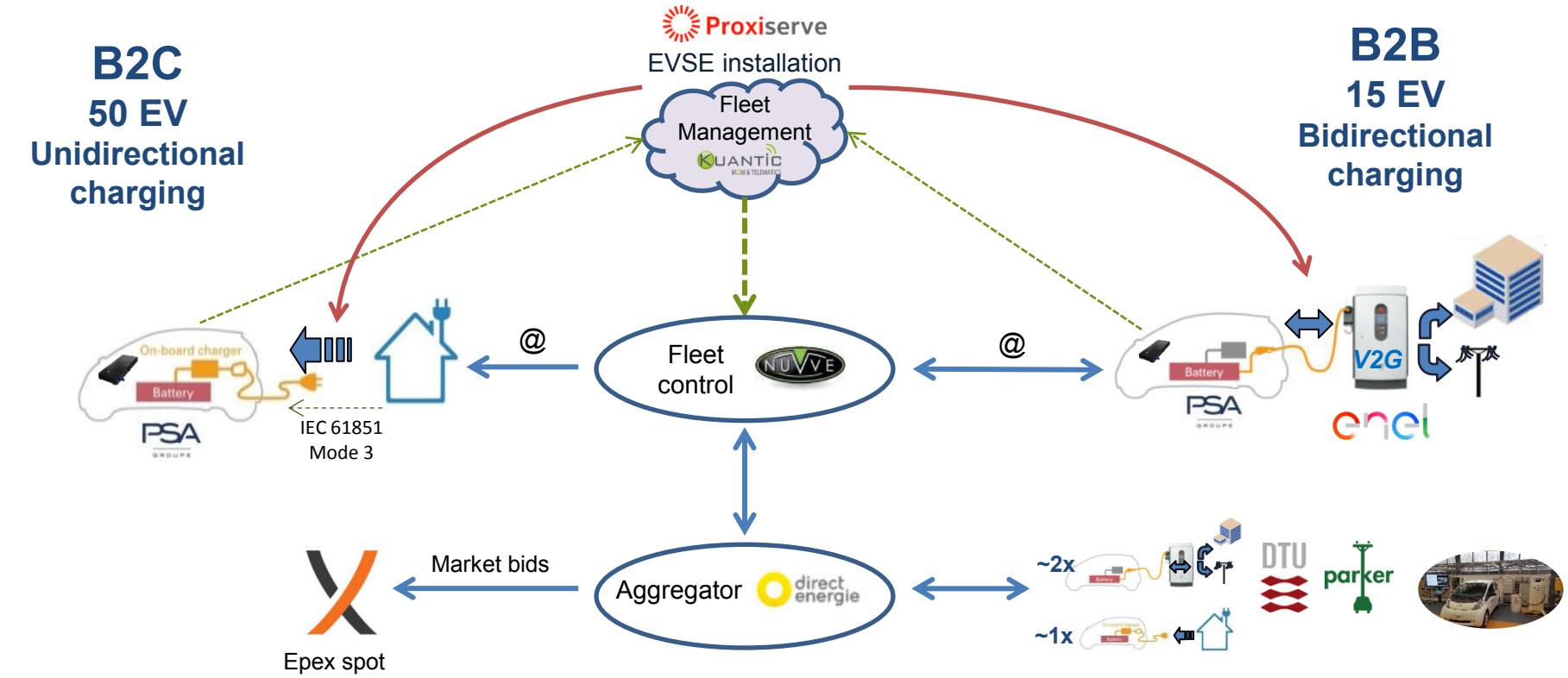
B2C
50 EV
Unidirectional charging
Proxiserve
EVSE installation
Fleet Management
KUANTIC
B2B
15 EV
Bidirectional charging
On-board charger
Battery
PSA
IEC 61851
Mode 3
@
Fleet control
NUVVE
@
Battery
PSA
V2G
enel
Epex spot
Market bids
Aggregator
direct energie
~2x
~1x
DTU
parker

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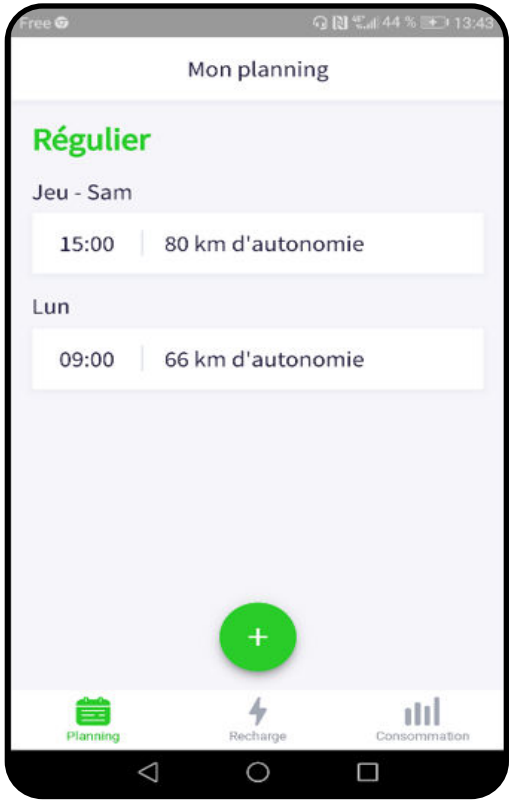
# B2C CUSTOMER EXPERIENCE (1/2)

- Specific customer application developed for the project
- The customer is able to:
  - Schedule a trip (regular or exceptional)
  - Have access to online EV information
  - Require for an immediate charge
  - Have access to historical EV consumption values and smart charging savings

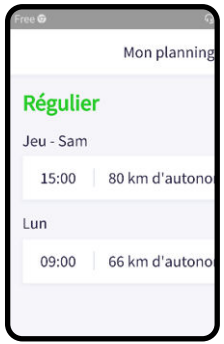
- Customer feedback expected at the end of the project

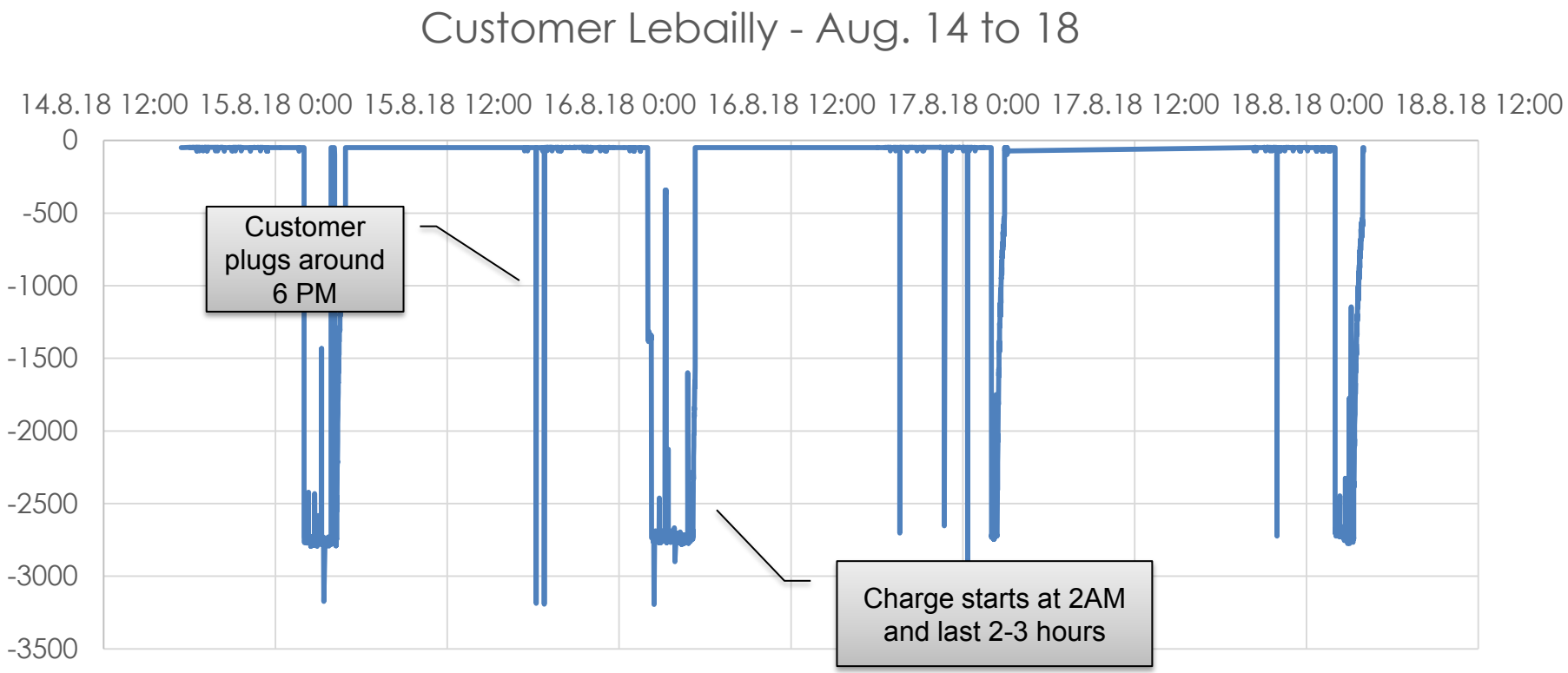


Plug at any moment

Schedule your charge

Get charged with cheapest ToU




Customer Lebailly - Aug. 14 to 18
14.8.18 12:00
15.8.18 0:00
15.8.18 12:00
16.8.18 0:00
16.8.18 12:00
17.8.18 0:00
17.8.18 12:00
18.8.18 0:00
18.8.18 12:00
0
-500
-1000
-1500
-2000
-2500
-3000
-3500
Customer plugs around 6 PM
Charge starts at 2AM and last 2-3 hours

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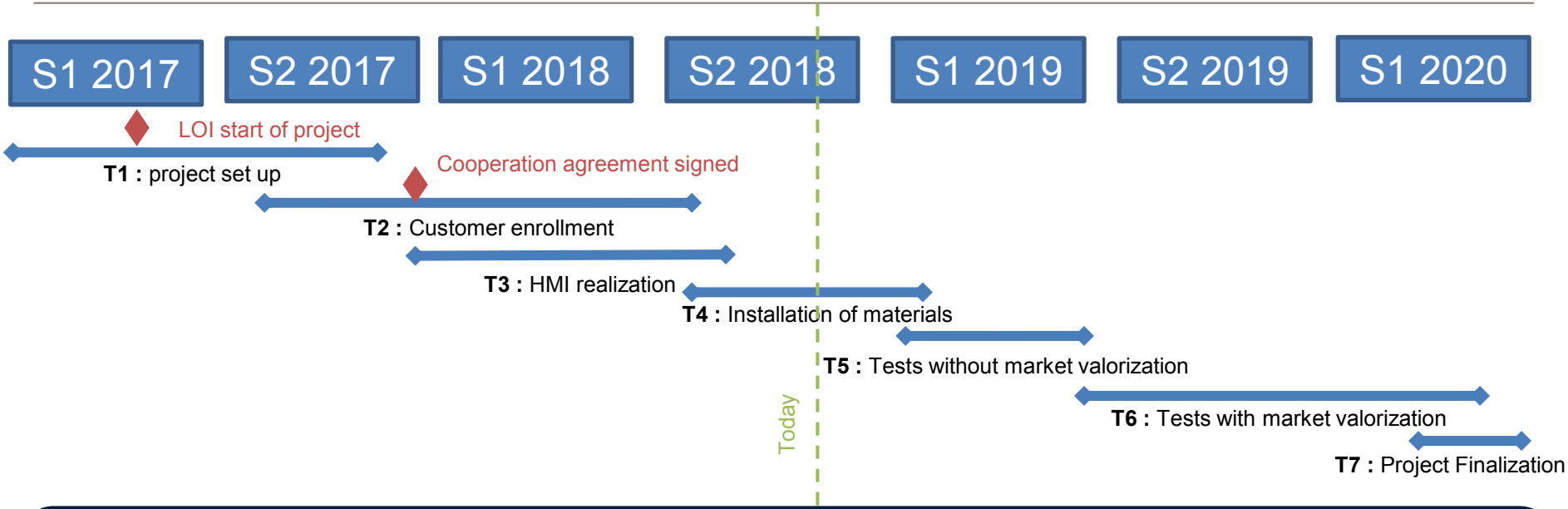
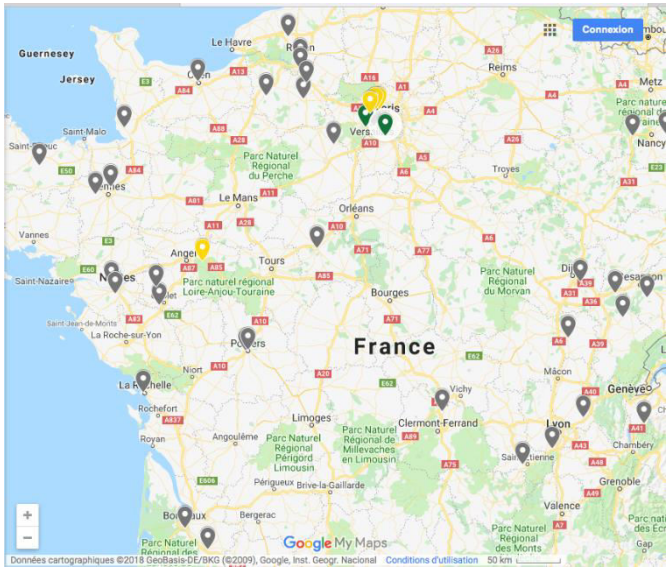
# PROJECT SCHEDULE

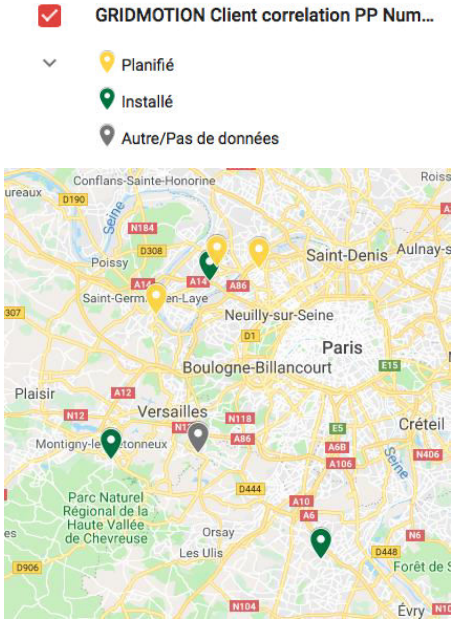



- Current status:
  - Several B2C customers already have their charging stations installed
  - The service has begun with these customers
- Next steps:
  - Finalize installations and run the service for a longer period

# B2C INSTALLATIONS PROGRESS STATUS

- 25 Proxiserve agencies involved in the installations
- Installations started
  - 14 successful installations
  - + many more scheduled in the coming weeks



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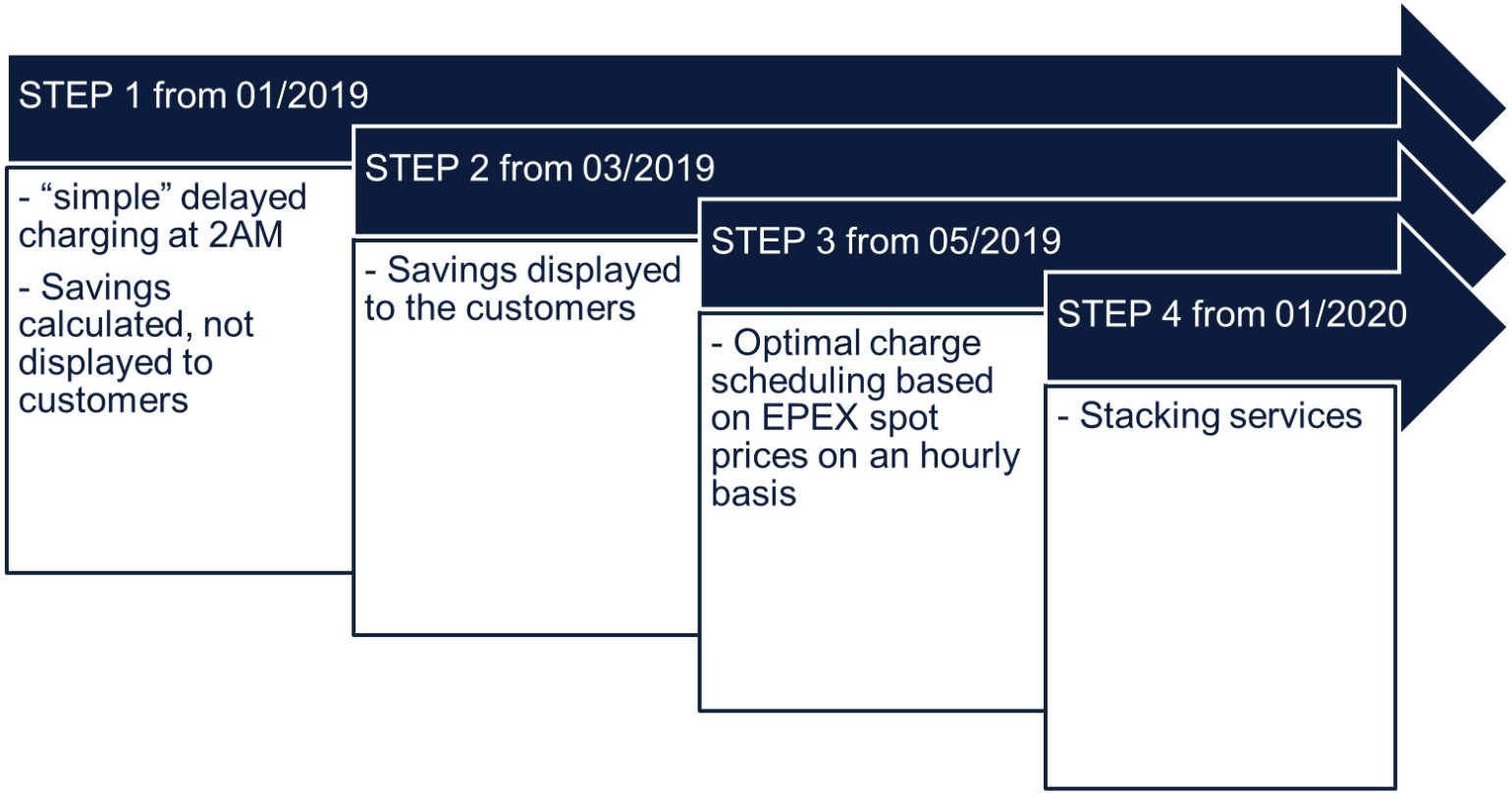
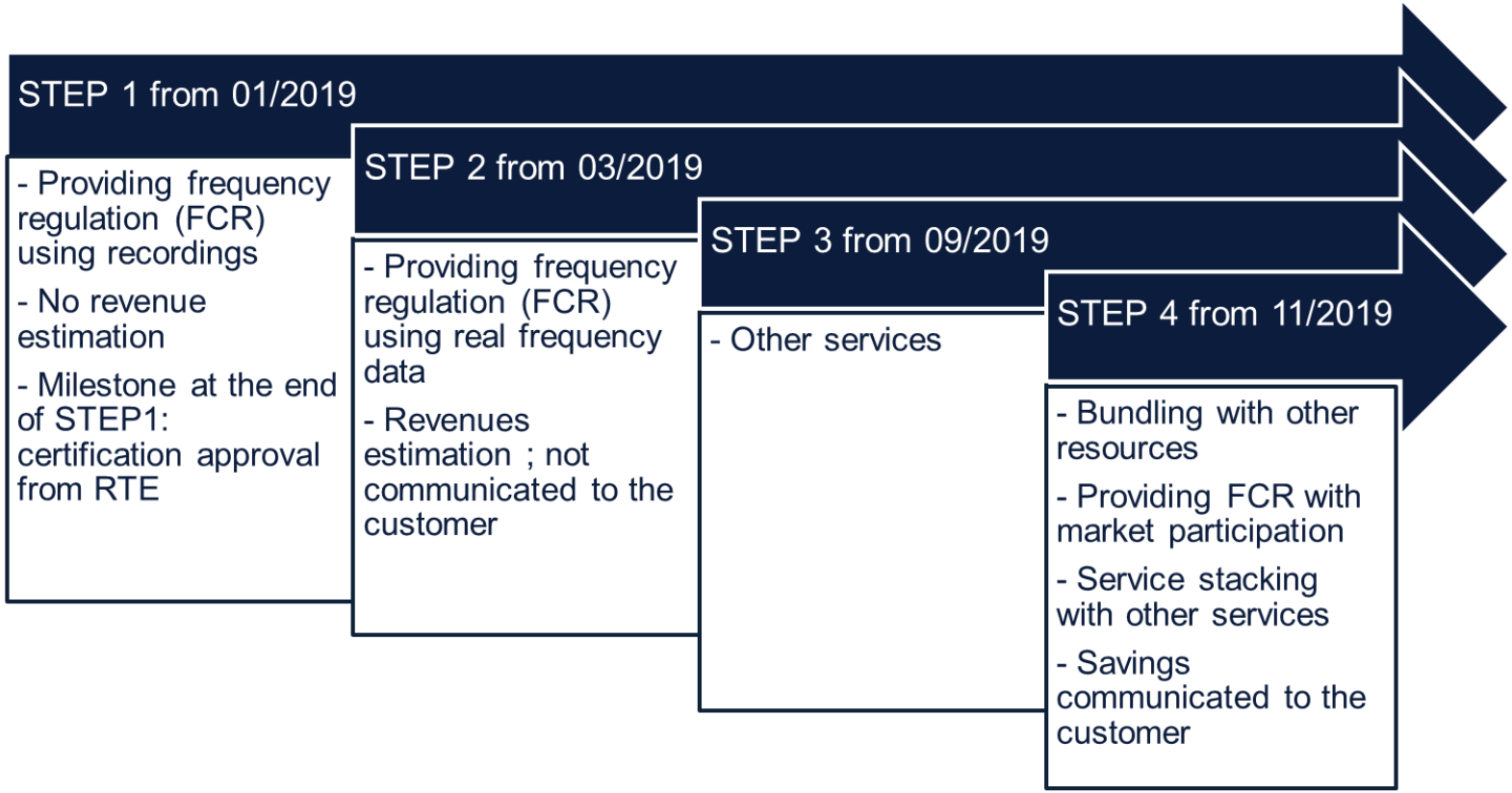
# B2C SERVICE ROADMAP



# B2B SERVICE ROADMAP



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- Regulatory issues identified:
  - Submetering
  - No specific rules for distributed storage units, in particular for grid connection requirements
  - Market participation rules (minimum bidding amount, bid lead time…)
  - Electricity tariffs
- Learnings from discussions with TSOs and DSOs
  - Economics and overall benefits of V2G not yet fully understood
  - Cost structure questioning
  - Temporary horizons are different for RTE
- Learnings from the field
  - Ecosystem maturity?
  - Value chain diversity may lead to field issues

- The whole ecosystem should work jointly to close regulatory gaps
- EU harmonization of grid connection requirements would be beneficial

# CONCLUSION

- Smart charging and discharging
  - A way to reduce the EV TCO
  - And to increase EV product attractiveness
- Challenges
  - Regulatory issues
  - Technical (mainly battery degradation)
- GridMotion project = a real life demo project involving real EV users
  - Business model aspects tackled
  - Customer acceptance
- A lot of topics are not competitive, and could be addressed jointly by the OEMs / the ecosystem

# Questions?