Introduction

Current trends are showing that the popularity of electric vehicles (EVs) has significantly increased over the last few years, causing changes not only in the transportation industry but generally in business and society. The automobile world is changing and increasing numbers of people are switching to electric vehicles. The electric-vehicle market made big gains, across multiple car manufacturers — and the industry has even bigger plans for the years to come. Increasingly restrictive emissions and fuel-efficiency regulations around the globe — but not so much in the US — are compelling carmakers to roll out vehicles more able to fit within those restrictions. Accordingly, in recent years, manufacturers have advertised a whirlwind of plans and timelines for bringing more EVs to market.

However nowadays, data is one of the most important components of digital transformation. The increase of the data that is being generated is especially significant in the field of transportation, since the transportation sector is responsible for one of its biggest evolutionary steps since the second industrial revolution—electrification of vehicles. The increased flow of data greatly affects the energy informatics field, the higher granularity of data the better information system can be developed for optimizing the energy consumption in highly complex systems.

V2G stands for "vehicle-to-grid" and is a technology that enables energy to be pushed back to the power grid from the battery of an electric car. With vehicle-to-grid technology, a car battery can be charged and discharged based on different signals — such as energy production or consumption nearby.

In a nutshell, the idea behind vehicle-to-grid is similar to regular smart charging. Smart charging enables us to control the charging of electric cars in a way that allows the charging power to be increased and decreased when needed. Vehicle-to-grid goes one step further, and enables the charged power to also be momentarily pushed back to the grid from car batteries to balance variations in energy production and consumption.

The flow of information from the owner to the power grid can result in an energy efficiency increase, what is the key idea behind energy informatics that studies how to use information and communication technologies to tackle the energy domain challenges.

Personal data and electrical vehicles interconnected with the electrical grid

There are users who, despite having sufficient autonomy, do not use their electric vehicle for medium distance journeys (> 50 km) because they do not feel confident of the capacity of their vehicle.

There might be Apps which, based on the vehicle's state of charge, will processes and analyzes personal data suggesting to the user the best route to take also on the basis of the location and status of the charging stations. In setting the route, the App might takes into account additional information that can be entered manually or automatically received to help the user to manage the vehicle's charge in the best way.

Purposes and legal basis

In the context of electric connected vehicles an mobility related applications personal data are processed for the calculation of optimal charging plan for the electric vehicle, analytical and research purposes, to analyze charging behavior of app users;

The legal basis of the processing might be:

a. the contract stipulated between the App and the user for smart charging services
b. the legitimate interest of the Data Controller to optimize the energy demand

Data collected

A. Personal data processed to activate the app and to provide smart charging services:
   - Country
   - Email address
   - Self-chosen password

- Car model
- Energy supplier
- Approval smart meter allocation
- EAN code of the meter (a.k.a. MPAN or PDL), (shared with energy partners)
- Energy contract number (shared with energy partner)
- Charge card number (exchanged with charge point operator)
- Internet connected car (exchanged with car manufacturer)
- Energy supplier
- Address (street, house number, postal code, city, country) (exchanged with energy partner)

B. Personal data processed for providing smart charging services throughout the use of Apps
   1. Settings in the app:
      - Departure time
      - Electric Vehicle Battery percentage (also referred to as 'State-of-Charge')
      - Desired directly charged percentage or 'State-of-Charge'
      - Service on/off
   2. Map functionality: Location of the mobile phone The data which is collected by using the app is summarized as: Settings
   3. While using the service:
      - Data collected from charging sessions at compatible charging stations:
        - Starting time
        - Ending time
        - kWh-usage per 15 minutes
        - ID of the charging station
        - Data from the Profile and settings for an individual charging plan
      - Data collected from charging sessions on compatible electric vehicles:
        - Starting time
        - Ending time
        - kWh-usage per 15 minutes
        - Continuous monitoring of location
        - Data from the Profile and settings for an individual charging schedules
      - Data collected from the profile and the settings for individual charging schedules

C. Personal data processed to activate the app and to provide trip planner services:
   - Country
   - Email address
   - Self-chosen password
   - Car model
   - Vehicle Identification Number (VIN)
   - State of Charge (SOC)
   - Charge card number (exchanged with charge point operator)
   - Credit Card Number or other payments methods
   - Internet connected car (exchanged with car manufacturer)

- Point of Interest visited by the user
- User Profile (habits)
- GPS position
- Trip Destination
- User Agenda
- Address (street, house number, postal code, city, country) (exchanged with energy partner)

D. Personal Data related to EV characteristics:
   - Battery size: needed to estimate, in combination with other parameters, the energy needed to be charged. Also a key input parameter for prioritization algorithms, for tariff optimization, for load management, etc.
   - Battery charging ramp-rate and additional data on charging behavior.
   - Real-time charging data: in cases where the EVSE is not controlled by the smart charging platform, it is important to acquire the relevant charging behavior data from the EV, enabling fine tuning of forecast and optimization algorithms. Charging behavior data includes time series of: charging power, energy charged, current per phase, etc.
   - Geolocation information to identify charging points that are close to the EV (confirming EV-EVSE pairs); to determine typical routes for each user and link that information to the need for charging and schedule of availability. Longer term it will enable customer behavior prediction, precluding the need to ask information to the final user. Once identified, typical routes will allow the platform to suggest public charging points that are close to the route, whereas tracking the current route of a vehicle will enable selection and booking of public charging units that are on the way, optimizing total driving time.
   - Customer preferences through vehicle dashboard or app:
     - Expected time of departure (expected plug out time): this information is needed to calibrate smart charging algorithms and should ideally be provided by the customer. In case the customer doesn't provide it or update it, the expected time of departure can be forecasted based on historical data.
     - Expected State of Charge (at time of departure): this information is needed to calibrate smart charging algorithms and should ideally be provided by the customer. In case the customer doesn't provide it or update it, the expected state of charge can be set at default value based on context, car model, etc…or calculated based on historical behavior.

E. Personal data stored
   - Information regarding the structure and transaction of the cumulated savings.
   - Historic charging schedules.
   - Historic charging sessions.
   - Regular points of situation (e.g. house, office, more used charging stations)

Retention Period

The service provider (data controller) shall determine a specific retention period based on the purpose of each processing operation.

In the case in which, legislative or regulatory provisions may require a data controller to retain data beyond the period during which they are stored in an active database, data can be stored in an archive database for the period required to comply with the obligation in question, in compliance with the conditions specified by the relevant contract and privacy notice.

Information and rights of data subjects

Personal data will be processed only in compliance with the EU Regulation 2016/679, in particular when one or more of the following legal requirements has been met:

- the data subjects has freely given its specific, informed, unambiguous and affirmative consent to the processing of said data;
- the processing is necessary to the performance of a contract to which the data subjects is a party or to take pre-contractual measures;
- to pursuit of Data Controller's legitimate interests;
- Data Controller has a legal obligation to process Personal Data.

It is important to consider that personal data are an important drivers to design specific services for clients and data subjects. According to this we should consider the following main use cases concern automotive data processed:

- Data gathered at the EV Charging Station

With drivers' consent location data and electrical range of charge are processed in order to recommend the most efficient charging stations.

- Data for Driver Alerts

Reach out to EV drivers and help in case of emergency for security reasons or help request after an accident or for lack of energy in the battery.

- Data processed in order to Simplify Trip Planning

In this case personal data are processed to give EV drivers the tools to plan long-distance trips in their vehicles, while taking into account all of their charging needs.

- Data processed for Charging Load Management

Give EV drivers tools for Optimizing charging loads to save money and reduce stress on the grid.

Perform charges on individual vehicles in a way that satisfies customers while reducing the required capacity of grid connections.

- Data for searching the best EV Charging Site to use

Use historical traffic and charging patterns to select the ideal locations for new charging sites.

a) To access and request a copy;

b) To request rectification;

c) To request erasure;

d) To obtain restriction of data processing;

e) To object to the processing;

f) To receive in a commonly-used structured form readable on an automatic device and to transmit without impediment said data to another Data Controller in the case that this is technically feasible.

Right to revoke consent

Drivers can revoke consent for specific services at any time.

They must have full transparency as to what personal automotive data will be shared with for specific services.

The supplier who use APP for providing specific services, should provide program interfaces (application program interface) for Operating and Maintenance service (OEM) and to process other data that providers can utilize, to incorporate consent management into their apps.

Right to access data and right to rectification

Through specific tools should be given data subjects transparency into what data is shared with for specific services. The supplier should only hold data that is automatically generated and collected from vehicles, while we think that the Right to Rectification is relevant only for driver biographical data.

Right to be forgotten (cancellation of data)

Data subjects may contact their Service Provider (OEMs, individual data providers, or the EV service provider) directly to make a request relating to their Right to Be Forgotten.

After the request is sent by data subject, the service provider shall remove all data records related to that data subject from its storage and will request all data user who have received such data, all or in part, to delete it.

Cyber Security

The European energy system is undergoing a fundamental transformation towards a model with a high share of variable distributed renewable energy, flexible demand and, electric vehicles providing services to the grid. Cloud services are also extensively used in the energy sector, for instance, charging stations may use a Cloud to manage a set of charging points, being able to provide real-time data usage and use this data to make business decisions.

These solutions can contribute to a better management of the electricity grid, but they also present opportunities for cyber-attacks.

Cybersecurity is a key priority for Enel's strategy, devoting financial and human resources such as setting up its **Computer Emergency Response Team in** order to prevent and respond to cyberattacks. Other operators may also **invest adequately in security measures** aimed to strength the cyber resilience of the power system

We also deem necessary to consider **the upcoming mobility data space announced under the European strategy for data**, to organise the movement of data and to provide free access to as much data as possible for large companies, SMEs and individuals. For a secure and proper use of this data space, we recommend:

- The solution must offer anonymization and pseudonymization techniques aimed at protecting the privacy rights of individual data subjects and allow organizations to balance this right to privacy against their legitimate goals.
- Rules for data retention and deletion of source data (pseudonymized data) have to be aligned to GDPR.
- Data subjects must maintain the right to access and request details about their personal data
- The solution and its building principles must be shared and consolidated not only in the European Single Market but also in other markets (e.g. US) where the main digital providers are located.
- This must be included in the continuous monitoring of the alignment between EU Data Protection laws and the Privacy Shield. Also with data protection provisions of China's Cybersecurity Law.

Conclusion

Enel acknowledges that digital technology is one of the major components leading Europe to a new industrial revolution. This transformation is being made possible by the harnessing of data, which is increasingly growing in the field of transportation, accompanying the grew of vehicles' electrification and charging points. Mobility transformation is generating key technology business model as, vehicle to grid and smart charging, technologies proven to stabilize grids, lower costs and even boost green energy.

Taking into account the guidelines under consultation**, the Enel Group strongly recommends to keep the guidelines flexible enough to embrace future technical developments and, to pay due consideration to the following three aspects:**

1. Personal data and electrical vehicles interconnected with the electrical grid
   There might be Apps which, will process personal data suggesting the user the best route to take and also, additional information can be entered to have a proper way of charging the battery. The legal basis supporting this processing, will lay on the contract for smart charging services and, the legitimate interest of the Data Controller to optimize the energy demand. The service provider (data controller) shall determine a specific retention period based on the purpose of each processing operation. For the sake of transparency, a comprehensive list of the data that could be collected, is included.

2. Information and rights of data subjects
   To allow e-mobility Apps offer a satisfactory service, certain automotive data shall be processed such as the ones: gathered at the EV Charging Station, for Driver Alerts, processed to Simplify Trip Planning or for Charging Load Management and, for searching the best EV Charging Site to use. In our view, data subjects must keep their **right to revoke consent, to access data and right to rectification and, to be forgotten.**

3. Cyber Security
   Considering **the upcoming *mobility data space* announced under the European strategy for data**, we highly advice to encompass it with anonymization and pseudonymization techniques while, at the same time, the right to access and request personal data should prevail and, should be aligned with GDPR. It must be also consolidated with other markets with other data protection provisions (e.g. US, of China's Cybersecurity Law).