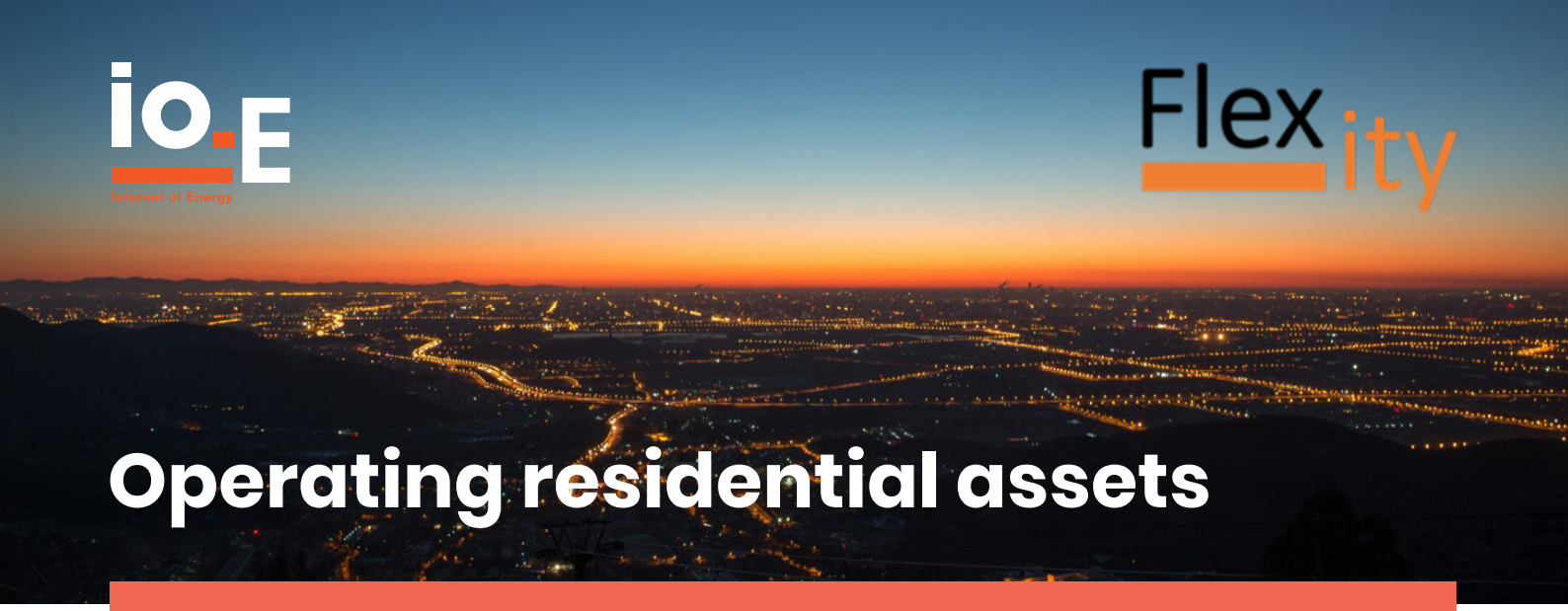


Operating residential assets

What is Flexity: Flexity is one of the leading Use Cases within the IO.Energy Ecosystem. Flexity investigates which household assets (EVs, boilers…) can be technically operated and which value can be offered to the end-consumer in return. Moreover, Flexity investigates how the digital meter can be used to facilitate the settlement of new services on residential level.

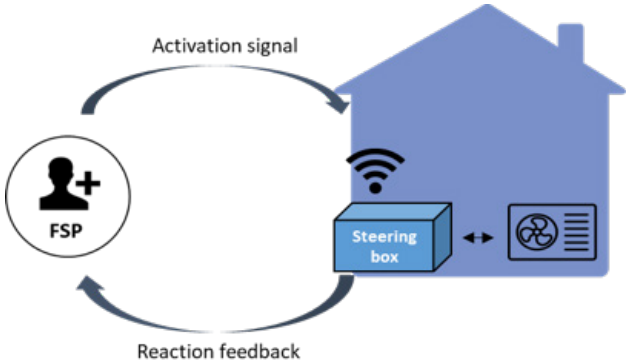
Objective of this note: this note explains the different approaches that Flexity uses to operate residential assets such as heat pumps and electric vehicles, dependent on the characteristics of the appliance and the connectivity that is (already) in place.

Two distinct approaches to operate residential assets

Flexity observes **two distinct approaches** for the operation of household appliances:

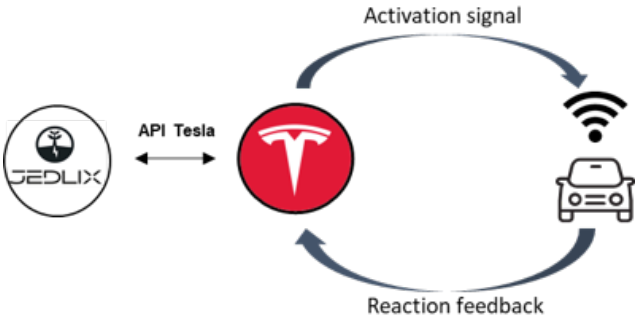
Approach 1: Installation of additional hardware

Service providers install steering devices and communication gateways to operate household assets. The **example below** shows **tiko** that **installs a tiko box** for the operation of accumulative heating and heat pumps. **Voltalis** has the same technical set-up.



Approach 2: Rely on existing connectivity via OEM

Service providers rely on existing steering devices and communication gateways that are **by default present** in the asset. The example below shows **Jedlix** operating a Tesla car via the existing connection set-up of the TESLA platform.



What have we learned so far?

	Approach 1 tiko Voltalis	Approach 2 JEDLIX
Contractual	• User consent given via digital procedure prior to installation day	• Consent management dealt via the app of Jedlix, which allows for automatic updates in case of changes.
Onboarding	• Requires manual installation · **mass roll-out** somewhat slower	• Requires downloading the Jedlix application · **mass roll-out** can happen **fairly quickly**
Compliancy	• **Steering boxes** are **compliant** for **almost all models** regardless of the OEM and technology, • Presence of neutral wiring[1] required • **Electrical board** should be **certified** and with an adequate expiry date, otherwise new certification required • **Breaker of 16A** needs to be in the electrical board, otherwise additional certification is required • The **SP (tiko, Voltalis)** guarantees **compliancy** with technical requirements[2] of BAL products	• Different communication set-up for each OEM • The OEM should guarantee the compliancy (ex. precision of the meter) upfront during the manufacturing process, while this is not his core business. • Strong dependency on the OEM, potentially causing issues when OEM does not communicate software updates to SP (potential risk for the system) · **Requires alignment between SOs requirement and OEMs default connectivity**
Business case (BC)	• BC strongly depends on the physical installation • Once installed, compliancy with technical requirement (ex. aFRR) can ensure a direct revenue stream. However, communication requirements across Europe can vary and are not fully harmonised.	• BC relies on existing connectivity, hence there are very low market entry costs • Possibility to access different market segments and generate revenue streams (ex. aFRR) depends on the compliancy of the technical specifications of the communication set-up (depends on OEMs spec's)

1. Not considered a structural issue, but rather an issue we see with the current devices
2. Example: precision of the meter

Conclusion and moving forward

Approach 1: the **cost efficiency** of the **installation process** plays a crucial role. Once the installation is in place, this communication infrastructure is more likely to comply with requirements for grid services and **directly generate revenues**.

Approach 2: there is **no expensive installation** process and it allows for a **fast rollout of a service**. However, the compliancy of this existing connectivity with the technical requirements of grid services (ex. precision of the meter for aFRR) can be a challenge. An alignment between the connectivity of the OEMs and the requirements for grid services should be considered in the future.

JEDLIX CGI ENGIE fluvius. Voltalis tiko