



Multiparty Interoperability of Bidirectional Charging (INBID) Task 53

In April 2022, the ISO 15118-20:2022 “Road vehicles – Vehicle to grid communication interface standard” was adopted. This standard should enable bidirectional charging for e-cars. However, this standard must be specified for topics such as “Distributed Energy Resources” (or “DER”-requirements) and for conformity tests.

Today each car or charging station manufacturer (or each “pair”) is developing proprietary solutions. Therefore, charging stations and cars cannot be mixed, they are not interoperable. In addition, there are specific adaptations in different parts of the world. Every global manufacturer must develop region-specific solutions. **The biggest V2G-hurdle today is therefore the non-interoperable protocol and the non-standardized grid-codes.** Therefore, economies of scale are not yet possible, there is no real competition in the market, no price decline for bidirectional charging stations, and the mass introduction of V2X is postponed. A real break through can only be achieved if solutions with both AC and DC bidirectionality, including the related grid-codes aspects, will be developed.



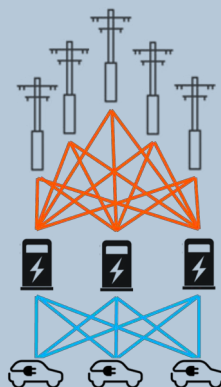
IEA Implementing Agreement EV TCP and Task 53

Since 2016, the IEA Implementing Agreement on Electric Vehicles Technology Collaboration Programme (EV TCP) is dedicated to enhance collaboration on pre-competitive research as well as the production and dissemination of information. Today, EV TCP has 19 participating member countries: Austria, Belgium, Canada, China, Denmark, European Union (EC), Finland, France, Germany, Ireland, Italy, Luxembourg, Norway, Republic of Korea, Spain, Sweden, Switzerland, the United Kingdom, and the United States.

EV TCP is taking action and now addresses the interoperability-issues with a new Task 53 **Multiparty Interoperability of Bidirectional Charging (INBID)** which intends to act and help to test the conformance of the upcoming ISO 15118-2X amendments referring to bidirectional charging. It pursues two main objectives: Multi-party interoperability between bidirectional

- 1) charging stations and vehicles and
- 2) charging stations and distribution grids

Solutions that feed back energy into the grid (by mono-phase and/or tree-phase) will be tested in the Argonne National Laboratory and in JRC, regardless if they are ON-bord or OFF-bord chargers (and if available/required, also inductive, in the future).





Deliverables

- a) Provide **proof of interoperable solutions based on a "consortia agreement" and conformance test reports** from partner labs.
- b) **Ensure multiparty interoperability between bidirectional vehicles and charging equipment**, with at least:
 - 9 "pairs" for 3-phase
 - 9 "pairs" for 1-phase
- c) **Ensure multiparty interoperability between bidirectional charging equipment and DSOs**, with at least
 - 15 "pairs" for 3-phase
 - 15 "pairs" for 1-phase
- d) Develop **technical documentation** (including presentations, specifications, and videos) detailing the implementation process for third parties to achieve interoperability.
- e) Present **results from 4 workshops**.
- f) Provide **interim reports** to ExCo 62, 64, and 66, with a final report at the end of the project.

Plan to Action

- 1) **Discussions and Analysis:**
 - Understand the current status and differences in ISO 15118-20 implementation.
 - Ensure conformance to the upcoming standard details.
- 2) **Elaboration of Common Understanding (vehicle – charger):**
 - Develop guidelines for vehicle and charging station manufacturers to implement interoperable ISO 15118-20.
 - Establish common regulatory principles focusing on safety, reliability, and efficiency/economy.
- 3) **Elaboration of Common Understanding (charger – grid):**
 - Guarantee interoperability for Grid Services through standardized grid codes for DSOs (and TSOs).
- 4) **Physical Tests:**
 - Conduct tests in specialized labs to ensure a common interpretation and ultimately prove interoperability.
- 5) **Knowledge Transfer:**
 - Facilitate the adoption of resulting solutions into industry standards and legal frameworks, including provisions for smart charging and V1G, if applicable.



Countries

To this date all EV TCP Member Countries have joined Task 53: Austria, Belgium, Canada, China, Denmark, Finland, France, Germany, Ireland, Italy, Luxembourg, Norway, Republic of Korea, Spain, Sweden, Switzerland, the United Kingdom, and the United States.

In addition, the European Union (Directorate-General for Research and Innovation – Directorate C – Clean Planet C.3 – Clean Transport Transitions) is partner and supports Task 53.

Interested?

Join us in making bidirectional charging multiparty interoperable!

Companies, universities, and institutions regardless of their country's status, are invited to join the effort to make bidirectional charging multiparty interoperable by becoming industry partners.

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