

International Energy Agency (IEA) - Task 53

Interoperability of Bidirectional Charging (INBID)

Closing the Gap



Moving the Needle

Operating Agent Task 53: Marco Piffaretti

<https://www.linkedin.com/in/marco-piffaretti-39a723/>

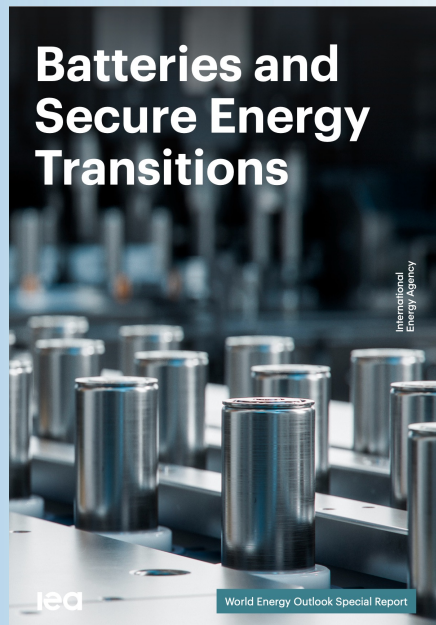


- Operating Agent of EV-TCP's Task 53 (since beginning: 2.5.2024)
 - **Responsible for INBID (Interoperability of Bidirectional Charging for AC/DC/wireless).**
- Project manager of “V2X Suisse” (50 Bidi. Honda e).
- 11 years of Bidi charging.
- 39 years of eMobility (including Mendrisio-VEL1, 3 x Lampo) and co-founding of Protoscar, ALPIQ eMobility, GOFAST, EVTEC, sun2wheel.
- Member of SIA 2060 commission and Advisory Board LHI and Electric WOW.



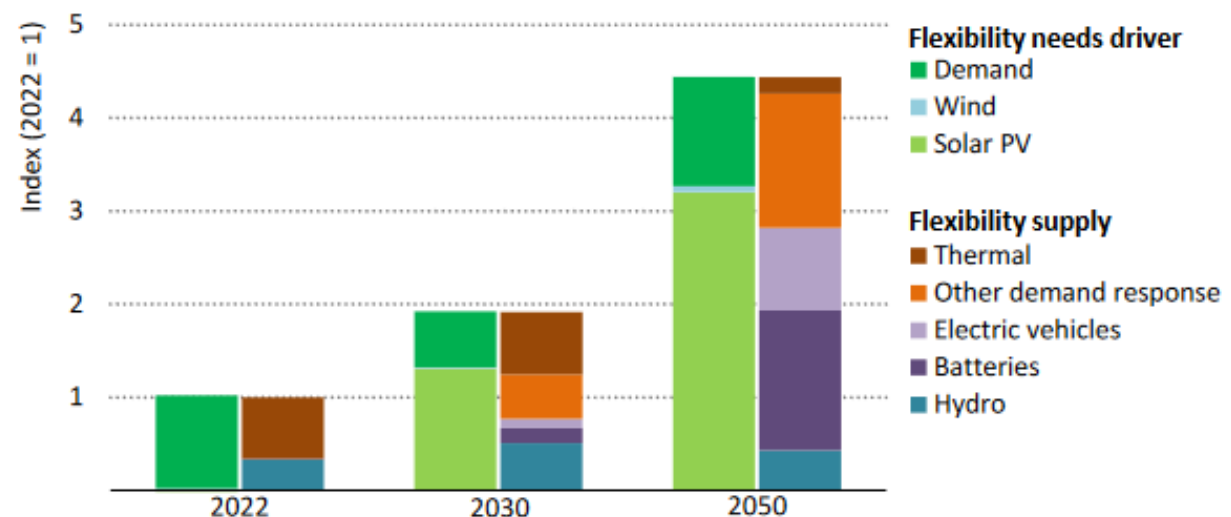
The energy transition is only possible if we increase flexibility

IEA expects short-term flexibility-needs to grow by 4,5 times within 2050



<https://iea.blob.core.windows.net/assets/cb39c1bf-d2b3-446d-8c35-aae6b1f3a4a0/BatteriesandSecureEnergyTransitions.pdf> Figure 2.18, Page 82.

Global average **short term power flexibility** needs and supply



IEA. CC BY 4.0.

Battery storage and directed charging of EVs provide the bulk of the short-term flexibility needs that rise 4.5-fold by 2050



Bidirectional charging: invented in 1997...



WILLETT KEMPTON



A Light Bulb Goes On

Willett Kempton sees your car—and the electric grid—as a solution to America's energy problem, not the source of it | By Joann Muller



AC Propulsion's president, Tom Gage, explains the company's vehicle-to-grid technology at a 2001 conference in Seattle. PHOTO-ILLUSTRATION: MAX-O-MATIC; PHOTO SOURCE: ALEC BROOKS



Renault, Mobilize and TMH, Today in France

Renault 5 - Customer get 10 Cent for every Hour of plug-in: about 300 Euro/year

France offers optimal conditions for V2G

Supportive regulation

- Stakeholders recognize the added value of V2G and are committed to pragmatic solutions

Smart meter availability

- Smart meters and efficient registration processes are widely available

V2G service abundance

- Day ahead & intraday markets
- Capacity market
- Grid services
- Imbalance market

Grid simplicity

- Only one major distribution network operator Enedis facilitates market entry

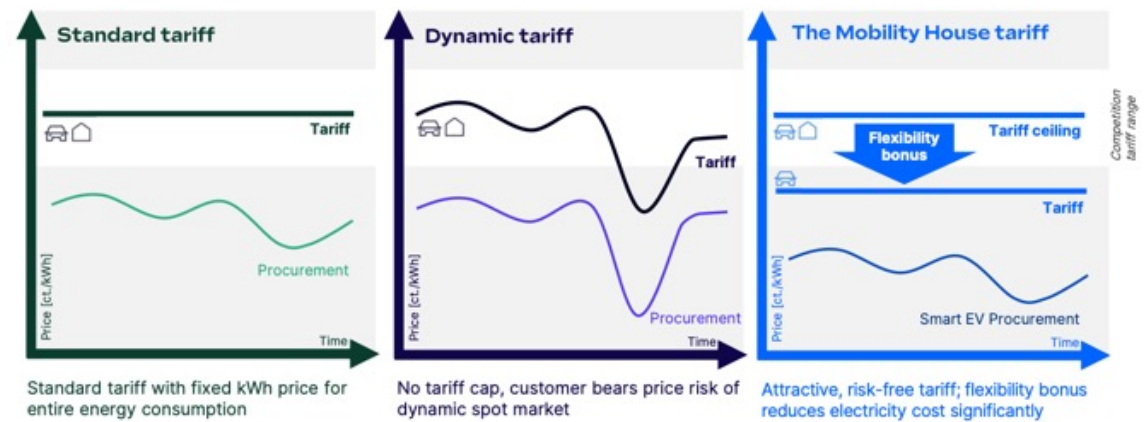
Positive market outlook

- Continuous expansion of renewable energies
- Electricity market switch to 15-min granularity in 2025
- Further growth of volatility expected (time spreads grew 22% p.a. 2018-2023)



The electricity tariff enables customers to save on electricity costs without any risk

Schematic comparison of tariff types



THE MOBILITY HOUSE 

UK: Octopus Energy, BYD, ZAPTEC (Updated 18/06/25)

Charging for free at home (if plugged in for Min. 12h/day for 20 days each month)



Powering over 6 million homes in Britain and abroad.
<https://octopusev.com/power-pack-bundle/charging-terms>

“V2G will only be active when using your Zaptec Pro charger installed as part of the Power Pack Bundle. You will not be able to have another EV charger on site, but we can replace your existing charger with a Zaptec Pro charger”.

UK grid code G99, also known as EREC G99, is a technical standard developed by the Energy Networks Association (ENA) for the connection of power-generating equipment to the UK's electricity distribution network.

Colpaccio BYD: arriva un ordine di 5.000 auto elettriche da Octopus Energy

di Massimiliano Zocchi pubblicata il 15 Marzo 2023, alle 11:23 nel canale AUTO ELETTRICHE



DE: BMW & EON announced Bidi-Option (Sept. 25 @ IAA)

For less than 3'000 Euro, starting 2026



BMW Group und E.ON starten erstes bidirektionales Kundenangebot in Deutschland: Elektroautos werden aktive Teilnehmer am Energiemarkt

10.09.2025 PRESSEMELDUNG 

<https://www.press.bmwgroup.com/deutschland/article/detail/T0452463EN/bmw-group-und-e-on-starten-erstes-bidirektionales-kundenangebot-in-deutschland:-elektroautos-werden-aktive-teilnehmer-am-energiemarkt>



FIAT 500, since 2020, in Italy for fast reserve (TERNA)

Stellantis is getting 28'750 Euro/MW/Year for V2G (50 kW/car)



Ragione Sociale	Codice Unità	Potenza Qualificata [MW]	Prezzo di assegnazione [€/MW/anno]
ENEL X ITALIA S.R.L.	FRU_124221_15	20	27.500
ENEL X ITALIA S.R.L.	FRU_124221_17	20	23.000
ENGIE ITALIA S.P.A.	FRU_OEELCTB_03	6,2	22.200
FALCK NEXT ENERGY S.R.L.	FRU_107698_01	7,5	18.800
FCA ITALY S.P.A.	FRU_118865_01	25	28.750



Source: <https://www.terna.it/it/sistema-elettrico/pubblicazioni/news-operatori/dettaglio/esiti-asta-Fast-reserve>

Source: <https://www.media.stellantis.com/it-it/e-mobility/press/inaugurato-a-mirafiori-il-progetto-pilota-vehicle-to-grid>



Lessons learned @ V2X Suisse: V2G works, but...

<https://www.mobility.ch/en/v2x>



V2G works – but is not (yet) interoperable

<https://www.v2g-hub.com/insights/>

Most of the V2G-Projects worldwide have been done with CHAdeMO vehicles. Same with DIN/CCS.

BDL - Bidirectional charging management	DE	2019 - 2022	50	Freq. Response, Arbitrage, Dist. Services, Time shifting	View
V1G / V2G solutions	FR	2019 - unknown	5000	Freq. Response, Reserve, Arbitrage, Time shifting	
Realising Electric Vehicle to Grid Services	AU	2020 - 2022	51	Freq. Response, Reserve	
Electric Nation Vehicle to Grid	GB	2020 - 2022	100	Reserve, Dist. Services, Time shifting	
INCIT-EV	ES	2020 - 2024	100	Freq. Response, Reserve, Dist. Services, Time shifting, Emergency back up	
Bidirektionales Lademanagement - BDL	DE	2021 - 2022	50	Freq. Response, Arbitrage, Time shifting	
V2X Suisse	CH	2021 - 2023	40	Freq. Response, Reserve, Arbitrage, Dist. Services	
SunnYparc	CH	2022 - 2025	250	Reserve, Dist. Services, Time shifting	View
DROSSONE V2G PROJECT	IT	2023 - ongoing	280	Freq. Response	View



Home Insights Reports Services FAQ Contact  [Add your project](#)

Insights

The starting point for the V2G hub was mapping out V2G projects around the world. On this page the current global overview and corresponding key insights of V2G projects are shown. You can use the different graphs and extra filters to make your selection and see what projects are out there. If you want, you can also download your filtered selection projects and their information as an Excel form. Is your project missing or do you want to update a project? [Go to our contact page.](#)

151
projects

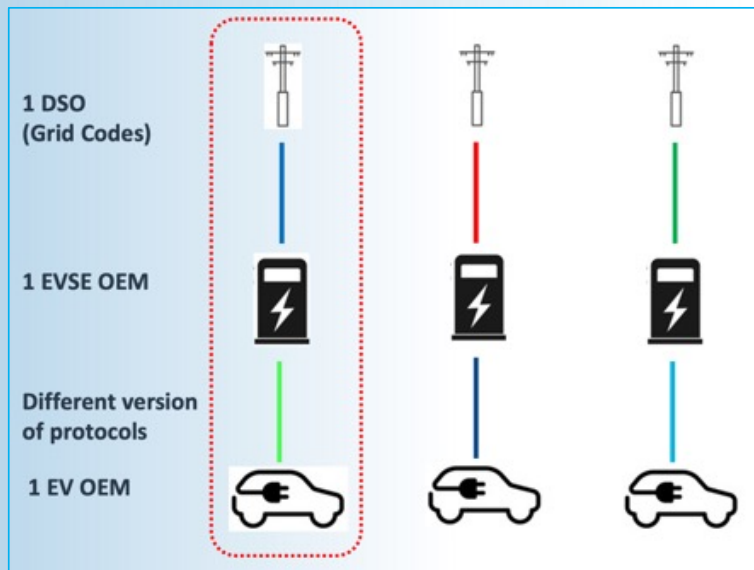
12200+
chargers

27
countries

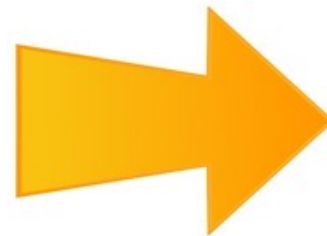


Interoperable Solutions: the Task 53 Target

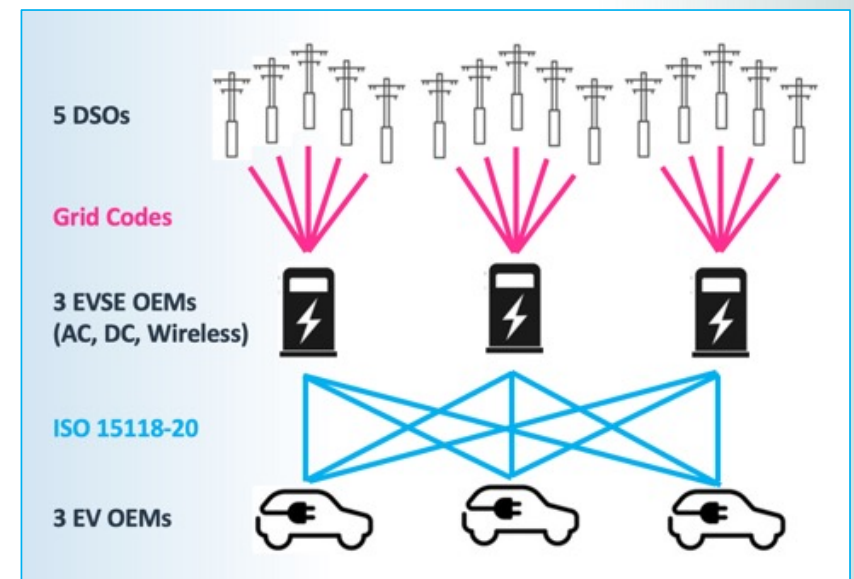
Mostly based on proprietary
EV – EVSE DIN or ISO 15118-2 protocols
and singular Grid Code support



TODAY



Using the consortium **Golden Guidelines for Multi-Party Interoperable Bidirectional Charging** (derived from ISO 15118-20) and supporting Harmonized Grid Codes derived from CA Rule 21 & ACER.

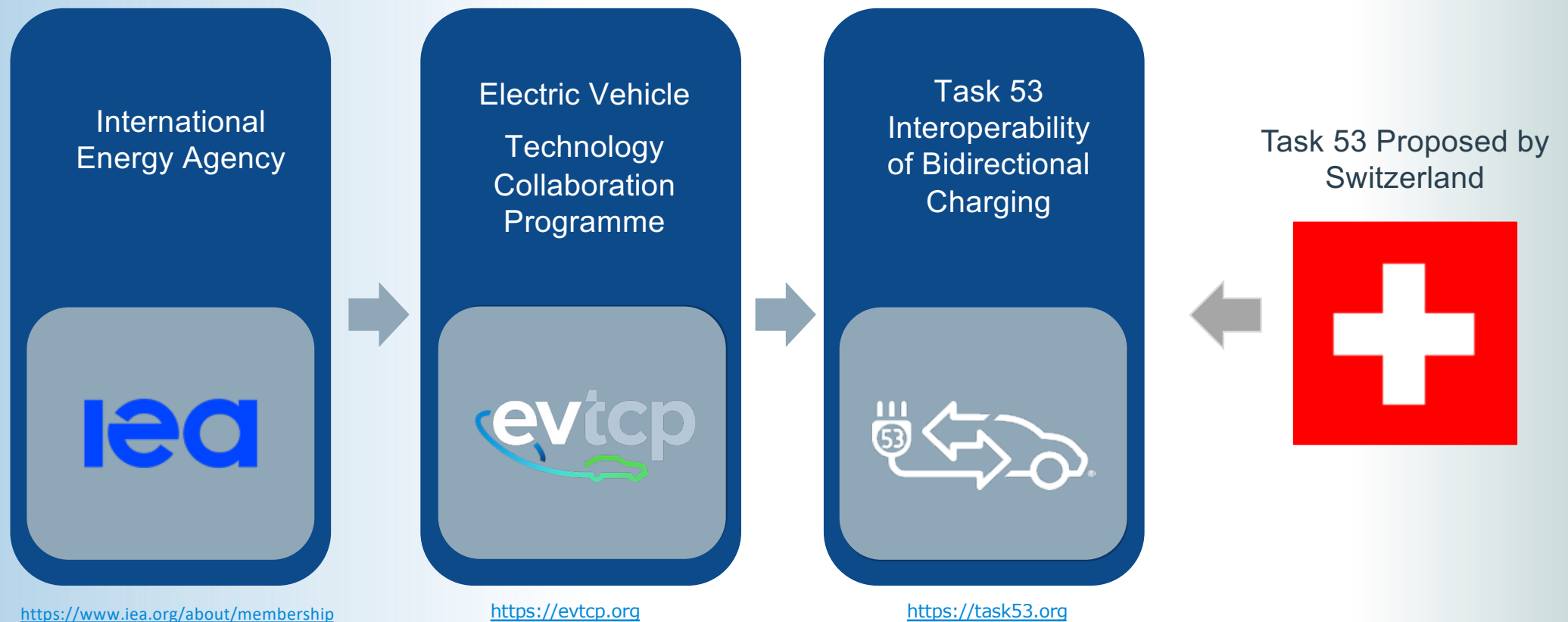


WITH TASK 53



What is Task 53?

From IEA to Task 53 (fee-based and non-profit organization).



Task 53 Partners and Cooperations (17.10.2025)

EV-TCP-Countries & Non-EV-TCP-Observers

....waiting

Sweden



Confirmed

Switzerland



Spain



Belgium



Austria



USA



Denmark



Ireland



UK



South Korea



Germany



France



Canada



China



Italy



Finland



Luxembourg



EU



Norway



Confirmed
observers

South Africa



Australia

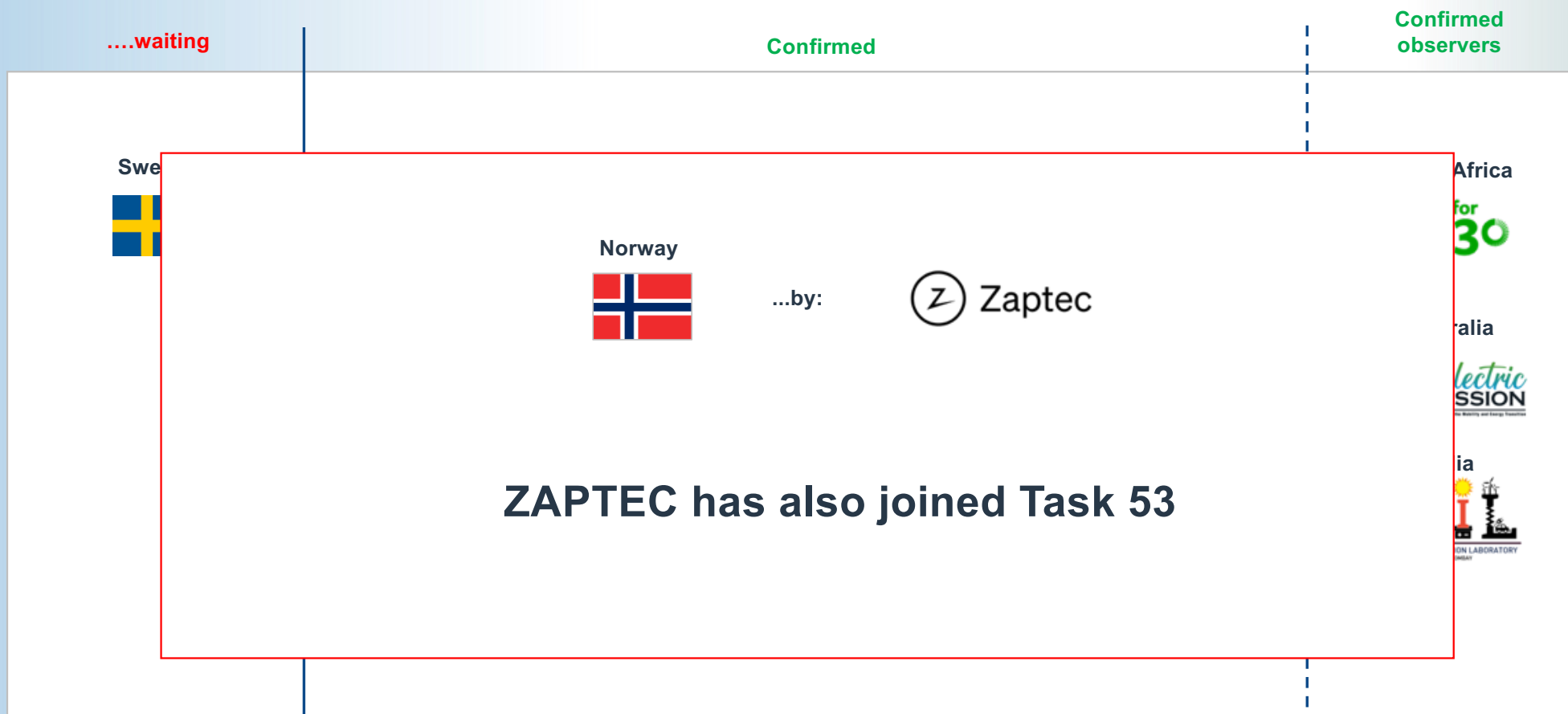


India



Task 53 Partners and Cooperations (17.10.2025)

EV-TCP-Countries & Non-EV-TCP-Observers



Task 53 Partners and Cooperations (17.10.2025)

Industrial Partners, Laboratories and Organizations



Task 53 Partners and Cooperations (17.10.2025)

OEMs for passenger cars, delivery vans, trucks and buses:

Volkswagen joins Task 53
Our first car-OEM drives V2G innovation



Below the main logos, a row of eight smaller logos represents Volkswagen's brands: Volkswagen, Cupra, Skoda, SEAT, Bentley, Porsche, Audi, and Lamborghini.

 www.task53.org

TRATON joins Task 53
A big step for the V2G development



Below the logos, a row of four images shows different TRATON vehicles: a Scania truck, a MAN truck, an International truck, and a Volkswagen Truck Bus.

 www.task53.org



Task 53 objectives for scaling V2G globally

Key objectives include:

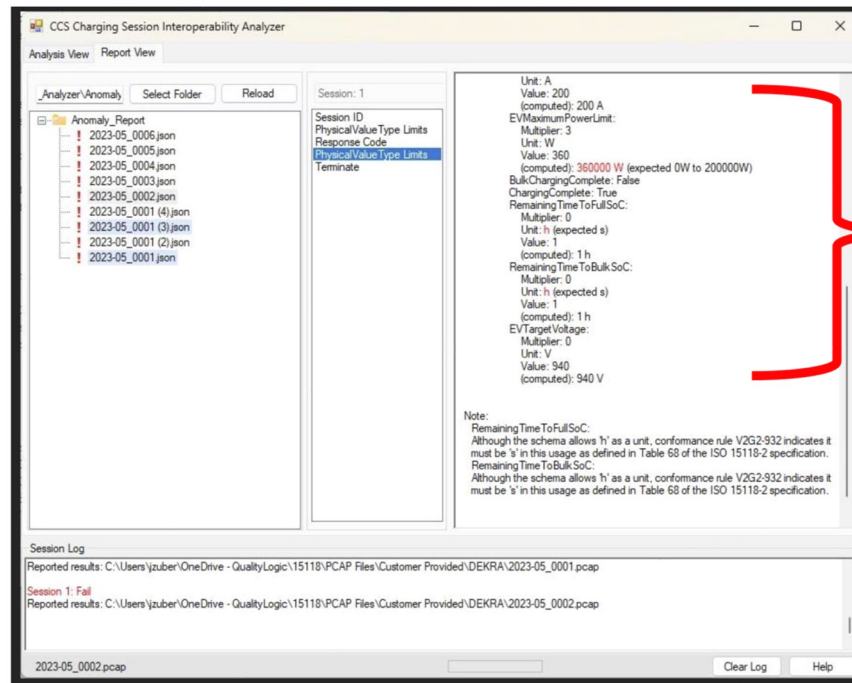
1. **Identifying Gaps and Bugs:** focusing on ISO15118-20 and GridCodes. Experts are uploading GAPs and BUGs on <https://task53.org/#enquiry>
2. **Testing:** at EU Joint Research Center (JRC) and Argonne National Laboratories, DEKRA, CharIN, VGIC, etc. – for **AC, DC, Wireless** for harmonizing Bidirectional charging between vehicles (EV), charging stations (EVSE) and distribution grids (DSO).
3. **Awareness and Advocacy:** promote interoperable “Golden Guidelines” for V2G.

The image displays two overlapping screenshots of the Task 53 website. The top screenshot shows the 'ENQUIRY' page with a dark header and a section titled 'GAPS AND BUGS'. It includes a paragraph about compiling a comprehensive analysis of gaps, bugs, and unclear definitions within the ISO15118-20 and Grid Codes standards, and a 'Request to experts' link. The bottom screenshot shows the 'Registration' page, which features a blue header with the 'IEA' and 'hev/tcp' logos. The registration form includes fields for 'Name' (split into 'First' and 'Last'), 'Username', and 'Organisation', each with a red asterisk indicating a required field. Navigation links at the top of the registration page include 'Challenge', 'HEV-TCP', 'Plan to Action', 'Enquiry', 'Deliverables', 'Join!', and 'More'.



Enquiry re. GAPS & BUGS

Sample from “Quality Logic”



(computed): 200 A
EVMaximumPowerLimit:
Multiplier: 3
Unit: W
Value: 360
(computed): 360000 W (expected 0W to 200000W)
BulkChargingComplete: False
ChargingComplete: True
RemainingTimeToFullSoC:
Multiplier: 0
Unit: h (expected s)
Value: 1
(computed): 1 h
RemainingTimeToBulkSoC:
Multiplier: 0
Unit: h (expected s)
Value: 1
(computed): 1 h
EVTargetVoltage:
Multiplier: 0
Unit: V
Value: 940
(computed): 940 V

Although the schema allows 'h' as a unit, conformance rule V2G2-932 indicates it must be 's' in this usage as defined in Table 68 of the ISO 15118-2 specification.
RemainingTimeToBulkSoC:

GridCodes

Status of EU 2016/631?

27.4.2016

EN

Official Journal of the European Union

L 112/1

II

(Non-legislative acts)

REGULATIONS

COMMISSION REGULATION (EU) 2016/631

of 14 April 2016

establishing a network code on requirements for grid connection of generators



GridCodes

Status of EU 2016/631 revision?

27.4.2016

EN

Official Journal of the European Union

L 112/1

II

Revision to Regulation EU 2016/631 - network code on requirements for grid connection of generators – Revision 2023 – Includes e-Mobility

- V2G electric vehicles and associated V2G electric vehicle supply equipment, within the following categories shall be considered as significant: (a) maximum capacity larger than or equal to 0,8 kW and less than 2,4 kW (type EV1);
 - (a) maximum capacity larger than or equal to 0,8 kW and less than 2,4 kW (type EV1);
 - (b) maximum capacity larger than or equal to 2,4 kW and less than or equal to 50 kW (type EV2);
 - (c) maximum capacity larger than 50 kW and less than 1 MW (type EV3).
- Requirements applicable to types EV1 and EV2 V2G electric vehicles and associated V2G electric vehicle supply equipment are set out exhaustively in Article 13a.
- Type EV2 V2G electric vehicles and type EV1 V2G electric vehicles and associated V2G electric vehicle supply equipment shall possess equipment certificates, proving compliance with this Regulation.
- Type EV2 associated V2G electric vehicle supply equipment follow compliance provisions of Article 30a only, whereas requirements applicable to type EV3 associated V2G electric vehicle supply equipment are set out exhaustively in Article 14a and follow compliance provisions of Article 30b only.

COMM

establishing a network

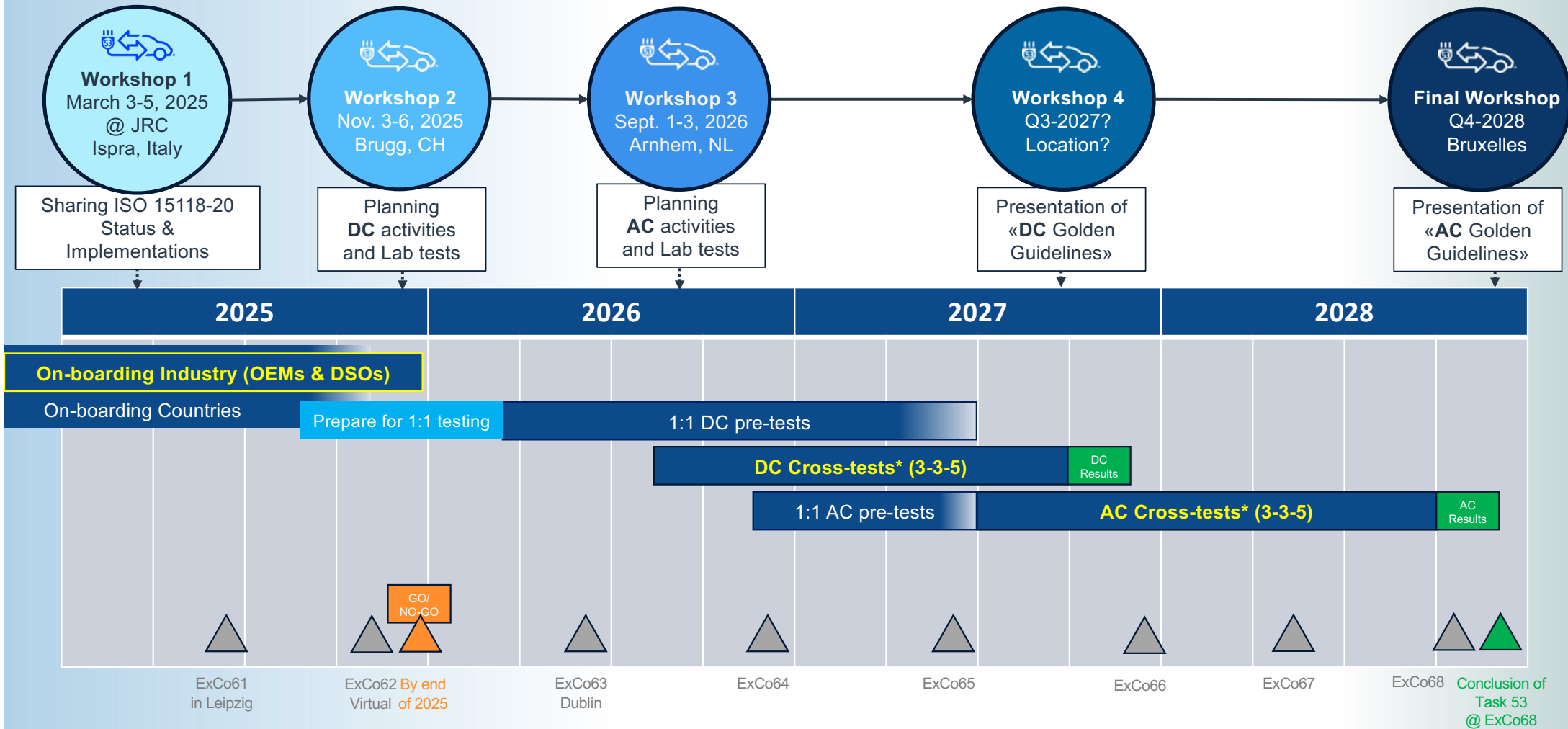


LAB testing

Impressions from first Task 53 workshop @ JRC in Ispra



Task 53 Timeline



Join Task 53 ! Call To Industry-Partners

Become an ACTIVE industry-partner!

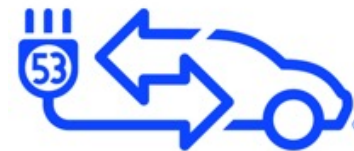
Task 53 is open - regardless of their country being one of the 18 full members of EV-TCP.

To companies, universities, institutions, etc., wishing to participate in the process of making bidirectional charging interoperable, please join as an industry partner:

- **Test-Company** (vehicle-OEM, EVSE-manufacturer, aggregators, DSO, test-equipment suppliers) and **LABs**.
- **Enabler** (SW-solution provider, key-component-suppliers, standard-defining organizations)
- **Expert** (universities, consultants, researchers, fleet-operators, specialized media, etc.)

Interested? Contact Task 53 secretariat:

regina.flury@task53.org www.task53.org



Task 53 is a fee based non-profit Task

Open to industry partners from all over the world

Fees

Turnover	Fee for industrial partners (invoiced in 4 installments spread over the duration of Task 53 (2024-2027), VAT to be added)	
	located in partner countries	for partners without partner country
0 – 2 Mio €	4'000 € / installment	10'000 € / installment
2 – 20 Mio €	8'000 € / installment	20'000 € / installment
20 – 200 Mio €	20'000 € / installment	50'000 € / installment
over 200 Mio €	50'000 € / installment	125'000 € / installment
Universities, Non-Profit Organizations	based on statutes to be made available to Task 53	

The image shows two overlapping 'Onboarding Form for Task 53' documents. The forms are titled 'Onboarding Form for Task 53' and 'Interoperability of Bidirectional Charging (NBIC)'. The forms include sections for Member Information, Type of Partner, Participation fee determination, Partners and Task 53 activity, Checklist of enclosures to be sent to Task 53, and Date and Signature.



Benefits of Joining Task 53

Dramatic Reduction of Cost/Resources/Time to reach interoperable V2G Solutions

- Access to an ISO 15118-20 protocol that is shared by a consortium of EV/EVSE OEMs and DSOs – **“Golden Guidelines”**.
- (Permanent) **access to world-class labs** and testing expertise (JRC*- Ispra, Argonne National Laboratory).
- Leverage experts and facilities of JRC, Argonne National Laboratory and others (DEKRA, HSNW, KERI) for interested INBID collaborators - **exchange**.
- **Access to larger markets** at dramatically lower cost/resources and accelerated timing.
- **Complying with state/region requirements** (California’s SB 59, and other US States and regions).



* JRC = Joint Research Center



We encourage you to join Task 53!

More information: www.task53.org



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INBID representative for
Northern America

Regina Flury von Arx
INBID Secretariat

Marco Piffaretti
INBID Operating Agent (OA)

Nicole Waechter
INBID
Communication

Patrick Eugster
INBID Project Management
& Partner Relations



Safe Harbor Statement

Task 53

This presentation contains forward-looking statements subject to risks and uncertainties. Actual results may differ due to factors beyond our control. We undertake no obligation to update these statements.

