

# IEC SEG 11

## Future Sustainable Transportation

Feng Ni  
Convenor of SEG 11

CITS e-meeting  
2022-09-23



# Background

- AhG 81 was set up in early 2018 by the SMB to prepare a high-level set of proposals for IEC activity in the area of EVs
  - SMB/6639/R
  - Create a SEG to draft a roadmap “Future Mobility”
- SMB Decision 164/9 confirmed the setting up of SEG 11
  - To examine the needs to support the world’s transition to sustainable transportation in developed and developing economies
  - To draft a roadmap/landscape on “Future Sustainable Transportation”, taking into account global requirements (e.g. safe, clean, affordable) and new technologies (e.g. autonomous, e-vehicle, IoT) which are relevant to IEC technical activities.

# SEG 11 Future Sustainable Transportation

## Scope:

Collect best practices and use cases of public, shared transportation for developed and developing economies.

Engage with TC/SCs including ISO and other market stakeholders on status and use of existing standards and on the need for new standards related to Future Sustainable Transportation.

Formulate recommendations to SMB as appropriate.

Carry out outreach activities to attract new stakeholders for IEC's technical work

**Future:** up to 20yrs for Use-cases and within the next 10yrs for technologies.

**Sustainable:** refers generally to the capacity for the [biosphere](#) and human [civilization](#) to coexist, with Affordability and other criteria included.

**Transportation:** all modes of transportation of people and material on earth.

# Work Mode of SEG 11

Collect **Use Cases**  
of future transport

WG1 Convenor :Takako  
ARAMAKI

Identification of  
**gaps and overlaps**

WG2 Convenor : Dominik  
EBLING

Generate  
Recommendation  
**Report**

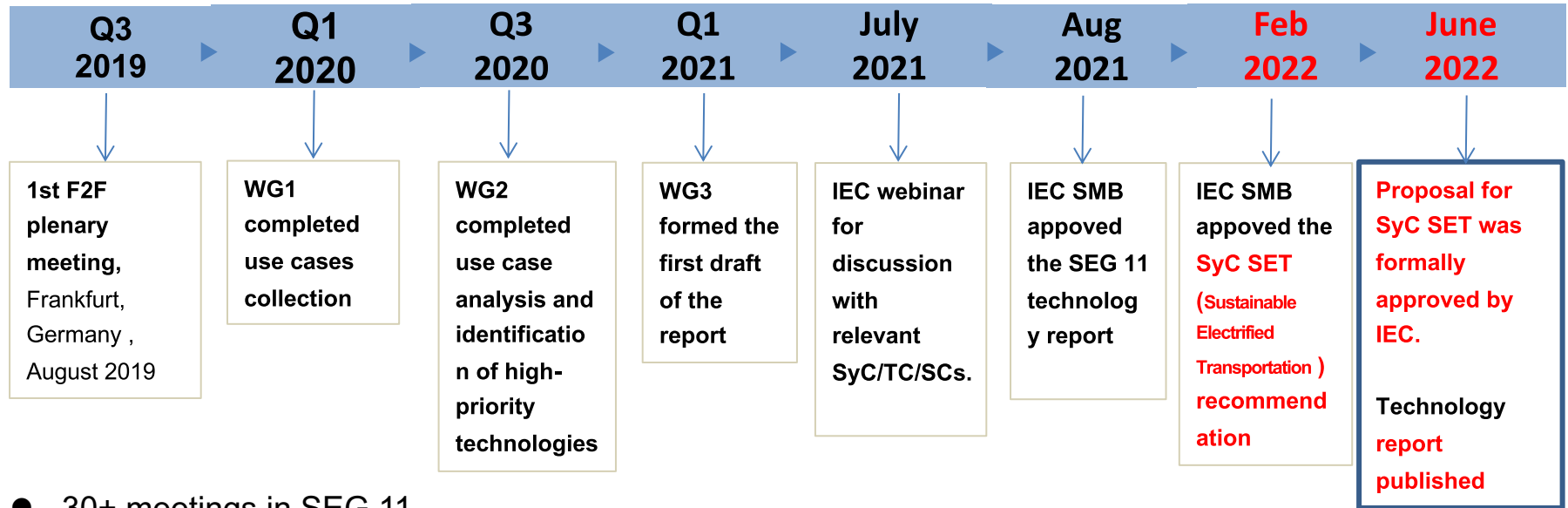
WG3 Convenor:  
Lili LI

Convenor: Feng Ni, China  
Co-Convenor: Alexander Kupfer, Germany  
Secretary: Gennaro Ruggiero, IEC CO  
Members: 50+ from 20 Countries

- Identify system-level solutions for topic which is now in different TCs (e.g. Integration of transportation and energy systems) →create new SyC
- Identify upcoming new technologies → new TC
- Identify Systemic questions

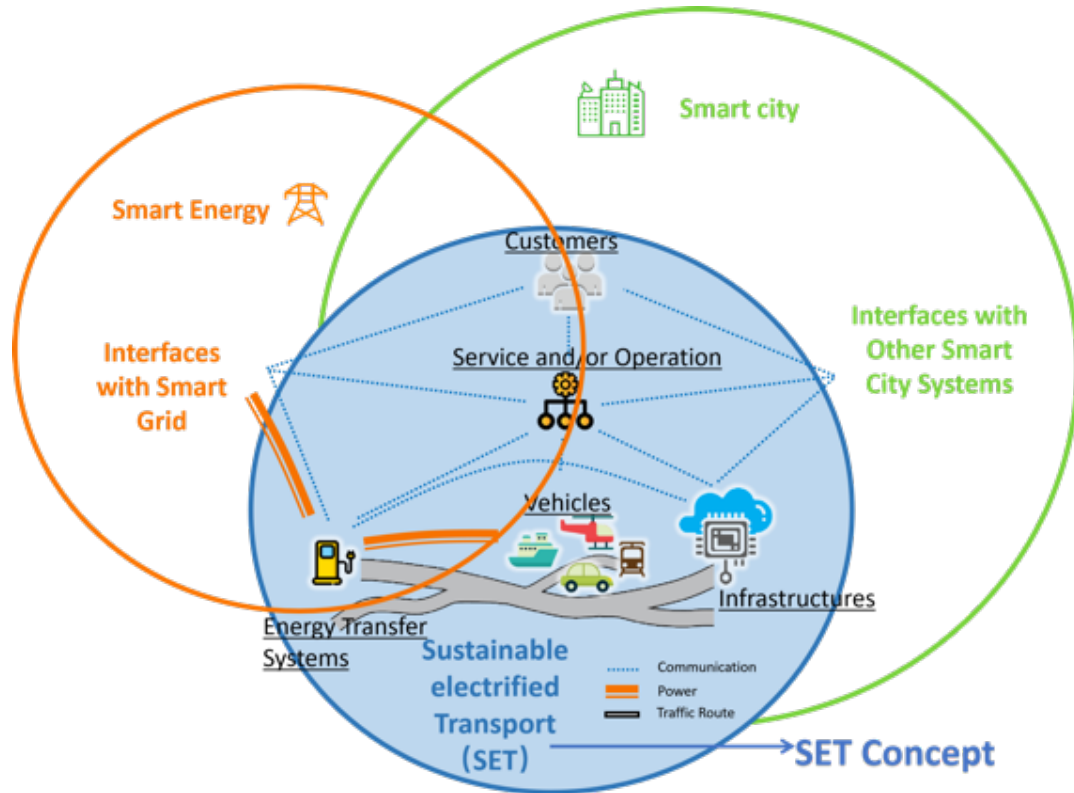


# Work milestones of SEG 11



- 30+ meetings in SEG 11.
- Interviewed TC 18 and TC 8 in IEC, and participated EV-DESS workshop held SyC Smart Energy
- Outreach activities with ISO TC 204 and ITU C-ITS
- 2 round questionnaires and a webinar with all relevant SyC/TC/SCs in IEC.
- A new **SyC on Sustainable Electrified Transportation ( SET )** was approved in **June,2022**

# The Concept of Sustainable Electrified Transportation (SET)



- Sustainable Electrified Transportation (SET) will cover all the landscape of FST
- with the interconnection not only with Smart Energy: it will also have interconnections with the scope of Smart City, Intelligent Transport Systems (ITS), Communication, Automated Driving and so on.

# The results of SET use case analysis

- 4 AAA technology topics and 1 AAAA technology topic are identified.
- Smart Charging topic are demanding very urgent with high impact, rated AAAA urgency.
- Charging solutions for Non-road vehicles(trams and ships), V2G and integration of ITS and ITE systems are rated AAA urgency with high or medium impact

Technology topics	Use case name	Relevance	Urgent degree	Impact degree	Relevant SyC/TC/SCs
smart charging ( V1G )	coordinated charging solution for EVs in residential parking lots	Complete relevant	AAAA	High	1. TC 69 ; 2. TC 18; 3. TC 23 / 23H; 4. TC 57; 5. TC 20; 6.TC 22
	Renewable Energy supply optimized charging				
	Charge an EV with smart charging				
	Provide smart charging services to an EV fleet				
V2G	V2B for peak shaving for building user	Complete relevant	AAA	High	1.TC 69; 2.TC 57. 3.SyC Smart Energy
	Provide smart bidirectional energy transfer				
charging of battery powered trams	A new trams system powered by battery rather than traditional Power supply rail	Complete relevant	AAA	Medium	1. TC 22;2. TC 9;3. TC 69;
charging of battery powered ships	High Voltage shore power connection system	Complete relevant	AAA	Medium	1. TC 18;2. TC 23 / 23H;3. TC 8;4. TC 121
integration of ITS and ITE systems	A case of integration of ITS systems and ITE systems under automatic valet parking Scenario	largely relevant	AAA	High	1.TC57 2.TC693.SyC Smart Cities

# Major gaps of SET standards in IEC

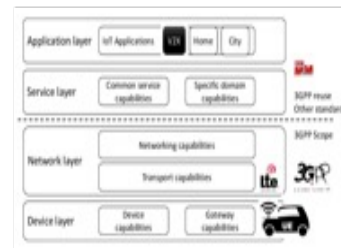
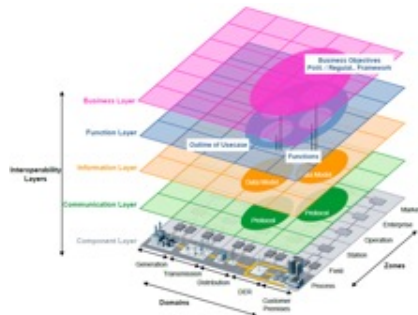
## Gaps at access level

- Battery-powered trams.
- Electric ships.
- aircraft.



## Gaps at system level level

- SET services and system requirements.
- Reference architecture
- SET security and interoperability
- Mission-critical applications.
- End-to-end ICT solution





# The proposed Scope of SyC SET

To provide end-to-end and cross-sectors systems level standardization, collaboration and guidance on overall system aspects and infrastructure aspects of SET.

- To cover all types of sustainable electrified transportation including road transportation and non-road transportation.
- To foster the coordination of the overall IEC work programme in this field, and promote in-depth cooperation among the IEC, the ISO and other SDOs.
- To attract new stakeholders and experts especially from the transportation, automobile, telecom sectors to foster the collaboration across transportation, automobile, energy, telecom, and other relevant industries.

# The proposed Programme of SyC SET

- To provide a **holistic view of standardization** in SET field including the development of **use cases, systems requirements, and reference architecture** at system level.
- To provide **overall systems level value, support, and guidance** to the relevant **TCs and other standard development groups** in the SET fields, both inside and outside the IEC.
- To **enhance the coordination** including the pace of the overall IEC work program in the SET field considering the work of relevant **SyCs, TC/SCs and other International SDOs**.
- To **build liaisons with and receive the representatives from concerned SyC/TC/SCs** (such as SyC Smart Energy, SyC Smart City, SyC COMM, TC 69, TC 9, TC 18, TC 97, TC 57, TC 8, TC 13, TC 120, TC 125, SC 23H and SC 23E) to enhance coordination and avoid potential overlaps.

# The proposed Programme of SyC SET(cont.)

- To build the **liaisons and promote In-depth cooperation with relevant SDOs** in **transportation, information technology, smart city, communities** and others such as ISO TC 268/SC 2 (Sustainable cities and communities - Sustainable mobility and transportation), ISO TC 22 (Road vehicles), ISO TC 204 (Intelligent transport systems), SAE Hybrid-EV committee, 3GPP SA, ITU CITS.
- To build **cooperation mechanisms between IEC with transportation, automobile, telecom industries**, as well as global and regional regulatory agencies, to synchronize the standardization work with test and validation, preparation for mass production, and effective regulations, paving the way for the commercial deployment of SET applications.
- To **provide a globally recognized open forum** for an internationally accepted, globally harmonized set of standards of the highest quality to enable the rapid deployment of SET end-to-end services in the global marketplace.

# Summary

- SEG 11 have completed the tasks assigned by IEC SMB.
- SEG 11 proposed the concept of Sustainable Electrified Transportation (SET), identified the technology areas with high priority, and analyzed the gaps and overlaps in relevant standardization works.
- The recommendation to establish a new systems committee on Sustainable Electrified Transportation (SyC SET) are approved by SMB in Feb., 2022. And the **Proposal of SyC SET** are formally **approved by IEC NCs in June, 2022.**
- The works of SEG 11 are summarized in the technology report "Future sustainable transportation", which has been published by IEC in June. 2022.

<https://www.iec.ch/basecamp/future-sustainable-transport>



Future sustainable transport

Technology Report



# Thank You

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