Japan Proposal for ANNEX2
of Battery Durability GTR
@EVE54

16. February.2022

1. Application for registration of SOCE/SOCR to SAE
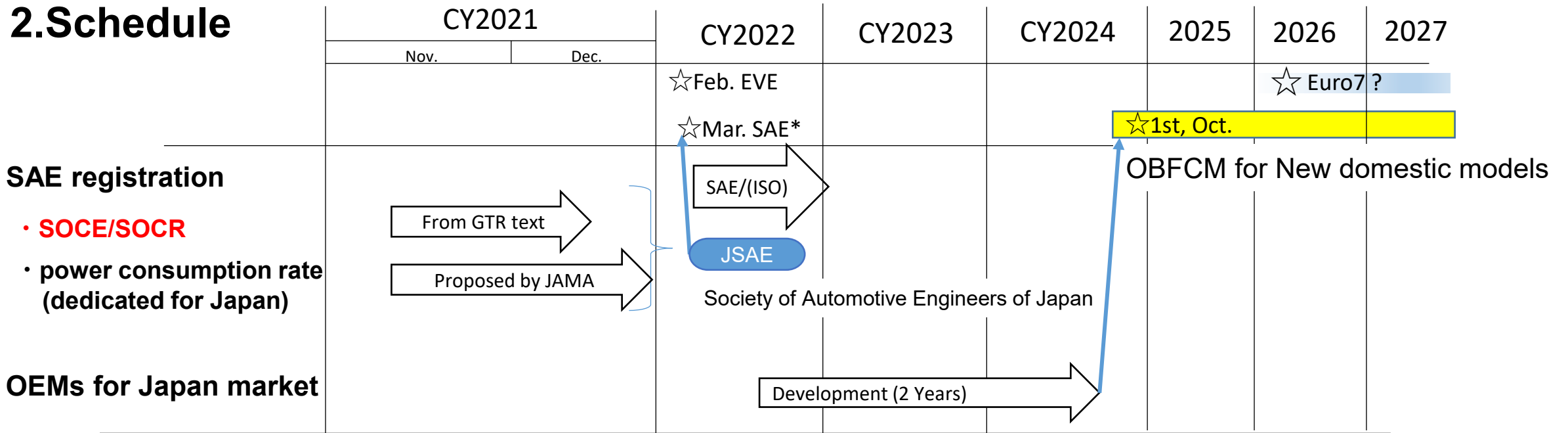
< Background >
Japan decided to introduce the mandatory SOCE/SOCR monitoring from October 2024.
Based on the OEM development schedule, we believe that SAE registration is required in 2022.

< Proposal >
1. SOCE/SOCR SAE application will be submitted by Japan at the March 2022 SAE meeting.
2. May Japan consider ANNEX2 applications to SAE other than SOCE/SOCR?
   Since there are some issues, the Japan proposal will be presented at EVE in April 2022.

2. Schedule

	CY2021		CY2022	CY2023	CY2024	2025	2026	2027
	Nov.	Dec.						

☆Feb. EVE
☆ Euro7 ?
☆Mar. SAE*
☆1st, Oct.

SAE registration

SAE/(ISO)
OBFCM for New domestic models

・**SOCE/SOCR**

From GTR text

・**power consumption rate (dedicated for Japan)**

JSAE

Proposed by JAMA

Society of Automotive Engineers of Japan

OEMs for Japan market

Development (2 Years)

* J1979 TF Schedule @2022 (Since the revision of J1979 has been discussed as version 3, the number of SAE meetings has increased compared to the previous year.) < Jan.14, March.11, May 3, July22, Sept.16, Nov.18>

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1. On Board SOCE value

2. On Board SOCR value

PID (hex)	Description	Data Byte	Min.Value	Max.Value	Scaling/Bit	External Test Equipment SI(Metric)/English Display
XX	Support of SoC Data	A			Bit Mapped	
	State of certified energy supported	A,bit 0	0	1	1 = State of certified energy supported	
	State of certified range supported	A,bit 1	0	1	1 = State of certified range supported	
	reserved (bits shall be reported as '0')	A,bit 2-7	0	0	Reserved (bits shall be reported as '0')	
	State of certified energy	B,C	0%	655.35%	0.01	SOCE: XXX %
	State of certified range	D,E	0%	655.35%	0.01	SOCR: XXX %
	"State of certified energy" (SOCE) means the on-board estimated UBE performance at a specific point in its lifetime, expressed as a percentage of the certified usable battery energy. "State of certified range" (SOCR) means the on-board estimated electric range at a specific point in its lifetime, expressed as a percentage of the certified electric range.					

SOCR= 100 X [current estimated electric range at a specific point in its lifetime for the electrified vehicle] / [the certified electric range]

SOCE= 100 X [current usable battery energy (UBE) at a specific point in its lifetime for the electrified vehicle] / [the certified usable battery energy]

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Values to be read from vehicles:

1. On board SOCE value
2. On board SOCR value
3. Odometer (in km)
4. Date of manufacture of the vehicle
5. Total distance (sum of the distance driven and the virtual distance) [km], if applicable
6. Percentage of virtual distance [in per cent], if applicable
7. Worst case certified energy consumption of PART B family [Wh/km], if applicable
8. Total discharge energy in V2X [Wh], if applicable
9. Last charged by more than 50 per cent SOC swing on [Date]
10. Maximum, minimum, average ambient temperature* the vehicle was exposed to during its lifetime

Note: * ambient temperature to be read as daily averages

3. Odometer (in km)

SAEJ1979DA 0xF4A6

4. Date of Manufacture of the vehicle

#	Name	Byte	MIN/MAX	LSB	DISP	DID
	Date of Manufacture of the vehicle	8	8 ASCII characters	ASCII	MANIF_DATE YYYY:MM:DD	0xXX / 0xF8XX

5. Total distance (sum of the distance driven and the virtual distance) [km], if applicable

#	Name	Byte	MIN/MAX	LSB	DISP	DID
	Total Distance traveled (sum of the distance driven and the virtual distance) (Lifetime)	4	0...429,496,729.5 km	0.1 km	TD-L_R+V xxxxxxxxx.x km	0xXX / 0xF817

Total Distance traveled (sum of the distance driven and the virtual distance) (Lifetime) shall include accumulate the distance traveled and the equivalent virtual distance calculated as total discharge energy during V2X [Wh] / worst case certified energy consumption of PART B family.

6. Percentage of virtual distance [in percent], if applicable

#	Name	Byte	MIN/MAX	LSB	DISP	DID
	Percentage of virtual distance (in percent)	2	0...655.35	0.01 %	x.xxxxx %	0xXX / 0xF8XX

7. Worst case certified energy consumption of PART B family [Wh/km], if applicable

#	Name	Byte	MIN/MAX	LSB	DISP	DID
	Worst case certified energy consumption of PART B family	3	0...16777.215	0.001 kWh	x.xxxxx KWh	0xXX / 0xF8XX

8. Total discharge energy in V2X [Wh], if applicable

#	Name	Byte	MIN/MAX	LSB	DISP	DID
	Total discharge energy in V2X	4	0...4294.967295 GWh	1 kWh	xxxx.xxxxxx GWh	0xXX / 0xF8XX

Data acquisition issues in ANNEX 2

9. Last charged by more than 50 percent SOC swing on [Date]
It is difficult to record the date. In general, CAN typically has no date information. If a vehicle doesn't have a cell phone connection, a vehicle can't get it. IG-ON time and/or distance from Last charged can be calculated.

10.Maximum, minimum, average ambient temperature the vehicle was exposed to during its life time.
Maximum, minimum and average ambient temperature during IG-ON can be calculated,
but "life time " is difficult. If IG-OFF is included in this calculation, it is technically impossible or very difficult.

The Japan proposal which can coupe with above issues will be presented at EVE in April 2022.

J1979 Information (OBD standard of SAE) Revisions
1.In California, ACC2 regulations (including ZEV) after 26 MY are under discussion and CCR 1969* of ACC2 refers to J1979 -3, which is under discussion.   (*California Code of Regulations, Section 1969)
2.The proposal and discussion of J 1979 -3 at SAE started from current conventional specification for ICE toward a "newly made book" which will also cover ZEV or All electrified vehicles.
3.Any new input or read requirements added to EVE-GTR should also be included in J1979 -3.

APPENDIX

9. Last charged by more than 50 percent SOC swing on [Date]

Date is not available in most case, and use-case of this data is to confirm if SOCE/R is updated after traction battery are sufficiently charged to calculate SOCE/R. Draft CARB CCR1962.5 propose similar use case and propose to add "distance since state of health last updated or reset". This is also new DID.

#	Name	Byte	MIN/MAX	LSB	DISP	DID
	Distance since state of health last updated or reset	2	0…65535 km	1 km	xxxxxx km	0xXX / 0xF4XX

10. Maximum, minimum, average ambient temperature the vehicle was exposed to during its lifetime

Module are only capable to capture AAT while PSA ON.

AAT: Ambient Air Temperature
PSA: Propulsion system Active

Pos	Name	Byte	MIN/MAX	LSB	DISP	DID
A	Maximum ambient temperature (Lifetime)	1	-40…215 deg C	1 deg C with -40 deg C offset	xxxxxx deg C	0xXX / 0xF8XX
B	Minimum ambient temperature (Lifetime)	1	-40…215 deg C	1 deg C with -40 deg C offset	xxxxxx deg C	0xXX / 0xF8XX
C	Average ambient temperature (Lifetime)	1	-40…215 deg C	1 deg C with -40 deg C offset	xxxxxx deg C	0xXX / 0xF8XX