

# FCEV standardization in China

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# Outline

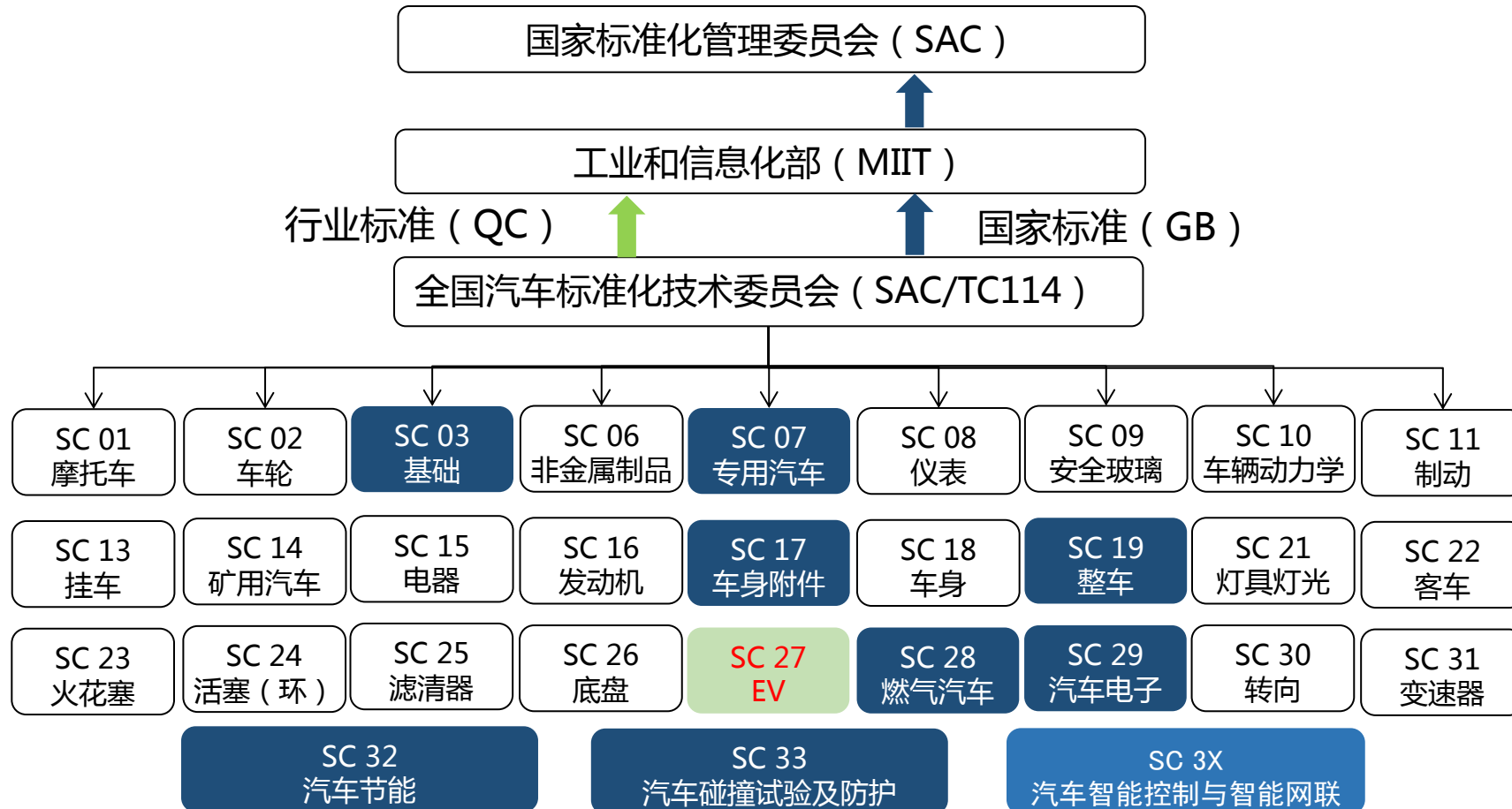
- Background: EV standardization
- FCV standards
- Conclusion

# Background

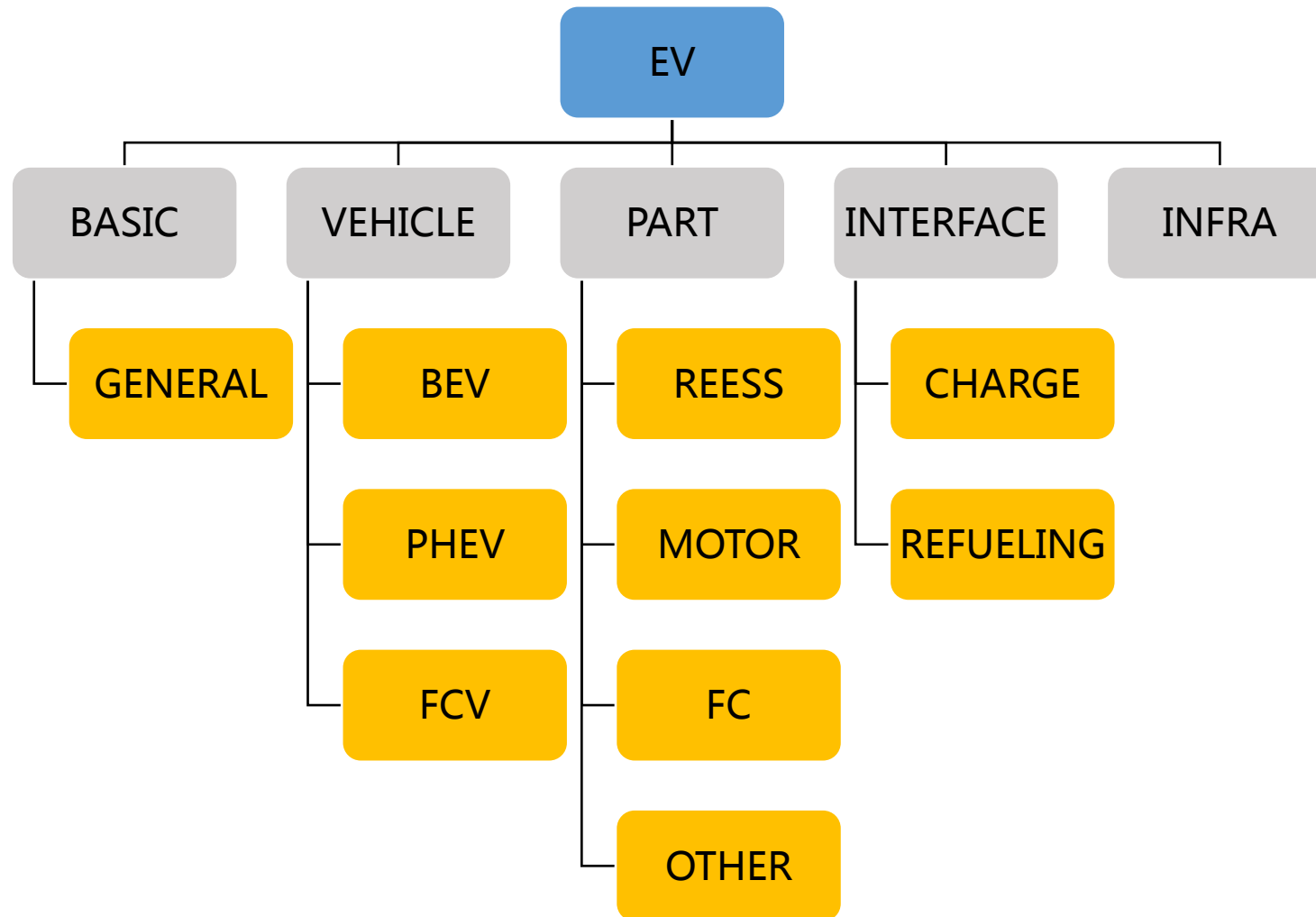
- Policy impact
- Standards' role in the FCV policy and industry
- 3 GBs
- Local standards

# National Technical committee of automotive standard

SAC/TC 114 , founded in 1988, biggest TC under SAC, 29 SCs.



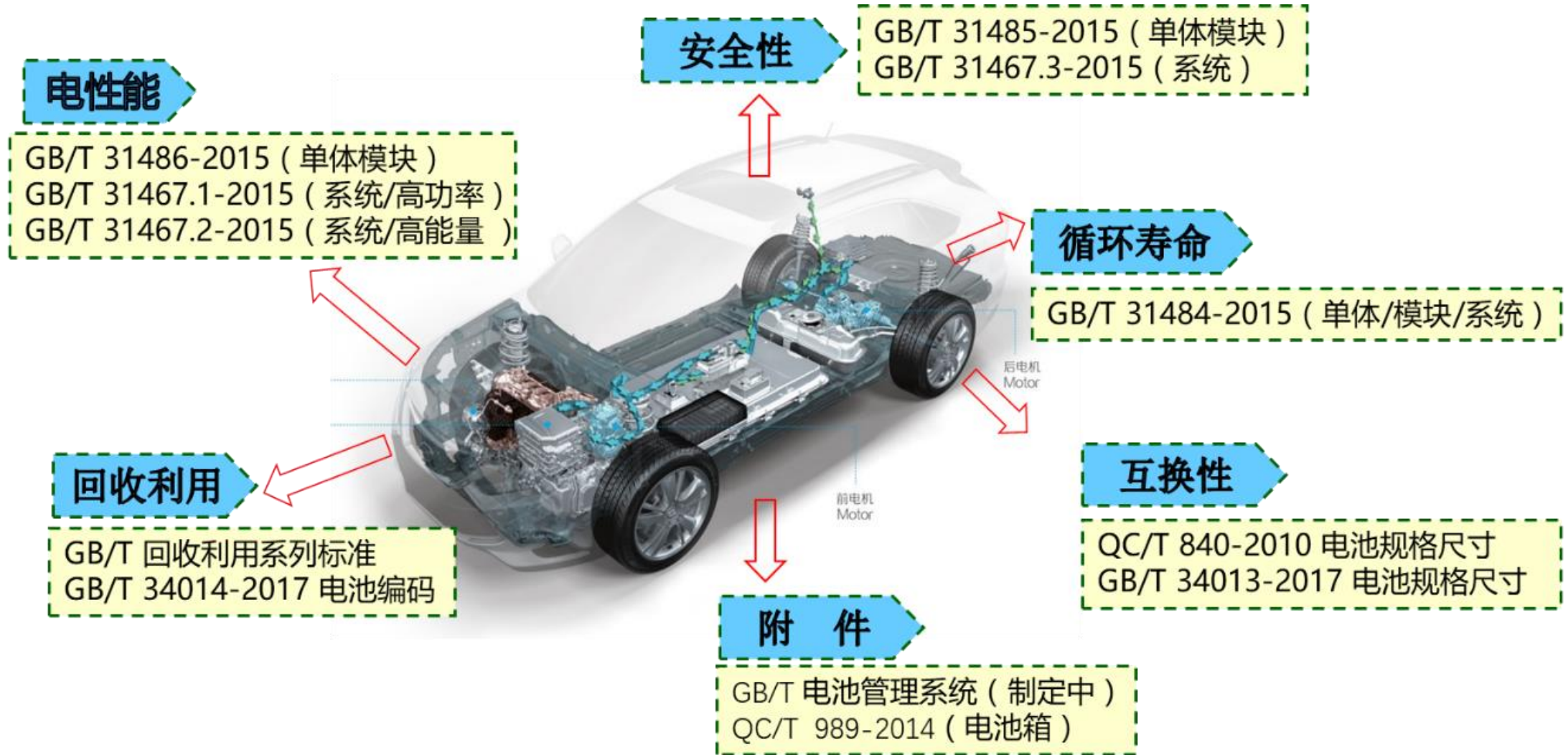
# Standard system



# Key items

type	topic
GB	E-bus safety requirements
GB	Li-ion battery safety requirements
GB	EV safety requirements
GBT	LSEV technical requirements
GBT	Type approval for FCVs
GBT 24549	FCV safety requirements
<b>GBT 31498</b>	After crash safety for EVs
GBT 19753	Light duty HEV energy consumption test method
GBT 24347	DC/DC converter

# Battery standards



# Outline

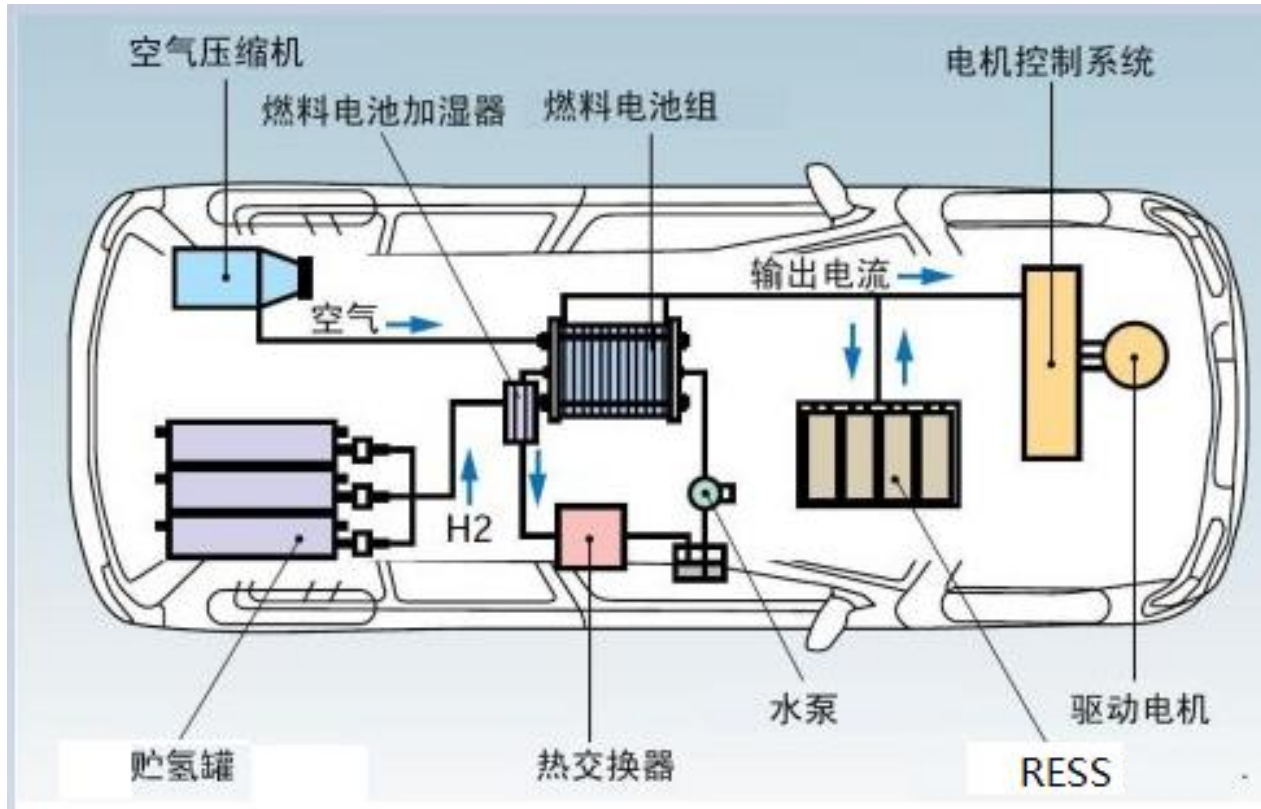
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# FCEV structure



H2-tank、infrastructure

FC-system and supporting parts

# basic

**GB/T 24548–2009 Terminology (and a reversion)**

# Vehicle

**GB/T 24549–2009 FCV safety**

**GB/T 26991–2011 FCV max speed test method**

**GB/T 35178–2017 Hybrid FCV h2 consumption**

**20140521–T–339FCV h2 emission (to be released)**

**20162462–T–339FCV type approval (to be approved)**

## **NWIs**

**FCV energy consumption and range**

**FCV low temperature start test method**

**FCV plateau performance test method**

**FCV environment adaption**

**FCV after crash safety requirements**

**FCV dynamic test (updating 26991)**

# On-board H2 system

**GB/T 26990–2011 technical specifications**

**GB/T 29126–2012 test method**

**EMC**

**Installation strength**

**Installation requirements**

## 部件-发动机

**GB/T 34593-2017 H2 emission**

**GB/T 24554-2009 performance test**

**Duration test cycles**

**Reliability**

# FC stack

<b>20141030-T-339safety requirements</b>
Performance test methods

# H2 refilling

<b>GB/T 34425-2017</b>	<b>refilling nozzle</b>
<b>GB/T 26779-2011</b>	<b>refilling receptacle</b>
	<b>communication protocol</b>

<b>QC/T 816-2009</b>	<b>H2 refilling vehicle</b>
<b>GB/T 29123-2012</b>	<b>FCV for demo running</b>
<b>GB/T 29124-2012</b>	<b>infrastructure for FCV demo running</b>

# Cylinders

## 相关标准

- **TSG 21-2016 Supervision Regulation on Safety Technology for Stationary Pressure Vessel**
- **TSG R0006-2014 Supervision Regulation on Safety Technology for cylinders**
- **GB/T 26466-2011 Stationary flat steel ribbon wound vessels for storage of high pressure hydrogen**



# H2

- **GB50516–2010 H2 refilling station**
- **H2 quality**

# Next step

- Technology development: IV、70 MPa
- Policy : term、range、
- Market entrance : type approval、duration

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# Conclusion

- Int' l harmonization
- A part of EVs, and CVs
- Synchronize with industry

THANKS

谢谢！

敬请指正！

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