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National Template: Stationary & Portable Fuel Cell Systems

Many standards development organizations (SDOs) are working to develop codes and standards needed to prepare for the commercialization of alternative fuel vehicle technologies. This graphic template shows the SDOs responsible for leading the support and development of key codes and standards for stationary and portable fuel cell systems.

Hydrogen Generation

CONTROLLING AUTHORITIES:
EPA (emissions)
DOT/PMHSA (pipeline)
OSHA, State and Local Gov't
(zoning, building permits)

Electrolyzers:
UL, CSA STANDARDS

Reformers:
UL, CSA STANDARDS, energy API

Performance Test Procedures:
ASME, CSA STANDARDS

Chemical Hydrides:
UL, CSA STANDARDS, NFPA

Portable Fuel Cells

CONTROLLING AUTHORITIES:
CPSC, DOT/PHMSA,
OSHA, EPA (methanol),
State and Local Government
(zoning, building permits)

Handheld Systems:
UL, CSA STANDARDS

Portable Systems:
UL, CSA STANDARDS, CG

Handheld Fuel Containers:
UL, CSA STANDARDS, CG

Portable Fuel Containers:
ASME, CSA STANDARDS, CG

Performance Test Procedures:
ASME, CSA STANDARDS, gti

Stationary Fuel Cells & Combustion Devices

CONTROLLING AUTHORITIES:
OSHA, State and
Local Government
(zoning, building permits)

H_2 and Combustion Devices
UL, CSA STANDARDS

H_2 Fueled Turbines:
ASME, UL, CSA STANDARDS, energy API

FC Systems:
ASME, UL, CSA STANDARDS

FC Installation:
NFPA

FC Performance Test Procedures:
ASME, CSA STANDARDS, gti

Interface

Installation Piping:
ASME, CSA STANDARDS, CG, NFPA, IC

Storage:
ASME, CSA STANDARDS, CG, NFPA, energy API

Compressors Safety Certificate:
UL, CSA STANDARDS

Computer Design, Performance & Safety:
energy API

Sensors/Detectors:
UL, CSA STANDARDS, NFPA

Fuel Specifications:
energy API, SAE, CG, ASTM

Weights/Measures:
ASME, energy API, NIST

Dispensers:
UL, CSA STANDARDS, NFPA, energy API, SAE

Non-vehicle Dispensing:
CG

Codes for Built Environment:
CG, NFPA, IC, ASHRAE

Interconnection:
IEEE, UL, NFPA

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National Template: Key for Standards Development Organizations (SDOs)

This key provides the acronyms, names, and standards development areas that correspond with the standards development organization logos in the graphic template above.

Organization Name			*Standards Development Areas*
	AGA	American Gas Association	Materials testing standards
	API	American Petroleum Institute	Equipment standards for petroleum production, storage and handling
	ASHRAE	American Society of Heating, Refrigerating, and Air-Conditioning Engineers	Promoting sustainability through research, standards writing, publishing, and education
	ASME	American Society of Mechanical Engineers	Mechanical and multidisciplinary engineering, design codes and standards
	ASTM	American Society for Testing and Materials	Technical test standards for materials, products, systems
	CGA	Compressed Gas Association	Equipment design and performance standards for compressed gas systems and components
	CSA	CSA Standards	US and Canadian equipment standards
	DOT	Department of Transportation	Federal transportation regulatory agency
	FERC	Federal Energy Regulatory Commission	Regulates interstate transmission of electricity, gas, and oil
	GTI	Gas Technology Institute	Supplies technical support and training for the energy industry
	ICC	International Code Council	Family of model building codes, including the International Fire Code
	IEEE	Institute of Electrical and Electronics Engineers	Electrical standards
	NERC	North American Electric Reliability Corporation	Produces standards for electric grid operation
	NFPA	National Fire Protection Association	Model codes and standards, including the National Electric Code
	NIST	National Institute of Standards and Technology	Measurement standards
	SAE	Society of Automotive Engineers	Vehicle standards
	NARUC	National Association of Regulatory Utility Commissioners	Represents state public service commissions
	UL	Underwriters Laboratory	Equipment and performance testing standards

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