



Clean Cities Transportation

Workshop for Almaty



Standards, Codes, Regulations, and Safety for NGVs, Fuelling Stations, and Workshops INTRODUCTION

Almaty, Kazakhstan

30-31 March 2011

Dr. Jeffrey M. Seisler, CEO



NGV STANDARDS

&

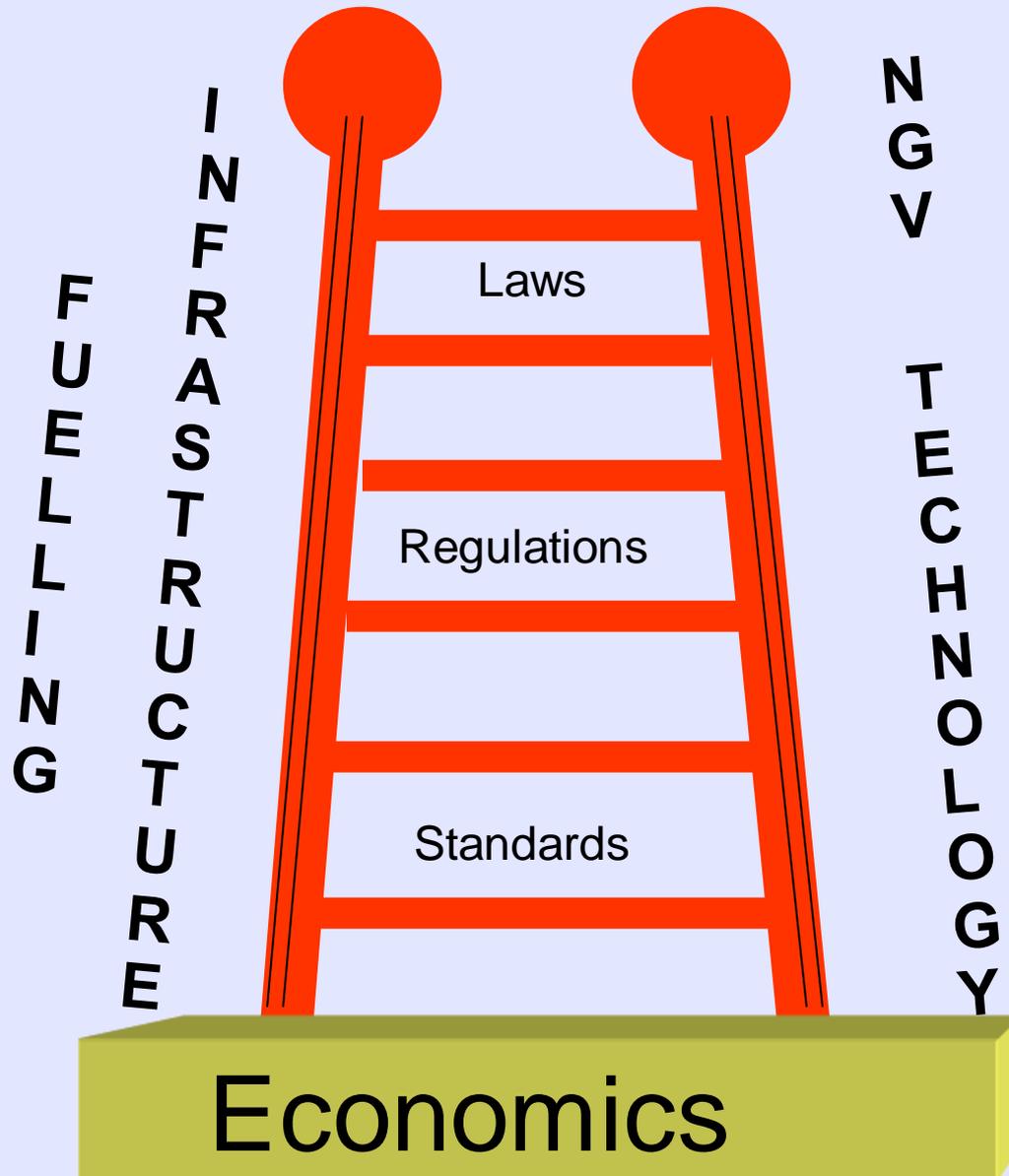
REGULATIONS

A foundation of the NGV Industry

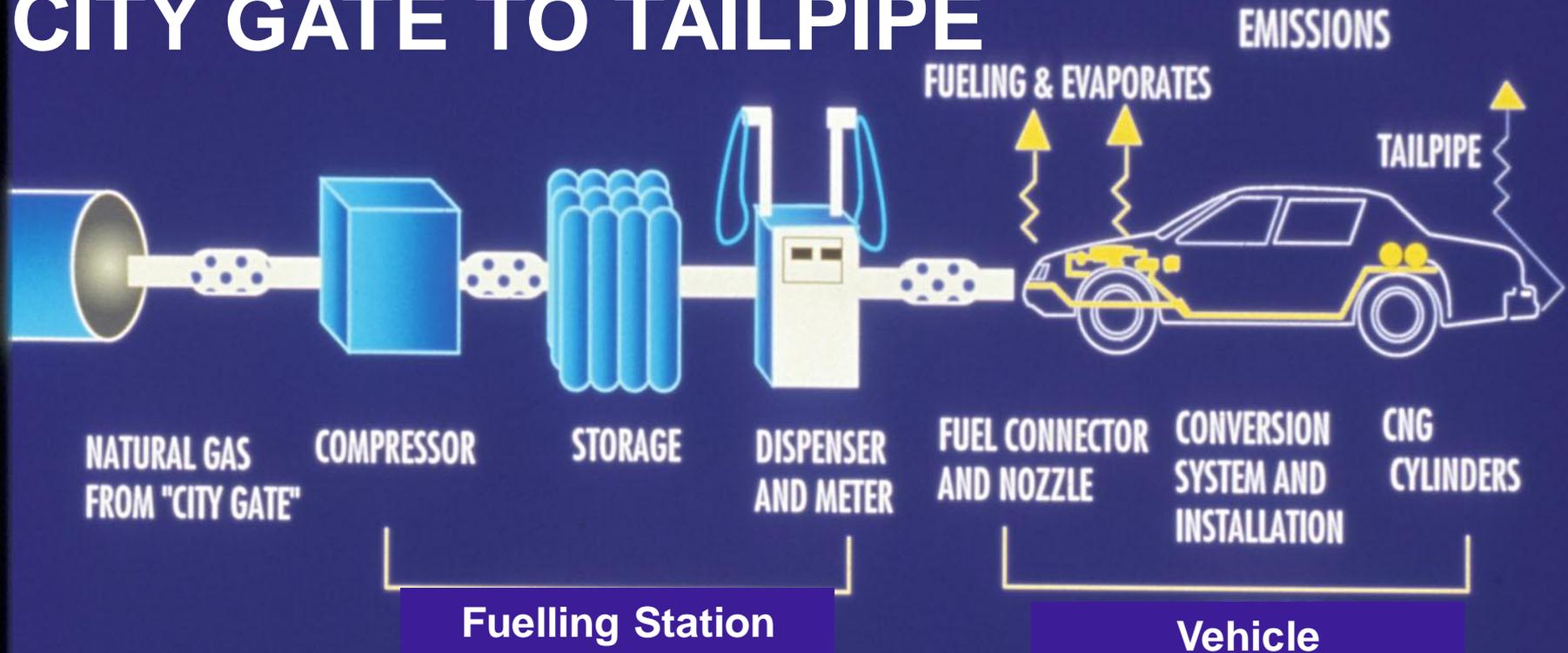
DEFINITIONS

- **STANDARDS**
 - Performance or prescriptive
 - Not ‘legal’ (i.e. not binding) but are intended to be *de facto* models for codes
- **CODES (also know as *regulations*)**
 - *De jure*/legal, with enforcement implications
 - Can adopt standards by reference or amendment

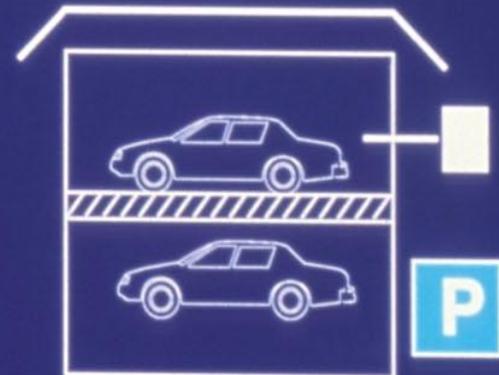
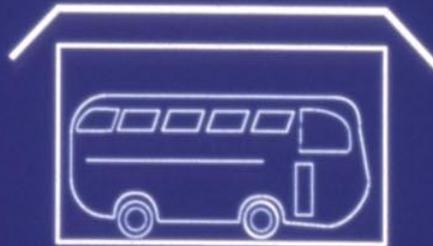
NATURAL GAS VEHICLE TECHNOLOGIES: BUILDING A LADDER TO CLEANER AIR



NGV STANDARD UNIVERSE FROM CITY GATE TO TAILPIPE



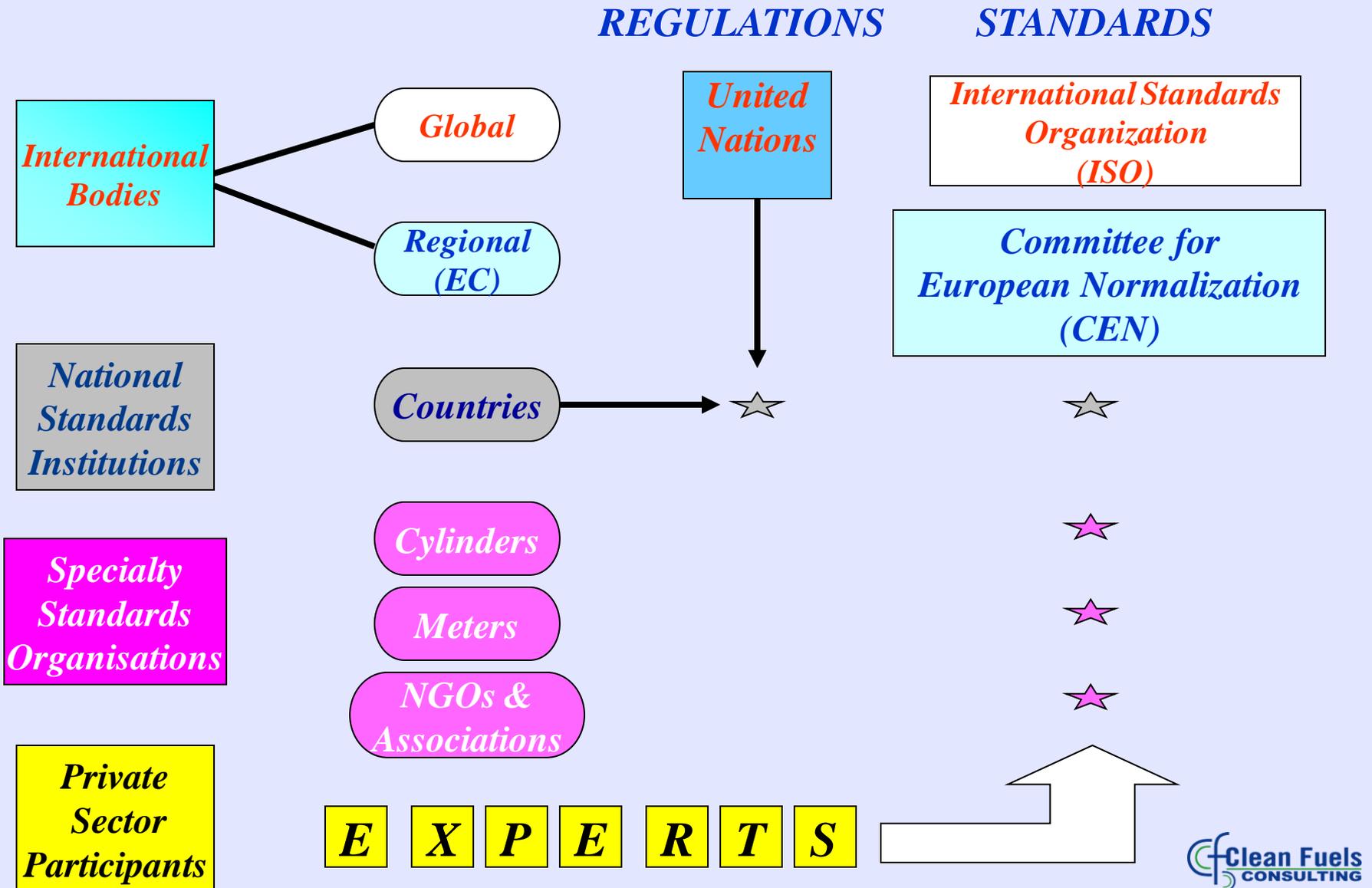
Gas Composition



THE GLOBAL STANDARDS FRAMEWORK (STRUCTURE)

**Politics + Technology
(POLI-TECHS)**

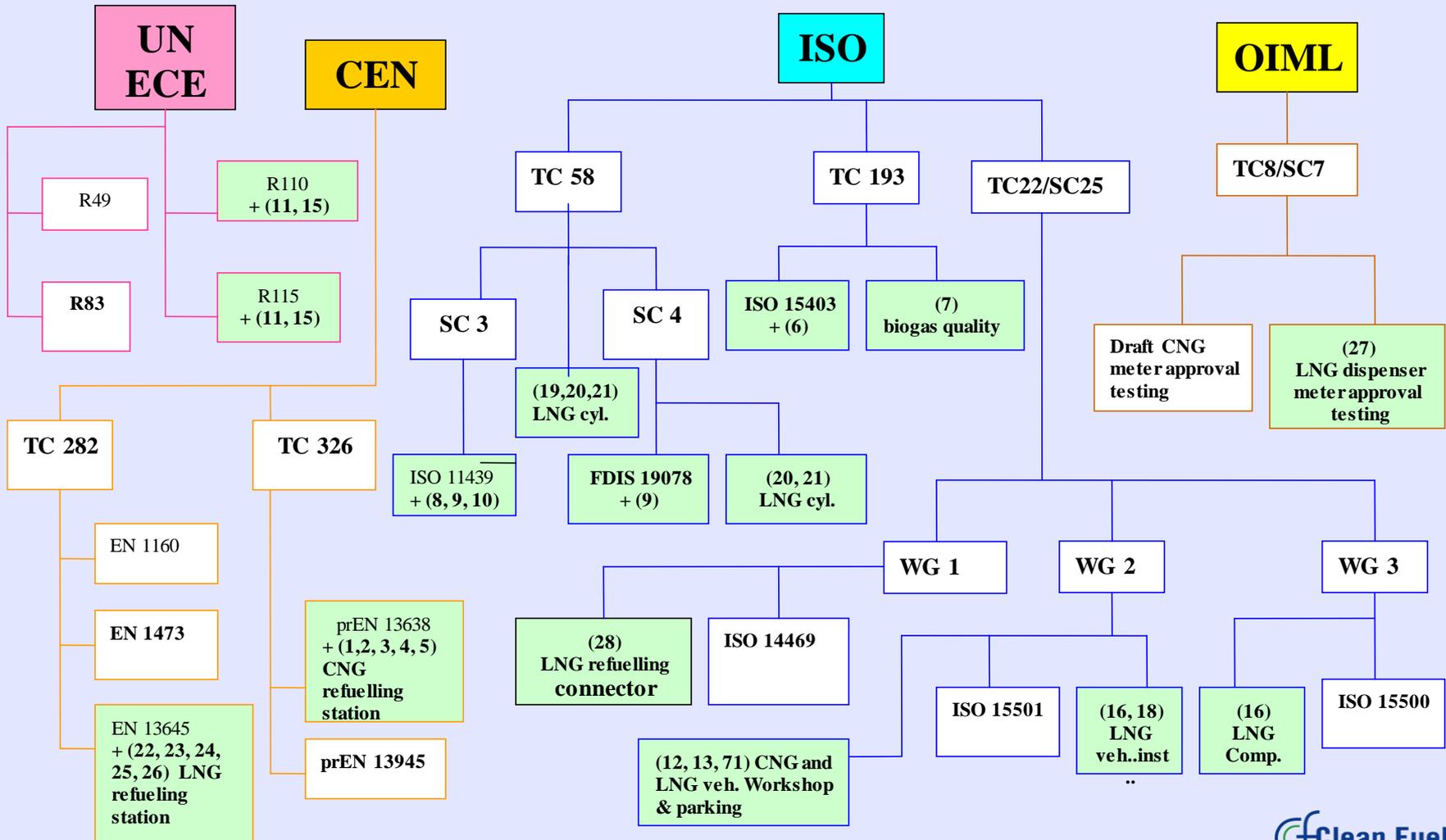
LEVELS OF STANDARDS & REGULATIONS (The Patchwork Quilt)



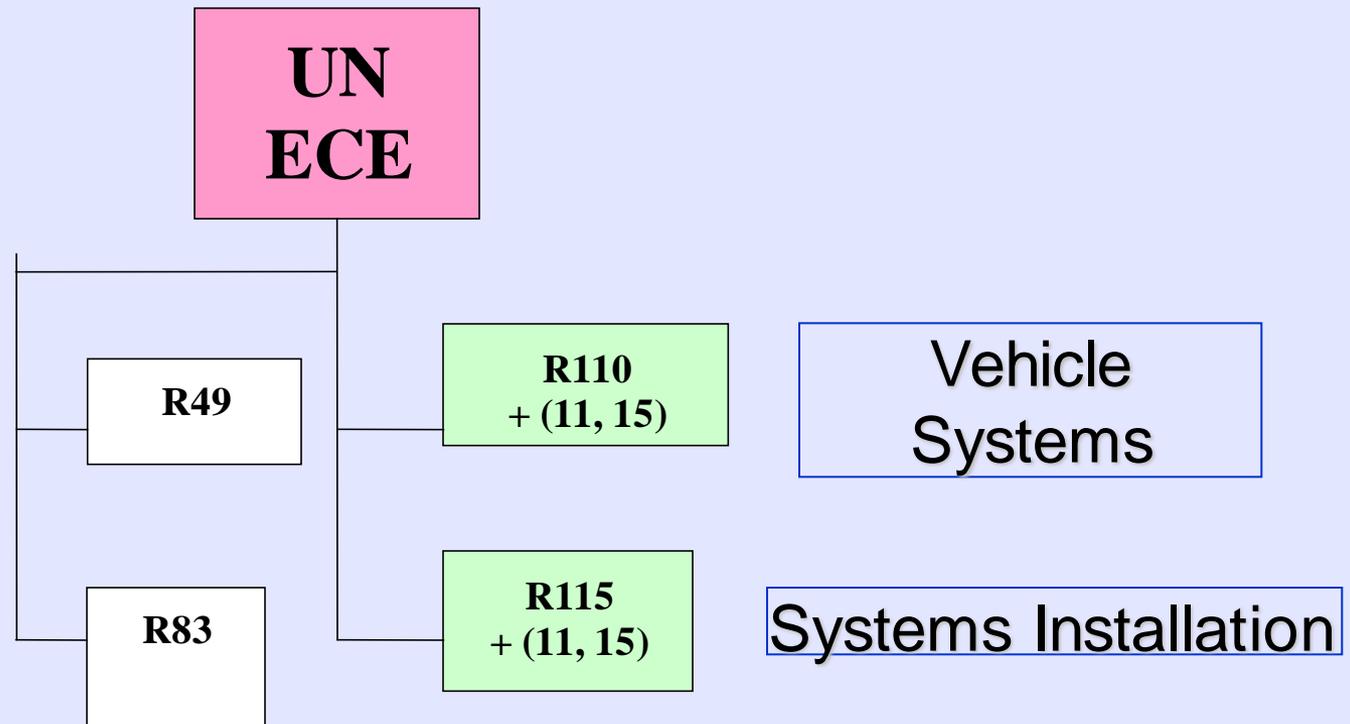
OVERVIEW

INTERNATIONAL NGV STANDARDS

(GREEN BOXES SHOW GAPS)



ISSUES IN THE ECONOMIC COMMISSION FOR EUROPE REGULATIONS

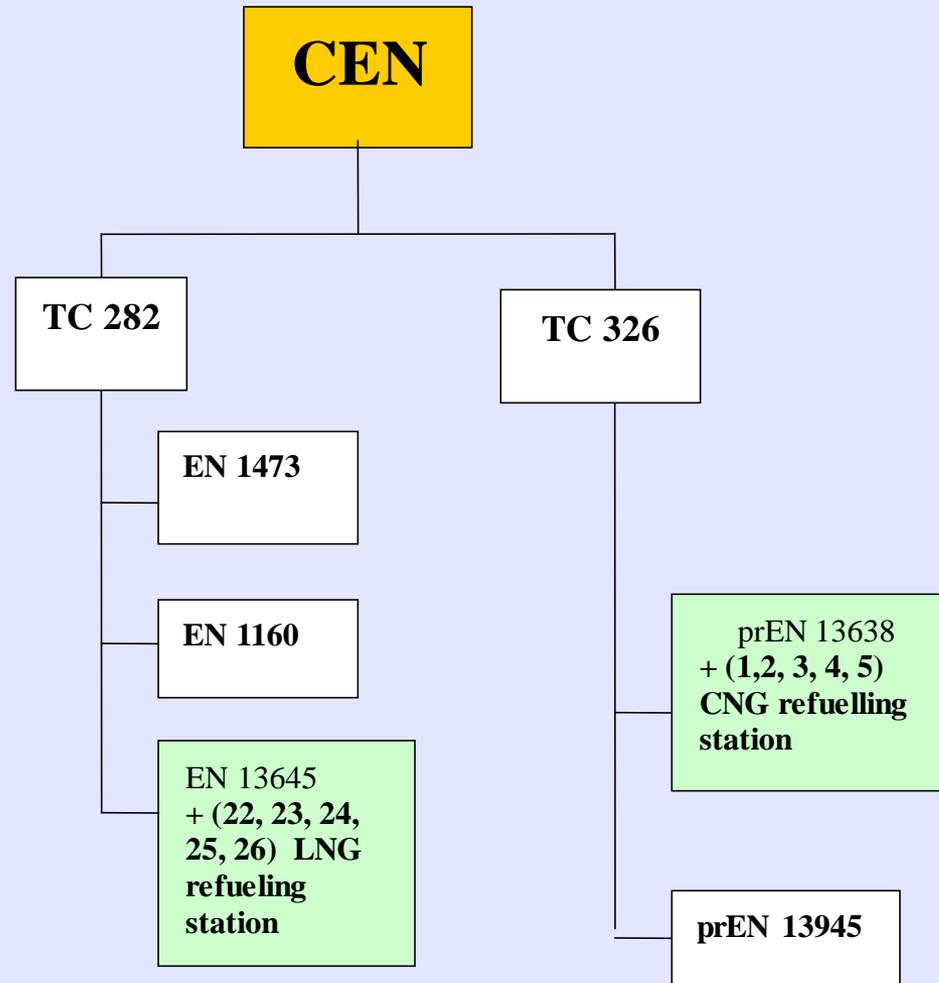


UNITED NATIONS REGULATIONS

Economic Commission for Europe

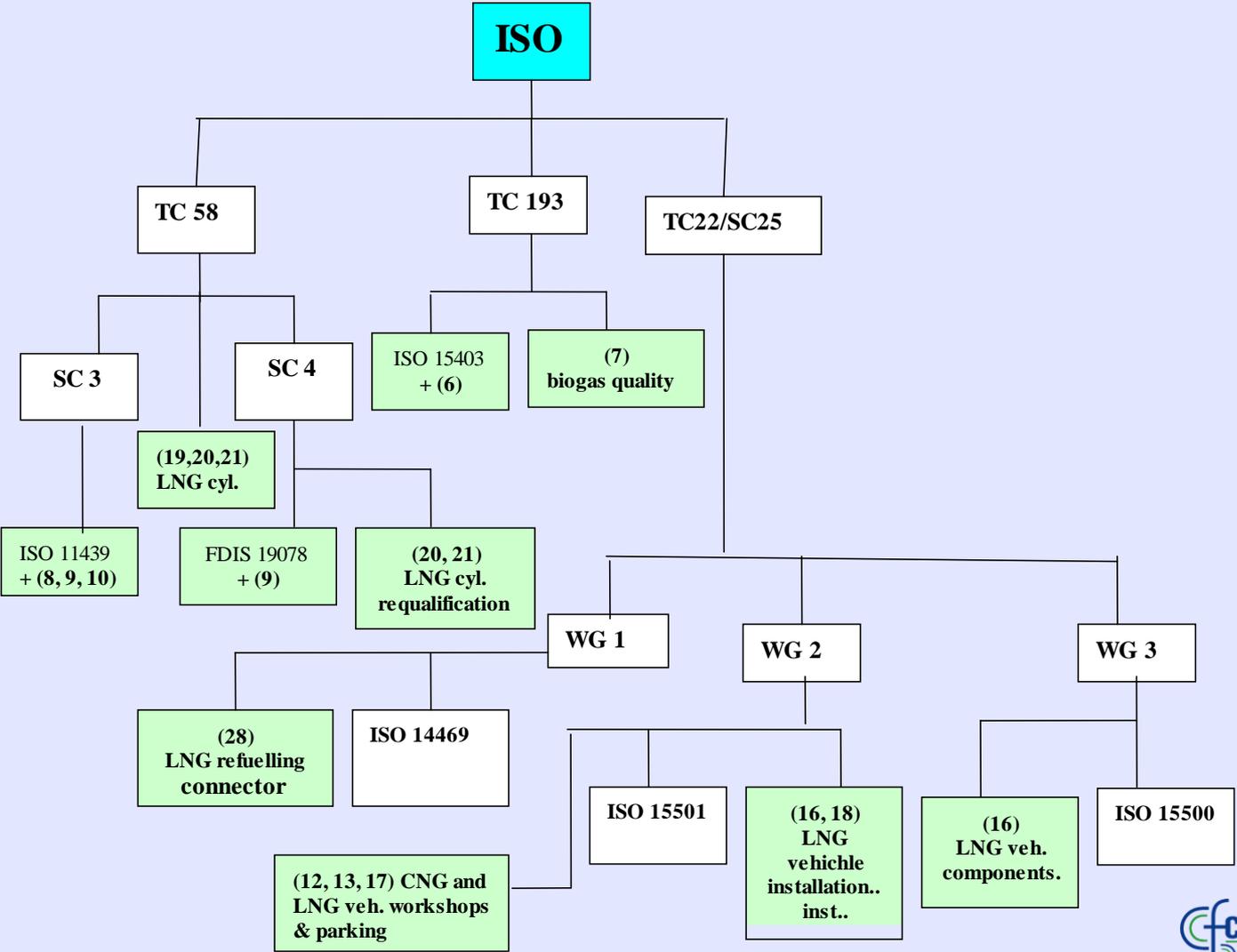
- **Regulation 110:** CNG vehicle certification protocol
- **Regulation 115:** Vehicle exhaust emission requirements, in terms of test protocol and limit values (as distinct from petrol & diesel) (Also can apply to Liquefied Natural Gas –LNG, which could be the same as CNG)

ISSUES IN THE EUROPEAN NGV STANDARDS



ISO STANDARDS FOR NGVS

(Green boxes show gaps)



RATIONALE FOR HARMONISATION

- Facilitates development of equipment (same stuff for different [all?] markets)
- Facilitates country certification
 - Vehicle certification/homologation
 - Equipment certification/patent protection(?)
- Speeds market entry
- Costs to ultimate consumer is less
- Promotes uniformity... *& safety*

THREE PRINCIPLE CONCERNS...AND TARGETS FOR THE WHOLE NGV INDUSTRY (vehicles & fuelling)

- SAFETY
- SAFETY
- SAFETY

THREE PRINCIPLE WAYS TO HELP ENSURE HIGHEST SAFETY LEVELS WHEN IMPLEMENTING & ENFORCING STANDARDS & REGULATIONS

- TRAINING
- TRAINING
- TRAINING



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