

Session: 1

Quality control of gas installations and Competence Assessment of gas operatives in Spain

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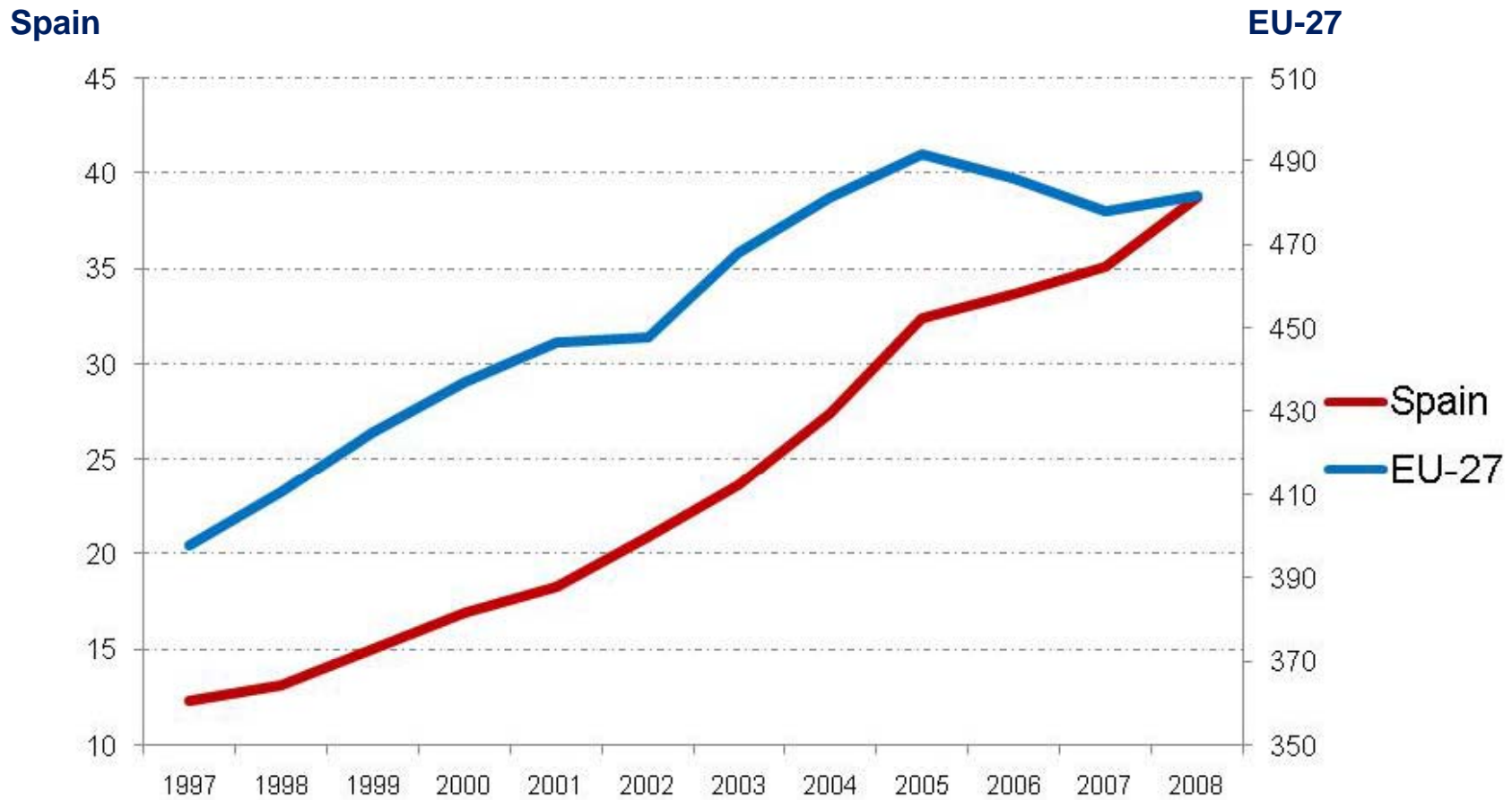
Summary

- 1. The Spanish Gas Industry. Figures**
- 2. Quality Control of Gas Installations in Spain**
 - Commissioning of Gas Installations
 - Commissioning, maintenance and Repair of Gas Appliances
 - Periodical inspection of Gas Installations
 - Emergency Service
- 3. Competence Assessment of Gas Operatives in Spain**
 - Assessment based on Regulatory requirements
 - Assessment based on Gas Industry Requirements



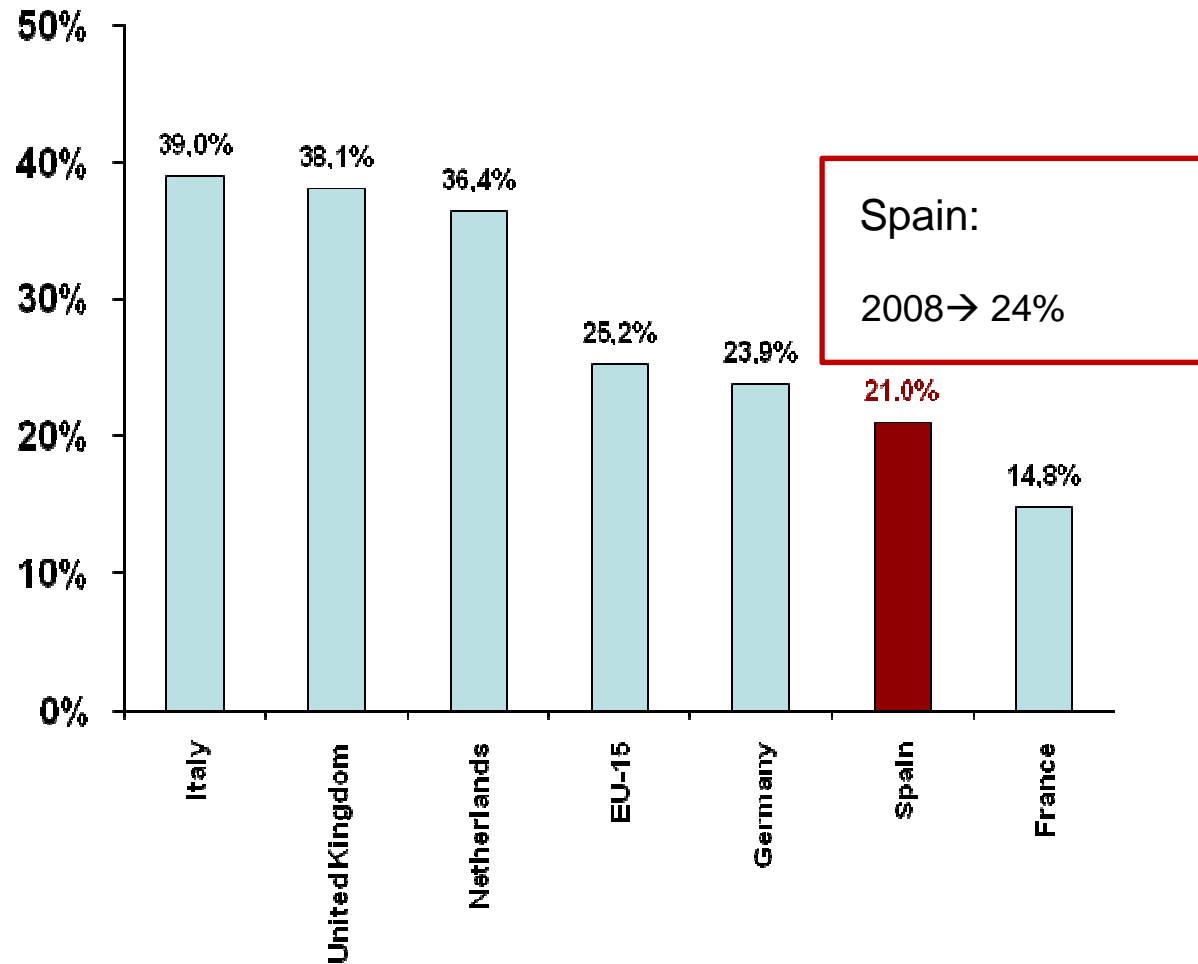
1. The Spanish Gas Industry. Figures

Natural Gas consumption in Spain (bcm/year)



Increasing participation in the energy mix

% of natural gas in the primary energy mix (2007)



Source: BP Statistical Review of World Energy June 2008

Other economic indicators

	1995	2000	2007	2008	Increase 2008/2007
Customers	2.775.611	4.203.168	6.782.579	6.923.215	2,1%
Network (km)	21.162	37.022	63.199	68.173	7,9%
Towns	544	948	1.325	1.409	6,3%
Employment	-	4.371	6.099	6.171	1,2%

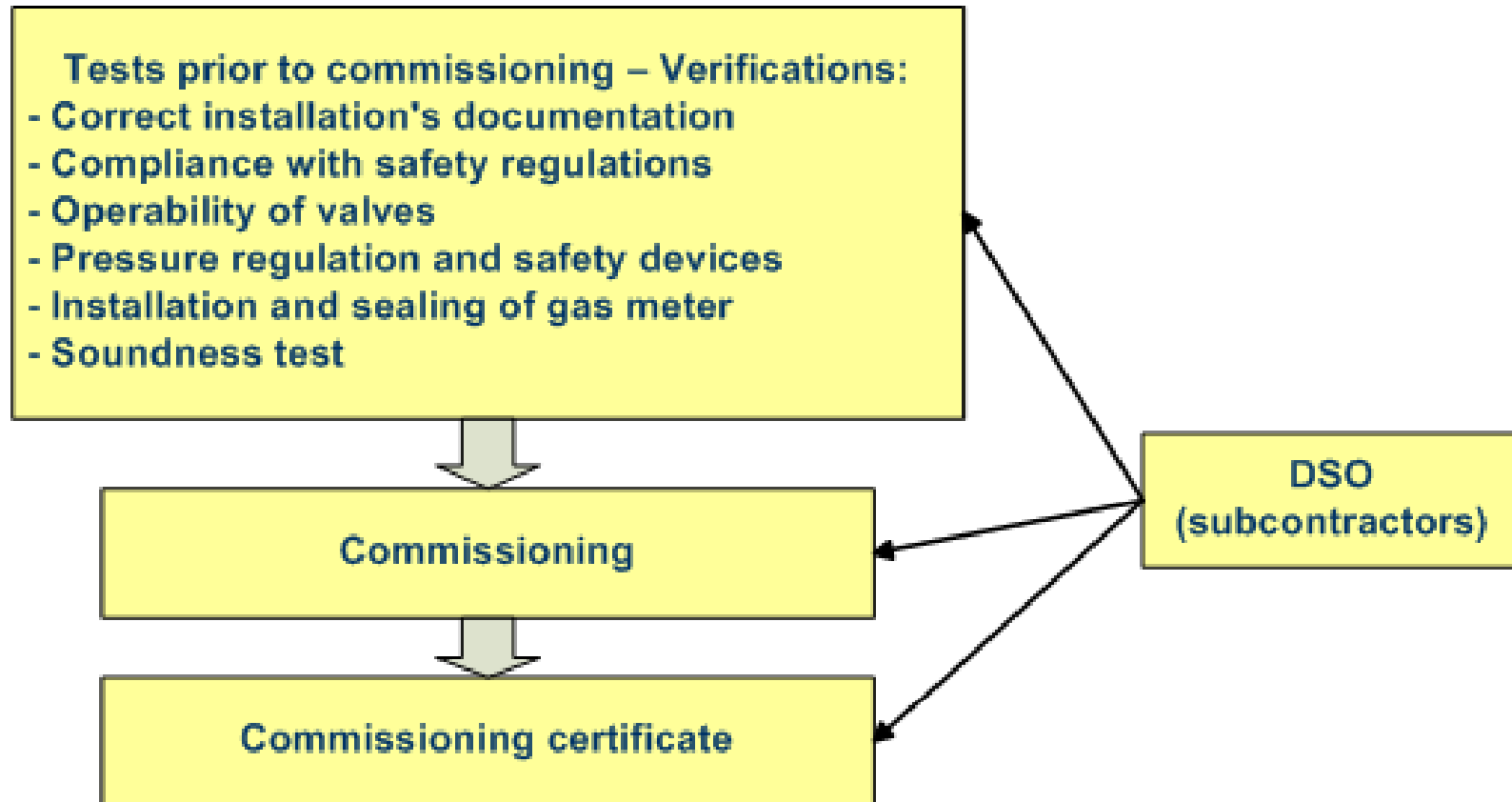
Source: Sedigas

- **Around 70% of the Spanish population lives in towns with natural gas infrastructure**
- **600.000 costumers of piped LPG**
- **10 million costumers of bottled LPG**

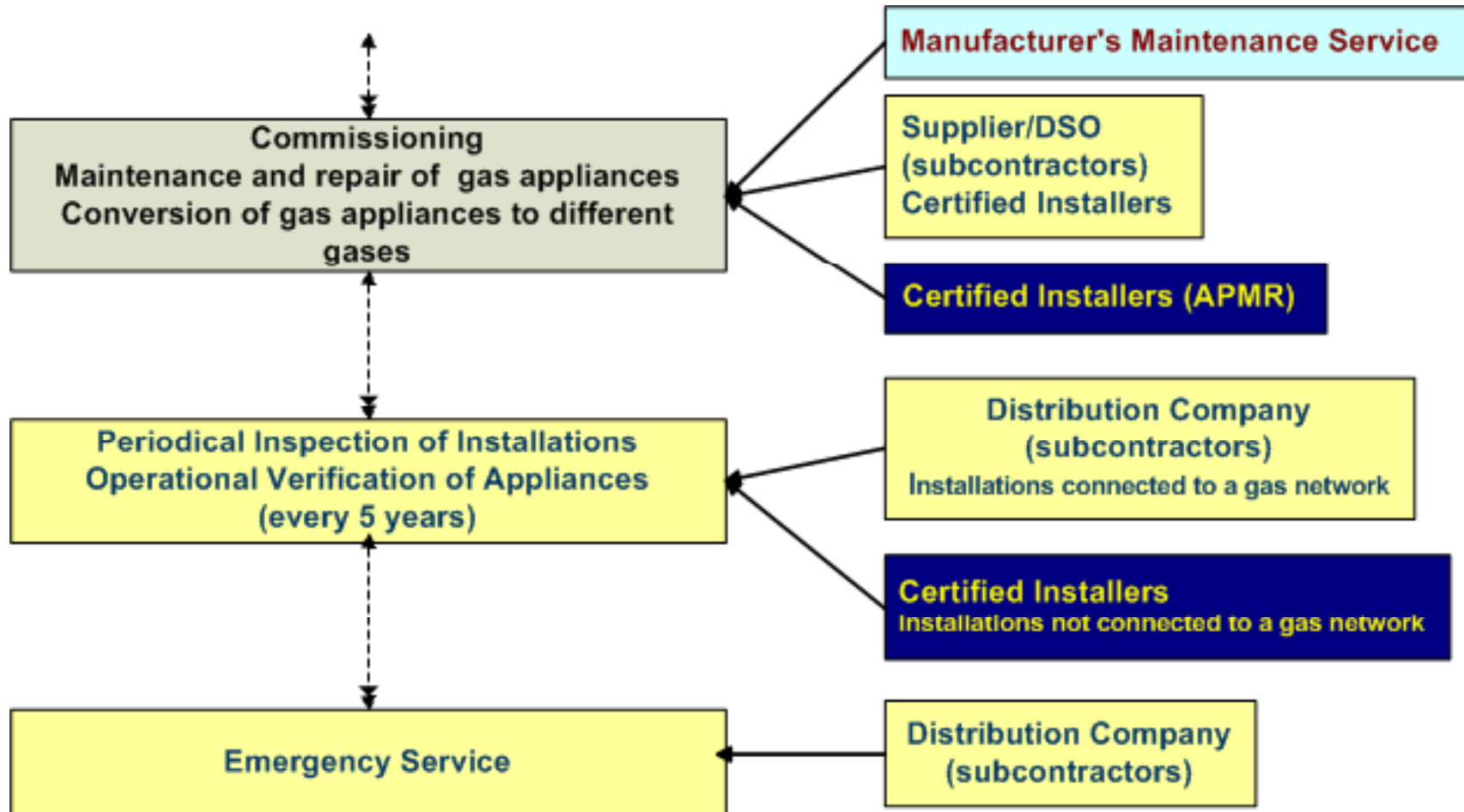


2. Quality control of Gas Installations in Spain

Gas Installation Commissioning



Gas Appliances Commissioning and Maintenance Installation Inspection & Emergency Service





Gas Installation Commissioning

- **DSO's own personnel or personnel subcontracted, certified by Sedigas**
- **Inspections 2008: about 240.000**
- **% of installations with defects: 7 %**
- **Quality Control applying statistical sampling per Subcontractor Company and Inspector**

Gas Appliances Commissioning, Maintenance and Repair

- **GA Commissioning includes verifications:**
 - Installation of the appliance (connection, ventilation conditions, exhaust)
 - Soundness of connection to gas installation
 - Combustion quality and ambient CO/CO₂ concentration
 - Draught (Type B appliances with natural draught)
- **Mandatory annual maintenance**
 - Correct evacuation of CP (annual)
 - Burner cleaning and soundness (annual)
 - General Service (annual for boilers – every 4 years for water heaters up to 24,4 kW)
 - Combustion quality and efficiency (every 2 years)
- **Personnel in charge of Commissioning and Maintenance (GA)**
 - Manufacturer's Maintenance Service
 - Installers with Type B Certificate + Certification EN-ISO 17024 specific for these tasks



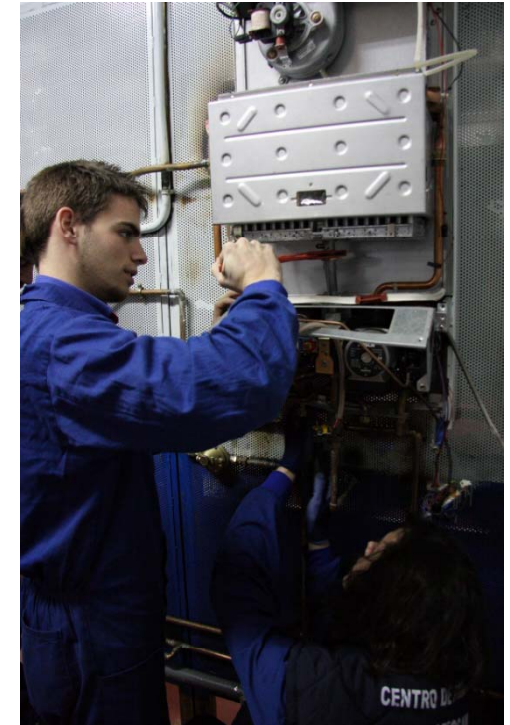
Periodical Inspection of Gas Installations

- **DSOs are responsible for this activity**
- **Installation Inspection mandatory every 5 years**
 - Installation including: ventilation, exhaust and connection of gas appliances
 - Verification of installation soundness
 - Combustion quality and ambient CO/CO₂ concentration
- **Defect classification**
 - **Main defects: Gas leaks, incorrect appliances installation, incorrect combustion**
 - Total or partial gas supply shutoff. Notification to supplier
 - Corrective Maintenance by Gas Installer. Notification to DSO
 - **Secondary defects: Scheduled repair**
- **Subcontracted personnel, certified by Sedigas. Quality Control applying statistical sampling**
- **Inspections 2008: about 1.900.000 (NG and piped LPG)**

Emergency Service

- **DSOs are responsible for this activity**
- **In addition to the Emergency Service dedicated to network incidents, an Emergency Service is also mandatory for incidents at customer's installation: Gas leaks, Fires and Explosions.**
- **Written proceedings classifying situations and procedures**
- **DSO's own personnel or Subcontracted personnel, certified by Sedigas. Quality Control applying statistical sampling**

3. Competence Assessment of Gas Operatives in Spain



Assessment based on Regulatory Requirements

Category	Scope	Certification
Type A Gas Installer	<ul style="list-style-type: none"> • All types of NG installations • LPG installations & Storage • Installation - connection GA • NG and LPG network 	<ul style="list-style-type: none"> • Local government – Examination • EN-ISO 17024 Certification
Type B Gas Installer	<ul style="list-style-type: none"> • Installations MOP \leq 5 bar • No LPG network & Storage • Installation - connection GA 	<ul style="list-style-type: none"> • Local government – Examination • EN-ISO 17024 Certification
Type C Gas Installer	<ul style="list-style-type: none"> • Installations MOP \leq 0,4 bar • No LPG network & Storage • Installation - connection GA 	<ul style="list-style-type: none"> • Local government – Examination • EN-ISO 17024 Certification
APMR (appliances) Requested GI registration	<ul style="list-style-type: none"> • Commissioning, maintenance and repair 	<ul style="list-style-type: none"> • Technical Service Manufacturer • EN-ISO 17024 Certification (P>24,4 kW)
APMR D (appliances) Requested GI type A/B registration	<ul style="list-style-type: none"> • Commissioning, maintenance and repair • Conversion to other gases 	<ul style="list-style-type: none"> • Technical Service Manufacturer • EN-ISO 17024 Certification (P>24,4 kW)



Conaif – Sedigas Certificación SL

- **Cooperation Sedigas (Spanish Gas Association) – Conaif (Spanish Confederation of Installers) since 1995**
 - Standardization
 - Certification of products
 - Safety information campaigns together with local governments
- **The new company was created in 2007 to certificate according to EN-ISO 17024:**
 - Gas Installers Type A, B and C
 - Gas Installers dedicated to Commissioning, Maintenance and Repair of Gas Appliances and conversion of gas appliances to different gases
 - New activities in the future (quality control gas installations?)

Assessment Programme (EN-ISO 17024)

Conaif-Sedigas Certificación SL

Category	Evaluation (Theoretical & Practical Tests)	Reassessment
Type A, B and C Gas Installers	<ul style="list-style-type: none"> • Regulatory knowledge • Calculation of installations • Pressure regulation/Safety devices • Pressure Testing (Soundness) • Mechanical coupling & welding (materials allowed) • Gas appliances (connection, installation, testing) 	<ul style="list-style-type: none"> • Periodical control of activity • Reassessment every 5 years • Quality control
APMR (appliances)	<ul style="list-style-type: none"> • Applicable regulation • Gas Appliances (Regulation and Safety) • Analysis of appliance operation / Testing • Defect detection • Preventive and corrective maintenance 	<ul style="list-style-type: none"> • Periodical control of activity • Reassessment every 5 years • Quality control
APMR D (appliances)	<ul style="list-style-type: none"> • Applicable regulation • Gas Appliances (Regulation and Safety) • Analysis of appliance operation / Testing • Defect detection • Preventive and corrective maintenance • Conversion of gas appliances to other gases 	<ul style="list-style-type: none"> • Periodical control of activity • Reassessment every 5 years • Quality control

Assessment based on Gas Industry Requirements

Category	Scope	Certification
Installation Commissioning	<ul style="list-style-type: none"> • Commissioning of gas installations (including verifications prior to commissioning) 	<ul style="list-style-type: none"> • DSO certification – Sedigas → EN-ISO 17024 Certification
Periodical inspection of gas installations	<ul style="list-style-type: none"> • Periodical inspection 	<ul style="list-style-type: none"> • DSO certification – Sedigas → EN-ISO 17024 Certification
Emergency Service	<ul style="list-style-type: none"> • Safety in the event of an incident 	<ul style="list-style-type: none"> • DSO certification – Sedigas → EN-ISO 17024 Certification
Quality Control	<ul style="list-style-type: none"> • Quality control of Commissioning, Inspection and Emergency services activities 	<ul style="list-style-type: none"> • DSO certification – Sedigas → EN-ISO 17024 Certification
PE Welders	<ul style="list-style-type: none"> • Installation and welding of PE pipes 	<ul style="list-style-type: none"> • DSO certification – Sedigas - notified EN-ISO 17024 Certification

Assessment Programme

Sedigas → (EN-ISO 17024)

Category	Evaluation (Theoretical & Practical Tests)	Reassessment
PE Welders Certified according EN-ISO 17024	<ul style="list-style-type: none"> • Applicable Safety regulations • Handling and connection techniques of PE pipes (butt fusion, electrofusion, mechanical connections) • Squeeze off • Pressure Testing • Safety 	<ul style="list-style-type: none"> • Control of activity (2 years) • Reassessment (4 years) • DC Quality control
Commissioning Periodical Inspection → (EN-ISO 17024)	<ul style="list-style-type: none"> • Applicable safety regulation • Gas Appliances & Analysis of appliance operation / Testing • Verification of Soundness • Detection of defects (installations) – Classification (PI) • Relation with customers 	<ul style="list-style-type: none"> • Reassessment (3 years) • DC Quality control
Emergency Service	<ul style="list-style-type: none"> • Applicable Safety Regulation • Gas Appliances & Analysis of appliance operation / Testing • Making-safe of installations in case of incident • Supply re-establishment 	<ul style="list-style-type: none"> • Reassessment (3 years) • DC Quality control
Quality control	<ul style="list-style-type: none"> • Same content as the controlled operations (Commissioning, Inspection and Emergency Service) 	<ul style="list-style-type: none"> • Reassessment (3 years) • DC Quality control ²⁰



Thank you for your attention