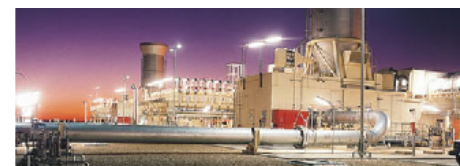


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TECHNICAL ASSOCIATION
OF THE EUROPEAN NATURAL GAS INDUSTRY



Harmonization of gas quality What's possible?

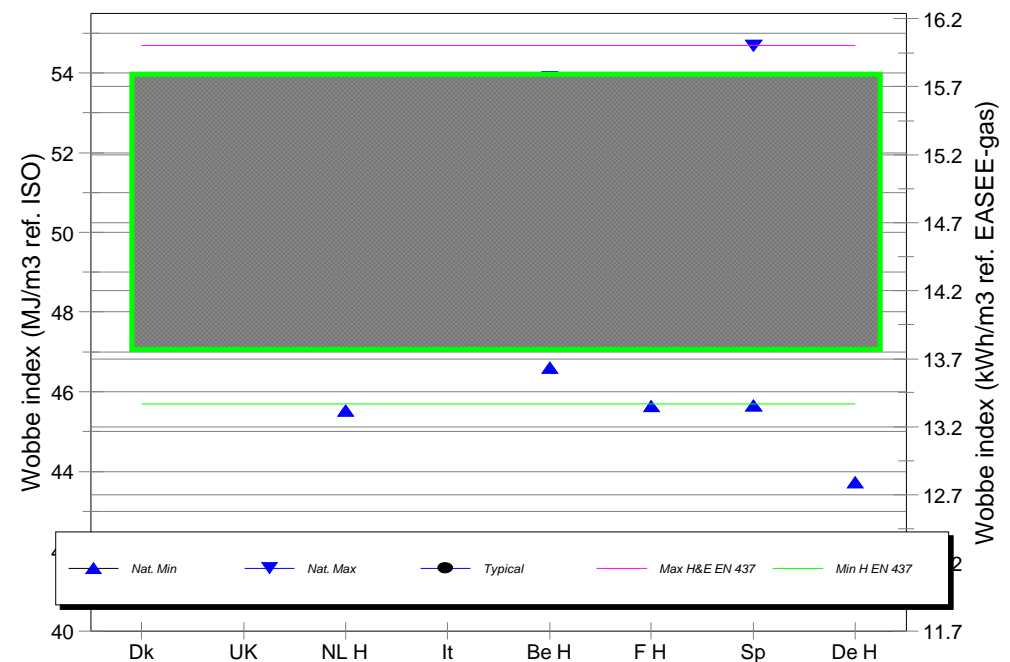
Gas quality Workshop Dec. 5, 2011

Daniel Hec

Brief history of the project

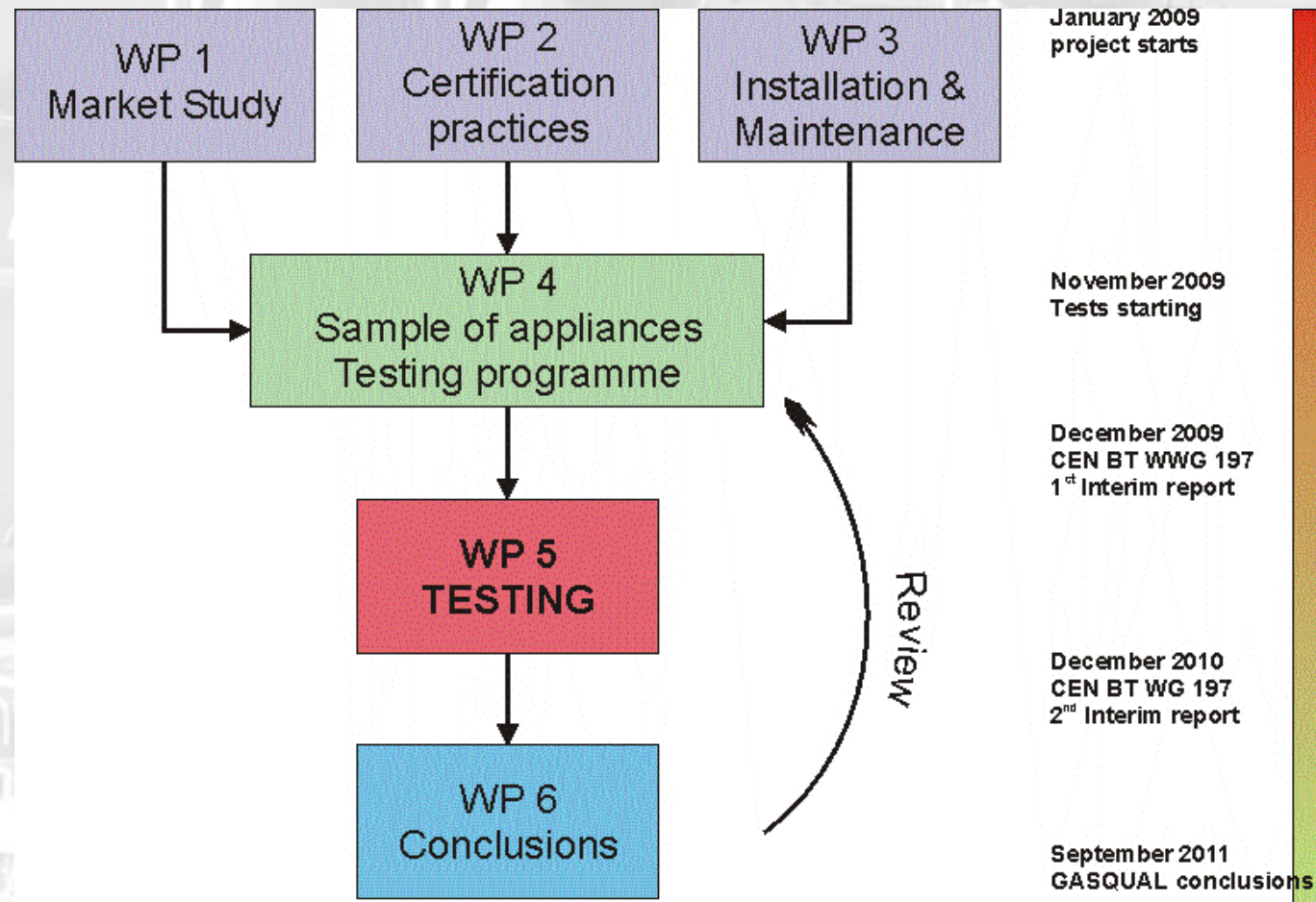
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- 1999-2002: EC & Madrid Forum identifies interoperability issues including
 - Gas quality specification
 - Odourisation practices
- 2005: EASEE-gas approves CBP Gas quality
 - Pipeline parameters defined, implementation date Oct 2006
 - Combustion parameters proposal by MARCOGAZ, implementation date Oct. 2010



Mandate M 400 Phase 1: CEN BT WG 197 & GASQUAL

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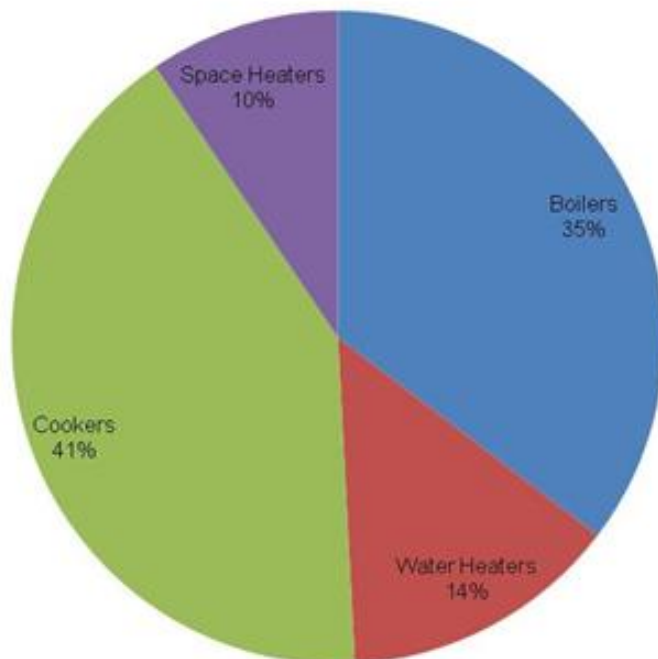
- Work programme one year late
- CEN BT WG 197 Final report issued Dec. 2011

Mandate M 400 Phase 1: Main learning, WP 1, 2 & 3

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- Domestic appliances in 16 EU countries under study (Data 2007)

Domestic appliances in EU: 167 millions

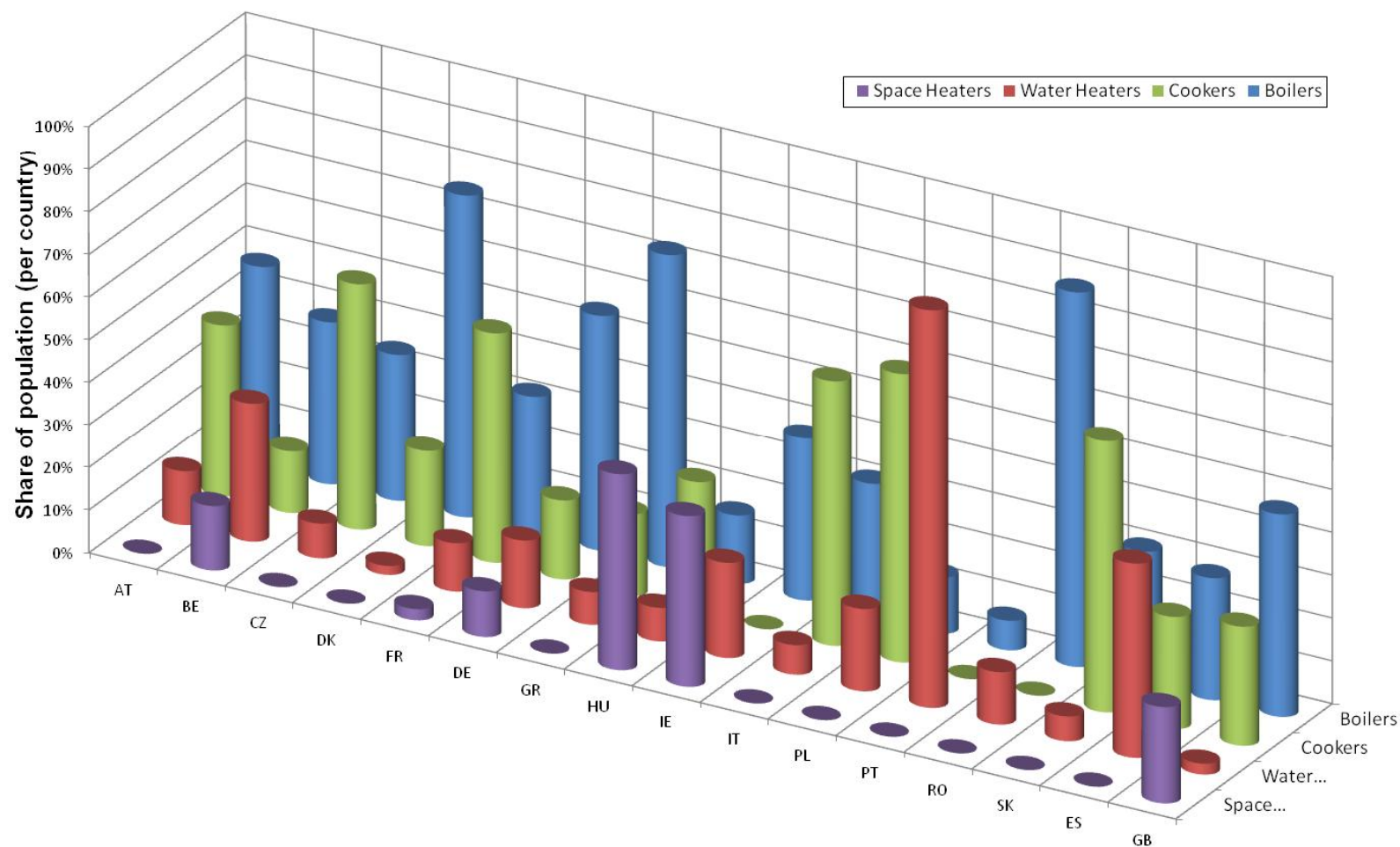


- About 10-20 millions non domestic
 - ➡ Decentralised heaters
 - ➡ Catering equipment
 - ➡ Boilers and others
- Certification practices homogeneous
- Main issue: On site "adjustment"
 - ➡ Burner pressure adjustment
 - ➡ Air:gas ratio adjustment
- Testing programme has to assess effect of "adjustment"

Mandate M 400 Phase 1:

The population of appliances per Country

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Mandate M 400 Phase 1: Choice of appliances sample



- First a segmentation
 - Defined by product standard, technology, etc.
 - 29 segments defined
- Risk assessment per segment combining
 - Theoretical evaluation of the technology sensitivity
 - Number of appliances in the segment
 - Potential issue of onsite adjustment
- Choice of appliances for testing
 - Number related to risk
 - Seg. 1 (condensing boilers fully premix) : 10 appliances tested
 - Seg. 2 to 20: decreasing number of appliance tested (8 to 2)
 - Seg. 21 to 29 : 1 appliance tested per segment
 - Mostly new appliances tested
 - Ageing and maintenance too "history" specific
 - Used appliances from the field if need of obsolete technology no longer used in new products

Mandate M 400 Phase 1: Current status of study



- Final report of CEN/BT WG 197 close to completion
 - Final document discussed during last meeting 30th November 2011
 - Schedule for sending to CEN/CMC 14th December 2011 à EC before end 2011
- Issue of adjustment confirmed
 - About 10 million appliances potentially concerned
 - To be studied at national level
- Non adjustable appliances quite robust to gas quality variations in a wide range
 - 100 million not affected
 - Others affected at different degrees
 - Impact related to other influence parameter (pressure, etc).
 - Country by Country analysis of results is necessary
- Non domestic appliances
 - Manufacturers reluctant to allow wide range: more work needed for common understanding

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Nominal Ws: IH1			G1			F-MFG			EGE1			DMD4			C1		B1			
S	45		46		47		48		49		50		51		52		53		54	
1	Adjusted		Operational				(and CO ₂ , but on a narrower range)													
1	Not adjusted																			
2																				
3	group1																			
4															CO					
5																				
6															CO					
7															CO					
8	group1																			
9	With P variat														CO					
9	Without P variat																			
10																				
11			Strong increase of CO concentration down-draught with Wobbe (for C1, B1, A1)														?	CO & safe		
12			NO appliances found																	
13																				
14																				
15															CO					
16																				
17															Said for long term					
18																				
19															CO					
20															CO					
21																				
22																				
23																				
24																				
25																				
26																				
27																				
28																				
29																				

– Prerequisites arising from mandate M 400

- A standard for natural gas H shall be developed. Natural gas L or any other combustible gases are not addressed.
- Base for development of the standard are:
 - Results of phase 1
 - the EASEE-Gas CBP, (2005/01/002)
 - The cost benefit analysis
- Mandate refers to technical rules for all gas infrastructures and is not limited to cross border points

– Three step approach to a CEN standard for natural gas H

- What should actually be included?
- Possible specifications for minor components
- Integration of results from phase 1 and CBA

Mandate M 400 Phase 2: CEN/TC 234 Timeline



–Time schedule and Work packages

- 03/2012: first draft not relying on phase 1 (Non combustion parameters)
- 09/2012: second draft introducing phase 1 results, if assessment by EC and MS finished
- Q 1, 2013 public enquiry, consultation of all stakeholders
- Q 4, 2013 formal CEN vote open to all stakeholders
- Q 2, 2014 publication of EN standard

–Next meeting, CEN TC 234, WG 11, 2011/12/15, Brussels

Possible outcome from Mandate M 400 Phase 1

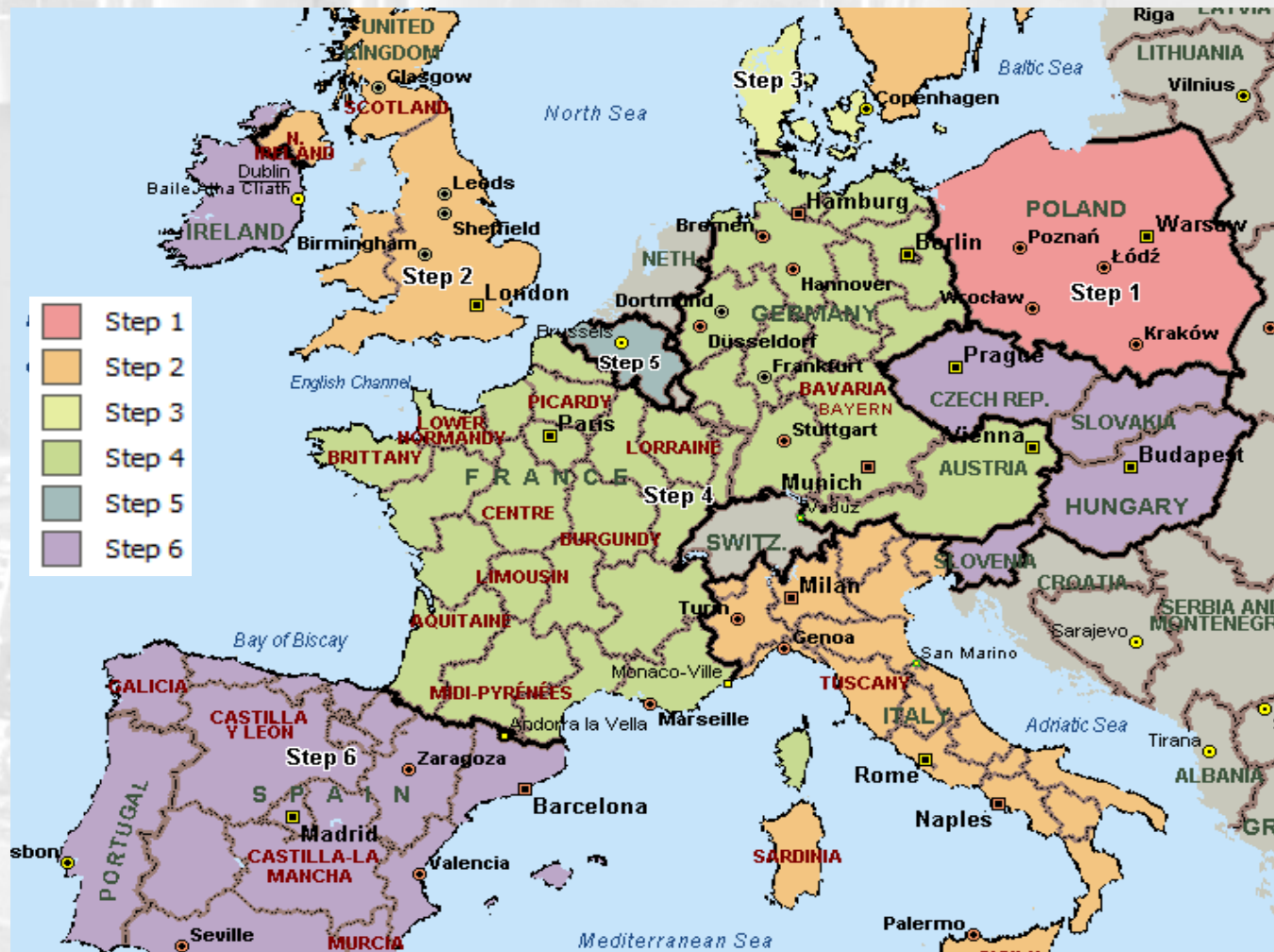


- CEN BT WG 197 identifies a multiple steps approach
 - All countries are not on the same starting point
 - Need to define a EU wide target
 - Each Member State to evaluate starting point + way toward target
- Position of each country on steps to be studied
 - Adjustable appliances to be addressed
 - Step limits (MJ/m³)
 - 1: 46 - 51
 - 2: 46 - 52
 - 3: 46 - 53
 - 4: 46 - 53.5
 - 5: 46 - 54
 - 6: 45.7 - 54.7 (H range)

Current situation arising from national declaration

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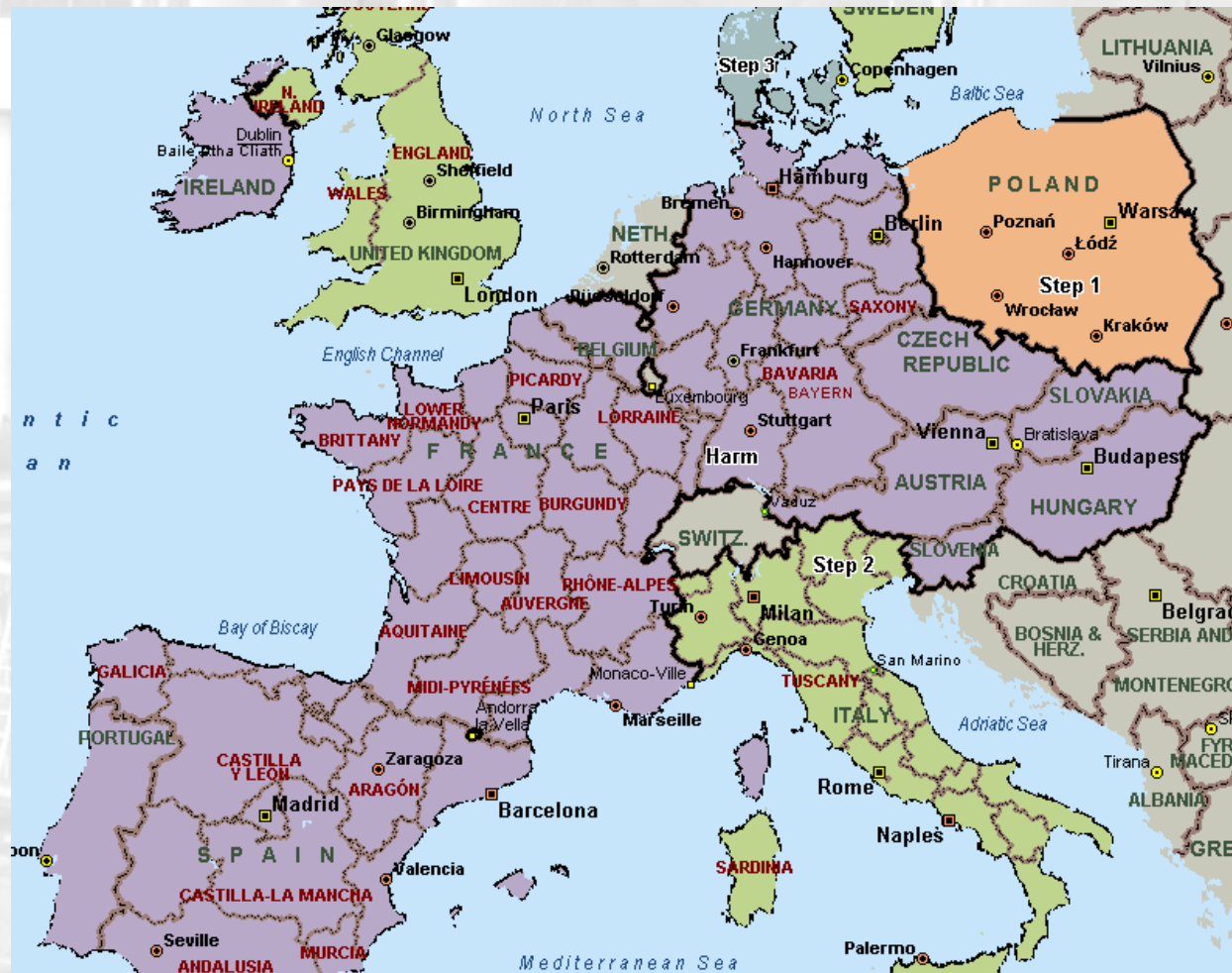
- Map based on Doc CEN BT WG 197 027 Data OJEU (2004.12.01) National declaration according to GAD. Validated by CEN BT WG 197 members



Potential for first level of regional harmonisation

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- Differences between steps 4-5-6 seems small enough to envisage common specification at medium term



- Gas crossing a border goes everywhere
 - A specification at border point shall be acceptable downstream or gas treated
- Benefits of a common specification
 - Improves the interoperability and security of supply
 - Manufacturers can develop gas using products adapted to a unique specification for the whole EU market
 - New energy efficient gas appliances (micro cogeneration, gas heat pumps, etc.) will have lower development costs
 - Unique range of gas quality specification will facilitate the introduction of renewable gases (biomethane)

End of presentation

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Thank you for your attention!

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