



POLITECNICO
MILANO 1863

DIPARTIMENTO
DI ENERGIA

IEA HPT TCP ANNEX 51

Task1: EU regulations

25.03.2026 | ROBERTO FUMAGALLI

What has been done until 2020

collection and analysis of:

- Standards used in the EU (ISO, EN, BS, DIN...)
- European regulations (ErP)
- National (and regional) laws/regulations that govern the noise issue, in general and with particular focus on heat pumps with electric compressors for the main EU countries
- Summary and comparisons between different regulatory approaches (zoning of the national territory / maximum allowed indoor limits)

Participants:

AT, DE, DK, FR,
IT, SE

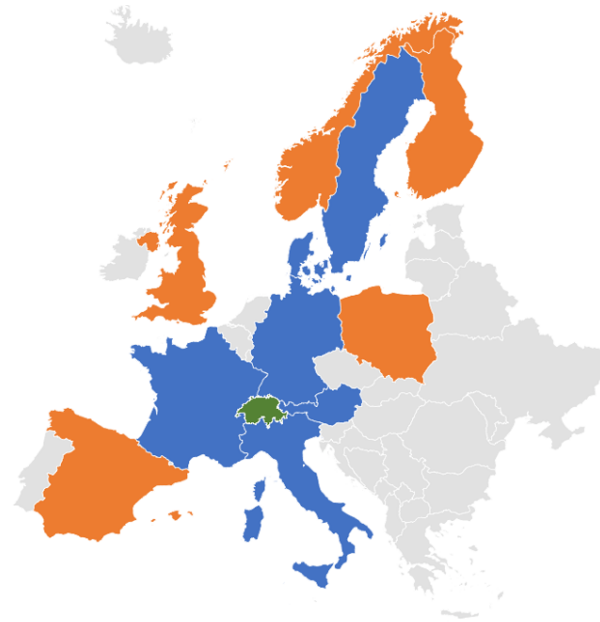
Other EU

Covered Nations:

ES, FI, NO, PL,
UK

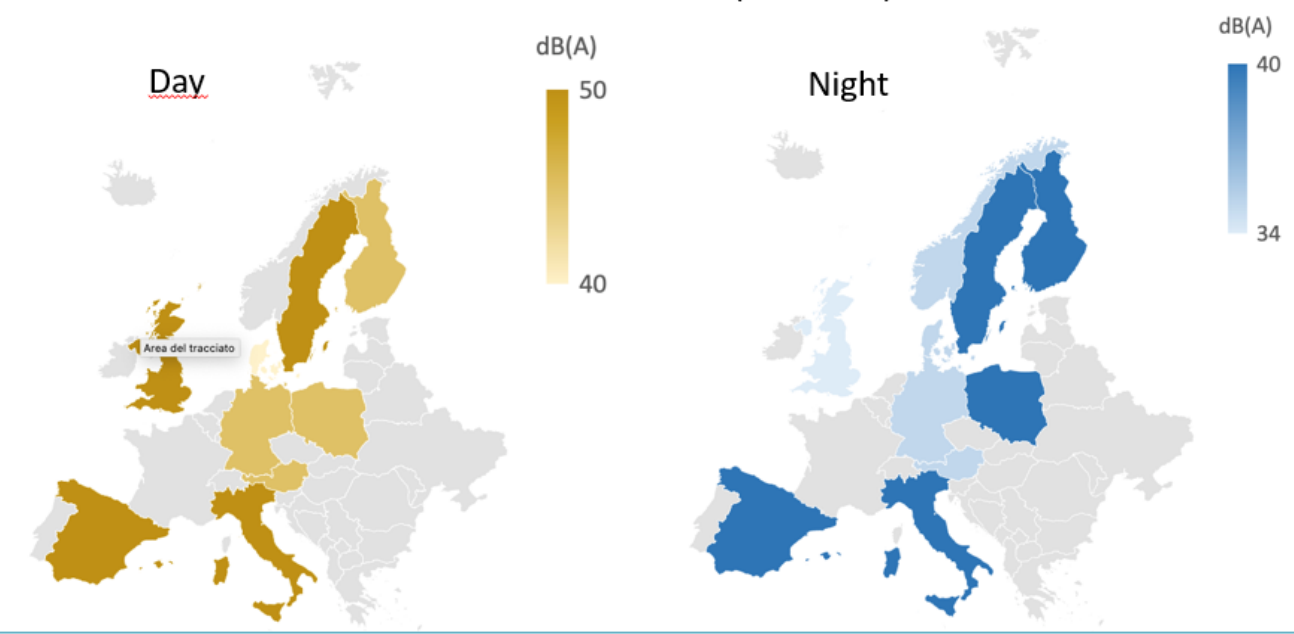
Some data on Extra

EU: CH, KO, JP,
CN



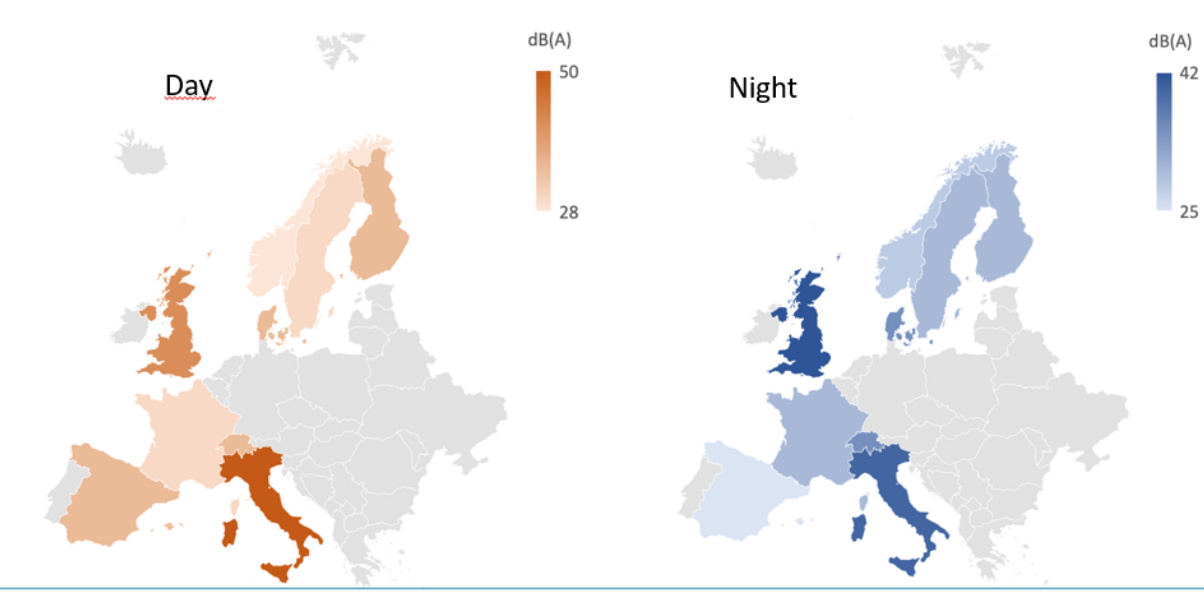
Examples of output

- **Noise Limits approach by area and D/N or D/E/N**
MIN LEVEL LIMITS (outdoor)



- some examples of national peculiarities:
- French indoor limits
 - Swiss procedure for detecting the presence of tonal components
 - Italian approach with differential criterion

- **Limits of Max indoor noise**



TOPIC	EU Country											Other Country			
	FR	UK	AT	IT	ES	DE	PL	DK	SE	FI	NO	CH	KO	JP	CN
Max limit (day)		60	65	70	65	70	55	55	50	55				70/55	70/60
Max limit (night)		50	55	70	55	70	45	40	40	50	35				
Minimum limit (day)		50	45	50	50	45	45	40	50	45				45/40	50/40
Minimum limit (night)		34	35	40	40	35	40	35	40	40	35				
Absolute criterion for max noise low frequency									31,5-200 Hz						
Different Regional or municipal limits	No	No	No	No	Yes	No								Yes	Yes
Different limit for Saturday and/or Sunday	No	Yes		-	-			Yes							
Differential criterion on background noise Day/Night	5/3 dB			5/3 dB					10/5 dB						

News from 2020 to today

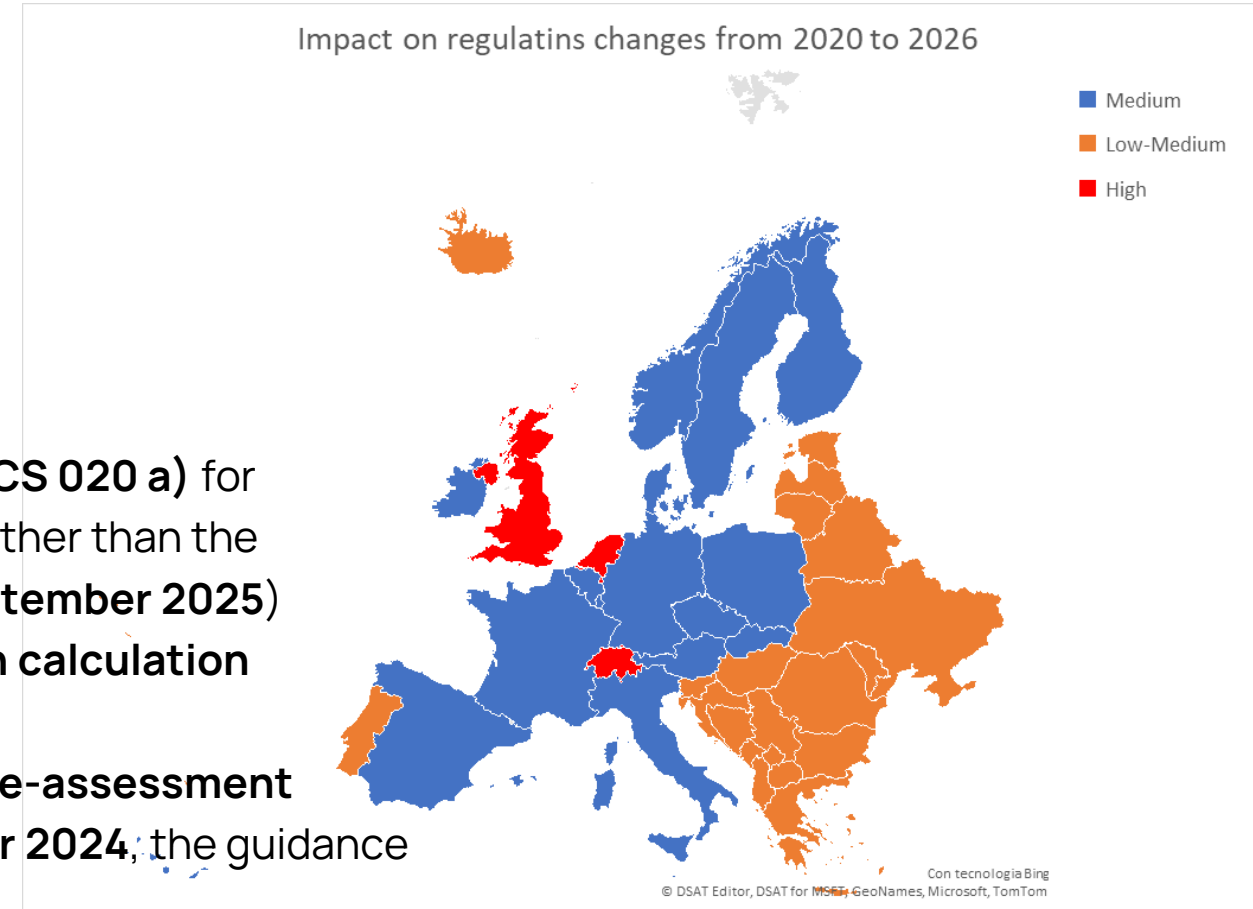
Changing in ErP Regulations (in progress)

- **Shift in regulatory philosophy**
 - From **technical measurement focus (2013–2014)**
 - To **consumer-oriented, market-driven information (2025)**
- **Noise becomes a visible label parameter / New acoustic classification system**
 - Introduction of **acoustic emission classes (A–G)** alongside energy classes
- **Revised noise measurement approach**
 - Test conditions updated to better reflect **real-life operation**
- **Continued compliance verification (tight tolerance)**
 - Maximum deviation remains **+2 dB(A)** vs declared value
 - Greater enforcement relevance due to label exposure
- **More detailed acoustic information**
 - Differentiation between **indoor and outdoor units** (for heat pumps)

News from 2020 to today

Standards / National regulations

- **EN 14511 was fully updated in 2022**
- **EN 12102-1 updated in 2022**
- **ISO 3744 updated in 2025**
- **The UK has replaced the old MCS 020 approach with MCS 020 a) for domestic air source heat pumps now 37 dB LAeq,5min, rather than the historical 42 dB LAeq,5min (implementation date: 20 september 2025)**
- **MCS 020 a) also introduces a more explicit and modern calculation framework**
- **Switzerland has introduced an important updated noise-assessment approach for air-to-water heat pumps: from 1 November 2024, the guidance uses LWA at 2°C outdoor air temperature (LWA,2°C)**
- **The Netherlands introduced a major heat-pump noise rule in 2021: from 1 April 2021, new national noise requirements apply to newly installed outdoor heating or cooling generation systems for homes and residential buildings, including heat pumps and air conditioners. These systems must not exceed 40 dB at the neighbour's property under the new Dutch building-code framework**



More details on the deliverables page of ANNEX51 (all deliverables of All Tasks) here:



...but...stay tuned for possible future updates...

Thank you for your attention



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Contatti

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