



Primary Energy Factor & Labelling of Products

Energy Sector Integration

Manuel Coxe | Jairo Soto Rey | Jacques Dubost | Patrick Milin

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Agenda

- 1.** About MARCOGAZ
- 2.** Introduction
- 3.** Primary Energy Factor Calculation Method
- 4.** Energy Related Products and PEF
- 5.** Energy Transition



1. About MARCOGAZ

- MARCOGAZ is actively involved in concrete initiatives and programs to ensure the **sustainable, safe and efficient** development of **natural gas** and new gases including **Hydrogen** and **Biomethane** and the **Sector Integration** in Europe.
- Deliverables of MARCOGAZ are based on **science** and **technical expertise** from planning and operation gas experts in the gas value chain and serve as factual support to European gas industry, allow better standardization at European level.
- MARCOGAZ is a **technical association (not a lobby association)** promoting decision making based on facts and responds to the needs of the Members, other gas associations and EU bodies.



1. About MARCOGAZ

- 53 YEARS
- 27 MEMBERS
- 20 COUNTRIES





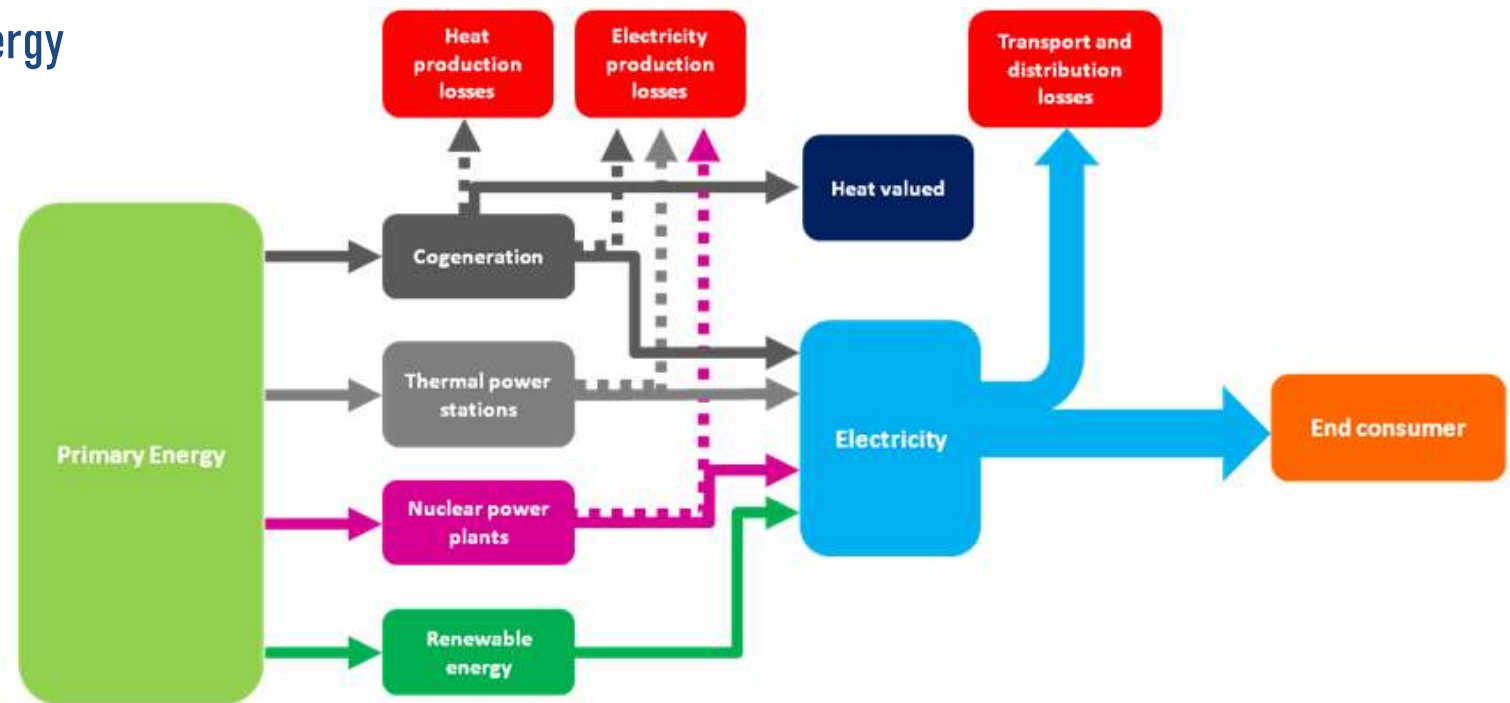
2. Introduction

1. The direct use of the revised PEF according to the Energy Efficiency Directive (EED) poses problems for the Ecodesign implementation measures and energy labeling.
2. There are technical implications of changes in the PEF from 2.5 to 2.1 and its repercussion regarding labeling scale.
3. Energy efficiency in buildings will be influenced at some extent on the technologies to be adopted for space heating – hybrid heat pumps are promising and condensing boiler still have an important role to play with green gases
4. Renewable gases like biomethane and Hydrogen are part of the future solutions for a more efficient space heating.
5. Energy system integration is the pathway towards an effective, affordable and decarbonisation of the European economy.



3. Primary Energy Factor Calculation Method

Energy efficiency -
From Primary Energy
to Final Energy



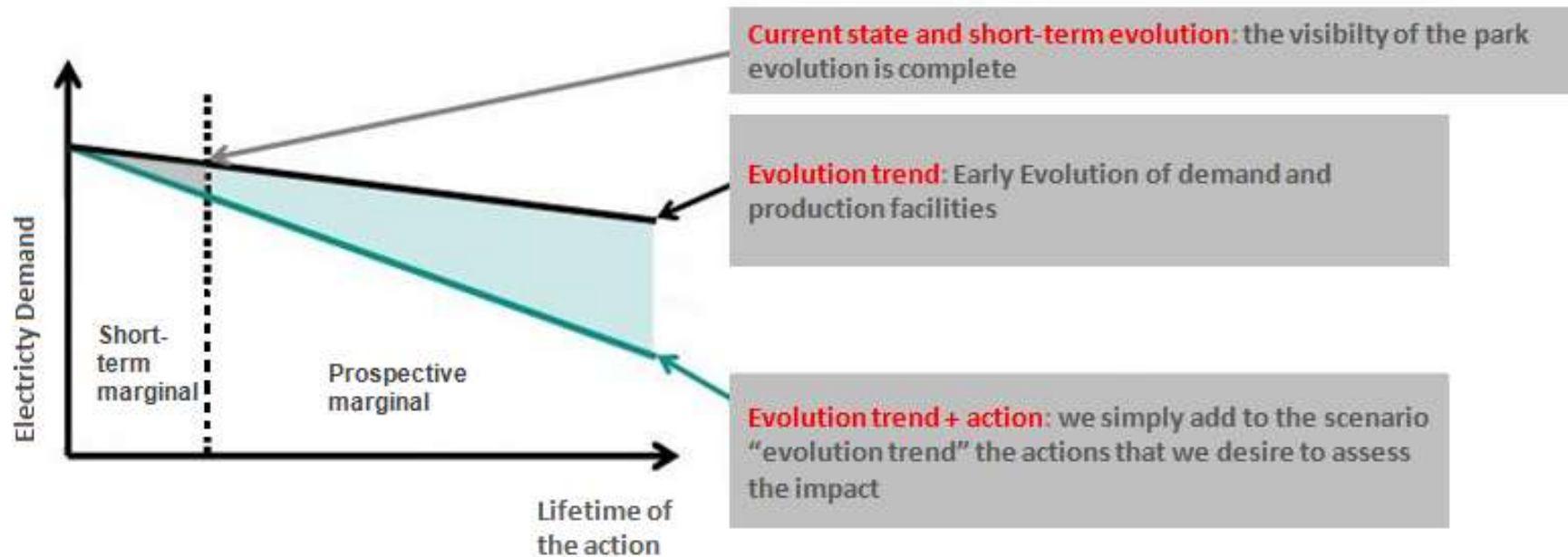


3. Primary Energy Factor Calculation Method

- The **overall PEF in primary energy** is the most representative of actual consumption, an accurate calculation of this primary-energy factor is essential. Today's PEF calculation for Europe is a simple reasoning considering the PEF to be the ratio of the primary-energy consumption to the final energy supplied to customers.
- However, **investment decisions are based on marginal methods** which reflect the impact of an action (an increase or decrease in demand on the grid) . The marginal method associates the latest production resource used, hour by hour, with this new consumption.
- A **marginal prospective method** gives stakeholders the most appropriate signal reflecting the future consequences of today's energy-related decisions, it advocates a comparison between two medium- or long-term demand scenarios to determine the impact of a new project gives.



3. Primary Energy Factor Calculation Method





4. Energy Related Products and PEF

- In the currently applicable Ecodesign Directive and in the Energy Label Regulation, a PEF of 2,5 is used. If the value of the PEF is now evaluated to be 2,1, the limit values of all forms of electricity consumption in the scope must be converted – all things being equal – by a factor $(2,5 / 2,1)$.
- As a result of that change of PEF and of minimum space heating efficiency value, Ecodesign lot1 revision, the labelling classes also need adjustment, to take into account the increase for electric appliances.
- Any change in the conversion coefficient shall not result in downgrading or upgrading gas appliances on the label's scale. Only the thresholds and energy labelling classes relating to electric space heaters will have to be adjusted in the current scheme of 10 labelling classes, from A+++ to G. This at least until 2025 as mentioned in the 2017 Energy Label Regulation.
- For products providing the same function while using different energy carriers (electrical and gas heat pump, boilers, hybrid boilers), a change of PEF value shall not lead to a change of their relative position on the energy label scale.



4. Energy Related Products – Condensing Boiler

- The condensing boiler remains a relevant solution to achieving these objectives because it is economically accessible to a large number of households (3 times less expensive than an electric heat pump) and enables energy bills to be reduced, especially for households the most modest thanks to a reduction in consumption - but also in GHGs - of around 30%.
- The condensing boiler is also a solution that fits perfectly with the decarbonization objectives for 2050 insofar as it is:
 - Now compatible with Green and Carbon-free gases: 100% with biomethane and up to 20% H2 with NG for a number of manufacturers. Technical compatibility with 100% H2 in the close future at competitive extra cost.
 - Allows an evolution towards other technologies such as the gas heat pump or the fuel cell thanks to the hot water loop by nature scalable.
 - Possibilities of hybridization with solar energy



4. Energy Related Products – Condensing Boiler

- Achieving the decarbonization objectives of the residential sector implies accelerating its refurbishment and encouraging the replacement of the stock of old boilers with more efficient equipment capable of integrating the transition to green energies, by offering consumers a wide choice of solutions.
- Marcogaz proposes the launch of a study on the proposed device on which label would enable to compare various technologies with very different energy performances.

class	Seasonal space heating energy efficiency η_s in %		
	From 2023 (pef 2.1)	2025	2030 at the latest
A+++	$\eta_s \geq 180$	Toward a new labelling : Impact study	New labelling
A++	$140 \leq \eta_s < 180$		
A+	$99 \leq \eta_s < 140$		
A	$90 \leq \eta_s < 99$		
B	$82 \leq \eta_s < 90$		
C	$75 \leq \eta_s < 82$		
D	$43 \leq \eta_s < 75$		
E	$39 \leq \eta_s < 43$		
F	$35 \leq \eta_s < 39$		
G	$\eta_s < 35$		



4. Energy Related Products – New gases compatible boiler

- Gradually, natural gas in the networks will be shifted to a mixture of natural gas, biomethane and/or hydrogen (H₂).
- In addition, experiments using 100% H₂ for heating and hot water in the residential sector are emerging in various European countries. Appliance able to use H₂ from 0% to 100% are needed.
- **Marcogaz proposes:**
 - **Biomethane:** For an information to consumers via a “100% biomethane Ready” pictogram on the boiler on the energy label and the appliance sheet.
 - **Mixture of Natural gas/Biomethane with H₂:** Requirement for the boilers to operate - over a time horizon to be determined - with a H₂ level of up to 20%. This requirement will result in the affixing of a “20% H₂ Ready” pictogram like the boilers compatible with the different types of CH₄ (natural and renewable).



5. Energy Transition

- Energy system integration is the pathway towards an effective, affordable and deep decarbonisation of the European economy:
 - More 'circular' energy system, with energy efficiency at its core.
 - Greater direct electrification of end-use sectors.
 - Use of **renewable and low-carbon fuels, including hydrogen**, for end-use applications where direct heating or electrification are not feasible:
 - Unlocking the potential of renewable fuels produced from sustainable biomass.
 - Promoting the use of renewable hydrogen in hard-to-decarbonise sectors.
 - Enabling carbon capture, storage and use to support deep decarbonisation, including synthetic fuels.



marcogaz
TECHNICAL ASSOCIATION
OF THE EUROPEAN NATURAL GAS INDUSTRY

Thank you for your attention
