



CWaPE

Commission
wallonne
pour l'Énergie

SUSTAINABILITY CRITERIA implemented for stationary bioenergy in Wallonia (Belgium)

Sustainable biomass for European energy, Brussels,
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Promotion des énergies renouvelables
CWaPE

“Renewable” electricity in Wallonia (BE)



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Legal definition :

- “renewable energy sources” (RES) shall mean any source of energy, other than fossil fuels and nuclear fission, **the consumption of which does not limit its future use.**
(Walloon law 14 April 2001)

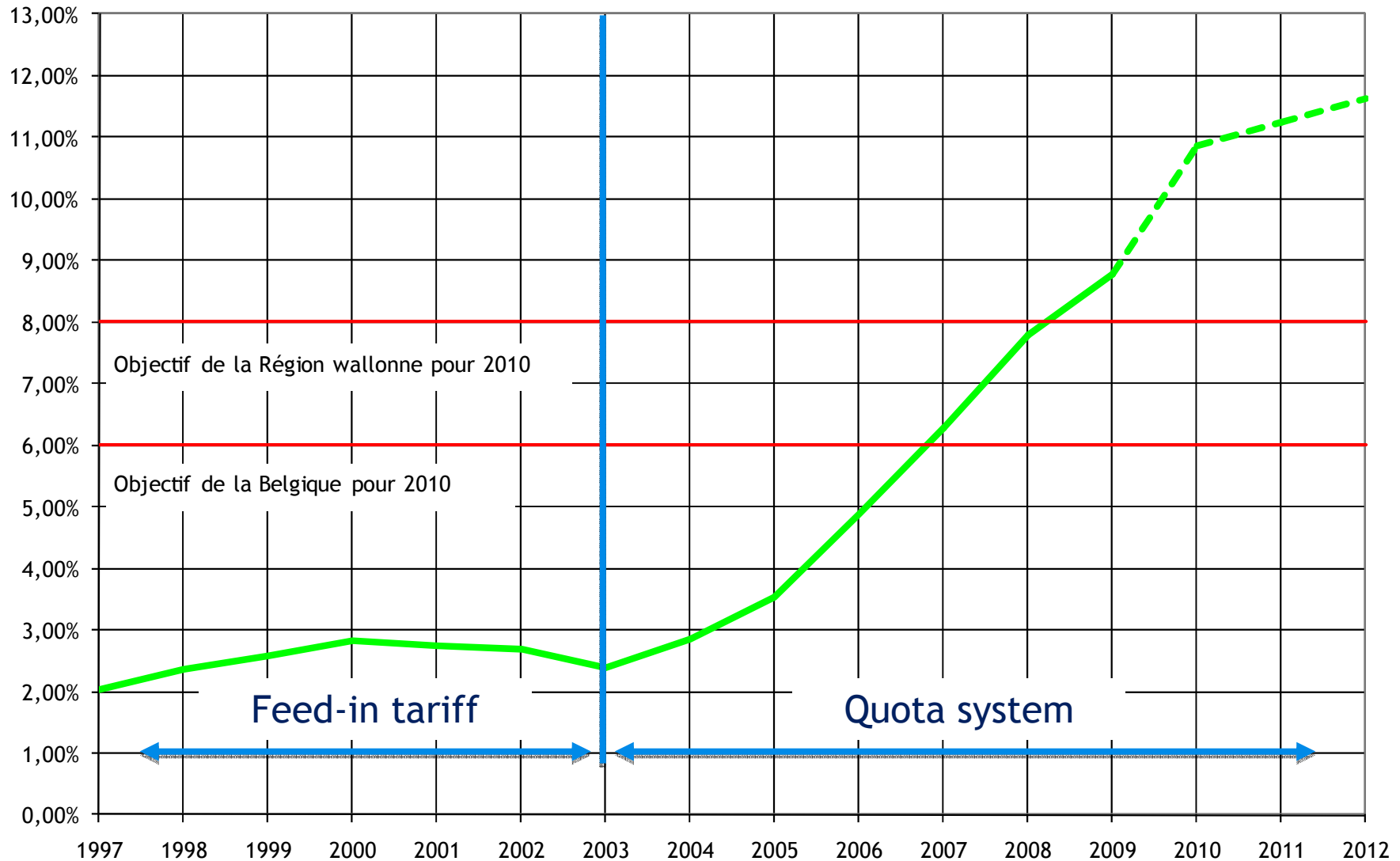
Support mechanism for « green electricity »

- Electricity produced from RES and/or high quality CHP
- with a minimum of 10% CO2 saving
- in comparison with best available technology (BAT) for electricity and heat production
 - Heat : NG-fuelled heat boiler (90%)
 - Electricity : NG-fuelled STAG power plant (55%)

Renewable electricity in Wallonia



% E-SER (2001/77/EC)



Part of RES-E production in final consumption in Wallonia

- $GC = k \times E$ [GC]
 - $E =$ net electricity produced [MWhe]
 - $k =$ issuing ratio [GC/MWhe]

- i.e. support is modulated according to :
 - 1) **Environmental performance** of electricity production
→ CO2 saving rate
 - 2) **Size of the plant** (increased support for **decentralized** production)
 - ◆ under 20 MW for hydraulic, biomass and CHP
 - ◆ under 5 MW for biomass CHP
 - 3) **Profitability** of the energy routes

- CO2 equivalent emissions (CO₂, CH₄, N₂O)

- Over the fuel cycle
 - 1. Fuel production : harvesting, crushing, drying, etc.
 - 2. Fuel handling and transport
 - 3. Fuel Combustion
 - 4. Waste treatments

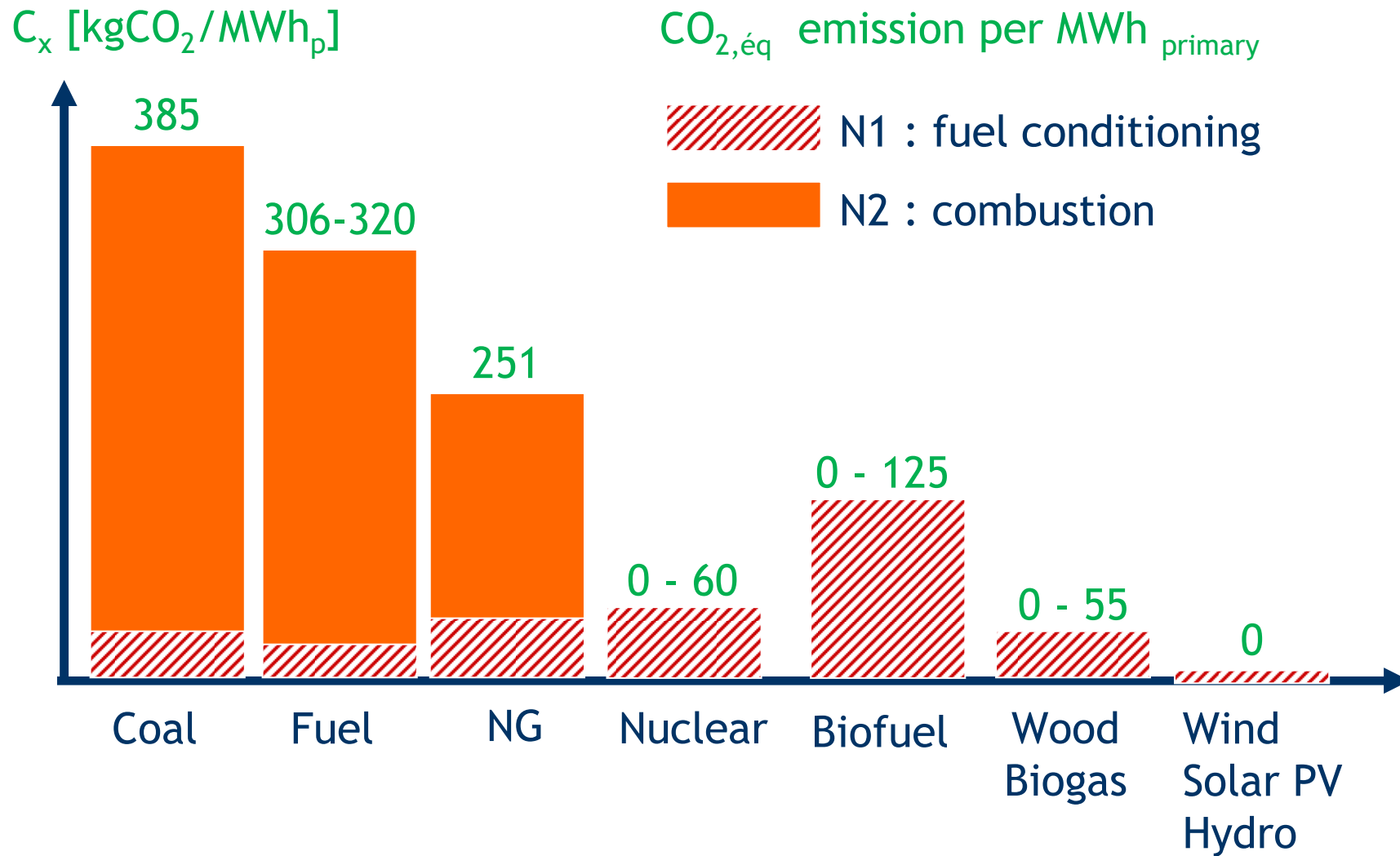
- N1 : CO₂ emission for fuel conditioning and transport (1-2-4)
-
- N2 : CO₂ emission from direct combustion (3)

Biomass will be considered as « renewable » if
biomass burned
is « equivalent » to
biomass replanted

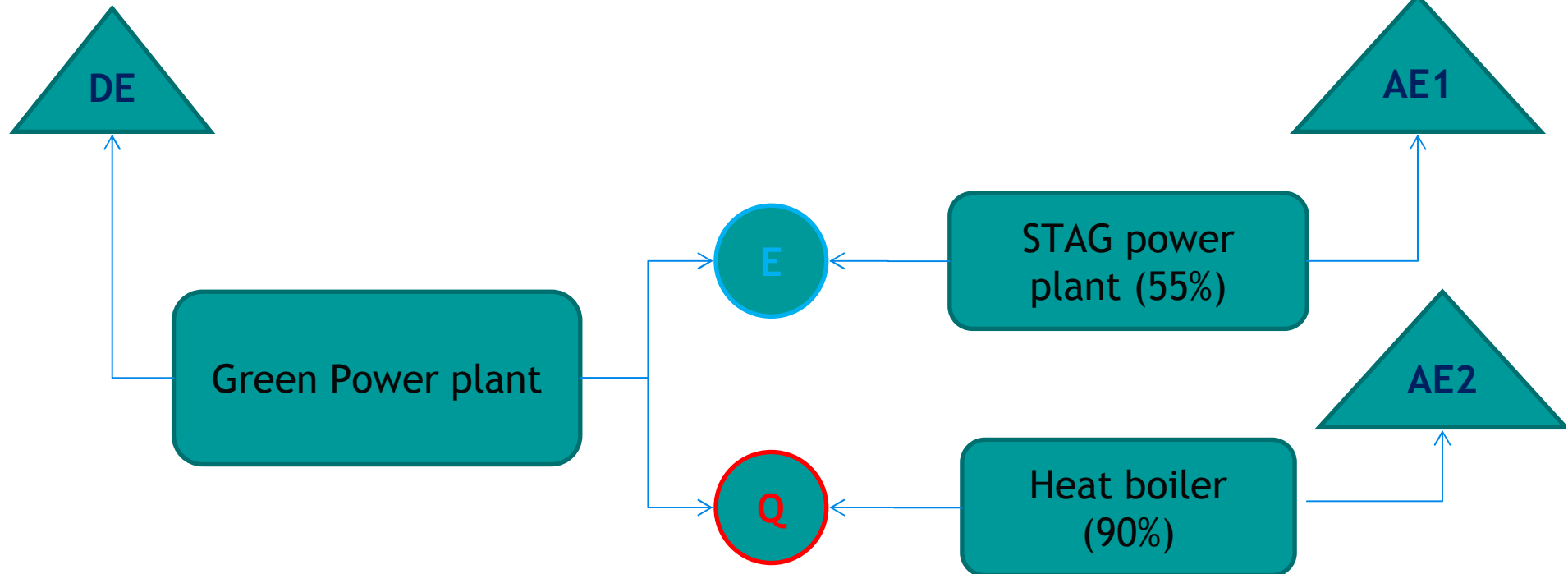
→ a neutral carbon balance must be demonstrated (IPCC methods)

→ N2 (CO₂ from direct combustion) = 0 kgCO₂/MWhp

Conventional CO2 emissions



CO2 saving calculation



$$\text{CO2 saving} = \frac{(\text{AE1} + \text{AE2}) - \text{DE}}{\text{AE1}}$$

Level of support (2010)



RES routes (< 20 MW)	Issuing rate (k) [GC/MWh]	Min guaranteed income [EUR/MWh]	Max income (k x penalty) [EUR/MWh]
Fossil CHP	0,1 ... 0,4	6,5 ... 25	10...40
Solar PV (<10 kWp)	6 ... 7	390 ... 455	600...700
(10-250 kWp)	1,2 ... 6	160 ... 390	170...600
(>250 kWp)	1 ... 1,2	150 ... 160	150...170
Hydro	1	65	100
Wind	1	65	100
Biomass	0,1 ... 1	6,5 ... 65	10...100
Biomass CHP	0,1 ... 2	6,5 ... 130	10...200

1. Biomass declaration
 - Commitment on supplier's honor
2. Approval of biomass declaration prior to use
 - Energy regulator
3. Detailed audit report within 6 months
 - Environmental auditor
4. Yearly audit
 - Production
 - Conditioning
 - Transport chain

- Availability of sustainable biomass, at least for small market
- Trust is key. Certification will help.
- A perfect system is not necessary to be effective:
e.g. land use changes with a carbon balance only was binary :
 - Sustainability demonstrated: considered as “renewable”
 - e.g. FSC and PEFC wood
 - Sustainability doubtful or negative: considered as fossil
 - Palm oil: usually doubtful (but not always)
 - Promise of RSPO
- CO2 emissions for long distance transport is actually very small (based on audits)
 - e.g. Total CO2 savings for imported wood pellets: 35%-65%
- Large scale certification should help decrease admin costs

- Measuring the proportion of waste which is biomass can now be done by Carbon 14 analyses
- CEN/TS 15747:2008
- Energy content (lower calorific value or LCV) differs greatly depending on source:
 - LCV of biowaste < LCV fossil waste

- Segregation <> mass balance <> book and claim
- Experience from book and claim system in electricity
 - Started in 2000 by Association of Issuing Bodies (AIB)
 - European Electricity Certificate System (EECS)
 - ±33% of renewable electricity across Europe is covered by EECS, and growing ...
 - Article 15 of RED makes it mandatory (on production side)
 - Extended to cogenerated electricity, in use for nuclear electricity and being extended to biogas

- Guarantees of origin (GO) for electricity
 - Tradable electronic document
 - Holds information like: type, source, plant, year,...
- 1. Certification of production plant
- 2. Issue of GO by trustworthy issuing body
- 3. Trade of certificate
 - independently from energy/biomass
- 4. At consumption, reunification of energy and GO

- Which claims can be made from GO?
 - The renewable character is sold only to 1 person
 - It is renewable
 - > allows consumer-side detailed certification

- GO for biogas
 - Fuel, electricity, heat

- Can book and claim be accepted for any biomass at least at experimental level (e.g. pursuing article 18§2)?

Thank you

More information available on
www.cwape.be