



The share of energy from renewable sources

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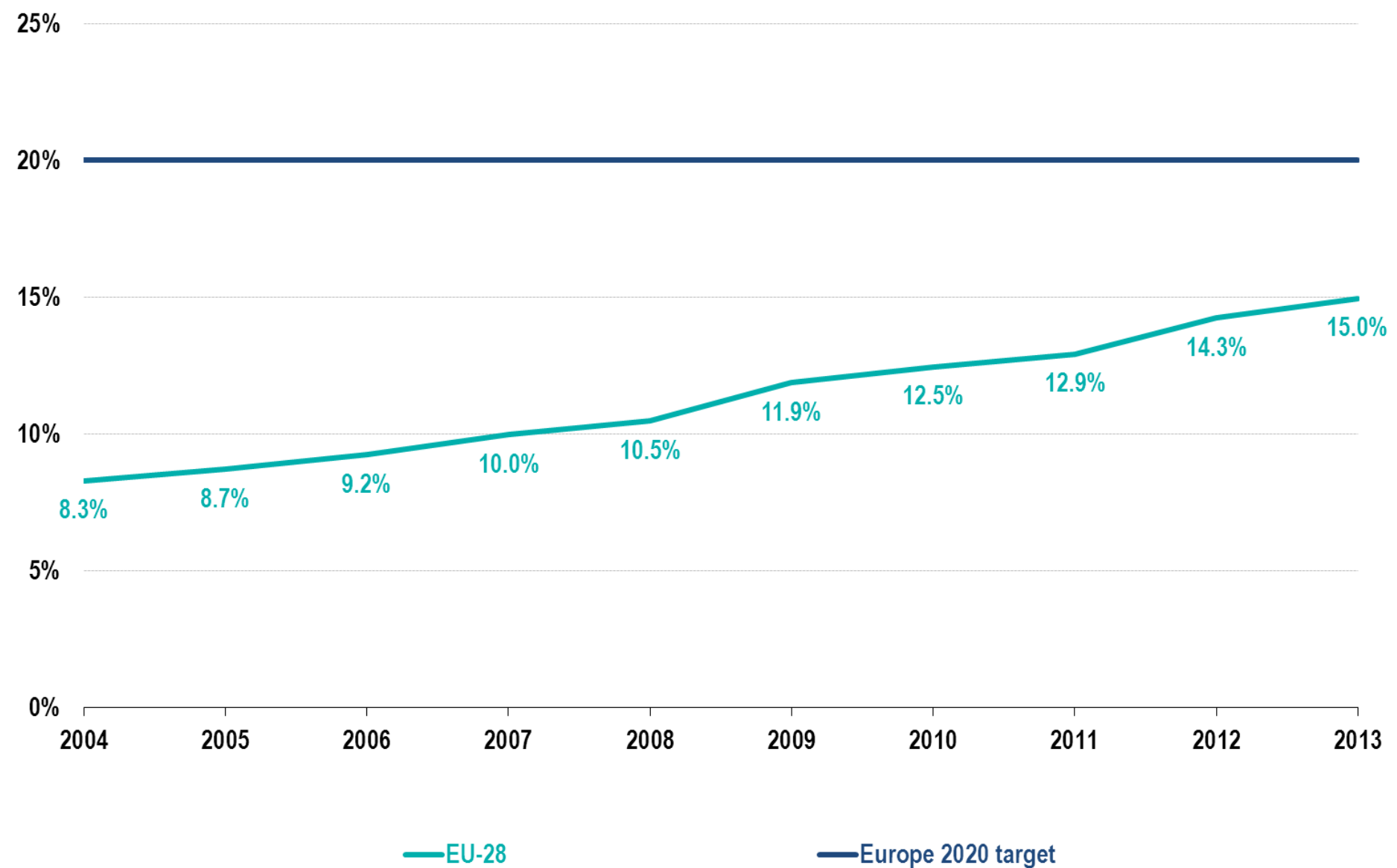
Directorate E: Sectoral & Regional Statistics

Unit E.5: Energy

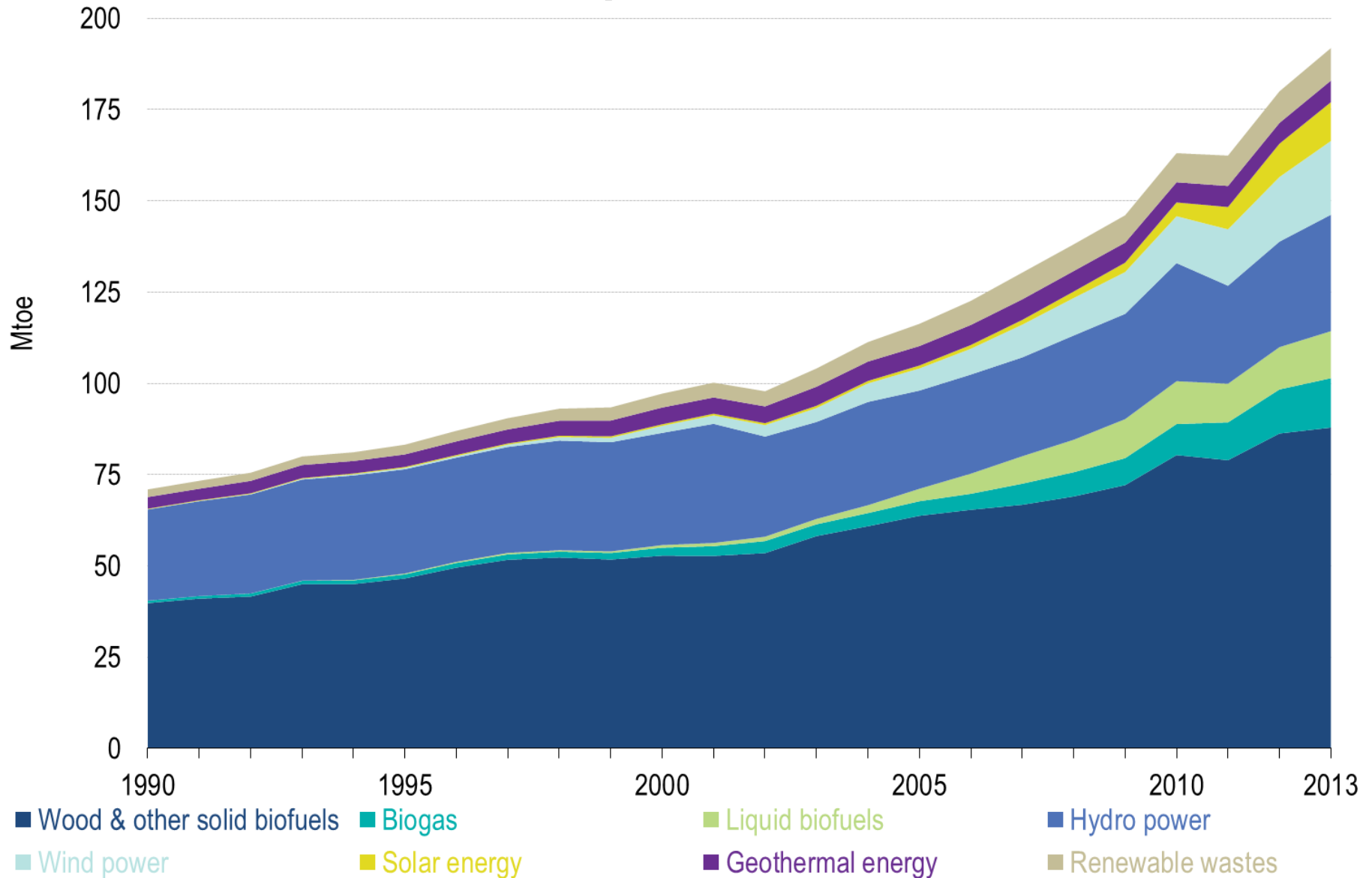
Presentation overview:

- Latest results for the EU28
- Legal basis
- Implementation: SHARES tool
- Calculation principles
- Technical aspects of calculations
- Demonstration of the SHARES tool

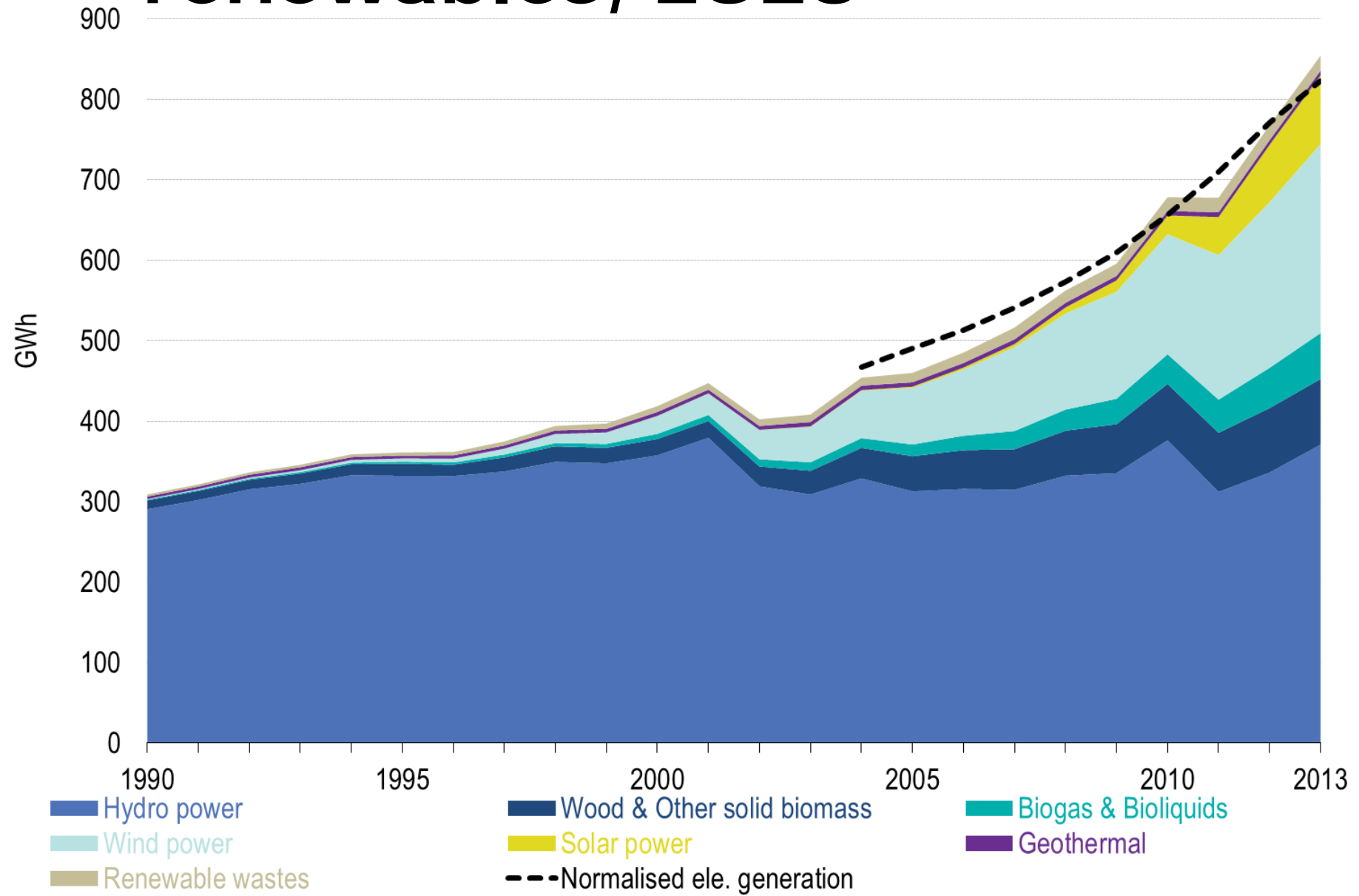
2013 results for the EU28



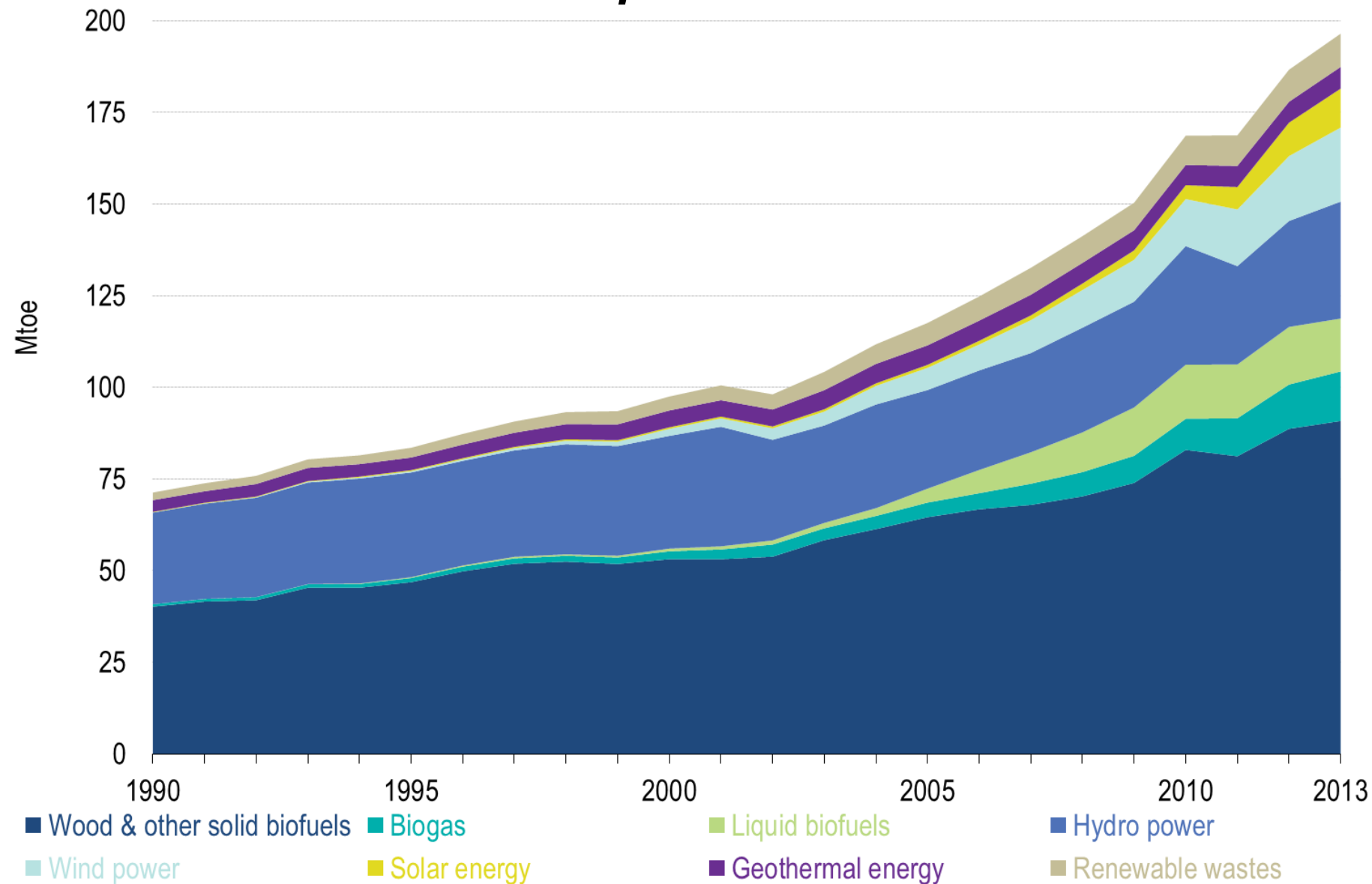
Primary production of renewables, EU28



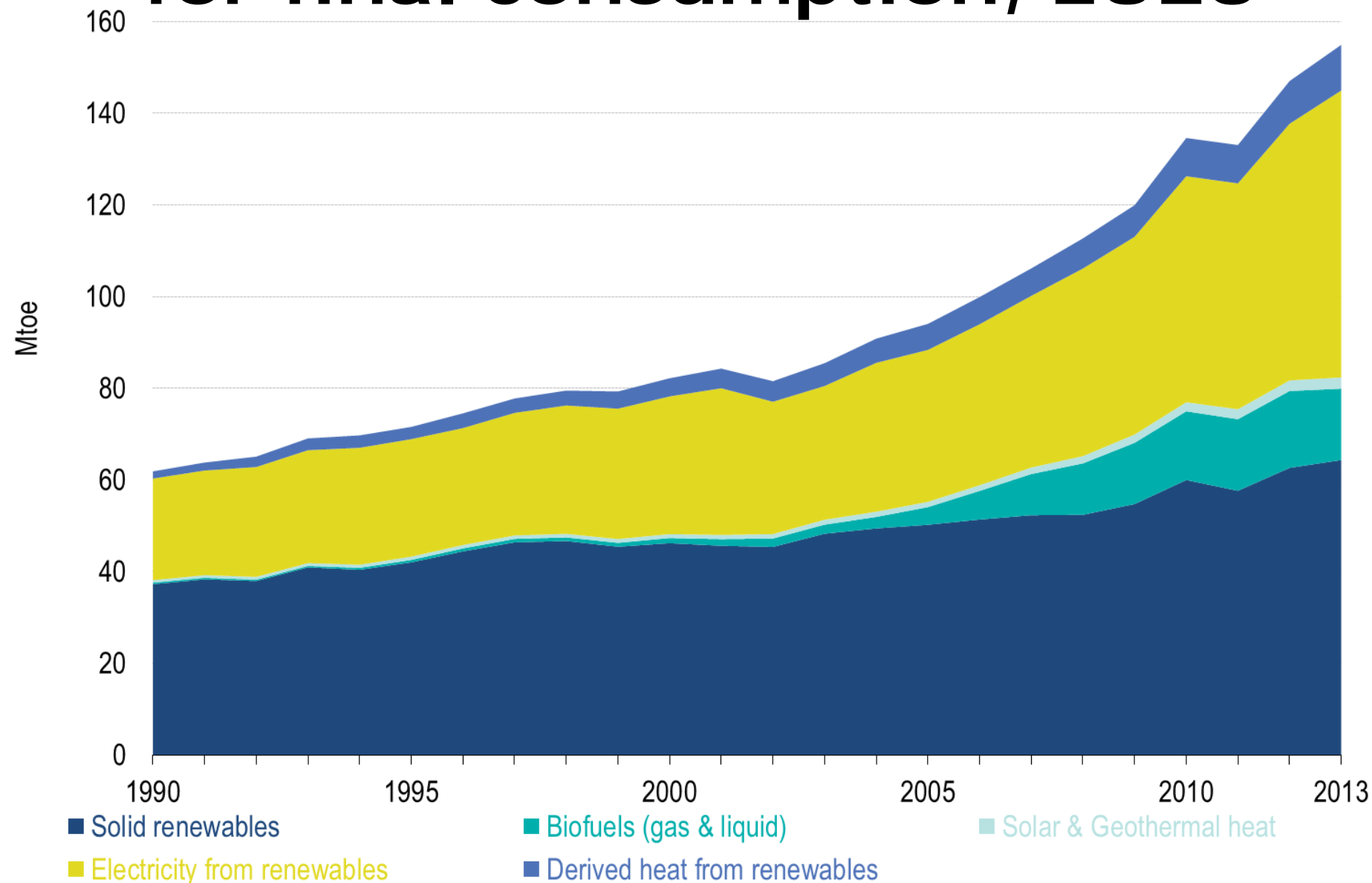
Electricity production from renewables, EU28



Gross inland consumption of renewables, EU28



Renewable energy available for final consumption, EU28



Additional results & data

Eurostat website:

- <http://ec.europa.eu/eurostat/web/energy/data/shares>
- http://ec.europa.eu/eurostat/statistics-explained/index.php/Energy_from_renewable_sources

Legal basis

- Directive 2009/28/EC on the promotion of the use of energy from renewable sources
- C(2012) 6287: communicating outcome of the Impact Assessment related to Article 3(4)
- C(2013) 1082: guidelines on calculating renewable energy from heat pumps
- Template for Member State progress reports
- Frequently asked questions on the template
- ✓ Links to websites are in the SHARES tool manual

Directive 2009/28/EC

Article 5 - Paragraph 7

The methodology and definitions used in the calculation of the share of energy from renewable sources shall be those of Regulation (EC) No 1099/2008 of the European Parliament and of the Council of 22 October 2008 on energy statistics.

Member States shall ensure coherence of statistical information used in calculating those sectoral and overall shares and statistical information reported to the Commission under Regulation (EC) No 1099/2008.

SHARES tool

SHort Assessment of Renewable Energy Sources

- Eurostat developed SHARES tool to encourage the use of harmonized calculation methodology, respecting all calculation provisions of Directive 2009/28/EC.
- The use of SHARES tool ensures full consistency with Regulation (EC) No 1099/2008 on energy statistics.
- SHARES tool results allow DG Energy to verify the consistency of transmitted national *Progress reports* with the official energy statistics.
- SHARES tool is voluntary. In case SHARES tool is not transmitted by EU Member State, Eurostat makes estimates based on data transmitted in the framework of Regulation (EC) No 1099/2008 on energy statistics.

Prerequisites for using SHARES tool

- All annual energy questionnaires are need
- All questionnaires have to be correctly and consistently filled for all fuels and with no errors
- Additional information needed:
 - Sustainable biofuels and bioliquids
 - Heat pumps
 - Mixed hydro generation
 - International cooperation – statistical transfers

Even if SHARES tool is not used, for preparing progress reports countries have to use:

- if national method is developed, use updated values η (eta) for heat pump related calculations*

	1990	1995	2000	2005	2010	2011	2012
EU-28	40.5%	41.2%	42.7%	43.7%	45.9%	45.6%	45.6%

- average share of electricity from renewable energy sources*

RE share [%]	2004	2005	2006	2007	2008	2009	2010	2011	2012
EU-28	14.33	14.84	15.35	16.09	16.98	19.00	19.69	21.72	23.53

<http://ec.europa.eu/eurostat/web/energy/data/shares>



SHARES tool (details)

SHARES

SHort Assessment of Renewable Energy Sources

- Single Entry Point policy for data:
eDAMIS: ENERGY_SHARES_A
- The tool, the manual, the results and also the detailed results will be published on Eurostat's website:

<http://ec.europa.eu/eurostat/web/energy/data/shares>

Changes from older versions

- More transparency: detailed information will be published unless justified request for confidentiality is sent to Eurostat
- No hidden sheets
- Only data actually used in calculations
- Smaller file size and better performance of the tool in the new MS Excel file format (xlsm)
- New approach to compliant biofuels and bioliquids
- Revised and updated calculations

Most important specific calculations

The additional renewable energy captured by **heat pumps** from ambient heat is to be **included in the numerator and the denominator** of the **RES-H&C** share and the overall **RES** share.

The multiplier (2,5 times) for the quantity of **renewable electricity in road transport** and the multiplier of **Article 21(2)** will be applied **only to the numerator of the RES-T** share.

The denominator of the RES-T share as well as the numerator and the denominator of the overall RES share will include the quantities without multiplier.



RES-T (transport)

Renewables in transport

Article 3(4) of Directive 2009/28/EC

14 September 2012

C(2012) 6287 final

Communication to the Commission on communicating outcome of the Impact Assessment related to requirements of Article 3(4) of Directive 2009/28/EC

{SWD(2012) 261 final} Impact Assessment

{SWD(2012) 262 final} Executive Summary of the IA

The Impact Assessment concludes that the option of no action is preferred.

http://ec.europa.eu/energy/renewables/biofuels/biofuels_en.htm

Sustainable (compliant) biofuels

In past countries differ in methodology. Some underestimate, other overestimate.

New default approach for all sectors:

- All biofuels-bioliquids that are subject to criteria of compliance, in pre-filled SHARES application, will be assumed to be non-compliant.
- If countries do not fill any information, none will be counted towards the target.
- Reporting countries should ensure consistency between progress reports submitted to DG Energy and SHARES application data sent to Eurostat.

Sustainable (compliant) biofuels

For data for period 2004-2010: Directive 2009/28/EC did not yet exist or was only very recently adopted. In most European countries it was not transposed into national legislation. Also, the values in these years are not used for any measurement of legislative compliance with indicative trajectory as defined in part B of Annex I of the Directive. It was decided that for years from 2004 to 2010 all biofuels would be counted towards the numerator of the share of energy from renewable sources.

For data for year 2011 and onwards: The compliance with Article 17 (Sustainability criteria for biofuels and bioliquids) has to be judge also with respect to Article 18 (Verification of compliance with the sustainability criteria for biofuels and bioliquids). As of data year 2011, countries shall report as compliant only those biofuels and bioliquids for which compliance with Articles 17 as well as Article 18 can be fully demonstrated.

- Break in series between 2010 and 2011 for some countries



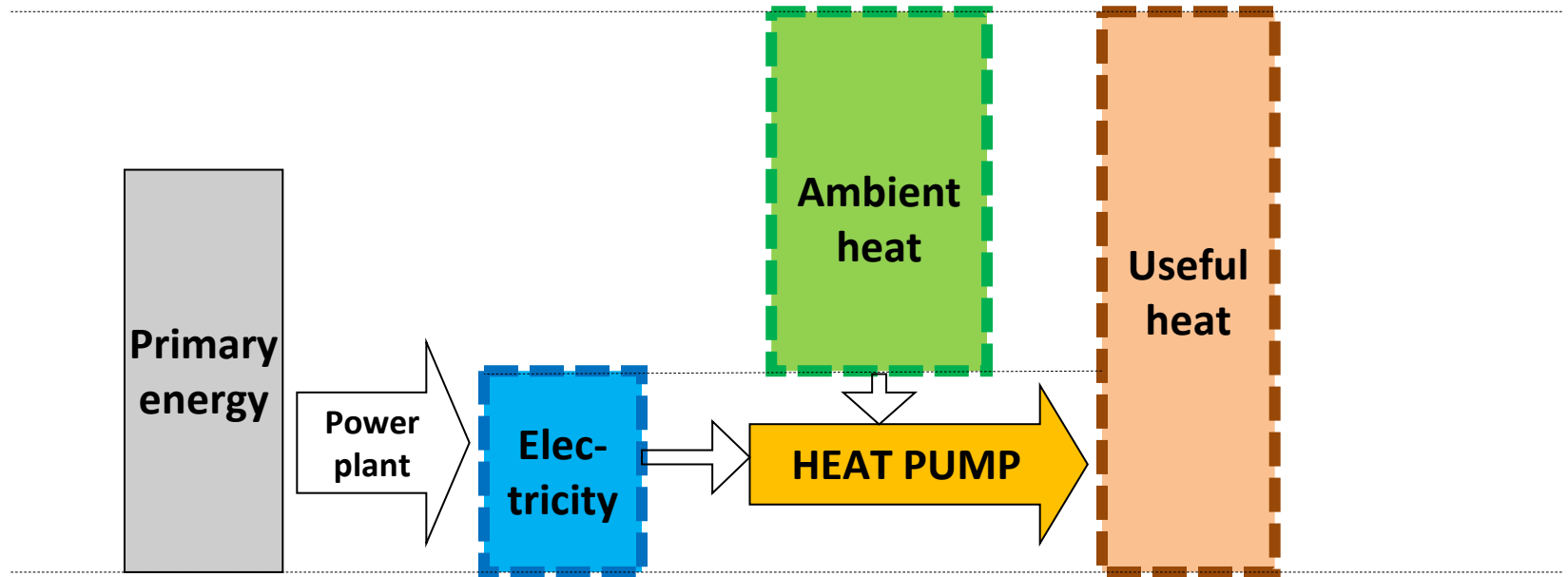
Calculating renewable energy from heat pumps

Heating & Cooling by heat pumps

- Heat pumps are covered by Directive 2009/28/EC and counts towards renewable target
- Annex VII of Directive 2009/28/EC
- Commission Decision C(2013) 1082
<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2013:062:0027:0035:EN:PDF>
- Heat extracted from the environment (ambient heat) counts as renewable energy
- Heat released to the environment (aka cooling) is not counted as renewable energy => ambient coldness is not allowed to be counted as renewable energy

Ambient heat is to be reported in the
SHARES tool only – accounts towards
targets for Renewable Energy Directive

Electrically driven heat pumps

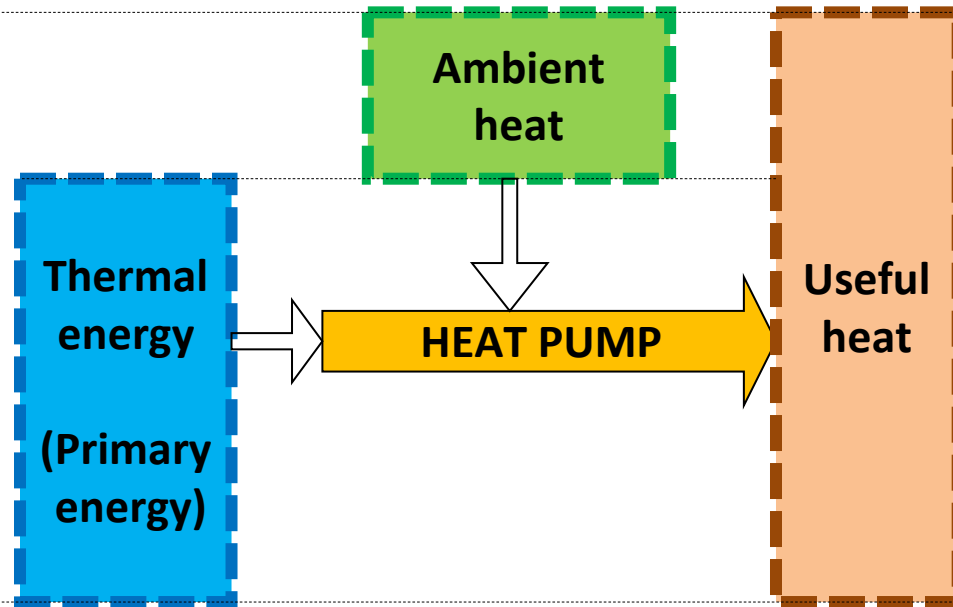


Electricity to be reported in
the annual questionnaires

Only heat sold to be reported
in the annual questionnaires

Ambient heat is to be reported in the
SHARES tool only – accounts towards
targets for Renewable Energy Directive

Thermally driven heat pumps



Energy to be reported in the
annual questionnaires

Only heat sold to be reported
in the annual questionnaires

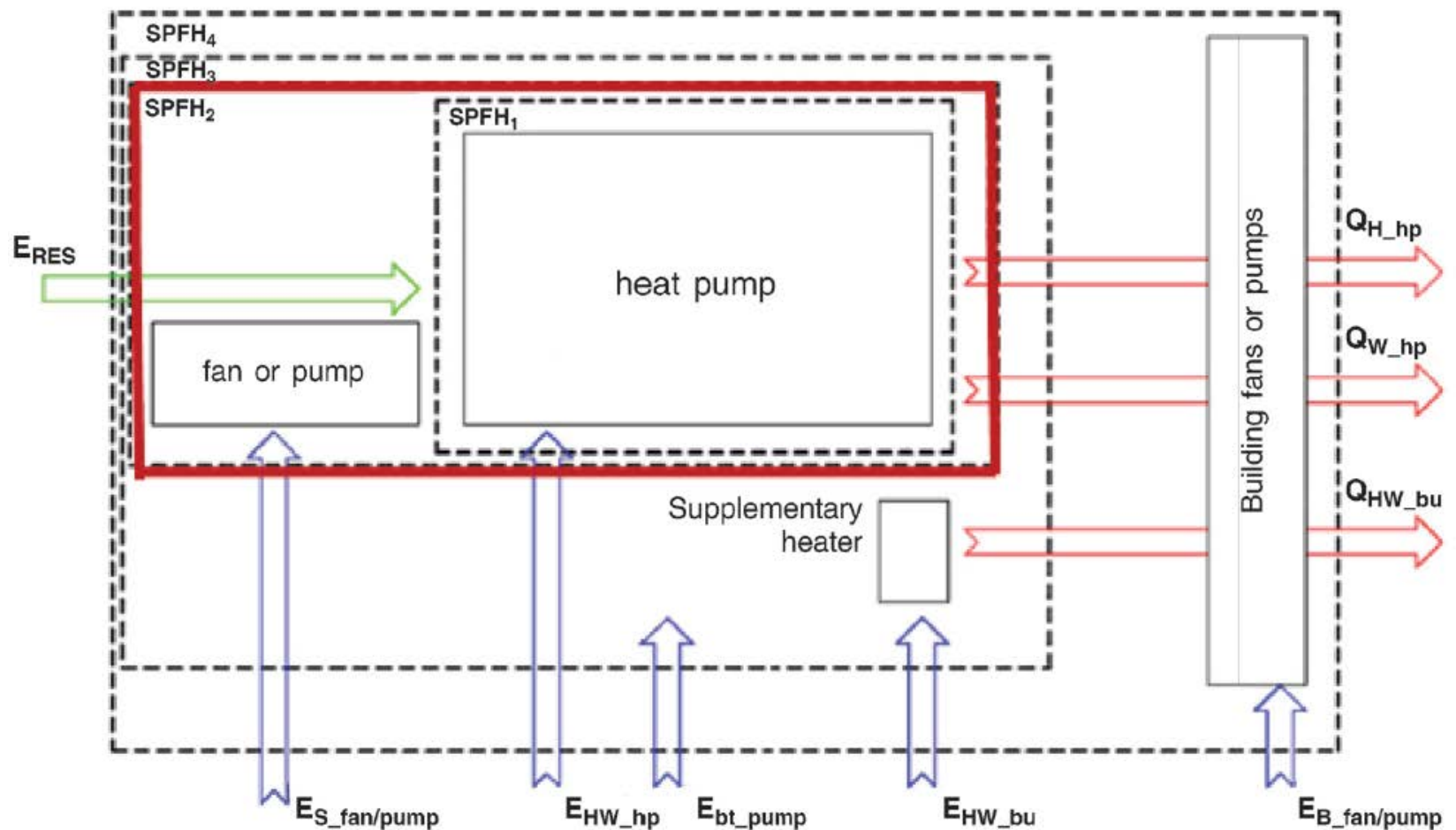
Principles

- *Balancing accuracy and cost effectiveness*
 - Simple methodology that can be applied in all Member States
- *Conservatism applied*
 - to reduce the risk of overestimation
 - to encourage Member States to improve the methodology and default values via more detailed surveys, studies etc.

Minimum performance (minimum SPF)

- *Member States shall ensure that only heat-pumps with a SPF above $1.15 * 1 / \eta$ are taken into account*
- *Power system efficiency (η) is set at 45.5%*
 - minimum SPF of electrically driven heat pumps is 2.5
 - minimum SPF of thermally driven heat pumps is 1.15

System boundaries

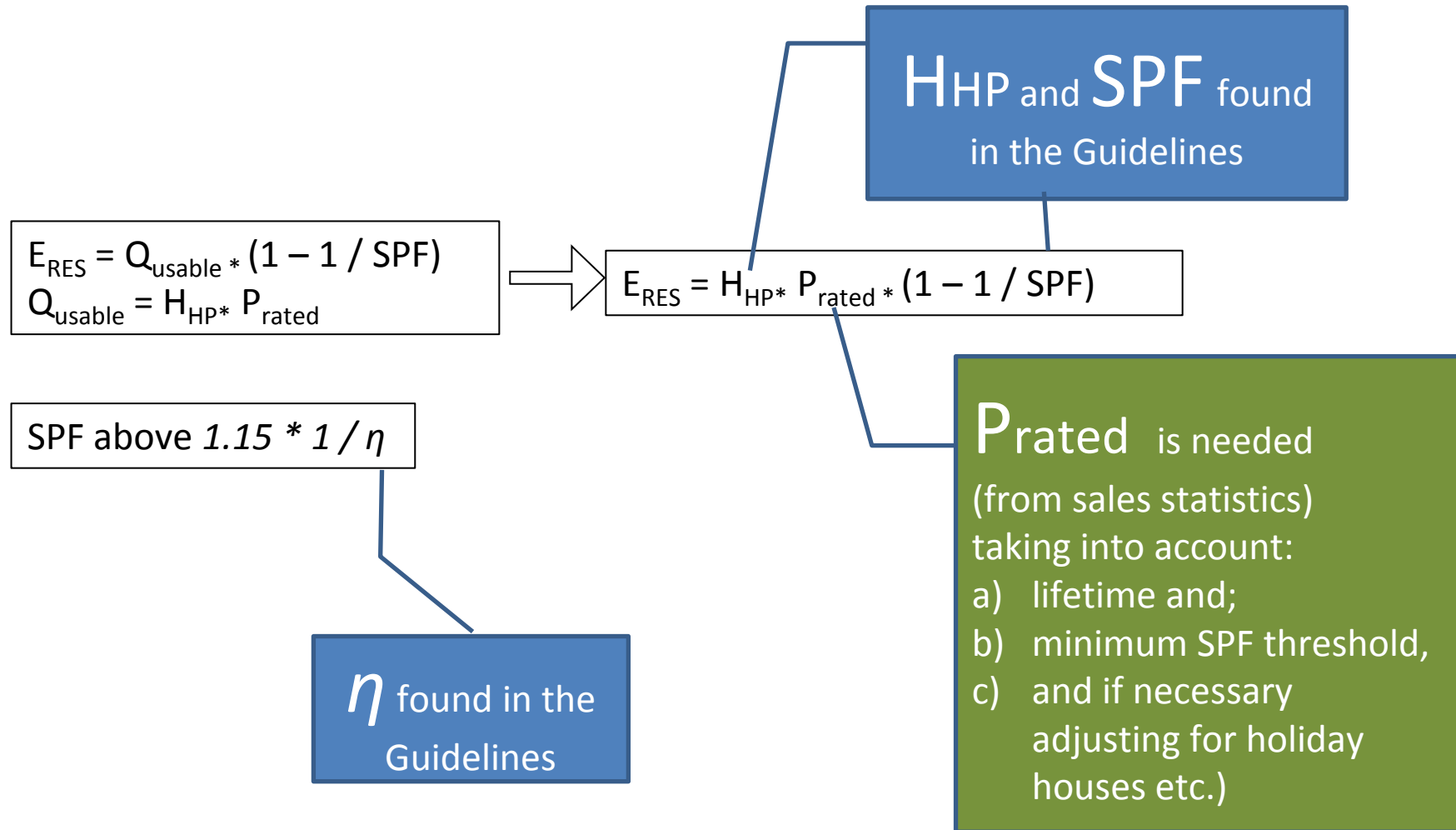


Fans and pumps are included,
but **no** supplementary heater.

Reversible heat pumps




A conservative reduction to 10% for warm climate and 40% for average climate is assumed in table 1 and 2. However, the real reduction is strongly dependent on national practices for providing heating systems, and national figures shall therefore be used where possible. The use of alternative figures should be submitted to the Commission, together with a report describing the method and data used. The Commission will, if necessary, translate the documents and publish them on its transparency platform. An Italian study (referred to on page 48 of "Outlook 2011 – European Heat Pump Statistics") finds that in less than 10% of the cases, heat pumps were the only installed heat generator. As reversible air-air heat pumps is the single most installed heat pump technology type (60% of all installed units - mostly installed in Italy, Spain and France, as well as Sweden and Finland), it is important to adjust the figures appropriately. The Impact Assessment of Commission Regulation 206/2012 implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for air conditioners and comfort fans assumes that EU wide, 33% of reversible heat pumps are not used for heating. In addition one can assume that a large number of the 67% of reversible heat pumps are only used partly for heating, as the heat pump is installed in parallel to another heating system. The proposed values are therefore appropriate to reduce the risk of over-estimation.

Inputs needed for calculation

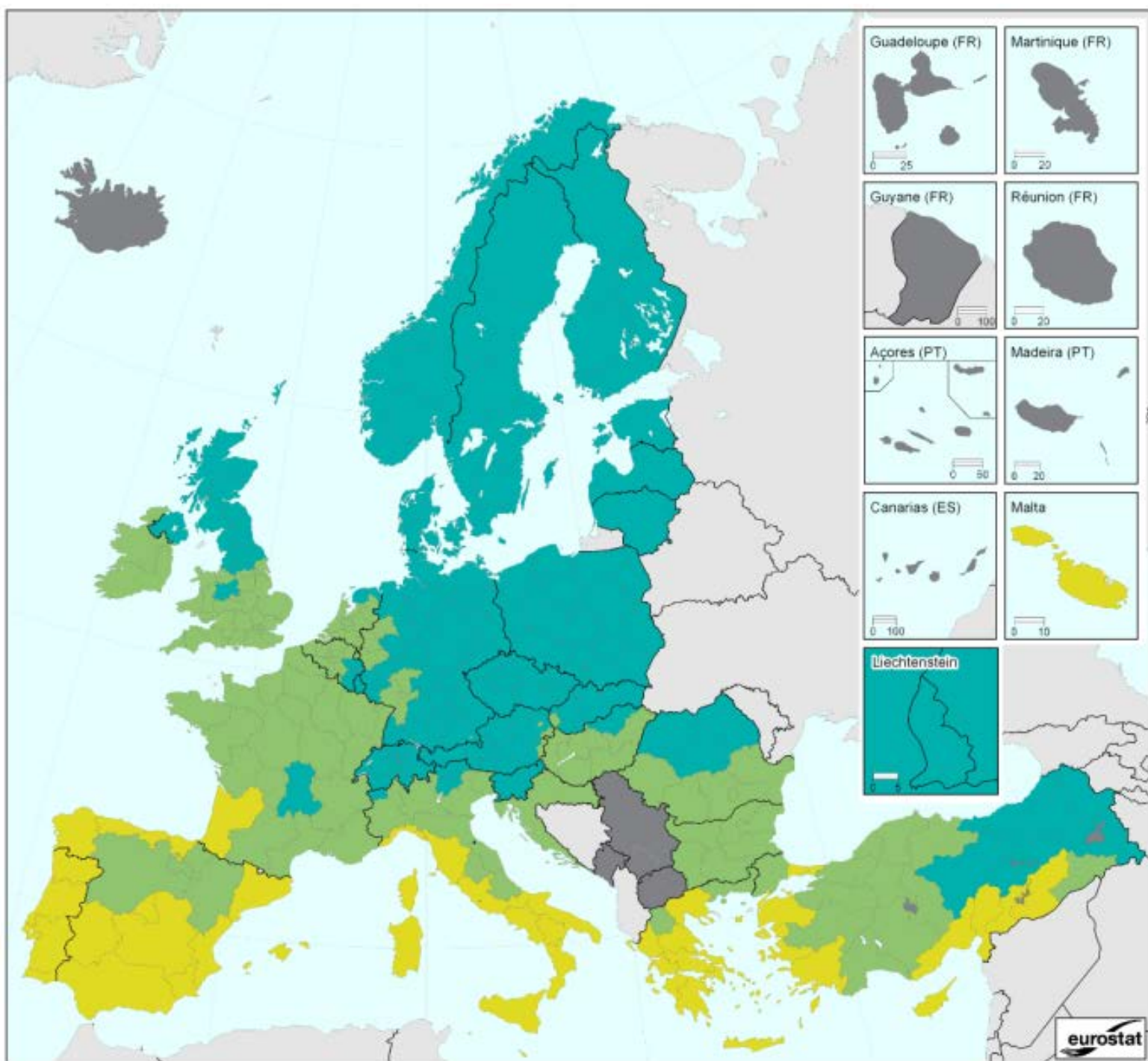


Climate condition areas



-  cold climate
-  average climate
-  warm climate

Provisional attribution of NUTS2 zones into climate condition areas is in the SHARES tool manual.





Accounting of gaseous fuels of renewable origin under Directive 2008/29/EC

Reporting of biogases as of 2012

- *Renewables questionnaire*
- *TABLE 4. PRODUCTION OF SOLID BIOFUELS AND BIOGASES*

Biogases from anaerobic fermentation
Landfill gas
Sewage sludge gas
Other biogases from anaerobic fermentation
Biogases from thermal processes

Accounting of biogases in the SHARES tool

RES-E:

- *All electricity produced from pure biogas*
- *Proportional share of electricity produced from biogas blended with natural gas*

RES-H&C:

- *All derived heat produced from pure biogas*
- *Proportional share of derived heat produced from biogas blended with natural gas*
- *All final energy use of pure biogas*
- *Proportional share of final energy use of biogas blended with natural gas*

Accounting of biogases in the SHARES tool

RES-T:

- All **compliant** pure biogas used in all modes of transport (road, rail, inland navigation, aviation)
- Proportional share of **compliant** biogas blended with natural gas used in all modes of transport
electricity produced from biogas blended

Accounting provisions prior transposition of Directive 2009/28/EC: for periods 2004-2010 all biogas is accounted as compliant.

Overall RES share:

- $RES-E + RES-H\&C + RES-T$

Reported use of biogases in the EU27

	1990	1995	2000	2005	2010	2011
Transformation Input Heat & Power	50.4%	71.4%	80.9%	89.5%	87.6%	82.4%
Transformation Input For Blended Natural Gas	0.6%	1.4%	0.7%	0.2%	0.1%	0.1%
Final Energy Consumption: Industry, Services, Households, ...	49.0%	27.1%	18.3%	8.2%	11.7%	16.2%
Final Energy Consumption: Transport	0.0%	0.0%	0.0%	0.0%	0.2%	0.6%
Other (Own use, Non-specified enegyry sector, Distribution losses, ...)	0.0%	0.1%	0.1%	2.0%	0.5%	0.7%

98-99 %

Comparison of reported energy use EU27 [Mtoe]

	2004	2005	2006	2007	2008	2009	2010	2011
Biogas - Gross Inland Consumption	3.76	4.33	4.75	7.01	7.27	8.11	10.96	10.23
Biogas - Transport	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.06
Petrol & Diesel in Transport	297.93	297.64	300.69	302.73	295.71	286.12	283.45	280.30
All biofuels in road transport	1.97	3.12	5.47	6.63	9.33	11.54	13.08	13.73



SHARES tool demonstration



Thank you!

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