

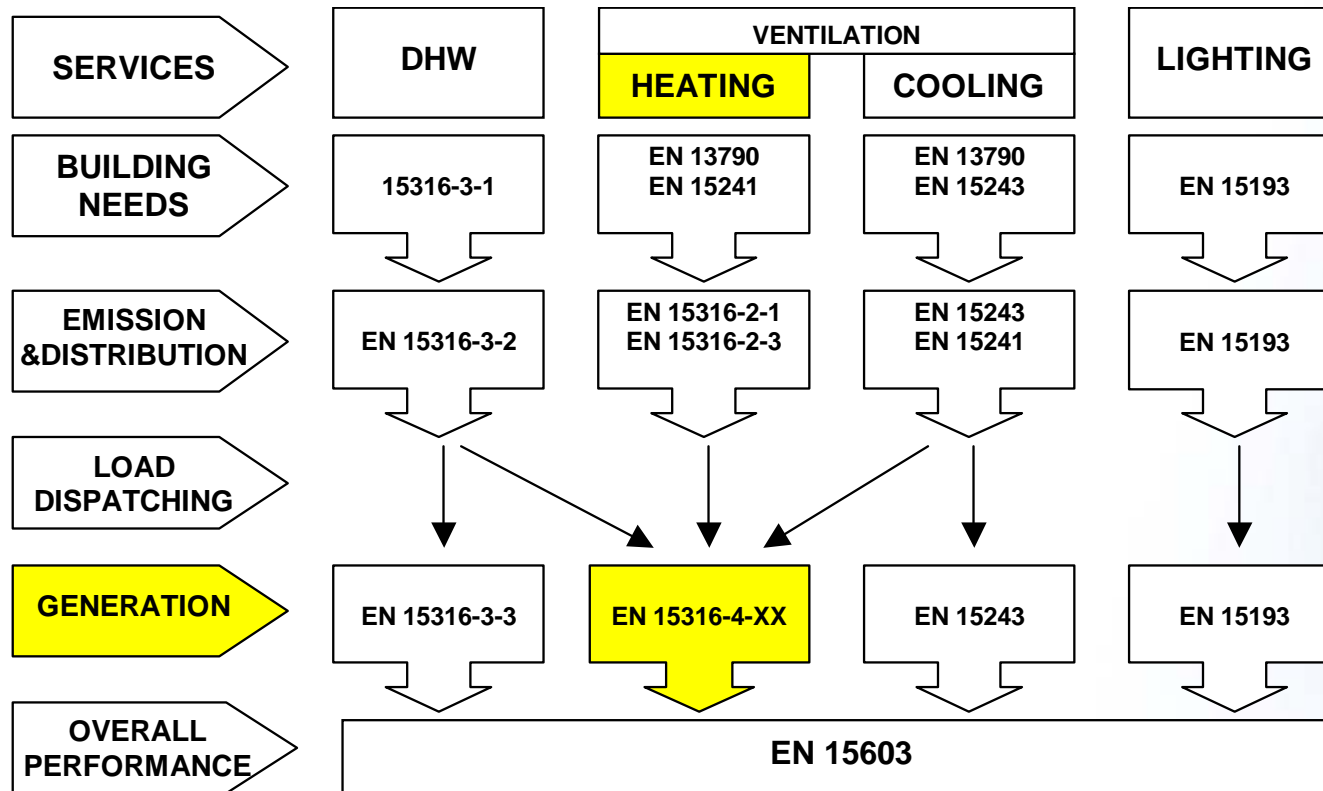


The link between product data and CEN-EPBD standards

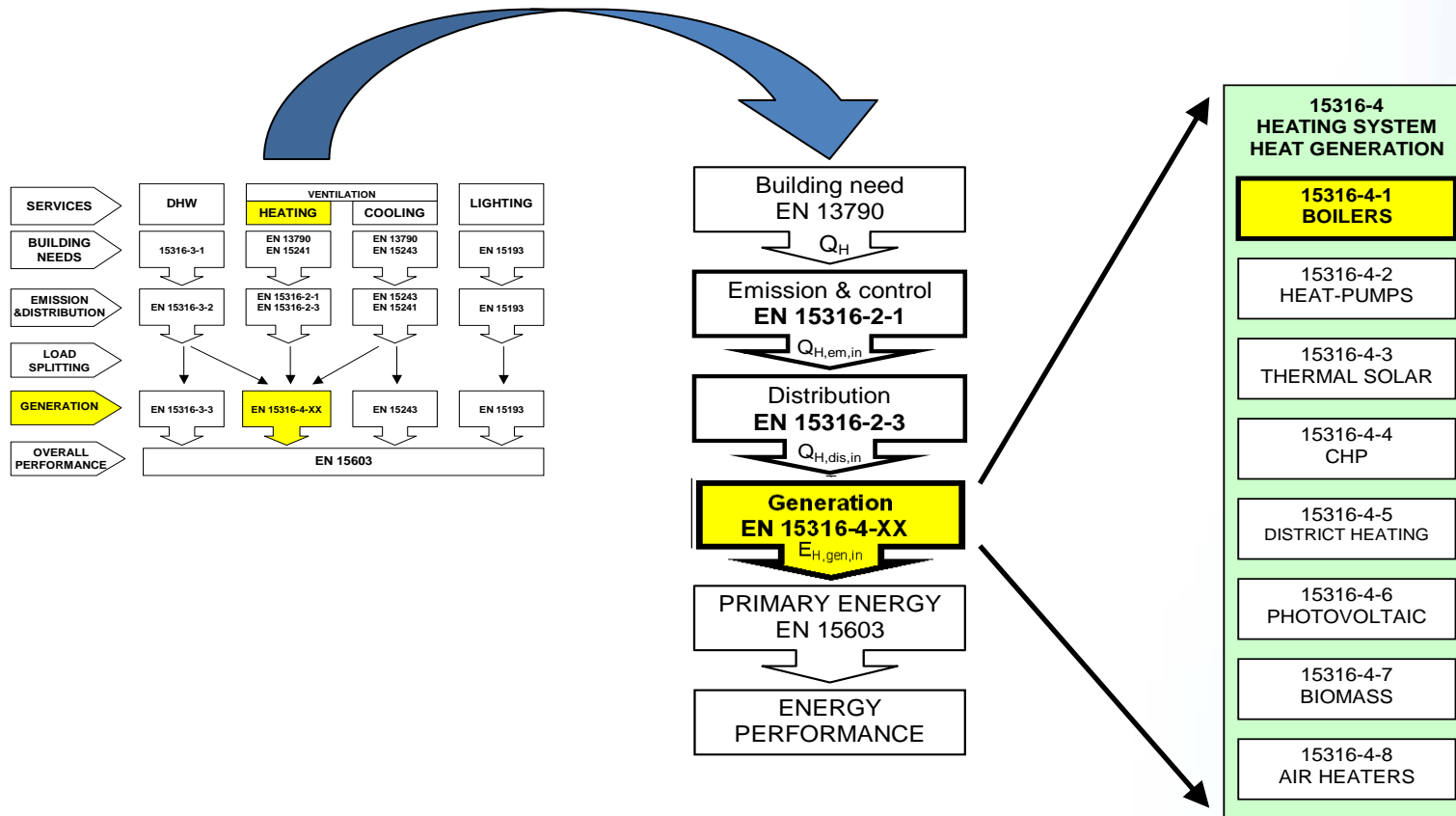
**CENSE workshop “Recasting the EPBD”
25th of September / Paris**

Dr Martin Searle

EPBD – CEN Standards



EPBD – CEN Standards



EN 15316-4-1

- Simplified approach
 - requires basic boiler efficiency data but cannot distinguish accurately between products.

- Case specific system
 - method uses more information relevant to the installed system.

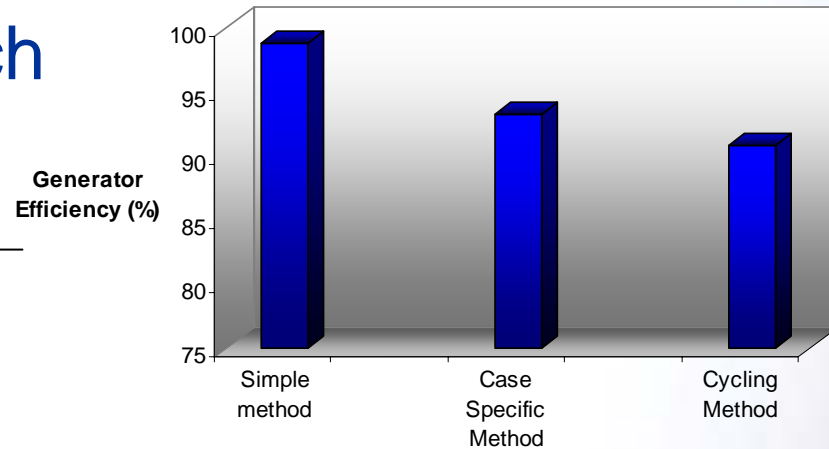
- Boiler cycling method
 - method is most appropriate for existing boilers/buildings, using directly measurable parameters (flue gas analysis)

EN 15316-4-1

- Simplified approach

- Case specific system

- Boiler cycling method



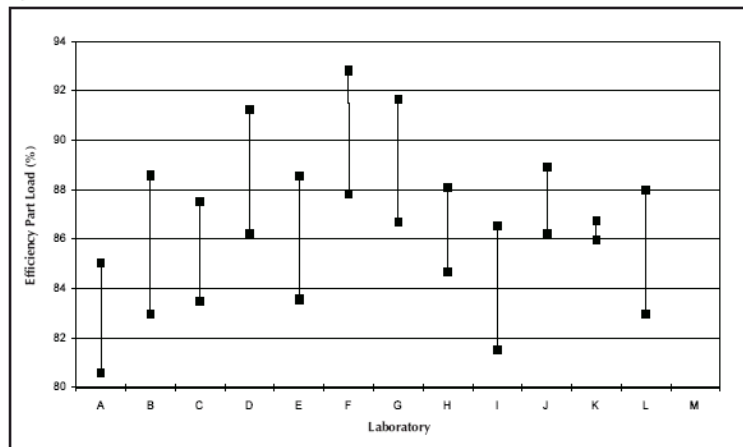
The 3 methods
give very different
answers

Data Requirements

- Calculation methodologies require different combination of test results
- Full load efficiency
- Part Load efficiency
- Cycling efficiency
- Stand by loss
- Flue loss
- Case loss
- Electrical consumption
 - Full load
 - Part load
 - Standby

Data Requirements

● Test results subject to variations



Part load efficiency variations

Source: Labnet results Jean Schweitzer

- Tolerances - instrumentation
- Uncertainties – test parameters
- Interpretation of standards
- Test facilities
- Ambient conditions – temperature & pressure
- Impact of electrical components – e.g. thermal contribution of pumps
- Alternative efficiency test methodologies in standards

EuP Directive - Boilers

● Objective

- Provide easily understandable information on the energy performance in individual buildings, in particular with a view to later replacement / refurbishment needs

● Scope

- Establishes ecodesign requirements for the placing on the market of gas-fired, oil-fired and electric boilers for hydronic central space heating up to 400 kW.

EuP - System Approach

- **Included in System**

- Heat generators including all fuels and technologies
- System control options

- **Not included in system**

- Heat emitters
- Distribution system
- Emitter controls



EuP - Model

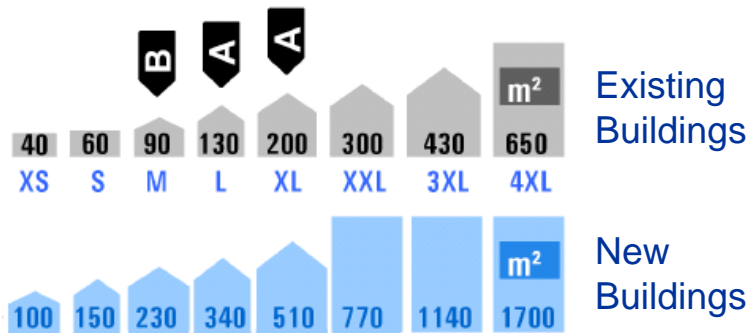
included in Model

- Test data for the performance of heat generator
- Additional test data
- System control options included in system

Default data

- Heat emitters
- Distribution system
- Emitter controls

EuP Performance Data

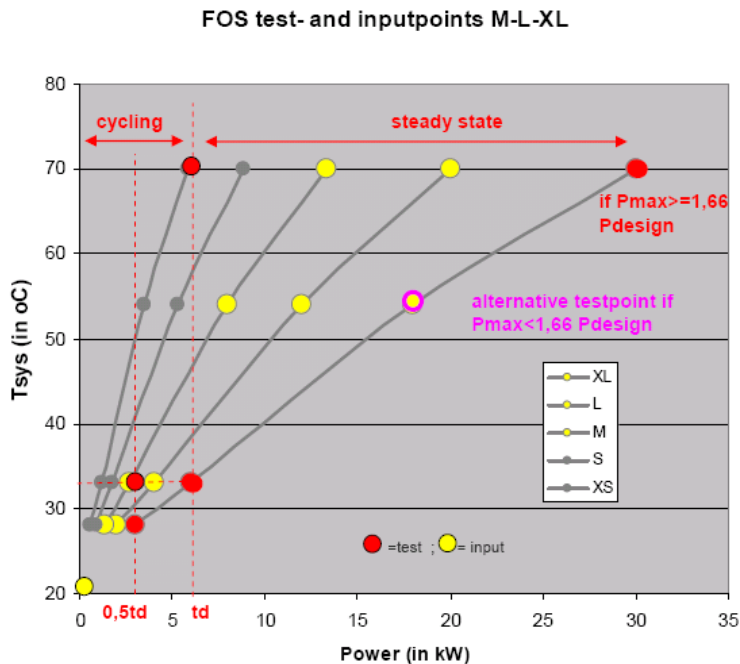


● Performance based on one of 8 design heat loads and single designated climate

P _{design}	3,5	5,3	8	12	18	27	40	60	kW
P _{radnom}	5,8	8,8	13,3	20	30	45	66	100	kW
nomflow	501	758	1145	1717	2576	3864	5724	8586	kg/h
hrsdesign	1000								h
Lh	3500	5300	8000	12000	18000	27000	40000	60000	kWh/a

Source: 2009 Eco boiler model R Kemna

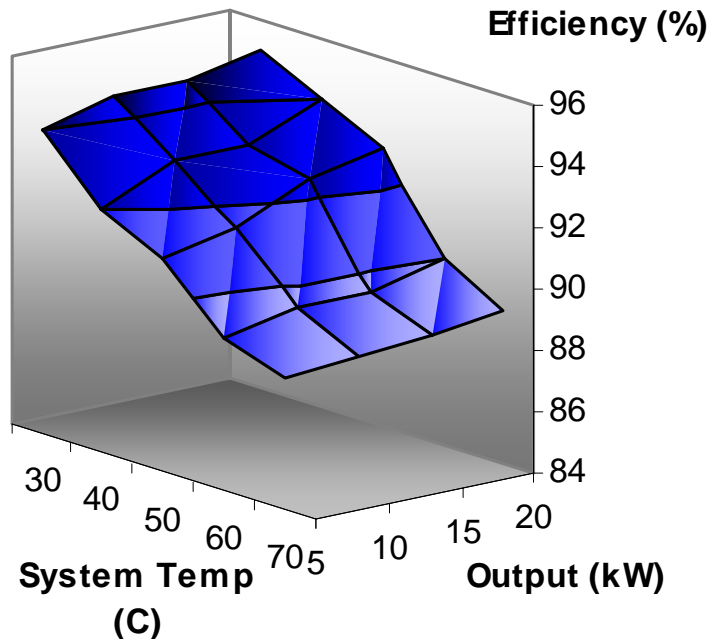
EuP Performance Data



Source: 2009 Eco boiler model R Kemna

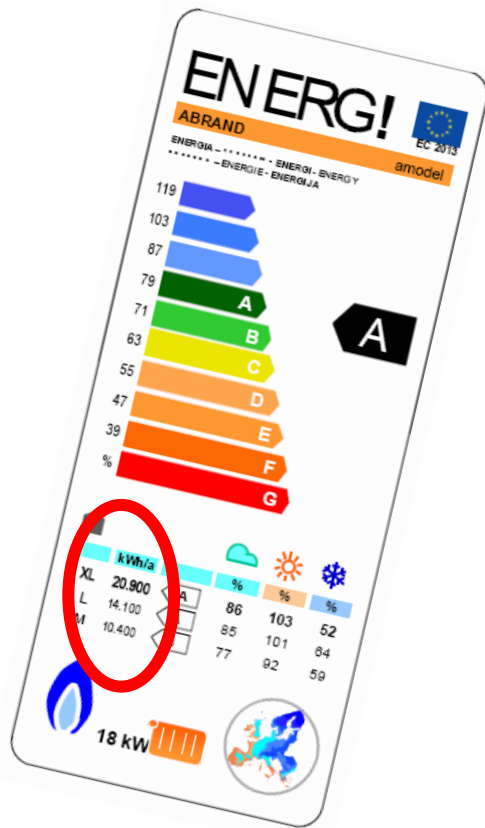
- Performance based on one of 8 design heat loads and single designated climate
- Boiler performance based on 5 test points
- Performance at specific operating conditions obtained by interpolation
- Test conditions specified including ambient parameters

EuP Performance Data



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EuP - Labelling



- Within scope of Labelling Directive
- Label based on system efficiency
- Label may be based on a number of heat generators
- Label may be based on a number of system components
- Label based on up to 3 specific building design loads

Current Position

- Calculating the energy required to meet any particular demand is not a perfect science.
- What is the “correct” value?
- EN 51316-4 standards allow for different calculation methodologies
- Not all Member States use EN 51316-4 standards
- Different product data required between countries
- Product standards allow for different efficiency test methodologies
- Measurement tolerances & uncertainties result in variations in test results

Future Position

- What we need from the recast EPBD and harmonised standards is:-
 - Common methodology between all Member States
 - Data input requirements consistent with reliability of data acquisition
 - Calculation procedures consistent with accuracy of data available
- AND
- Clarity between EuP & EPBD

