Optimised Building Efficiency Through Automation

Colin Timmins
eu.bac

eu.bac members

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ARAMARK
BELIMO
BROEN INTELLIGENT FLOW SOLUTIONS
COMAP SOLUTIONS FOR EFFICIENCY
Danfoss
DELTA DORE
DISTECH CONTROLS
Frese
DIGI CONTROL DIGI VISION GFR
hager
Herz
Honeywell
TA HEIMEIER
Johnson Controls
kieback&peter
oventrop
SAUTER Creating Sustainable Environments.
Schneider Electric
theben
ThermoZYKLUS
PRIVA
SIEMENS
TRIDIUM
saia-burgess
SONDER Energy control
TREND

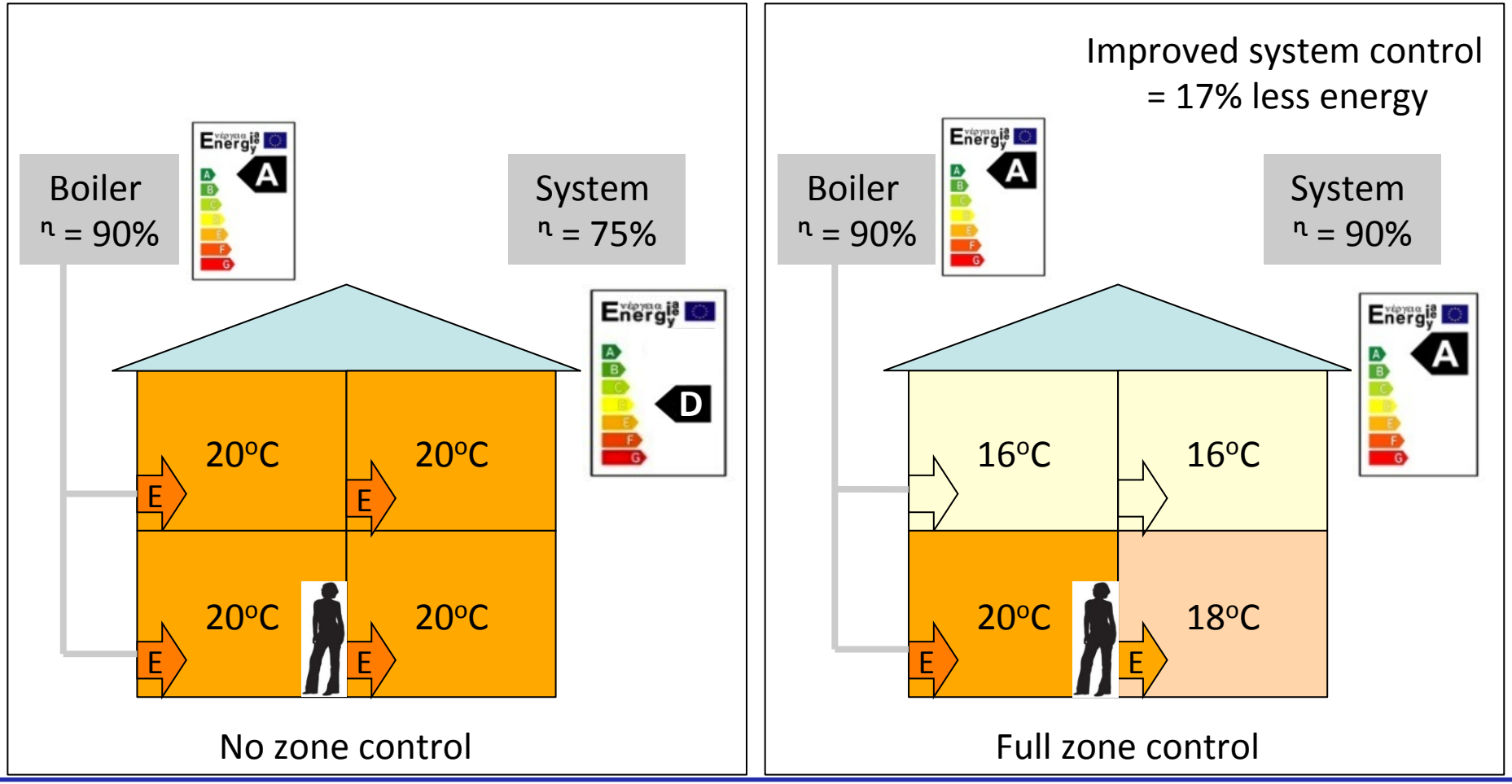
Why do we need to think about systems?

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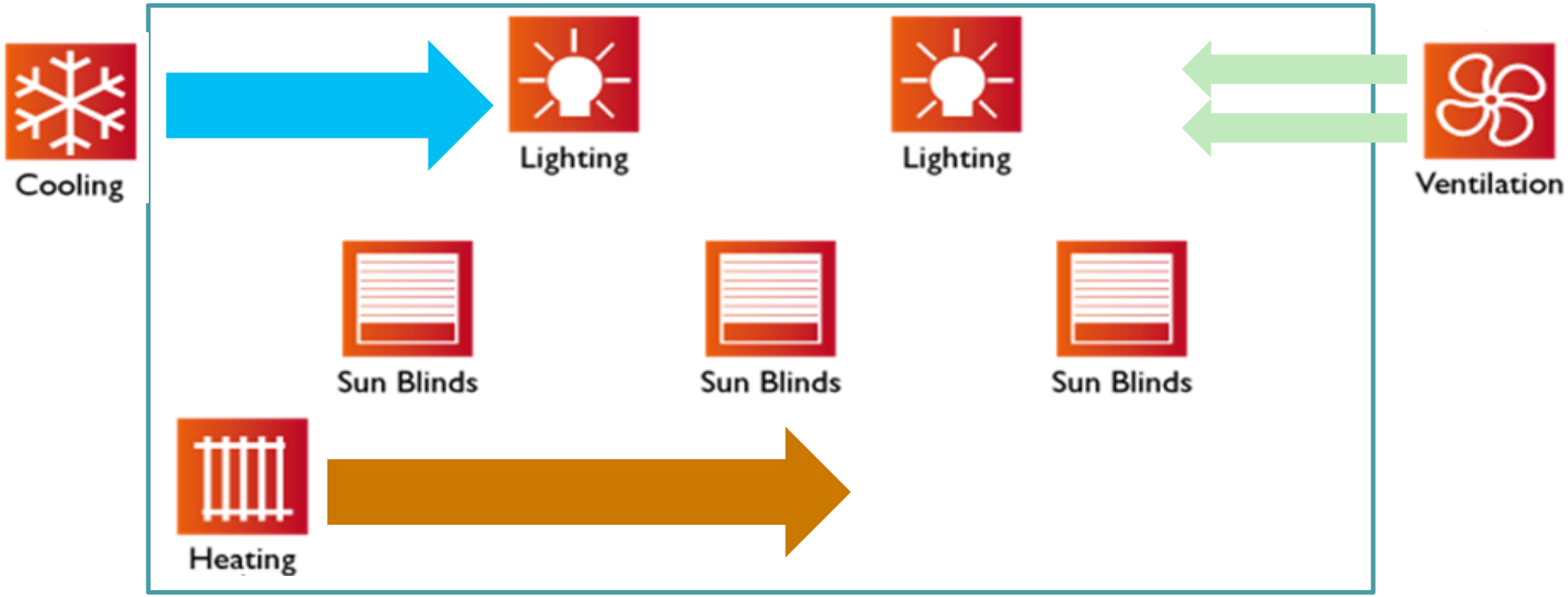
Product efficiency is only part of the story

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Complex systems can lead to wasted energy

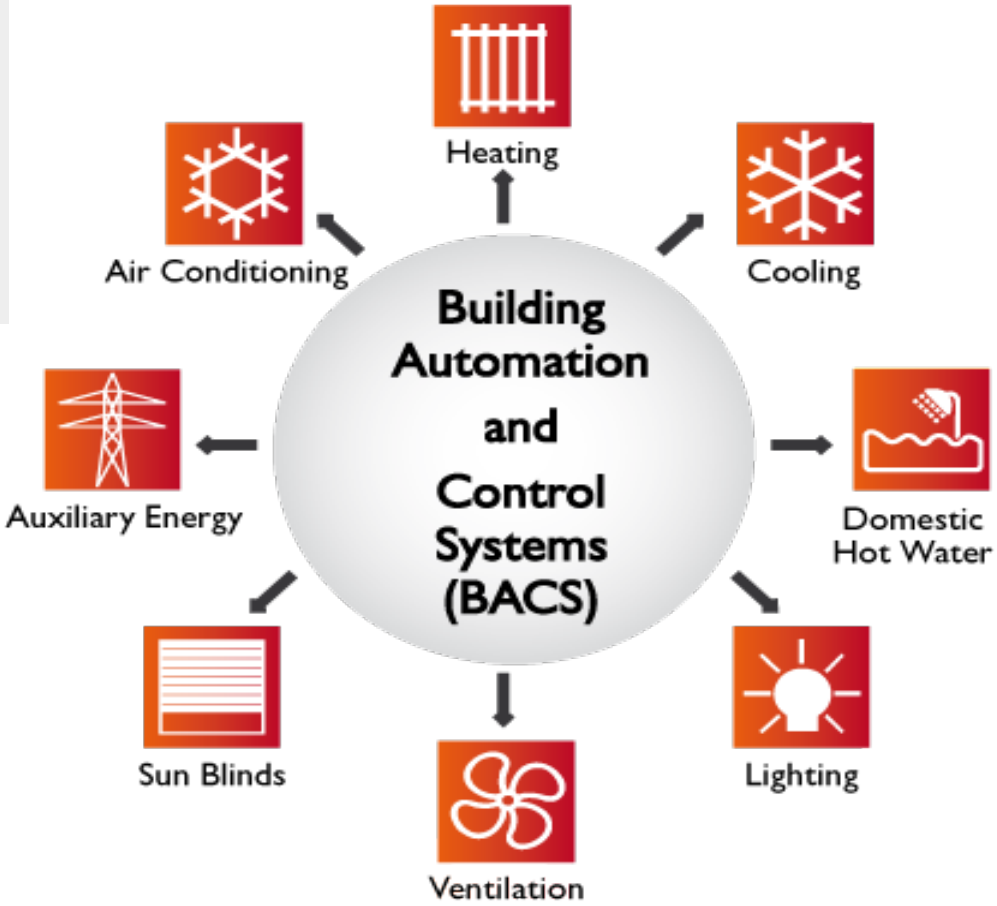
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All building systems need intelligent control

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A recent study* estimated potential savings of 3.4 Gigatonnes CO2 by 2035.

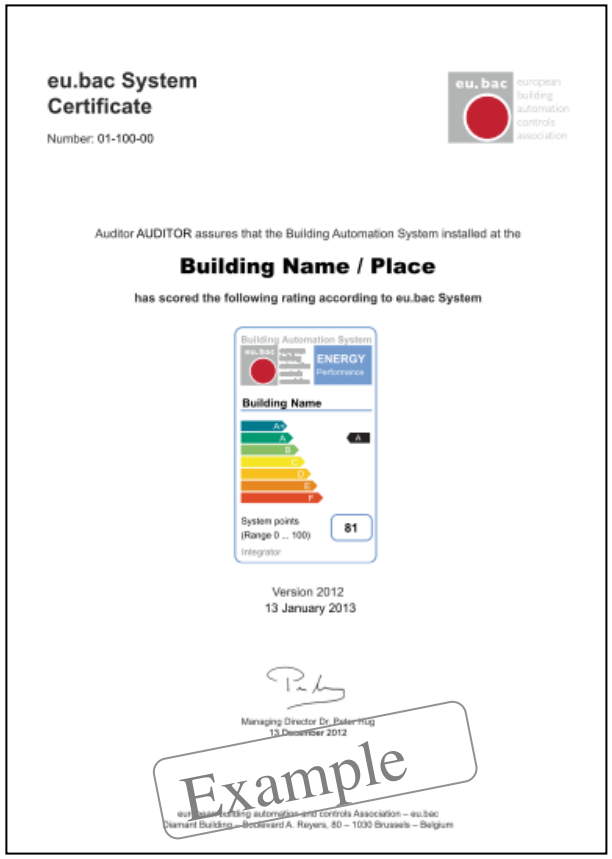


Control systems are essential to save energy but don't sit comfortably within product or building legislation

* Waide Strategic Efficiency for the European Copper Institute

The eu.bac system label for building automation and control systems

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eu.bac System Certificate

Number: 01-100-00

Auditor AUDITOR assures that the Building Automation System installed at the

Building Name / Place

has scored the following rating according to eu.bac System

Building Automation System

ENERGY Performance

Building Name

A+ A B C D E F

81

System points (Range 0 ... 100) 81

Integrator

Version 2012
13 January 2013

Managing Director Dr. Baier-Hug
13 December 2012

Example

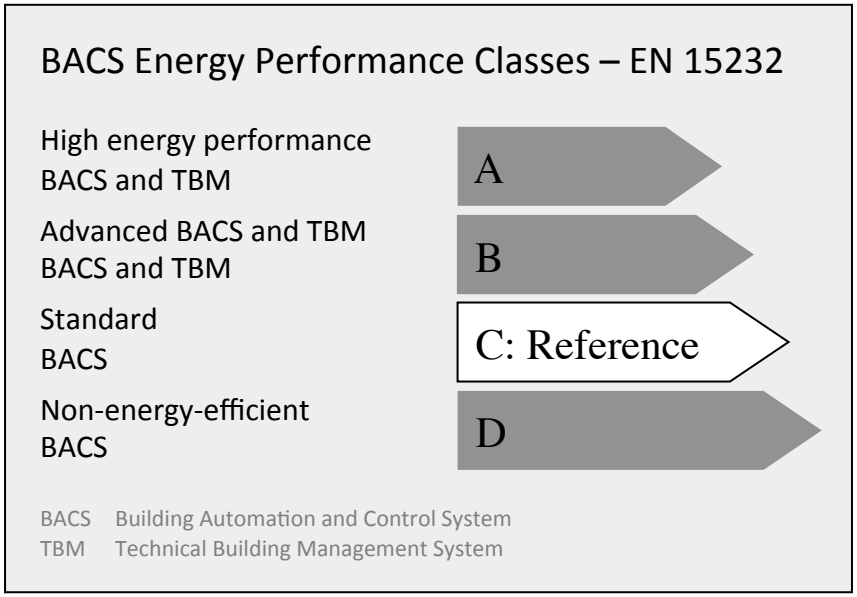
eu.bac European Building automation and controls Association – eu.bac
Diamant Building – Boulevard A. Reyers, 80 – 1030 Brussels – Belgium

- Developed to provide assurance that a BACS will be installed and managed at its most sustainable energy efficient level.
- Based on existing European standards
- Delivered by accredited experts trained by the industry association.
- Currently being rolled out across Europe.
- Offers a potential legislative tool for systems.

Classification of BACS functionality within EN 15232

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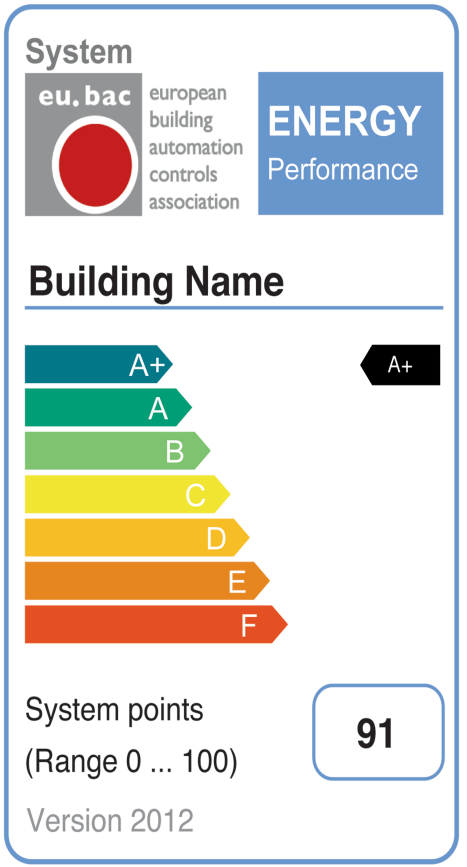
EN 15232 was developed to be part of a family of standards for European harmonization to ***calculate the energy performance of buildings*** (EPBD family)



	Thermal energy factor				Electrical energy factor			
Class	**D**	**C**	**B**	**A**	**D**	**C**	**B**	**A**
Offices	+51%	**0%**	-20%	-30%	+10%	**0%**	-7%	-13%
Lecture hall	+24%	**0%**	-25%	-50%	+6%	**0%**	-6%	-11%

eu.bac system label check list based on EN 15232

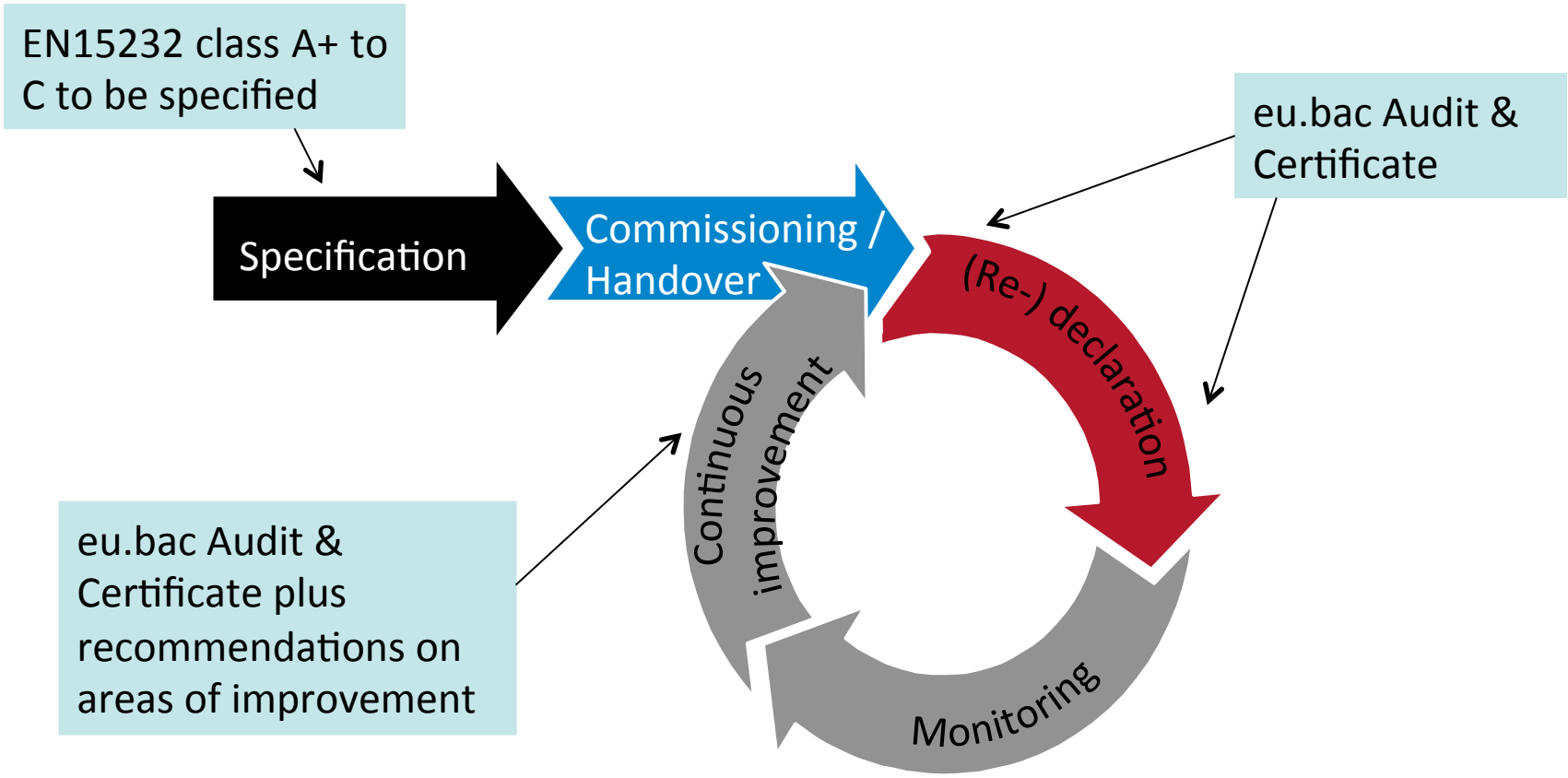
POINTS AND CLASS SUMMARY					POINTS
Section	Description	Importance	Actual Imp.	Norm. Score	Result
1	Heating control	10	10.00	61.29	**12**
2	Domestic hot water supply control	2	2.00	35.42	**1**
3	Cooling control	10	10.00	35.14	**7**
4	Ventilation and air conditioning control	10	10.00	38.10	**7**
5	Lighting control	5	5.00	0.00	**0**
6	Blind control	5%	2.55	0.00	**0**
7	Technical building management	10	4.76	66.67	**6**
8	eu.bac Key Performance Indicators	5%	2.55	0.00	**0**
9	eu.bac Extended Functionality	5%	2.55	29.24	**1**
10	eu.bac Certified Products	3%	1.53	0.00	**0**
NORMALIZED TOTAL (0-100)			50.93		**35**
			eu.bac System (F–A+):		**E**



A 10 point improvement means 5% energy savings!

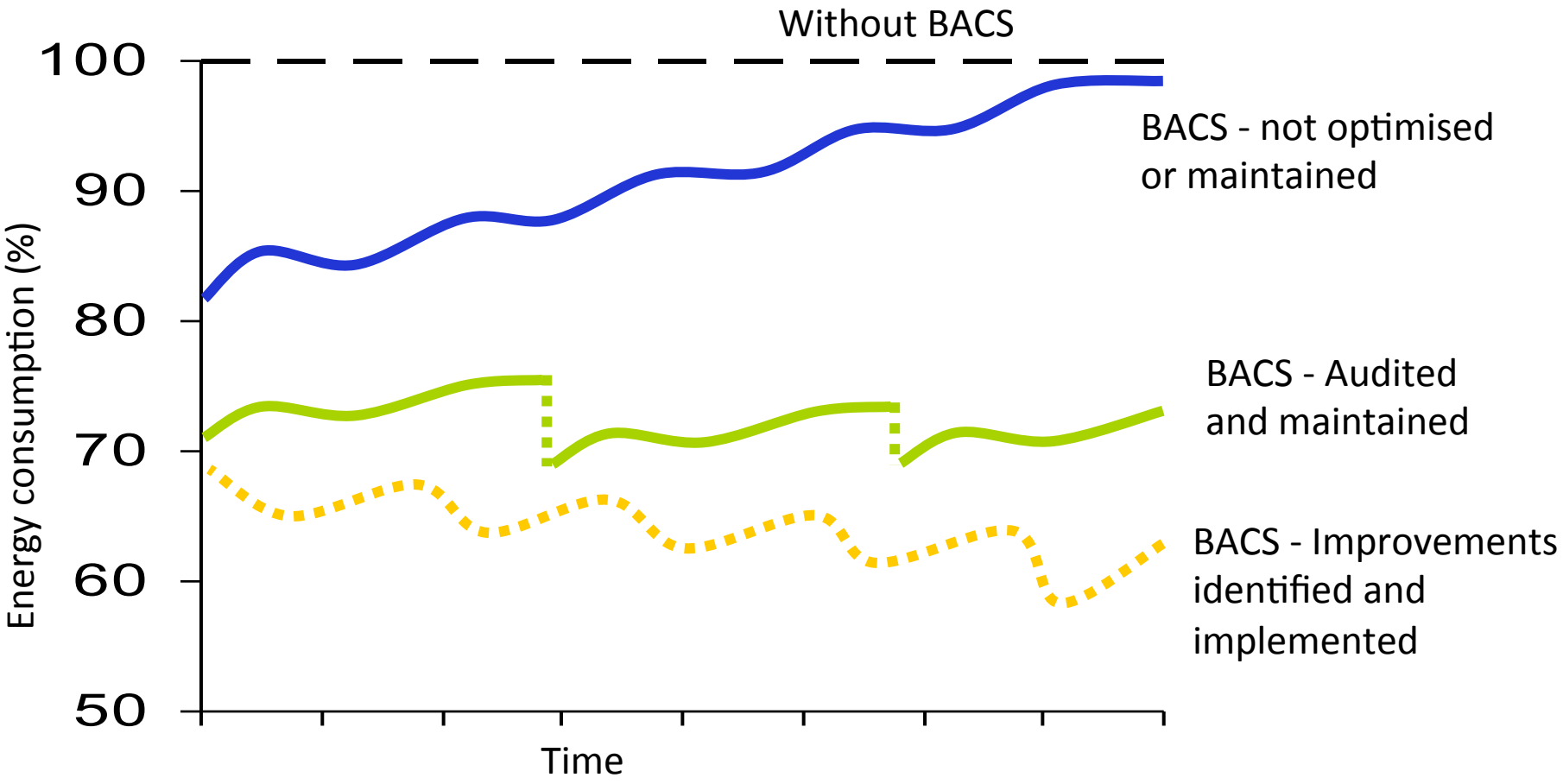
eu.bac system principle for new and existing buildings

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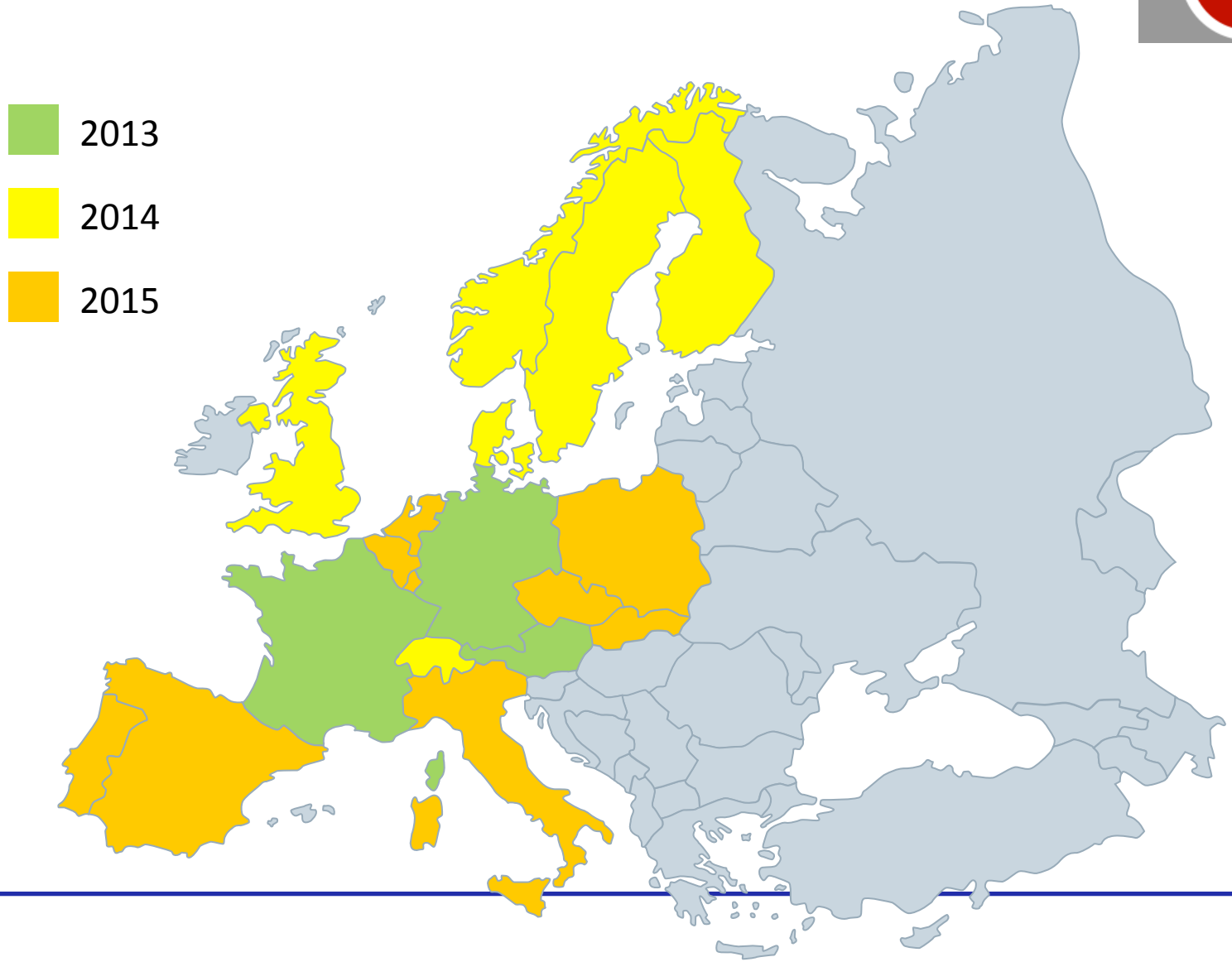
Maintaining and improving efficient operation

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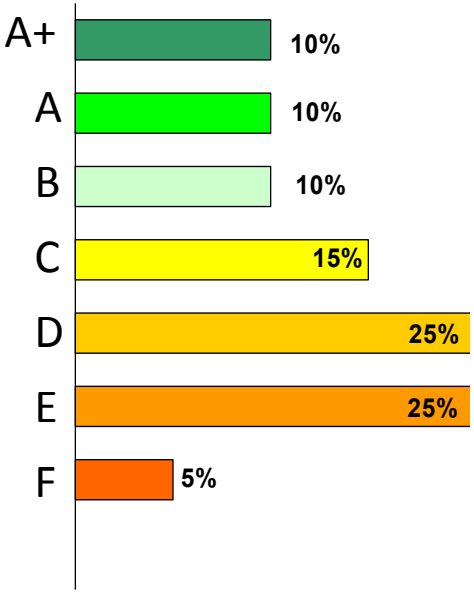
Roll out of the system label - progress

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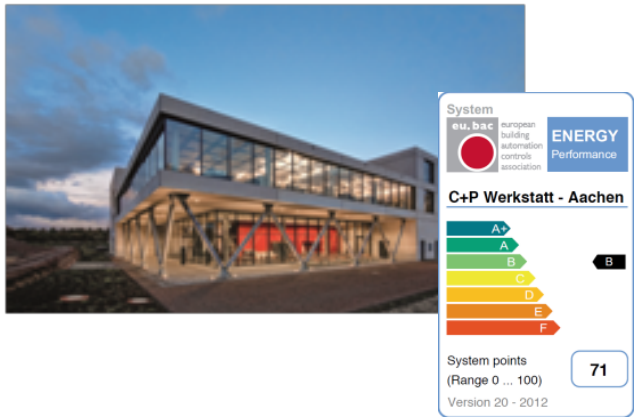


26 Auditors
7 trainers
7 Professors

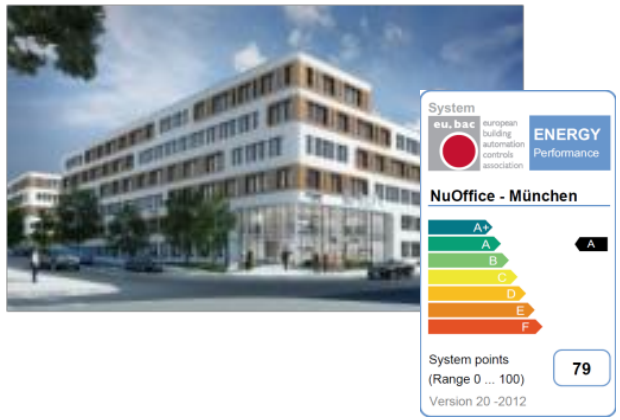
Current audit distribution



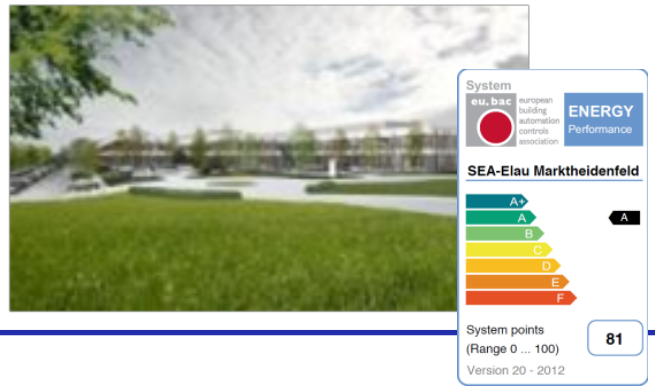
Carpus & Partners, Aachen



NuOffice, München



SEA-Elau, Marktheidenfeld



DIAL, Lüdenscheid



Some personal thoughts on regulatory measures for systems
– *if we were starting now*

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Energy Labelling Directive

Energy labelling for:

1. Stand-alone appliances
2. Buildings (fabric + fixed elements in a single rating)

Energy Performance of Buildings Directive

- More relevant for consumers/specifiers etc.
- More easily linked to regulation and fiscal incentives

Ecodesign Directive

- Use Implementing Measures to review fixed technologies and their interactions to inform the building energy label.



Some personal thoughts on regulatory measures for systems – *possible practical interventions*

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1. Require Member States to set standards for controls in buildings using EN15232 as a benchmark

> **1.7 Summary of recommended minimum energy efficiency standards**
>
> Unless specified otherwise in this guide, it is recommended that, where applicable, building services are provided with controls that as a minimum correspond to Band C in BS EN 15232:2012, *Energy performance of buildings – impact of building automation, controls and building management.*

2. Require Member States to establish regular inspections of BAC systems (as currently required for heating and air conditioning systems.)
3. Formally adopt the eu.bac system label as a regulatory tool for BAC system inspections.
4. Bring together provisional IMs on heating and lighting controls into a single Implementing Measure on building controls to deliver a wider tool for Member States.

EPBD

Ecodesign/Energy Labelling

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Email: **colin.timmins@eubac.org**

19 February 2014, 14:30-16:00, Brussels:

eu.bac side event "*When is a product more than a product, when it is part of a system! A systematic approach to Ecodesign*". Contact: **frederic.melchior@eubac.org**