

WEBINAR

SYSTEM BALANCING: A GREAT OPPORTUNITY FOR ENERGY SAVINGS AND COMFORT

Thursday 8 July

14:30-16:00 CEST

- **PAU GARCIA AUDI**, European Commission, DG ENER:
"How the Renovation Wave can contribute to optimise heating and cooling systems"
 - **CLAUDIO ARDIZZOIA**, Caleffi: *"The importance of Hydronic Balancing"*
 - **GUILLERMO LÓPEZ ALONSO**, MITECO - Spanish Ministry for Ecological -Transition and Demographic Challenge:
"Case study: How Spain successfully introduced requirements for hydronic balancing"
 - **BRUNO PEDROTTI**, Danfoss: *"How can we realize the full potential at EU and national level?"*
 - **ELENA ALLEGRINI**, ENEA - Italian National Agency for New Technologies, Energy and Sustainable Economic Development:
"The importance of tax relief in building renovation: a focus on heating systems and the contribution of system balancing"
 - **FLORENT TROCHU**, ACR Syndicat, *"Focus on French initiatives : developing standards and benchmark to support the market efficiently"*
- Q&A moderated by **SIMONE ALESSANDRI**, eu.bac
- **RENATO BROCCETTA**, AVR: *closing remarks*



HOUSEKEEPING

- All participants are kindly asked to remain muted during the meeting
- Only speakers and moderator will remain unmuted
- Participants can ask questions through the chat box. The moderator will collect the questions for the Q&A session
- Questions should be as concise as possible and specify to whom they are directed to
- If time does not allow to cover all questions, they will be forwarded to the speaker for a later response
- The presentations will be shared with the participants after the meeting
- The session is being recorded

WEBINAR

SYSTEM BALANCING: A GREAT OPPORTUNITY FOR ENERGY SAVINGS AND COMFORT

*"How the Renovation Wave can contribute to
optimise heating and cooling systems"*

PAU GARCIA AUDI, European Commission, DG ENER





Renovation Wave

The European Green Deal

#EUGreenDeal

The Renovation wave

Greening our buildings faster, Creating jobs, Improving lives

On 14 October 2020, the European Commission presented its Renovation Wave Strategy. The Commission aims to at least:

- double renovation rates in the next ten years;
- make sure renovations lead to higher energy and resource efficiency.

This will enhance the quality of life for people living in and using the buildings, reduce Europe's greenhouse gas emissions, foster digitalisation and improve the reuse and recycling of materials.



<https://audiovisual.ec.europa.eu/en/video/I-195844>

Building Renovation for Climate Neutrality and Recovery



The building sector is one of the **largest energy consumers** in Europe, responsible for more than one third of the EU's energy-related emissions.



Effective actions are crucial to make Europe climate-neutral as:

- Only 1% of buildings undergo energy efficient renovation every year
- Roughly 75% of the building stock is energy inefficient
- Almost 85-95% of today's buildings will still be in use in 2050



Therefore, by 2030:

- 35 million buildings could be renovated
- A significant number of additional green jobs created in the construction and related sectors
- 12-18 local jobs per million euro invested

Making Europe's Buildings Remarkably Different



Decarbonisation of heating and cooling



Tackling energy poverty and **worst-performing buildings**



Renovation of public buildings and social infrastructure such as schools, hospitals and administrative buildings



A set of policy measures, funding tools and technical assistance instruments to break down of existing barriers throughout the renovation chain – from the conception of a project to its funding and completion

Fast and Accessible Renovation for Better Buildings



Stronger regulations, standards and information on the energy performance of buildings, for example:

- A phased introduction of mandatory minimum energy performance standards for existing buildings
- Updated rules for Energy Performance Certificates
- Possible extension of building renovation requirements for the public sector



Accessible and well-targeted funding, for example:

- 'Renovate' and 'Power Up' Flagships in the Recovery and Resilience Facility under NextGenerationEU
- Simplified rules for combining different funding streams
- Multiple incentives for private financing

Districts approaches uniting people and communities



Developing **neighborhood-based approaches** for local communities to integrate renewable and digital solutions and create zero-energy districts, where consumers become prosumers selling energy to the grid



The strategy also includes an **Affordable Housing Initiative** for 100 districts





The EPBD is the main instrument addressing building performance in the EU

Energy performance approach

- Minimum energy performance requirements for new buildings and existing buildings undergoing major renovations
- Requirements based on cost-optimal models
- Energy Performance Certification
- Nearly zero-energy building targets for new buildings
- Inspections of heating and air-conditioning systems
- Technical systems, smart systems and e-mobility



REVISION OF THE ENERGY PERFORMANCE OF BUILDINGS DIRECTIVE

- **Targeted revision** - Focus on provisions that are central to boosting building renovation
- **Future steps:**
 - Roadmap (closed)
 - Open Public Consultation (closed)
 - <https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12910-Revision-of-the-Energy-Performance-of-Buildings-Directive-2010-31-EU>
 - Stakeholder engagement between Q1 and Q2
 - Commission proposal by Q4 2021

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"The importance of Hydronic Balancing"

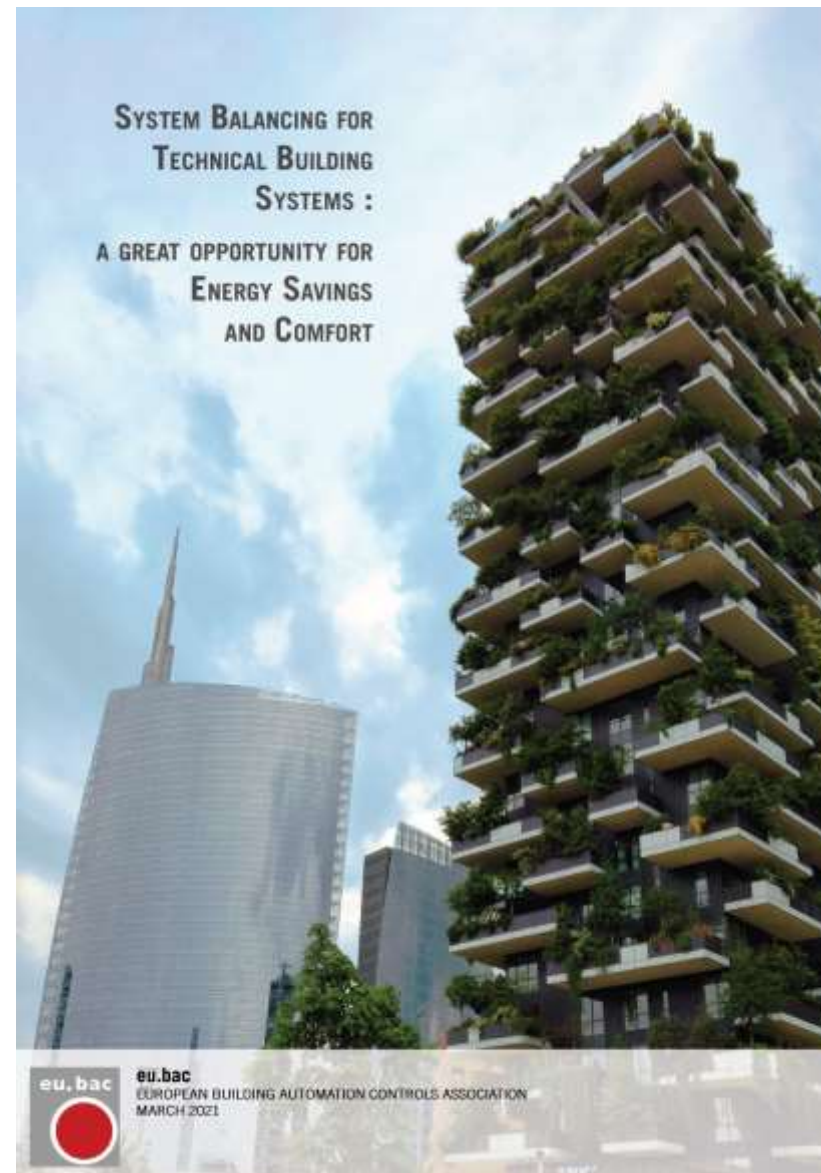
CLAUDIO ARDIZZOIA, Caleffi



THE IMPORTANCE OF SYSTEM BALANCING

New [Guide by eu.bac](#) for system balancing, energy savings and comfort in Buildings

A clear and proven summary on possible goals and achievements in terms of energy performance for all building stocks



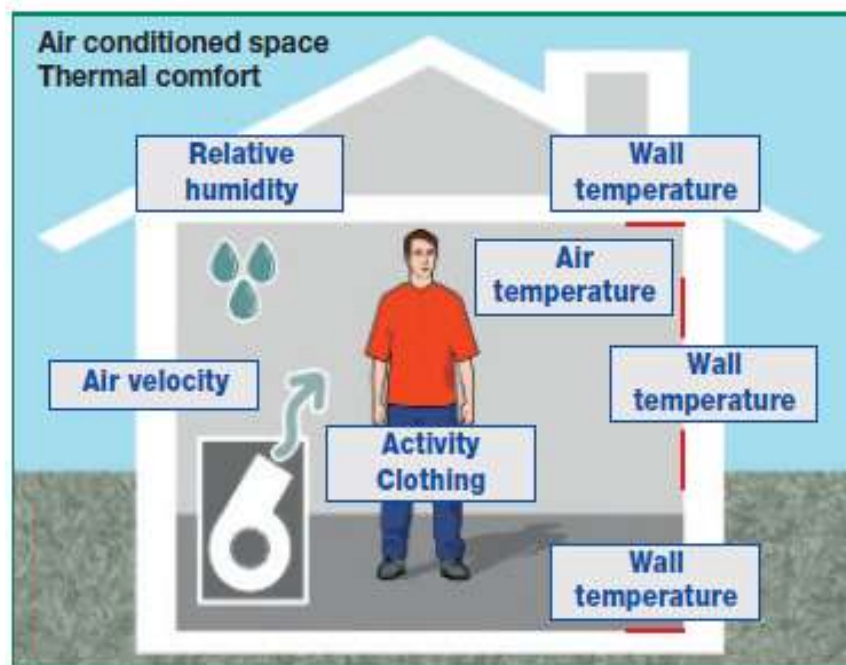
In Europe, **energy consumption** for heating and cooling of **Buildings** = **30% of total** energy consumption

Yearly **Energy savings** with thermal control and balanced system **from 11 to 22 %**

Yearly **Energy reduction** up to **22 Mtoe** and related **CO2 emission**

95% of all Buildings in Europe are still working with **unbalanced systems**

THE IMPORTANCE OF SYSTEM BALANCING

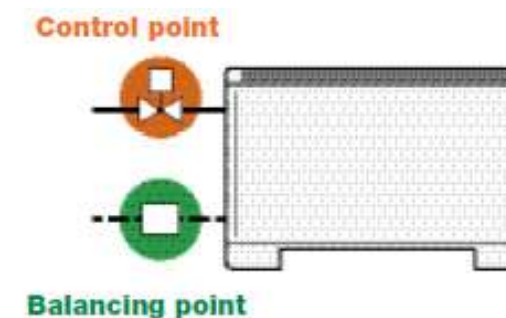


Thermal comfort in room space has to be guaranteed independently of outside conditions

Heating and cooling systems work on water based principle

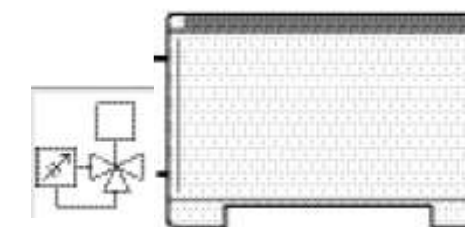
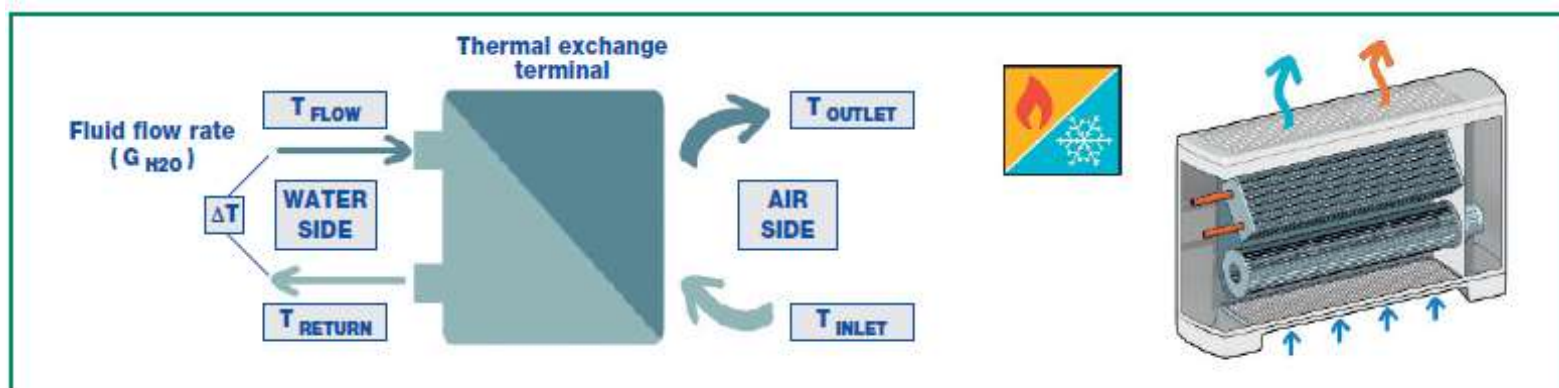
Control valve and balancing valve at zone unit

Goal: supply every terminal unit with the right flow rate of water in every load condition



Flow rate balancing point:
guarantee the nominal design flow rate

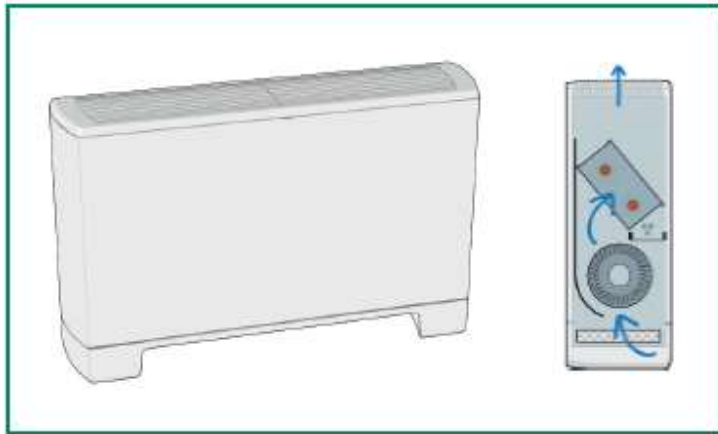
Flow rate control point: adapt the flow in response to changes of the thermal load



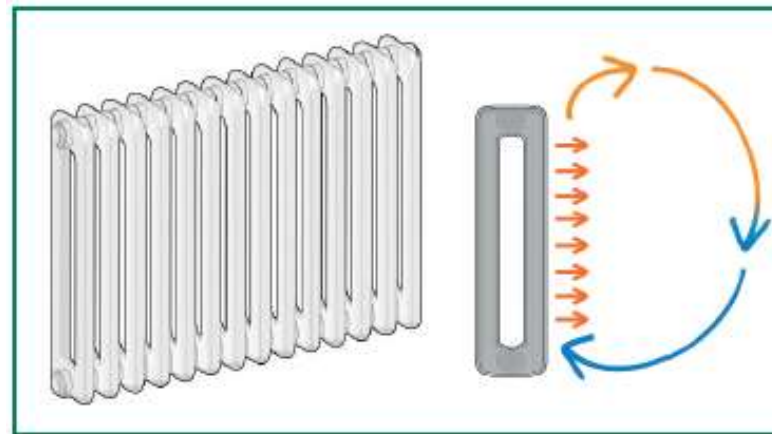
Flow rate **balancing** and **control** in one common point

THE IMPORTANCE OF SYSTEM BALANCING

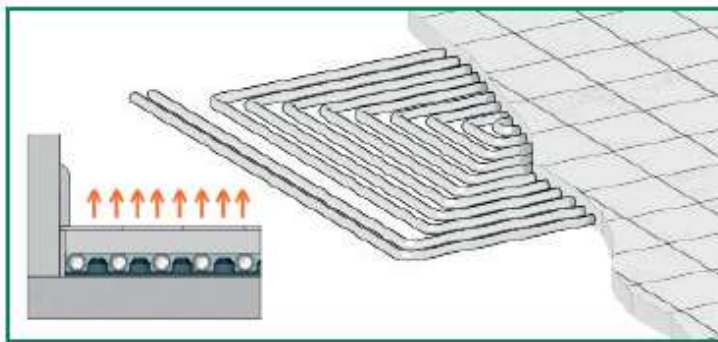
Examples of terminal units



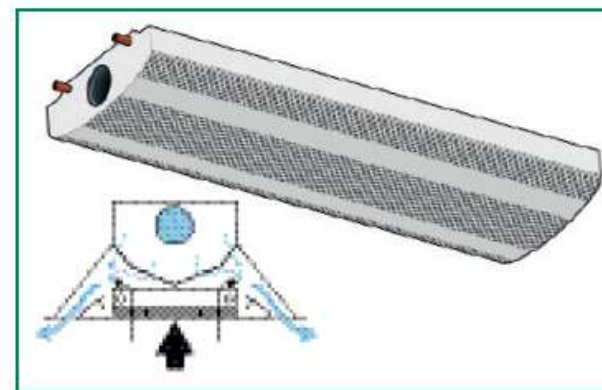
Fan coil



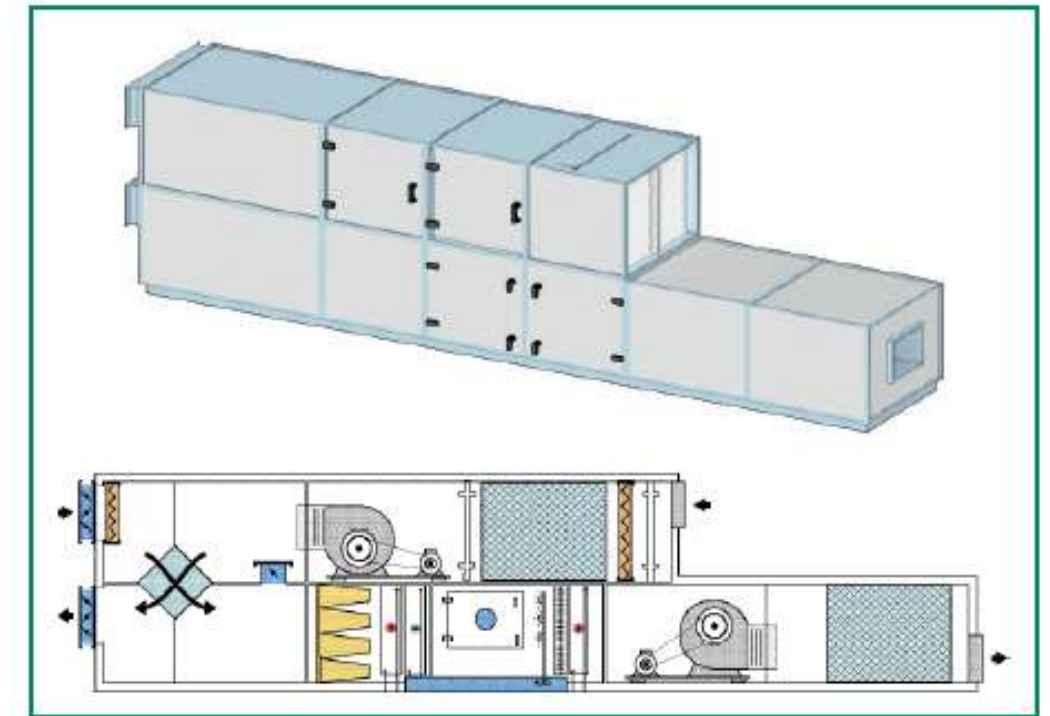
Radiator



Radiant panel



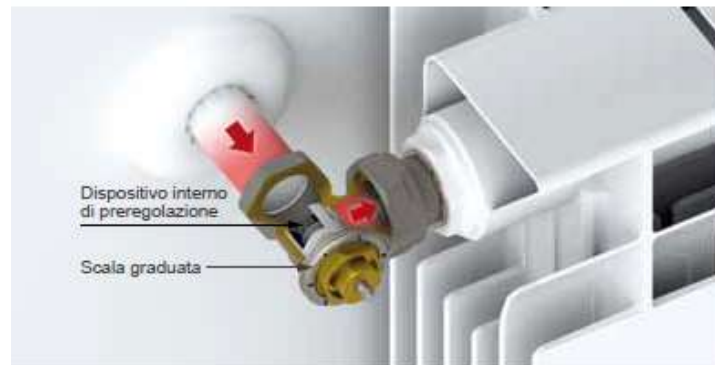
Chilled beam



Air Handling Unit (AHU)

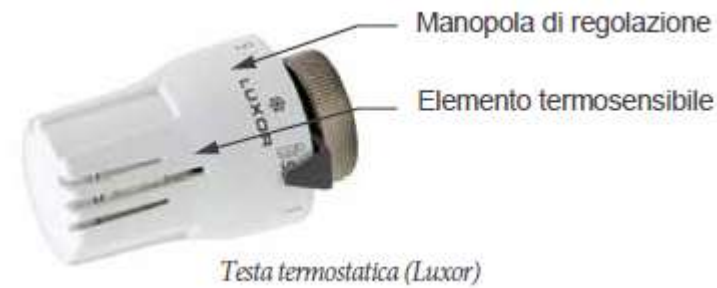
THE IMPORTANCE OF SYSTEM BALANCING

Examples of control valves



Valvola termostatica preregolabile (Luxor)

Radiator valves



Thermostatic Actuator



Electronic actuator



**PICV
for coils**



Valvola di miscelatrice a settore
a 3 vie (Watts)

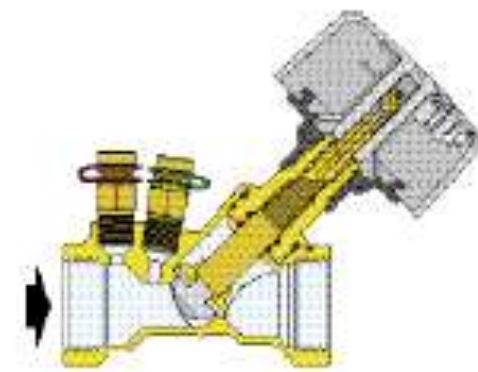
**Diverting
valve for coils**

THE IMPORTANCE OF SYSTEM BALANCING

Type of balancing devices

Static balancing

Flow rate adjustment is manually obtained setting the position of the internal obturator with the rotating handle.



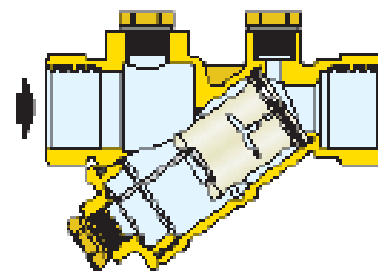
Manual balancing valve



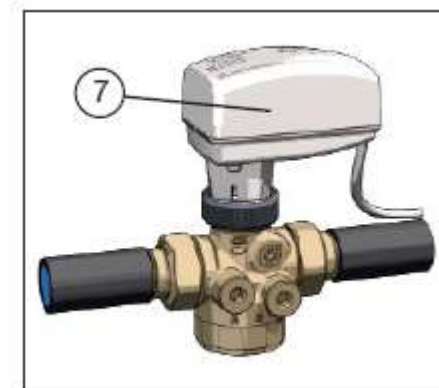
Static radiator valve

Dynamic balancing

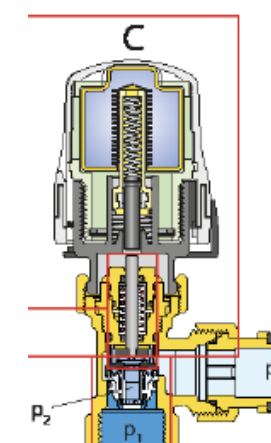
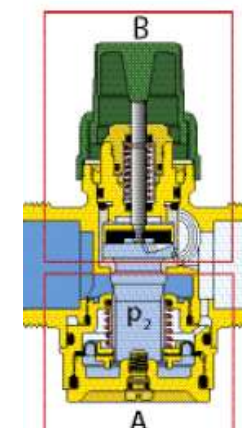
Flow rate automatically is adjusted to a pre set value and kept, independently of pressure variations. Some devices have also the incorporated control valve for changing the flow rate depending on the actual thermal load. They are called PICV (Pressure Independent Control Valve).



Dynamic balancing valve

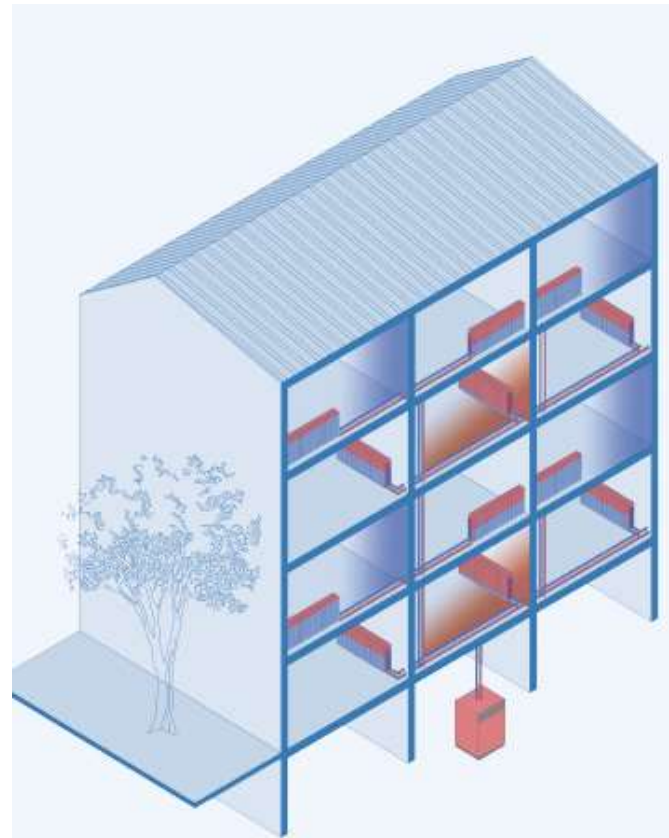


PICV valve



Dynamic radiator valve

THE IMPORTANCE OF SYSTEM BALANCING



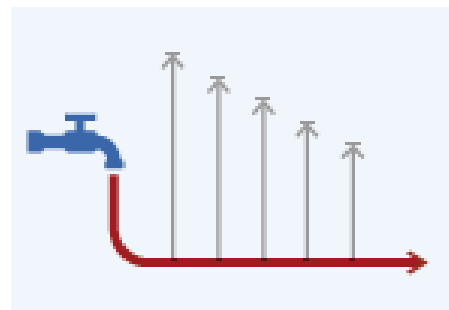
WITHOUT HYDRONIC BALANCING

- Some rooms are too hot and some too cold.
- Heat appliance is operating inefficiently.

Overflow on the closest terminal units

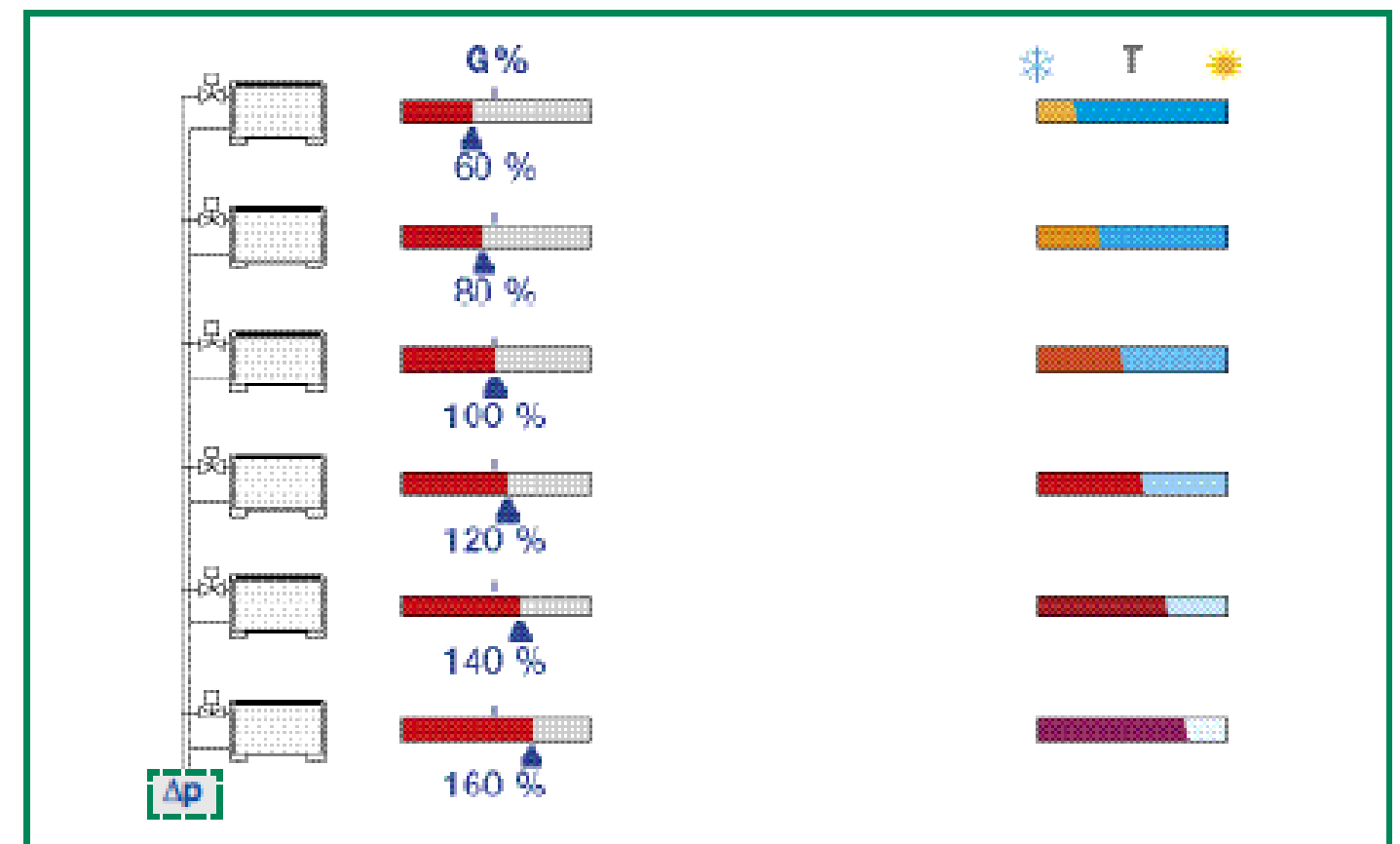
Total Flow rate higher than necessary

Pump at max consumption

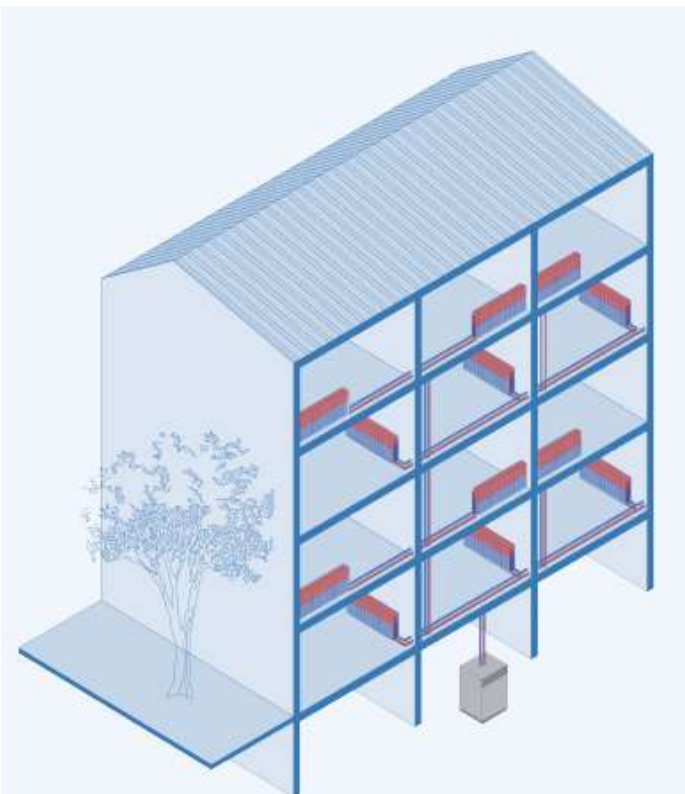


**POOR EFFICIENCY AND
HIGH ENERGY COSTS**

UNBALANCED CIRCUIT



THE IMPORTANCE OF SYSTEM BALANCING



WITH HYDRONIC BALANCING

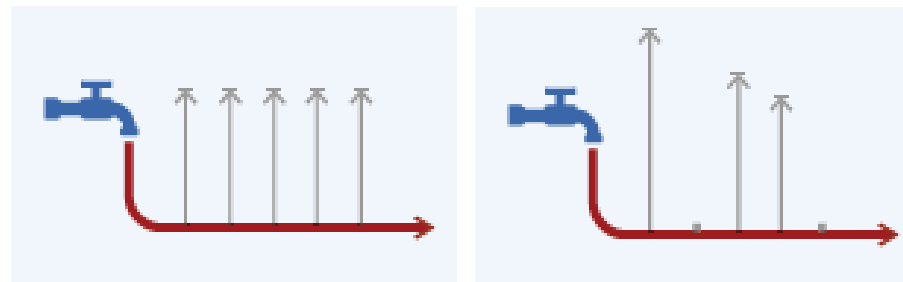
- Suitable temperatures in all rooms.
- Heat appliance is operating efficiently.

All units supplied with the design flow rate

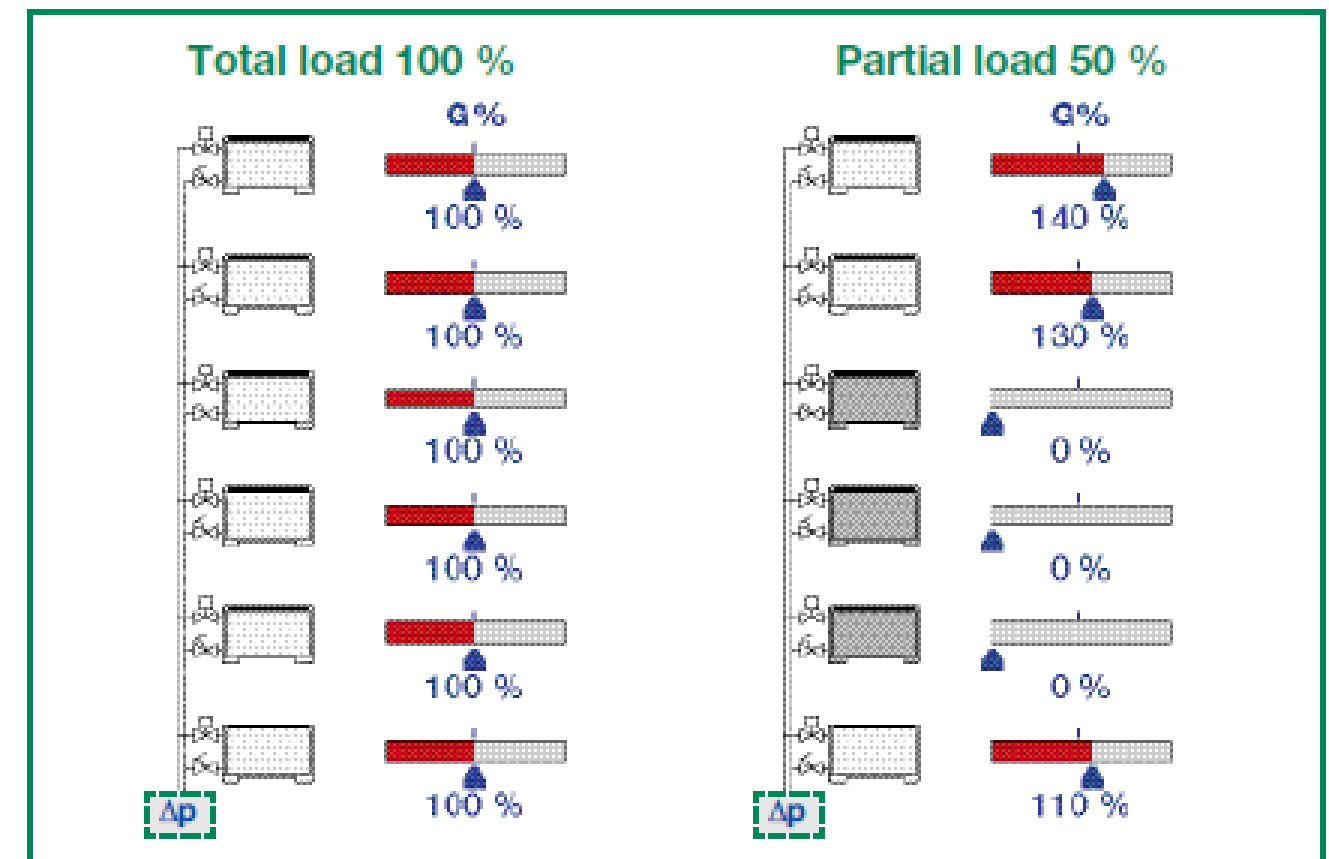
At partial load, still overflow on some terminal units. Static valves cannot react.

Pump consumption still high

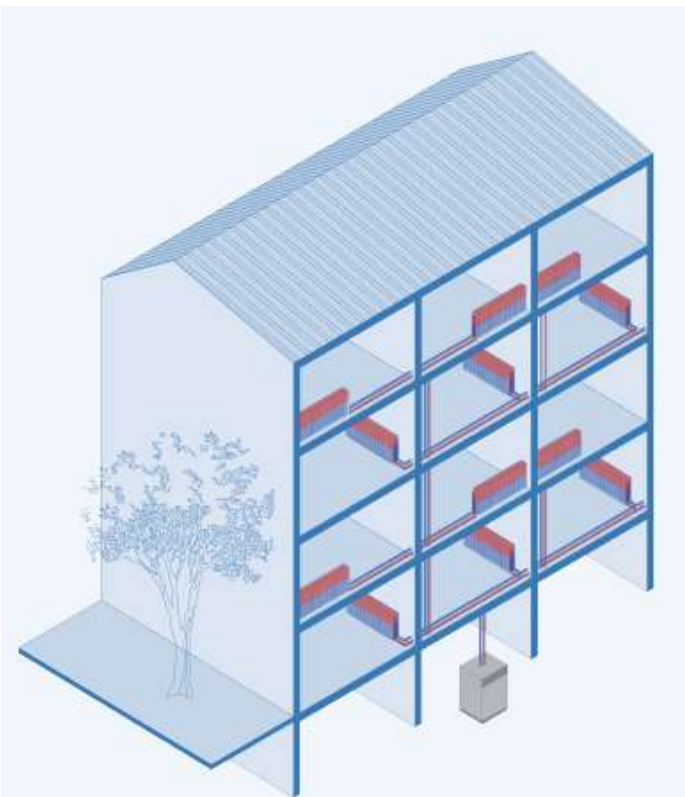
EFFICIENCY AND SAVING AT SUFFICIENT LEVEL



STATIC BALANCING



THE IMPORTANCE OF SYSTEM BALANCING



WITH HYDRONIC BALANCING

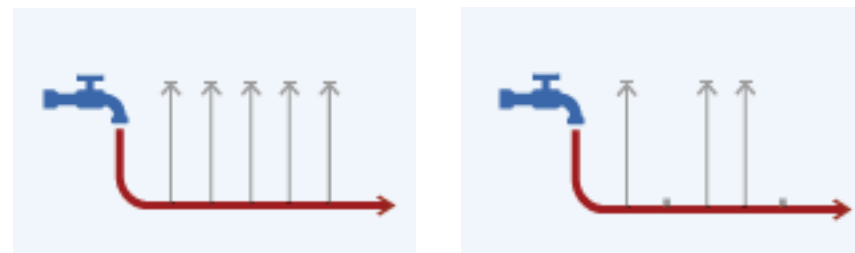
- Suitable temperatures in all rooms.
- Heat appliance is operating efficiently.

All units supplied automatically with the right flow rate

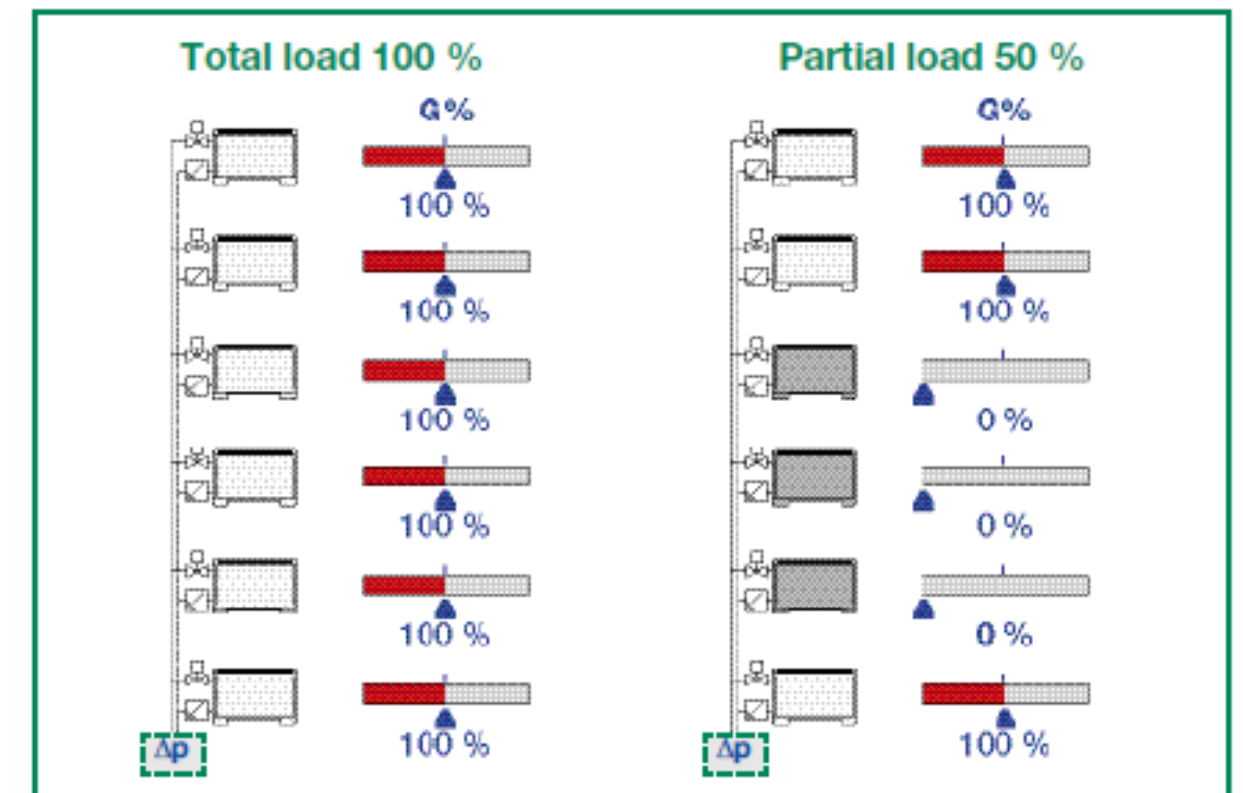
At partial load, **all units always supplied with the design flow rate. Dynamic valves react to control.**

Pump consumption reduced

EFFICIENCY AND SAVING AT OPTIMUM LEVEL



DYNAMIC BALANCING



THE IMPORTANCE OF SYSTEM BALANCING

All units with **PICV**

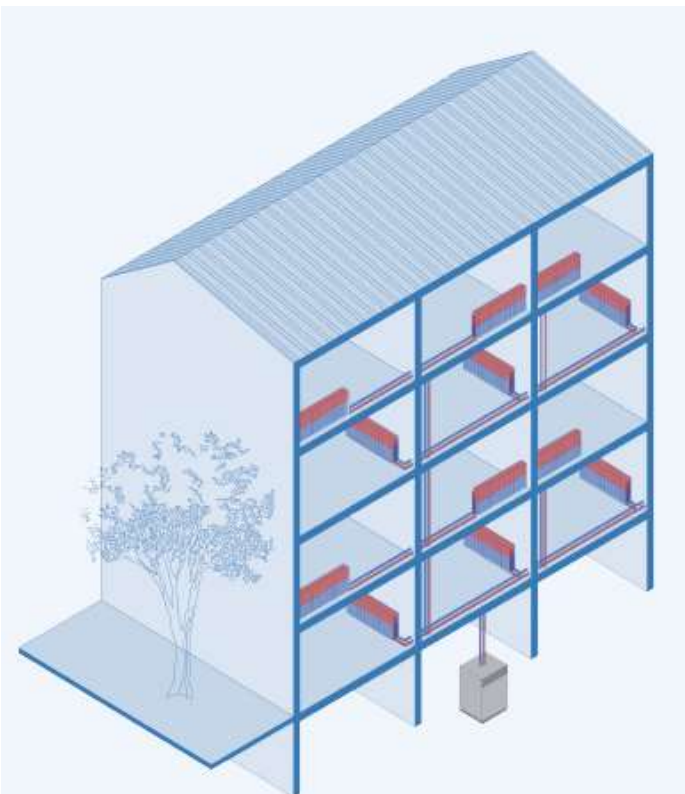
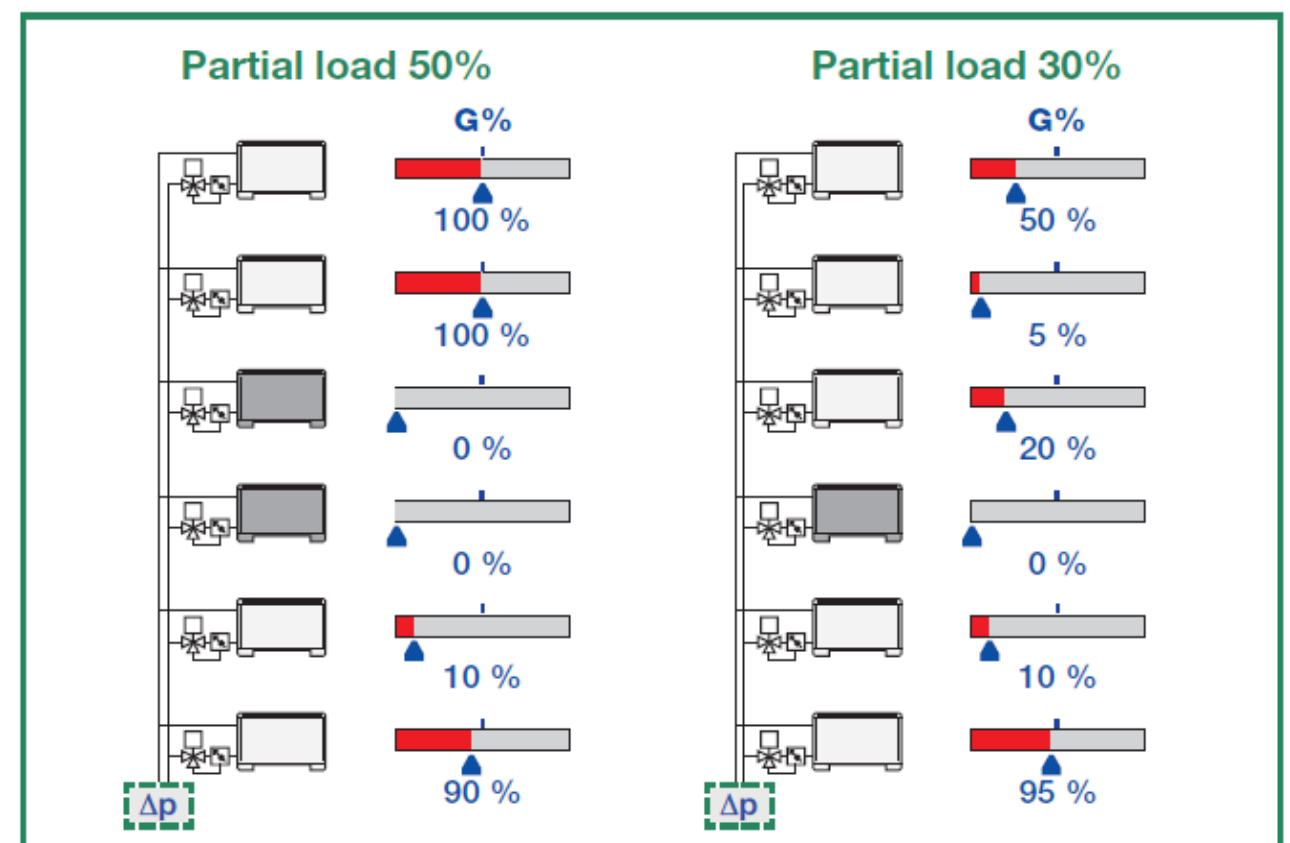
Automatically supplied with the right flow rate

At partial load, **all units always supplied with the controlled flow rate**

Pump consumption at minimum

EFFICIENCY AND SAVING AT MAXIMUM LEVEL

DYNAMIC BALANCING and CONTROL



**WITH
HYDRONIC
BALANCING**

- Suitable temperatures in all rooms.
- Heat appliance is operating efficiently.

ITALY-AVR INITIATIVE



Italian Working Group with main manufacturers of specific components, control valves and balancing valve

Preparation and distribution of Technical Manual for in depth analysis of systems

For system designers, engineers, plumbers

Based on initial work by the French technical centre COSTIC, financed by industry ACR & EVOLIS with the support of the sector representatives “Energies & Avenir”



ITALY-AVR INITIATIVE



brandoni
VALVES

FRATELLI
PETTINAROLI

CALEFFI
Hydronic Solutions

**RUBINETTERIE
BRESCIANE**

cimberio
technological solutions

RBM
FOR EFFICIENCY

ENGINEERING
TOMORROW **Danfoss**

vir
Valvolutecnica S.p.A. - Roma S.p.A.

IVAR
INDUSTRIE LUBRIFICANTI & PISTONI

WATTS

LUXOR

Content of the manual

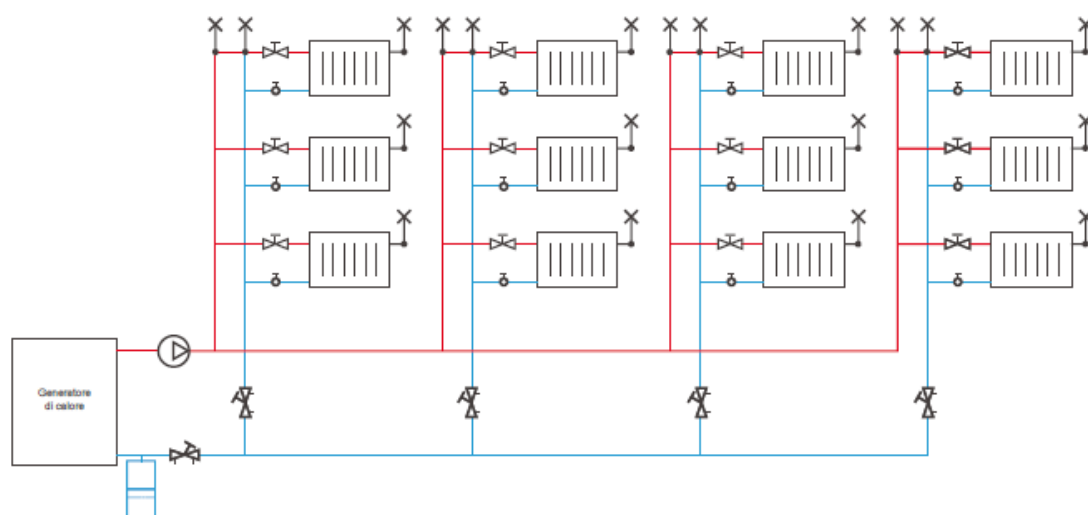
- 1) Existing HVAC systems in buildings to be improved
- 2) New HVAC systems
- 3) Domestic hot water systems
- 4) System Technical aspects and components

ITALY-AVR INITIATIVE

Evaluation of the system situation

DISTRIBUZIONE A COLONNE MONTANTI - EMISSIONE TRAMITE RADIATORI

pompa a velocità fissa, valvole manuali, valvole manuali di bilanciamento



Rating:

- **Comfort**
- **Energy performance**
- **Working Cost**
- **Environment**
- **Building stock value**

Comfort	<ul style="list-style-type: none">- Comfort non raggiunto alla temperatura impostata- Temperatura interna instabile- Rumore nelle valvole- Disparità delle temperature interne	☆☆☆☆☆
Prestazione energetica	<ul style="list-style-type: none">- Bolletta per il riscaldamento alta rispetto al comfort ottenuto	★☆☆☆☆
Costo totale	<ul style="list-style-type: none">- Costo di manutenzione elevato- Consumi di combustibile ed elettricità elevati- Interventi e guasti frequenti- Degrado della rete idraulica	☆☆☆☆☆
Ambiente	<ul style="list-style-type: none">- Spreco energetico- Inquinamento	★☆☆☆☆
Valorizzazione del patrimonio	<ul style="list-style-type: none">- Crescente degrado rispetto agli standard attuali	★☆☆☆☆

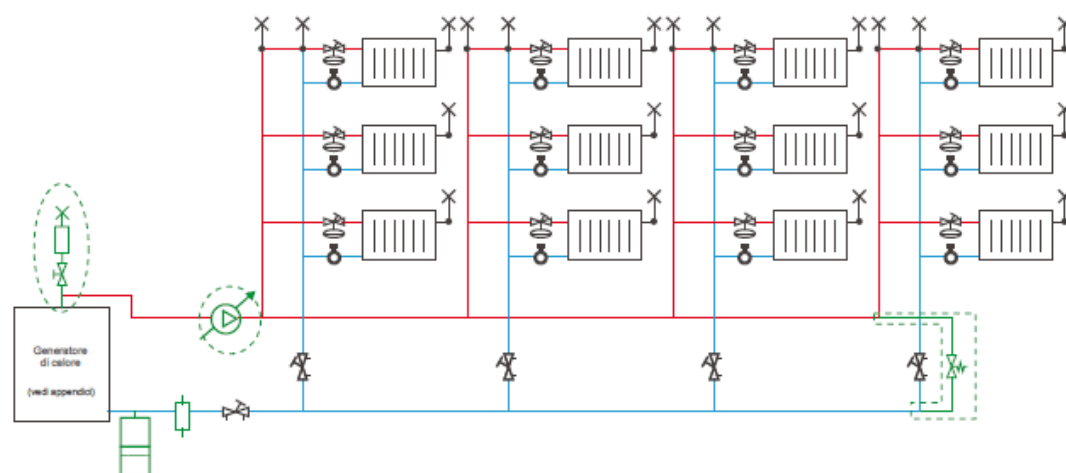
Valutazione della configurazione iniziale

ITALY-AVR INITIATIVE

Different possible solutions and selection

DISTRIBUZIONE A COLONNE MONTANTI - EMISSIONE TRAMITE RADIATORI

Valvole termostatiche dinamiche, pompa a velocità variabile



Rating:

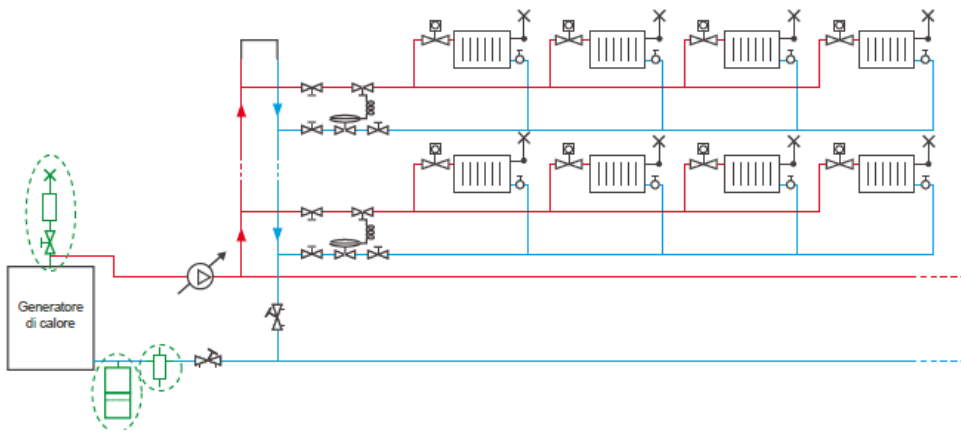
- **Comfort**
- **Energy performance**
- **Working Cost**
- **Environment**
- **Building stock value**

Comfort	<ul style="list-style-type: none">- Temperatura desiderata stanza / stanza (valvole termostatiche dinamiche)- Scomparsa del rumore (valvole di sovrappressione + pompa a velocità variabile + separatore d'aria)- Comfort individuale garantito	★★★★★
Prestazione energetica	<ul style="list-style-type: none">- Adattamento del consumo ai bisogni (circolatori + valvole termostatiche dinamiche)- Considerazione degli apporti gratuiti (valvole termostatiche dinamiche)- Temperatura di ritorno più bassa quindi migliore prestazione del generatore	★★★★☆
Facilità d'installazione	<ul style="list-style-type: none">- Facilità di installazione, Regolazione della portata sulla valvola	★★★★★
Costo totale	<ul style="list-style-type: none">- Minore probabilità di guasti e degli interventi di manutenzione: separatore d'aria, defangatore, valvole di spurgo, assenza di grippaggio pompa (vedere allegato 1)- Consumo della pompa ottimizzato	★★★★☆
Ambiente	<ul style="list-style-type: none">- Uso di tutta l'energia prodotta (T di ritorno bassa quindi condensazione delle caldaie e ottimizzazione delle prestazioni delle pompe di calore)- Riduzioni di emissioni CO₂	★★★★☆
Valorizzazione del patrimonio	<ul style="list-style-type: none">- Miglioramento della prestazione energetica del sistema edificio/impianto- Durata della rete (qualità d'acqua mantenuta)	★★★★☆

Valutazione della soluzione tecnica n. 3

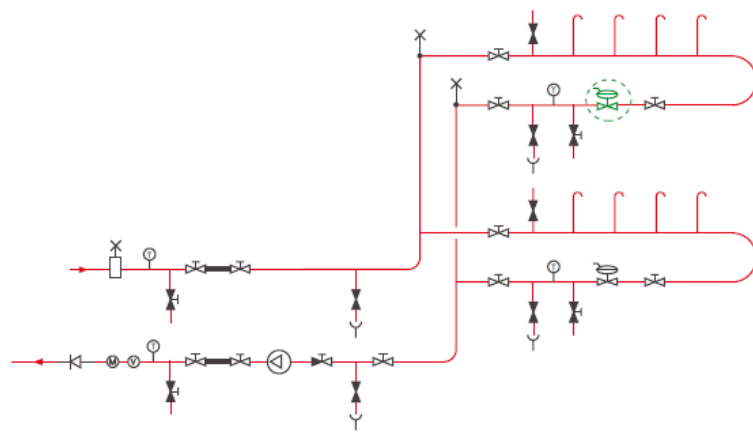
ITALY-AVR INITIATIVE

DISTRIBUZIONE A ZONE - EMISSIONE TRAMITE RADIATORI
Modulo termico di zona, valvole termostatiche preregolabili, pompa a velocità variabile



Soluzione tecnica n. 2

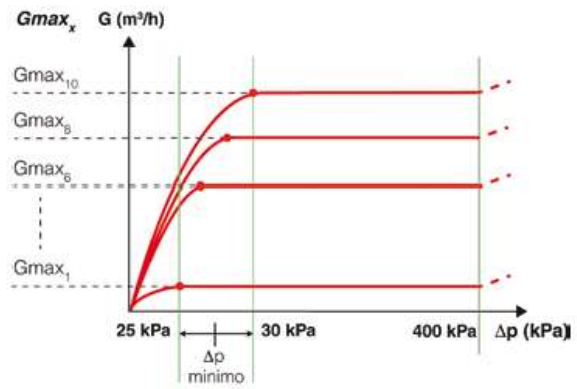
RICIRCOLO DI ACQUA CALDA SANITARIA
Valvole di bilanciamento dinamiche



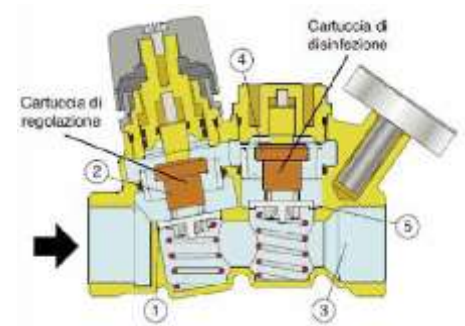
Soluzione tecnica n. 2

Other content:

- System conditions
- System Components
- Example of system calculation



Esempio grafico del principio di funzionamento della PICV



Valvola di bilanciamento automatica con controllo indipendente dalla pressione (Cimberio)



Valvole a 6 vie di regolazione (Danfoss)

ITALY-AVR INITIATIVE

New WEB Site for direct promotion to consumer

<https://www.benesseretermico.com/>



Thank you!



ANIMA[®]
CONFINDUSTRIA
MECCANICA VARIA



WEBINAR

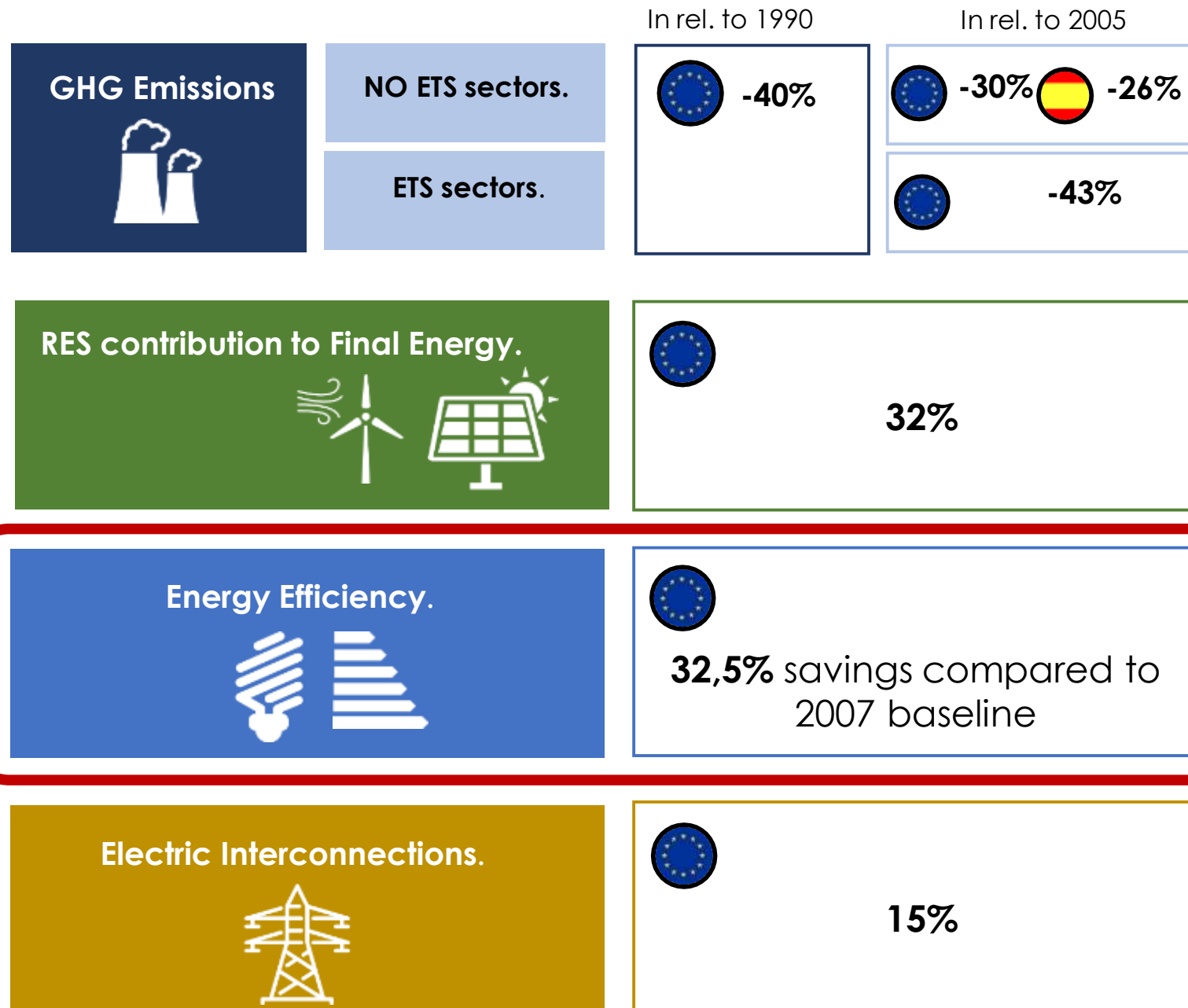
SYSTEM BALANCING: A GREAT OPPORTUNITY FOR ENERGY SAVINGS AND COMFORT

"Case study: How Spain successfully introduced requirements for hydronic balancing"

GUILLERMO LÓPEZ ALONSO, MITECO - Spanish Ministry for Ecological -Transition and Demographic Challenge



Objectives 2030



Integrated Energy and Climate Plan Recovery, Transformation and Resil. Plan Strategy For Energy Rehabilitation (Building Sector)



Regulations on Thermal Installations in Buildings (RITE)

RITE

evolution: 1998 → 2007 → 4 modifications (2009-2016) → **2021 (New modification)** → **New RITE 2023?**

- ✓ Design
- ✓ Constructions and assembling
- ✓ Maintenance and Use
- ✓ Inspections

Quality & Hygiene

EE, RES & Residual Energy

Safety

- a) Heat and cold generation
- b) Piping networks. Heat and cold networks

c) Control of the thermal installations

- d) Accounting of consumption
- e) Energy recovery
- f) Use of RES-E and residuals
- g) Limit the use of conventional energy
- h) EE general evaluation

REQUIREMENTS

RITE: Modifications released in 2021 ^(1/2)

Origin	Main Modifications
D(EU) 2018/844 Energy performance of buildings + EE	<ul style="list-style-type: none">• Definitions• More requirements (new & refurbished heating systems):<ul style="list-style-type: none">- Equipment and ecodesign regulations- Avoid over-sizing of equipment / operating temperatures- Use of heating and cooling networks
D (EU) 2018/2001 on the promotion of RES	<ul style="list-style-type: none">• Definitions• Information about RES contribution• Heat Pump
Other	<ul style="list-style-type: none">• Power scaling• Burners• Adaptation to newest regulation (UNE e.a.)

RITE: Modifications released in 2021 ^(2/2)

- a) Heat and cold generation
- b) Piping networks. Heat and cold networks
- c) Control of the thermal installations**
- d) Accounting of consumption
- e) Energy recovery
- f) Use of RES-E and residuals
- g) Limit the use of conventional energy
- h) EE general evaluation

1. Heating & cooling systems
2. Thermo-hygrometric conditions
3. Indoor air quality in air-conditioning systems
4. Centralised domestic hot water preparation systems
5. Automation and control systems for installations

- Autorregulating systems that separately regulate the ambient temperature in each interior space
- Regulation and automatic adaptation of the heating capacity
- Variable flow + Total heat generation capacity > 70 kW, → **Stabilization of the differential pressure** across the control valve to ensure an adequate temperature.

- ✓ Energy saving in heat / cool generation
- ✓ Energy saving in pumping
- ✓ More comfort

RITE: New Release *(under study... to be released around 2023?)*

Ground for heating & cooling systems design, installation, control and inspections in the upcoming years

Different strategies and issues under discussion, e.g:

- First priority on EE, Second priority on meeting demand with RES
 - Compulsory periodic hydraulic balancing.
- Enhancement of information, maintenance and inspections



GOBIERNO
DE ESPAÑA

MINISTERIO
PARA LA TRANSICIÓN ECOLÓGICA
Y EL RETO DEMOGRÁFICO

Thank you very much

eu.bac

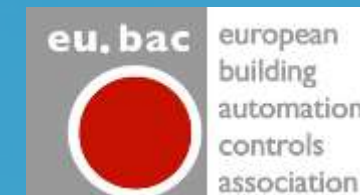


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"The importance of tax relief in building renovation: a focus on heating systems and the contribution of system balancing"

ELENA ALLEGRINI, ENEA - Italian National Agency for New Technologies, Energy and Sustainable Economic Development





Contents

1.

Tax relief in building renovation: the case of Italy



2.

Focus on heating plants

- ☐ technical requirements
- ☐ types and number of actions
- ☐ investment
- ☐ energy savings



3.

Can devices for system balancing in heating plants access the tax relief?



Tax relief in building renovation: the case of Italy



Supporting schemes in terms of tax relief for energy efficiency actions

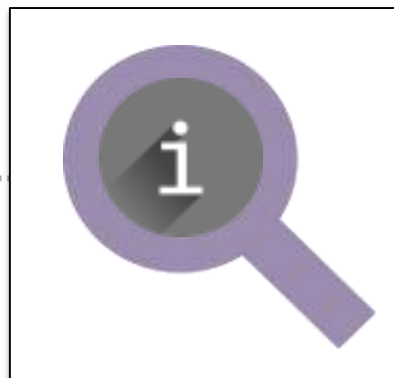
«Bonus Casa»

«Ecobonus»

«Bonus Facciate»

«Superbonus»





	«BONUS CASA»	«ECOBONUS»	«BONUS FACCIATE»	«SUPERBONUS»
Percentage of tax relief	50%	50 – 65 % 70 – 75 – 80 -85 %	90%	110%
Deadline	No limits	31/12/2021	31/12/2021	Varying: 2022 or 2023
Tax relief limit or amount limit	96.000 € per unit until 31/12/2021	Depending on the type of action	NO limits	Depending on the type of action
Options	Tax relief Credit assignment Invoice discounting	Tax relief Credit assignment Invoice discounting	Tax relief Credit assignment Invoice discounting	Tax relief Credit assignment Invoice discounting
Duration of the tax relief	10 years	10 years	10 years	5 years

«Bonus Casa»



Including
heating systems

- Ordinary and extraordinary maintenance of buildings
- Building renovation
- Passive acoustic requirements
- Anti-seismic actions
- Asbestos remediation/abatement
- Use of RES and actions addressed to energy saving (examples: cladding, replacement of existing windows, heating plants, solar collectors, photovoltaic panels, building automation)

«Ecobonus»



Including
heating systems

- Cladding
- Replacement of existing windows
- Shadowing systems
- Replacement of heating plants
- Biomass
- Building Automation
- Solar collectors
- Multiple dwellings

«Bonus Facciate»



NOT including
heating systems

- Only for buildings in the so called zone A and B or equivalent
- Only for building façades, which are visible from public streets
- Cladding
- Opaque enclosures painting
- Balcones

«Superbonus»



Including
heating system

- Primary “leading” works: thermal insulation (cladding) of more than 25% of the external building enclosure; replacement of the existing heating equipment; seismic structural actions.
- Secondary “linked” works: large variety of actions, ranging from the installation of photovoltaic panels, to double glazing, installation of electric car chargers.

Focus on heating plants



Regulation
Reference
for technical
requirements

«BONUS CASA»	«ECOBONUS»	«SUPERBONUS»
<ul style="list-style-type: none"> Ministerial Decree 26/06/2015 Reg. 811/2013 Reg. 813/2013 	<ul style="list-style-type: none"> Ministerial Decree 19/02/2007 or 06/08/2020 Reg. 811/2013 Reg. 813/2013 Com. 2014/C 207/02 	<ul style="list-style-type: none"> Ministerial Decree 19/02/2007 or 06/08/2020 Reg. 811/2013 Reg. 813/2013 Com. 2014/C 207/02

Example: Replacement of existing heat generators with condensing heating plants



«BONUS CASA»	«ECOBONUS»	«SUPERBONUS»
$\eta_s \geq 86\%$ (class B) + thermostatic valves or room thermostats with weather compensation	$\eta_s \geq 90\%$ (class A) + thermostatic valves and temperature controls class V, VI, VIII (*)	$\eta_s \geq 90\%$ (class A) + thermostatic valves and temperature controls class V, VI, VIII (*)

Every year our Department (National Agency for Energy Efficiency) publishes the annual report, concerning the total actions in terms of renovation projects and the targets achieved in the previous year. For example, the annual report 2020 concerns the goals and results in 2019.



2021

The annual report 2021 concerning the goals and results in 2020 will be ready soon!



<https://www.energiaenergetica.enea.it/publicazioni/rapporto-annuale-detrazioni-fiscali.html>

«Bonus Casa»

Type of action	Total No. [n]	Surface (m ²)	Installed power MW	En. saving MWh/yr [MWh/anno]	El. Energy MWh/yr [MWh/anno]
Solar collectors	1.547	10.066		9.435	
Photovoltaic panels	29.351				173.481
Replacement of windows	144.306	585.634		91.638	
Vertical opaque enclosures	10.333	727.878		39.140	
Opaque enclosures: floor	3.228	237.540		9.520	
Opaque enclosures: roof	6.266	632.766		58.968	
DHW heat pumps	1.858		35	2.317	
Condensing heating plants	133.993		3.247	251.028	
Condensing heating plants - air	849		15	715	
Biomass	20.270		249	65.569	
Heat pumps	145.471		709	272.381	
Hybrid systems	450		13	3.467	
Building automation	5.279			5.495	
Heat cost allocators	2.624			18.770	
Domestic appliances	92.897			14.343	
Total	598.722			842.786	173.481



«Ecobonus»



Annual Report 2020 Number of interventions

	2014-2018		2019		Total	
Type of action	n.	%	n.	%	n.	%
Multiple dwellings	477	0,03%	605	0,2%	1.082	0,0%
Global building renovation	17.856	1,0%	2.436	0,6%	20.292	0,9%
Opaque enclosure	122.058	6,9%	17.237	4,4%	139.295	6,4%
Replacement of windows	921.759	51,9%	145.585	36,9%	1.067.344	49,2%
Shadowing systems	278.527	15,7%	76.229	19,3%	354.756	16,3%
Solar collectors	49.602	2,8%	4.982	1,3%	54.584	2,5%
Heating plants	378.714	21,3%	145.715	36,9%	524.429	24,2%
Building automation	6610	0,4%	2.233	0,6%	8.843	0,4%
Total	1.775.603	100%	395.022	100%	2.170.625	100%

Reference: <https://www.energiaenergetica.enea.it/component/downloads/?task=download.send&id=452&catid=40%20&Itemid=101>



«Ecobonus»

Annual Report 2020 Investment



	2014-2018		2019		Total	
Type of action	M€	%	M€	%	M€	%
Multiple dwellings	56	0,33%	93,1	2,7%	149,1	0,7%
Global building renovation	1.452	8,6%	231,5	6,6%	1.683,5	8,3%
Opaque enclosure	4.146	24,6%	666,1	19,1%	4.812,1	23,7%
Replacement of windows	6.713	39,9%	1.304,8	37,5%	8.017,8	39,5%
Shadowing systems	573	3,4%	133,7	3,8%	706,7	3,5%
Solar collectors	315	1,9%	41,0	1,2%	356,0	1,8%
Heating plants	3.525	20,9%	989,2	28,4%	4.514,2	22,2%
Building automation	47	0,3%	23,9	0,7%	70,9	0,3%
Total	16.826	100%	3.483,3	100%	20.310,3	100%

Reference: <https://www.energiaenergetica.enea.it/component/jdownloads/?task=download.send&id=452&catid=40%20&Itemid=101>



«Ecobonus»

Annual Report 2020 Energy saving



	2014-2018		2019		Total	
Type of action	GWh/yr	%	GWh/yr	%	GWh/yr	%
Multiple dwellings	18,3	0,31%	24,4	1,9%	42,7	0,6%
Global building renovation	427	7,3%	72	5,7%	499,0	7,0%
Opaque enclosure	1.622	27,7%	423,9	33,8%	2.045,9	28,8%
Replacement of windows	2.269	38,8%	287,6	22,9%	2.556,6	36,0%
Shadowing systems	75	1,3%	18,5	1,5%	93,5	1,3%
Solar collectors	228	3,9%	27,9	2,2%	255,9	3,6%
Heating plants	1183	20,2%	394,4	31,5%	1.577,4	22,2%
Building automation	24,3	0,4%	5,2	0,4%	29,5	0,4%
Total	5.846,6	100%	1.253,9	100%	7.100,5	100%



Can devices for SB access the tax relief?



«Bonus Casa»



Only if it is considered:

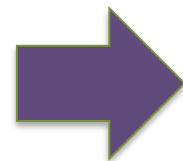
- at least “ordinary maintenance” in case of multiple dwellings
- at least “extraordinary maintenance” in case of private dwellings
- together with the replacement of existing heating plants

«Ecobonus»



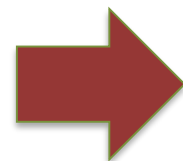
Only together with the replacement of existing heating plants

«Bonus Facciate»



NO

«Superbonus»



Only together with the replacement of existing heating plants

Thank you
for the attention



WEBINAR

SYSTEM BALANCING: A GREAT OPPORTUNITY FOR ENERGY SAVINGS AND COMFORT

*"How can we realize the full potential at EU
and national level?"*

BRUNO PEDROTTI, Danfoss



Market trends

- Dynamic balancing of buildings is a well-established practice in the market but far from being the standard .
- Positive trend in tertiary buildings (new built), less frequent in renovation of existing tertiary buildings.
- Big potential in residential buildings (new and to be renovated) but no strong adoption so far.

Barriers

- Weak or non existing regulatory framework at EU and in many member states.
- Split incentives for rented buildings.
- Cumbersome decision process for residential buildings with several owners.
- For existing buildings interventions can be costly unless done at the right time.
- Smaller, less “advanced” installers may lack technical knowledge.
- Lack of dedicated funding (Recovery funds?).

Policy proposals

- We need to support and accelerate the positive trend in new tertiary buildings and broaden its impact to address the rest of the buildings stock.
 - Build on good wording in EPBD II to define clear and binding requirements regarding dynamic balancing at EU level.
 - Include provisions in national legislation.
 - Support compliance making dynamic balancing eligible for public funding for renovation of buildings & new built.

Thank you!



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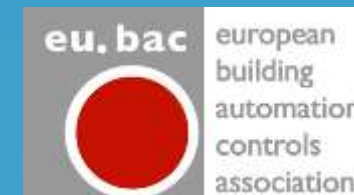


WEBINAR

SYSTEM BALANCING: A GREAT OPPORTUNITY FOR ENERGY SAVINGS AND COMFORT

*"Focus on French initiatives : developing standards
and benchmark to support the market efficiently"*

FLORENT TROCHU, ACR - French Trade Organisation For Building
Automation And Control Systems



ACR, THE FRENCH TRADE ORGANISATION FOR BACS

- ACR, the French trade organization for Building Automation and Controls Systems:
 - **represents the BACS industry in France**, for a market evaluated at 310 millions € in 2020
 - **provides tools** for the market to improve energy efficiency in the renovation of buildings and the construction of new buildings
 - **contributes to the training** of its trades that are in full transition
 - **actively works** with Public Authorities (DHUP, DGEC, etc.) and Scientific Bodies (ADEME, CSTB, COSTIC, etc.)
- ACR has a very strong partnership with eu.bac
- ACR adopts and promotes a **standardized approach** of our trade in France, Europe and Worldwide in order to increase market efficiency and avoid barriers to entry
- ACR is associated member of BNTEC / AFNOR (National Standardization Bodies)

KEY BENCHMARK TOOLS TO ADDRESS BALANCING SYSTEMS

1

Guide for Smart Hydraulic Systems

- Published in 2017 by COSTIC, financed by industry representative ACR and EVOLIS, with the support of sector representative association Energies & Avenir
- Lists and documents all main efficient solutions to improve efficiency of hydraulic systems in new and existing buildings

2

French version of eu.bac study on balancing systems

- Includes an introduction note on specific national context
- Aims to increase knowledge on potential of balancing systems within the French market and public authorities
- To be published summer 2021

3

EN ISO 52120-1 standard

- International revision of EN 15232-1:2017 “Impact of BACS on Energy Performance”, a mandated standard to support EPBD Directive implementation
- **Introduces balancing systems functions**
- Currently at Final approval stage, to be published end of 2021, early 2022

ANNUAL FRENCH MARKET ANALYSIS

01

310 millions € in total for 2020 (-8%) despite the pandemic crisis, with a strong potential in 2021 and beyond due to new regulations (EPBD transposition) and Plan de Relance

02

Dynamic Balancing Valves (PICVs) continue their strong market penetration with a growth of 3 to 30% depending on range

03

Lead to high-performance renovation operations with added value for maintenance and day to day management of comfort in all types of buildings

GUIDE FOR SMART HYDRAULIC SYSTEMS



1

Aims to optimize hydraulic systems in all buildings for:

- Optimal desired comfort (thermic and acoustics),
- Maximum energy performance from emission to generation through distribution
- Promotion of reliable solutions such as Dynamic Valves
- Allowing costs savings at installation and during maintenance

2

Advises all market field players by providing:

- Technical solutions for optimization of hydraulic systems
- Cases studies of standard configurations (new and existing)
- Guide for installation
- Technical reminders on Hydraulics

A STANDARDIZED APPROACH: WHAT FOR?

- Industrial strategy to **support innovation** and **market efficiency solutions**
- 3 mains types of standards to be aligned at both National, European and International levels:
 - **Standardization** : main specifications of products and function to support R&D
 - **Certification**: references for market compliance to increase confidence
 - **Regulation**: mandatory specifications and objectives to be reached
- ACR actively contributes to the development of these standards with the aims to **accelerate achievement of global objectives addressing Climate Change**

Thank you!



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Panel discussion and Q&A



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WEBINAR

SYSTEM BALANCING: A GREAT OPPORTUNITY FOR ENERGY SAVINGS AND COMFORT

Concluding remarks and the way forward

RENATO BROCCETTA, AVR

