

Energy Saving Measures

EMAS Days 2023



28 November 2023

European Central Bank
General Secretariat of the Council of the EU
Joint Research Centre

Overview

- 1 Introduction – World Energy Outlook
- 2 Energy Saving Measures in Summer and Winter across the Institutions
- 3 Practice case: Joint Research Centre
- 4 Practice case: General Secretariat of the Council of the EU
- 5 Practice case: European Central Bank
- 6 Communication to internal stakeholders
- 7 Discussion

1

Introduction

World Energy Outlook

**Today's energy
shortages and high
prices make it more
important than ever to
use energy wisely.**

IEA's World Energy Outlook

Global energy landscape has been characterized by uncertainty and fragility

While some of the immediate pressures have subsided, fossil fuel prices remain volatile

New clean energy economy

Increasing presence of **solar PVs and electric vehicles**.
Growing momentum towards a **cleaner energy future**.

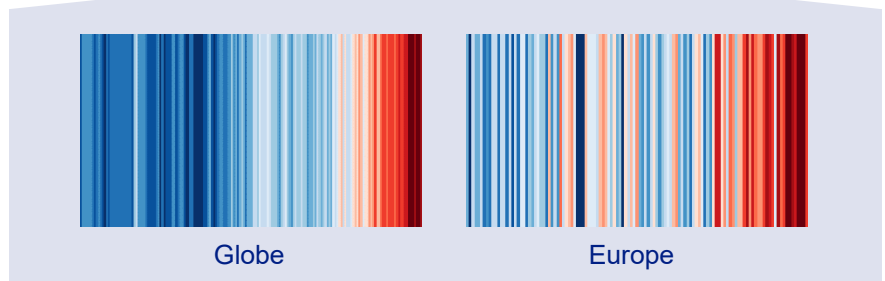
End in sight for fossil fuels

On-track to see **peak demand before 2030**. IEA sees the beginning of the end for the fossil fuel era.

Role of renewables

Solar PV expected to contribute significantly to new power capacity, however there is still **unexploited growth potential**.

Effects of climate change are already visible, global average surface temperature is 1.2 °C above pre-industrial levels. Urgent global cooperation is needed to tackle climate change and energy security challenges.



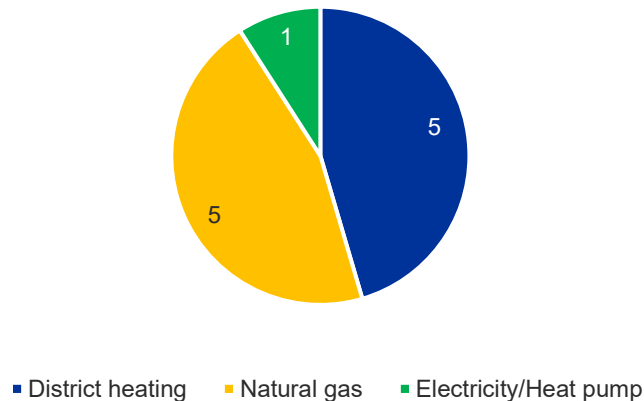
Sources: Intergovernmental Panel on Climate Change (IPCC), [Report 6](https://www.iaea.org/reports/world-energy-outlook-2023)
<https://www.iaea.org/reports/world-energy-outlook-2023>
Ed Hawkins, University of Reading, <https://showyourstripes.info/s/globe>

2

Survey Results

Energy sources and general energy savings

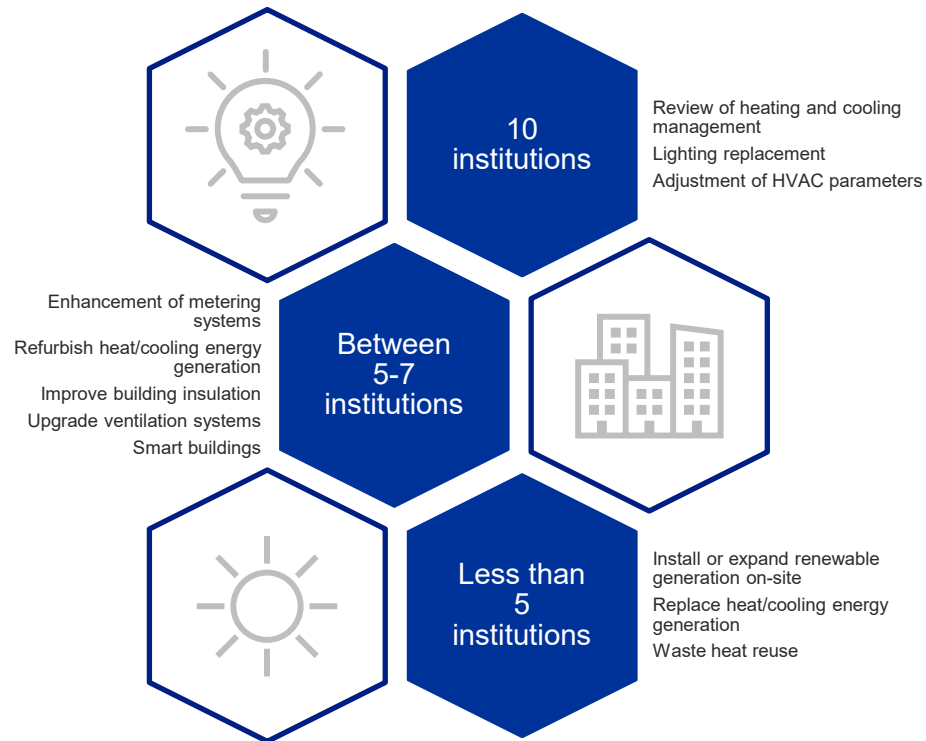
Primary heating energy source



11 institutions purchase certified green electricity from the grid

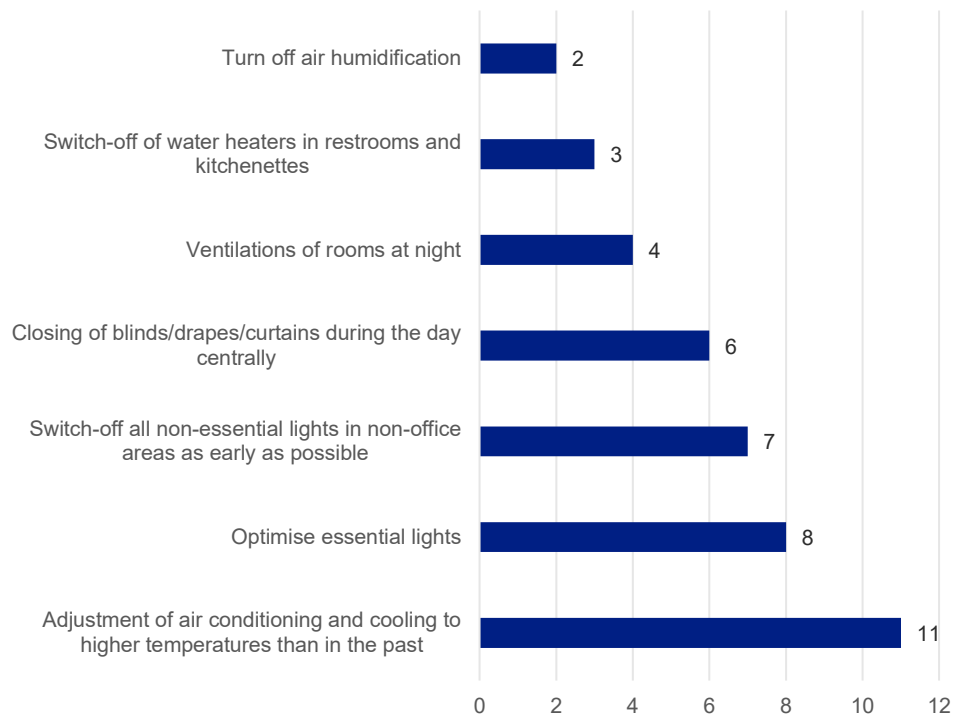
5 institutions have installed PV capacity on-site

3 institutions have cogeneration plants



Summer specific measures

Measures implemented over the summer period



Energy savings

Positive effects observed across institutions:

- Between 2.5% and 8% reduction
- 346 MWh
- Financial savings

Focus placed on direct reduction, rather than mitigating external factors that influence energy consumption



Most institutions paired the measures with a dedicated awareness raising campaign

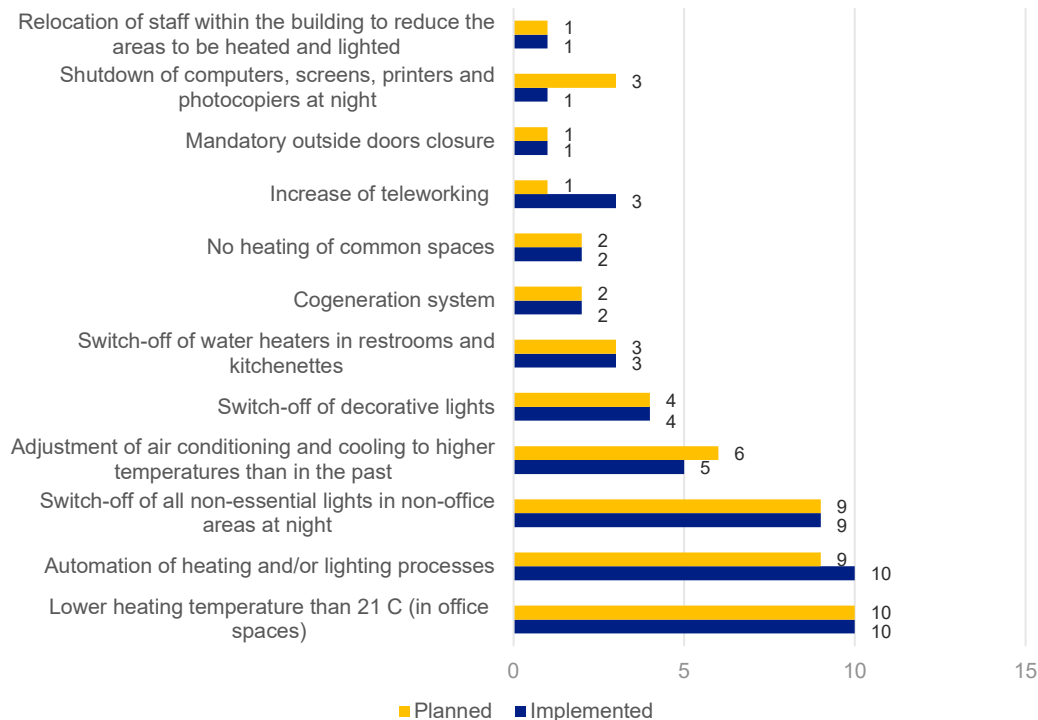


Feedback from staff on the impact on office work was varied and balanced



Winter specific measures

Planned and implemented winter measures



Energy savings

Positive effects observed across institutions:

- Between 7% and 41% reduction
- Approx. 4,000 MWh
- Considerable financial savings

Focus placed on direct reduction, rather than mitigating external factors that influence energy consumption



Most institutions paired the measures with a dedicated awareness raising campaign



Feedback from staff on the impact on office work was varied however more negative than what experienced in summer

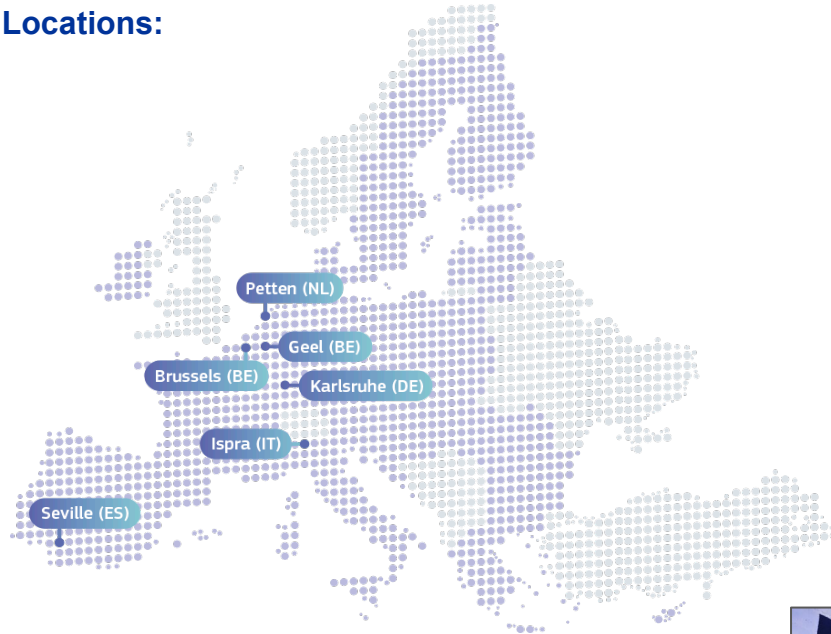


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Practice Case Joint Research Centre

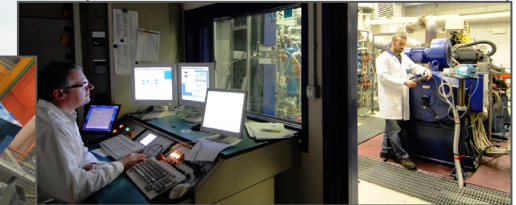
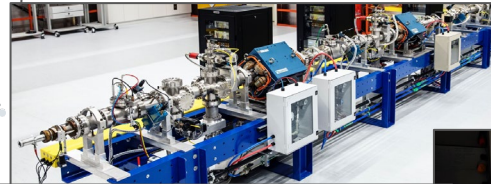
DG Joint Research Centre of the European Commission – Outlook

Locations:



Overview of the JRC infrastructure Brief:



- More than 4,000 persons hosted on 6 sites (on 5 countries)
- More than 250 buildings under management
- “Office” space (m2) << “non-office” space (m2)
- 56 Research Infrastructure (incl. 19 nuclear facilities)
- > 32,500 m2 nuclear “island” in Ispra (decommissioning)



Major constraints for introduction of energy-saving measures

- Different Hosting Countries' legislations.
- Variety of buildings types, ageing and use (offices, warehouses, datacentres, laboratories, canteens...).
- Legal mandate and nuclear licences (calibrated equipment, ventilation, extraction, pressure...).
- Business continuity and other entities hosted on site (other EC services, police, firefighters, carabinieri, EUROPOL, security guards...).
- Other specificities.

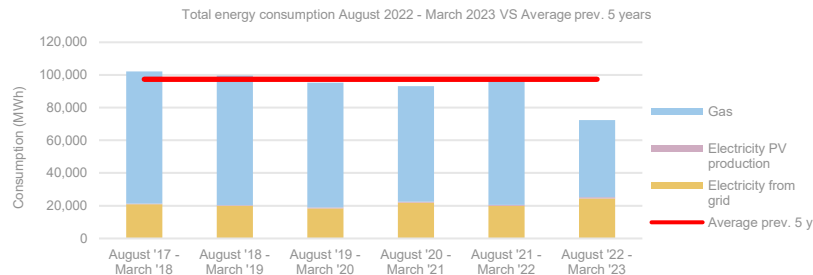
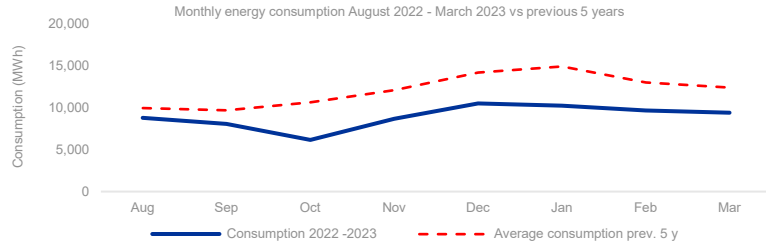
Energy-saving measures introduced

- Temperature setting 19 degrees (with exceptions) 
- Temperature setting 27 degrees. 
- Reduced schedule of heating/cooling and ventilation operating at max nominal power outside working hours.
- Improved switch-off of utilities during holidays
- Miscellaneous site management actions (street lighting, cold water, exploitation of space, behavioural change...).
- Infrastructure investments.

- 26.2 % (- 25,400 MWh) Energy consumption in August '22 – March '23 VS average previous 5 years.



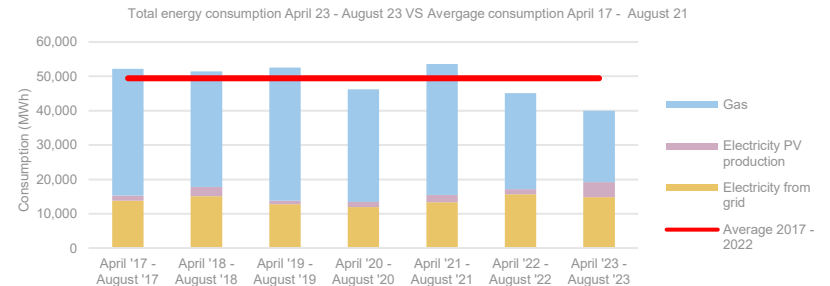
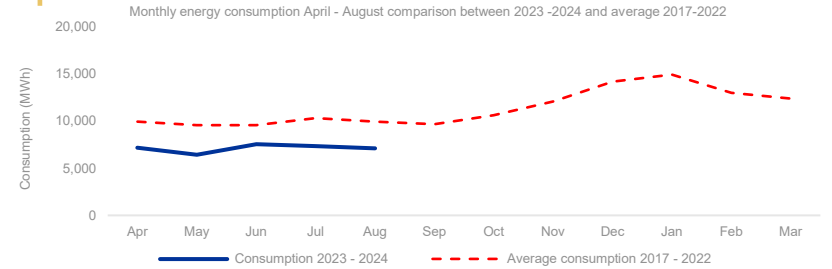
A recap of our energy saving measures in Winter 22/23



- 27.9 % (- 13,700 MWh) Energy consumption in April '23' – August '23 VS average April – August '17 – '21



A recap of our energy saving measures in Summer 2023

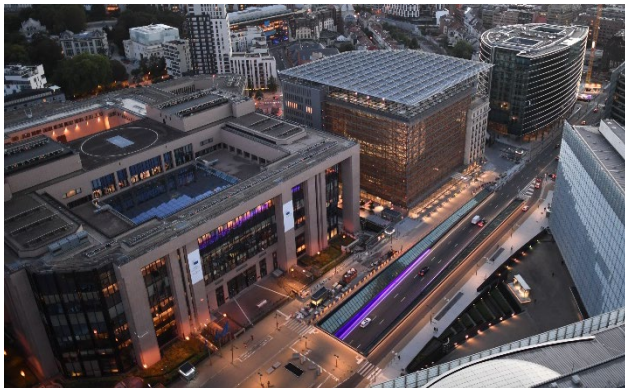
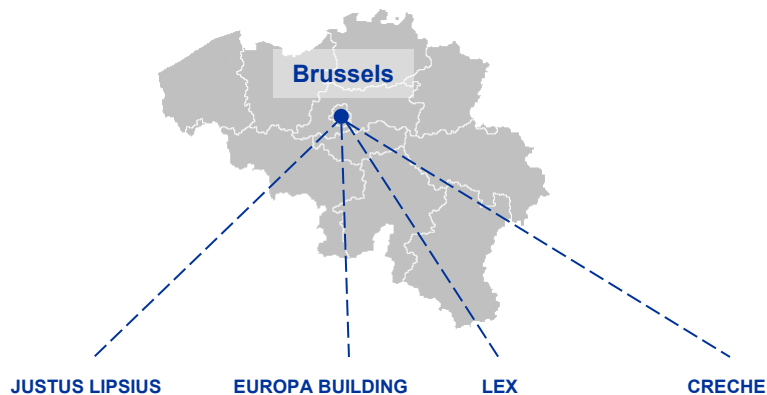


4

Practice Case

General Secretariat of the
Council of the EU

General Secretariat of the Council of the EU - Outlook



Overview of the General Secretariat of the Council of the EU:

- 5,000 people hosted on average (40% is staff)
- 3 administrative/conference buildings, 1 crèche
- heated surface: JL 147,000 m², EB 61,000 m², Lex 66,400 m², Crèche 4,630 m²
- regular meetings with delegates from Members States
- 5 European summits per year + occasional multilateral summits

Location(s) Brussels

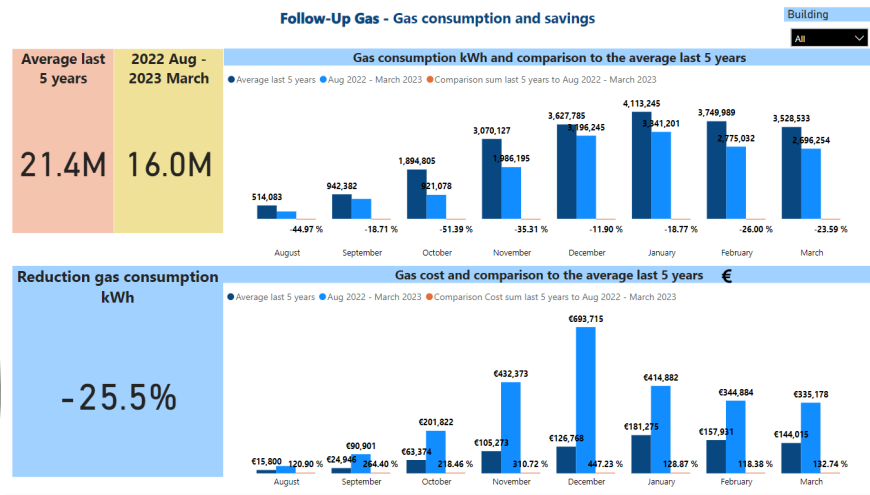


A recap of our energy saving measures in Winter 2022/2023

Actions as of August 2022 to contribute to the European Gas Demand Reduction Plan and in line with Belgium's energy saving regulations:

- temperature setting to 19°C;
- margin of adjustment available in offices from +/-3°C to +/-1°C;
- temperature setting in JL Atrium to 16°C and in EB Forum to 14°C;
- delayed start-up schedule for the ventilation systems in the meeting rooms of the EB;
- no illumination of the EB lantern and other special event illumination.

Reduction in total gas consumption compared with the 5 past years



In Winter 2022/2023 we saved **5,400 MWh**. To put that into perspective, this represents the approximate annual gas consumption of **420 households** (Brussels average).

Location(s) Brussels

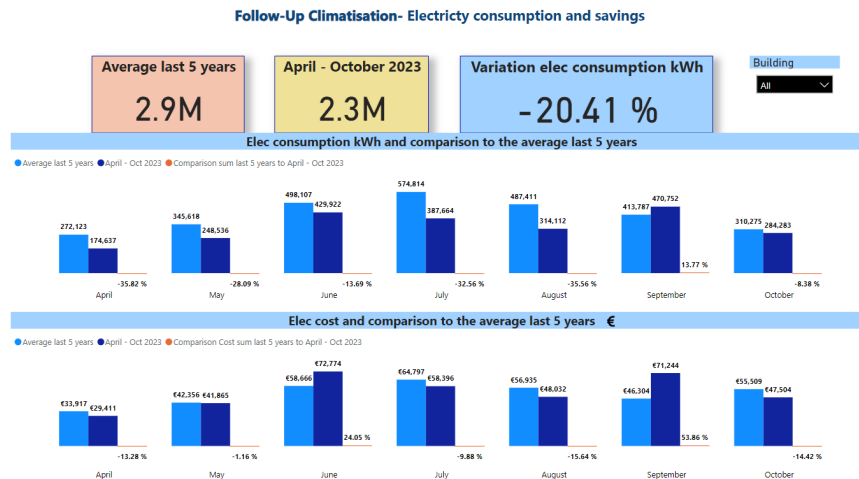


A recap of our energy saving measures in Summer 2023

Actions to continue the efforts also during summer:

- start-up temperature for air-conditioning to 27°C with +/- 1°C as margin of adjustment in offices
- no air-conditioning in the JL Atrium (only natural ventilation)
- same start-up schedule for the ventilation systems in the meeting rooms of the EB as in winter
- action “low down your external blinds”
- optimization of freezers, and some of them off
- optimization of the chiller in the press zone
- relamping (LED)

Reduction in total energy consumption compared with the 5 past years



In Summer 2023 we saved **600 MWh**. To put that into perspective, this represents the approximate annual **electricity consumption of 300 households** (Brussels average).

General Secretariat of the Council of the EU – next steps

We are mainly keeping the same measures as last year



An outlook of our next steps on energy saving



- change in the winter setting from 19° to 20°
- some works carried on during summer with expected energy savings in winter
- other to come

Works done

- replacement of boilers: 3 of the existing boilers replaced by 8 smaller boilers (total max power from 7,5MW to 7,05MW)
- insulation of the steam system pipes

Ongoing/future works/measures

- replacement of transformers
- adjustment of ventilation schedule in JL

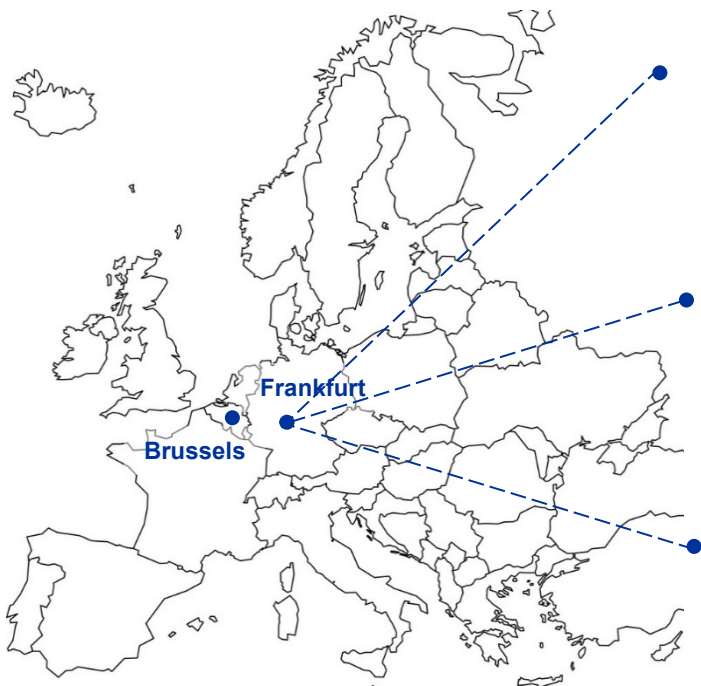
5

Practice Case

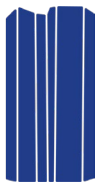
European Central Bank

European Central Bank - Outlook

Location: Frankfurt



MAIN BUILDING



EUROTOWER



JAPAN CENTER

President: Christine Lagarde

More than **3,500 staff members**

MAIN BUILDING:

- District heating
- Advanced, thermal envelope (high rise)
- Listed building Großmarkthalle (challenge from operational perspective)

EUROTOWER: Biogas including combined heat and power

JAPAN CENTER: District heating (steam network)

Washington ←

European Central Bank – Winter 2022/2023



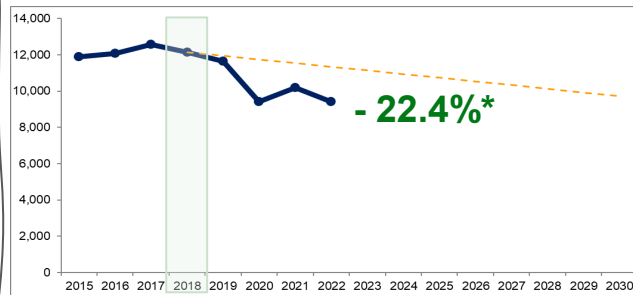
A recap of our energy saving measures in Winter 2022/2023

To contribute to the European Gas Demand Reduction Plan and in line with Germany's energy saving regulations, as of September 2022 the ECB

- Momentum was used to widen the focus on all types of energy (power supply, district heating)
- Lowered the maximum temperature in our offices to 19 degrees
- Turned off heating in open areas (such as atrium)
- Switched off the decentralised water heaters for hand-washing basins and cleaning
- Turned off any night-time external lighting that was not essential and optimised lighting in non-office areas, and
- Limited air humidification to 30%

In Winter 2022/2023 we saved 3,600 MWh. To put that into perspective, this represents the approximate annual consumption of 200 German households.

Reduction in total energy consumption per workplace by 2030



Main Building:
Total heating and cooling energy:
Change 2022/2023
-17,9%*

City Centre:
Total heating and cooling energy:
Change 2022/2023
-19,0%*



MAIN BUILDING (owner)
electricity (18GWh/a)
heating (6-9GWh/a)
biogas (0,275 GWh/a)



EUROTOWER (single tenant)
electricity (7,5GWh/a)
biogas (9,6GWh/a)



JAPAN CENTER (single tenant)
electricity (4,1GWh/a)
heating (3,3GWh/a)

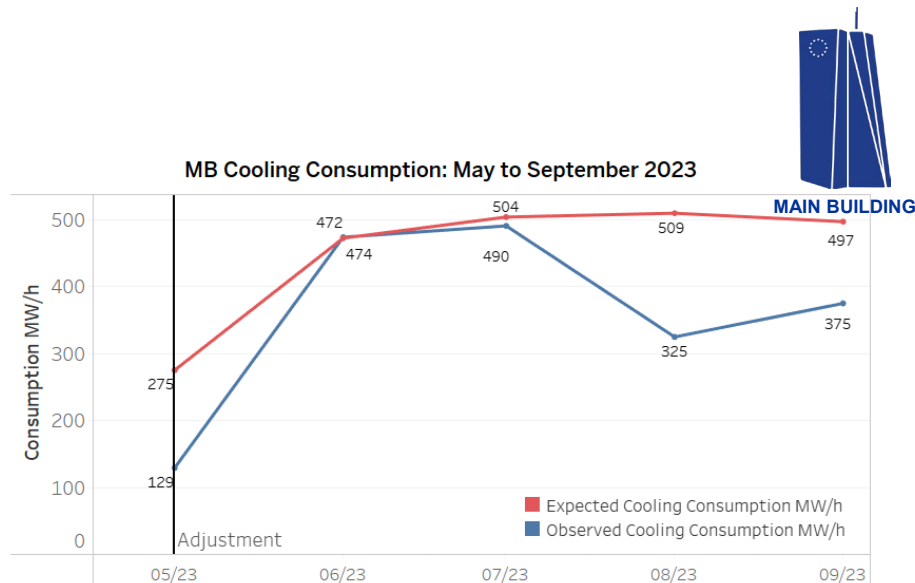
European Central Bank – Summer 2023 and Winter 2023/2024



A recap of our energy saving measures in Summer 2023

The medium-term measures were the following:

- **Turn off all non-essential lights** in non-office areas as early as possible and optimise essential lights
- **Continued** the switched off decentralised water heaters for hand-washing basins and cleaning
- **Turn off air humidifiers in air conditioning units.** The recommended range for commercial and institutional buildings in German regulation is between 30% and 60% humidity has been monitored
- **Adjust air conditioning and cooling** to higher room temperatures, on average three degrees higher than in the past



Main Building: reduction of 464 MWh in cooling (out of 1,793 in total)

European Central Bank – Summer 2023 and Winter 2023/2024

Climatic corrections on energy consumption data

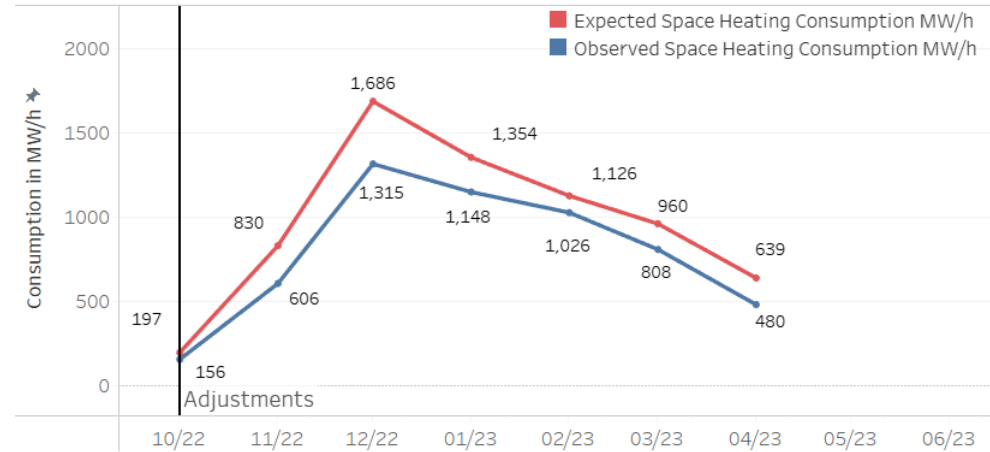
What is the need for climatic corrections on energy data?

- Energy consumption is often highly correlated to environmental conditions (outside temperature)
- This makes it difficult to evaluate implemented efficiency/savings measures
- In order to minimise external factors, climatic correction approaches could be applied
- Keywords: HDD - heating degree days
CDD - cooling degree days
<https://www.degreedays.net/articles>



MAIN BUILDING

MB Space Heating Consumption: October 2022 to April 2023



Main Building: reduction of 1253 MWh in heating (out of 5539 in total)

6

Communication to internal stakeholders

General tips and tools for the communication of critical topics

Specific examples: How to respond to critical stakeholders within your organization

General tips and tools



- 1 Proactively involve stakeholders
- 2 Refute misinformation
- 3 Avoid boomerang effects
- 4 Communicate clearly

1 Proactively involve stakeholders

- **Participation and co-determination:** Give your employees the opportunity to actively participate in decision-making processes
- Involvement and participation create a **sense of responsibility** and promote commitment to environmental and climate protection measures

How could employee participation and co-determination look like?

Surveys and votings can be used to

- Receive opinions on the status quo of a specific situation
- Check the acceptance of the implemented measure
- Collect feedback
- Measure specific carbon emissions (e.g. commuting or business travel)



Appointing staff for specific tasks

- As communicators for environmental awareness events in the different divisions of the organization (e.g., as Environmental Representatives)
- As data providers for specific data needed e.g., for the carbon footprint calculation

Collecting feedback and ideas

- Setting up a designated e-mail address
- Setting up a physical mailbox
- Implement feedback rounds in meetings or workshops
- Implement idea competitions and set incentives for participation (e.g., through participation prizes)

2 Refute misinformation and communicate correctly

- Successful communication depends on the **credibility and transparency** of the communicator
- Information from sources perceived as **credible** usually leads to more solid views and is **more convincing**

How does credible and transparent communication work?

Examples of **credible** external sources:

- Publications of the European Union, Federal Government and ministries
- Publications and databases from scientific institutes
- Examples:
 - [Federal Environment Agency](#)
 - [Web of Science](#)
 - [Potsdam Institute for Climate Impact Research](#)

Examples of **non-credible** external sources:

- Wikipedia
- Blogs
- Forums and discussion groups
- Social media platforms
- Messenger services

Open and transparent communication:

- Open and transparent communication about the progress of the project
- Ensures that all stakeholders are informed about the status and can contribute

2 Refute misinformation and communicate correctly

Examples of open and transparent communication

The screenshot displays the ECB Intranet interface. At the top, there is a navigation bar with 'Domus home', 'ORC.3/Buildings and Logistics', and 'Green Office'. Below this, a 'Green Office' header includes 'Fields of action' and 'Sustainable mobility' dropdowns. The main content area features a news article titled 'Temperature at 19: that's how we intervene' by DROWART Guy M., published on 10/10/2022. The article is part of an 'ENERGY' section. To the right, a 'Staff Matters' sidebar lists various topics like 'Buildings and mobility', 'Environment', and 'Energy reduction'. The main article text discusses the Commission's commitments to reducing energy consumption. Below the article, there is a 'For your valuable input' section encouraging staff to submit suggestions to EC-EMAS@ec.europa.eu. The bottom of the page features a dark blue 'INTRANET' header with navigation links for 'About the ECB', 'Business areas', 'Working here', 'Services', and 'More...'. A breadcrumb trail shows the path: 'You are here > Home > Business areas > List of Business Areas > DG Corporate Services > D Administration > Premises > News > Energy savings measures in the ECB buildings as of 1 September'. A sidebar on the left lists 'Premises', 'News', 'Sections', and 'Administration'. Social sharing options for 'Share this' and 'Like' are visible, along with 'Subscribe', 'Favorite', 'Edit', and 'Print' icons. The article title 'Energy savings measures in the ECB buildings as of 1 September' is prominently displayed at the bottom right of the article content.

3 Avoid boomerang effects

- **Repetition makes information more familiar**, and familiar information is generally perceived as more truthful than more recent information
- Since misinformation is inevitably repeated when it is refuted, one suspected **danger is that refuting the misinformation could backfire** by making the misbelief more familiar

4 steps to avoid the boomerang effect:

1 State the truth first

- If it can be done easily in a few clear words, state what is true first. This allows you to frame your message - you lead with your talking points, not someone else's

"Thank you for sharing your concerns. We understand that it is important to be critical of our environmental impact. In fact, we have made some significant progress in recent years."

2 Point out the misinformation

- Mention the misinformation only once, right before setting the record straight. Repeating the misconception once helps to update beliefs

"You think that we are only doing environmental protection superficially in order to maintain a positive image. This is an important concern, but it is not true. Let's take a closer look."

3 Avoid boomerang effects

- **Repetition makes information more familiar**, and familiar information is generally perceived as more truthful than more recent information
- Since misinformation is inevitably repeated when it is refuted, one suspected **danger is that refuting the misinformation could backfire** by making the misbelief more familiar

4 steps to avoid the boomerang effect:

3 Explain what is wrong with the information

- Contrast the correction with the incorrect information. Make sure the refutation clearly accompanies the misinformation

“Our measures are by no means superficial. We can show concretely how we have reduced our energy consumption by 30% over the last five years.”

4 Mention the truth again

- Mention the fact again so that the fact is what people take in last

“So our efforts are by no means just a facade; they have a real and positive impact on the environment.”

4 Communicate clearly

- **Avoid scientific jargon** or complex, technical language
- Well-designed diagrams, videos, photos and other **visual aids can be helpful** to clearly and concisely convey corrections that involve complex or statistical information
- **Tailor the message** to the audience and use a messenger that the audience trusts

Examples of clear communication

Pictograms

- Use of pictograms, pictures and icons for visualization

Simple language

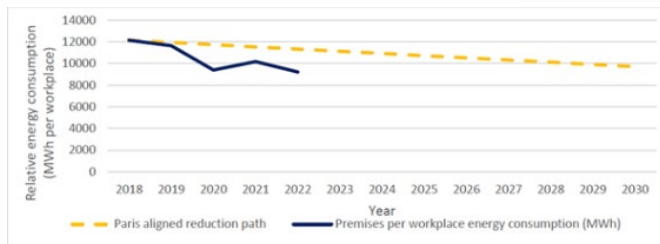
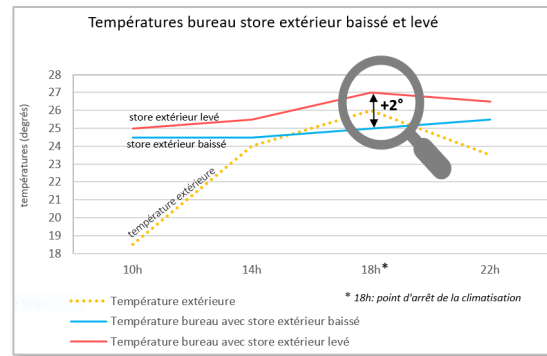
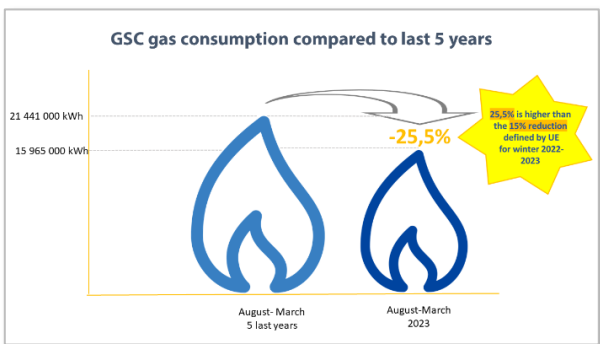
- Use of simple language for better understanding

Bullet points

- Break down facts into bullet points to make information more digestible

4 Communicate clearly

Examples of clear and visual communication



Specific examples: How to respond to critical stakeholders within the organization

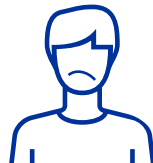
Adjusting the temperature to save energy within the organisation

Problem description: *In order to improve energy efficiency in the organisation's premises, the temperatures in the organisation's buildings were adjusted to specific limit values. Due to the temperature adjustment, some offices are now colder in winter and warmer in summer*

Solution approach

- 1. Show empathy and understanding:**
Start the conversation by showing understanding for the employee's worries and concerns

"Since I can no longer regulate the heating in my office myself, I have been freezing in winter. I can't work like that."



"Thank you, for sharing your concerns with us. I understand and I want to make sure that your concern is taken seriously."



Specific examples: How to respond to critical stakeholders within the organization

Solution approach

2. Clearly explain the background:

Explain the reasons for the temperature adjustments in the offices and emphasise the importance for environmental protection

Solution approach

3. Find an individual solution:

Work together to find a solution that takes into account the employee's needs but also considers energy efficiency

"Let me explain why we have made the temperature adjustments. Our organisation has decided to be more energy efficient. These temperature adjustments are part of this larger goal and allow us to save energy efficiently."

"Do you have colleagues who always feels hot and that you could switch offices with? Otherwise, I can talk to facility management, to see if we can increase the temperature in your office."



Specific examples: How to respond to critical stakeholders within the organization

Solution approach

4. Find clear communication:

Agree on clear steps and deadlines for implementing solutions or measures. Make sure that the employee knows exactly what the next steps are.

Solution approach

5. Feedback and follow-up:

Regularly review the implementation of the agreed solutions and ask for feedback and suggestions from the employee to make continuous improvements

"I will contact our facility management team and have them look into the possibilities. We will look into this immediately and give you an update as soon as we have more information."

"How are you doing in your office? Was the temperature adjustment of 2°C enough for you to feel more comfortable?"



7

Discussion

Any questions:

Contacts

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European Central Bank: GreenECB@ecb.europa.eu