enerhack

POLSKA SIEĆ Energie Cités

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Welcome

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Outlines

- WARM-UP
- Introduction – What is Energy efficiency?
- Energy efficiency in buildings
- Tips and solutions to save energy in buildings

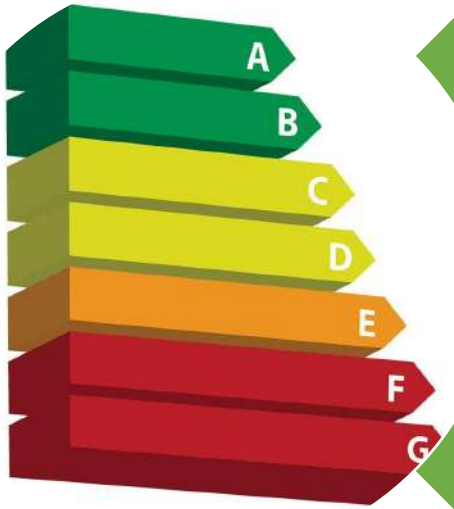
WARM-UP

- What comes to your mind when you think about energy efficiency?
- Do you think investing in energy efficiency is simple and serves to slow climate change?
- Do you already know/apply solutions to improve energy efficiency?

If you've already answered these questions it's time to delve into the topic of energy efficiency in buildings. In this lesson, you'll learn specific ways to improve energy efficiency and why it's worth investing in solutions to improve it in residential and public buildings.
HAVE FUN!

WHAT IS ENERGY EFFICIENCY?

WHAT IS ENERGY EFFICIENCY?



Source: https://pixabay.com/pl/illustrations/klasa-skuteczno%C5%9B%C4%87-energii-2171050/

Energy efficiency involves using less energy for the same amount of work, resulting in decreased expenses and a reduction in pollution.

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ENERGY EFFICIENCY FIRST

This principle emphasises not only the need to reduce fossil fuel consumption, but also the importance of **reducing energy production**.

- **Lowering energy demand** can effectively manage the required investment for the transition towards renewables. Additionally, it promotes a **more sustainable approach** to utilization of limited resources and enhances the resilience of the EU's energy system.
- Both the public and private sectors are encouraged to prioritize investments in energy-efficient production over other, more complex, or costly solutions to the energy transition.

ENERGY EFFICIENCY FIRST

Source: https://pixabay.com/pl/photos/biznesmen-bramka-planowanie-wizja-3075835/

Energy Efficiency First is a far-reaching guiding principle that aligns with various EU objectives, especially those related to sustainability, climate neutrality and green growth.

The Energy Efficiency First principle aims to guarantee that:

- only the necessary amount of energy is generated,
- investments in stranded assets are avoided,
- demand for energy is reduced and managed in a cost-effective way.

EPBD DIRECTIVE

Energy Performance of Buildings Directive contributes directly to the EU's energy and climate goals.

The building sector, being the largest energy consumer in Europe, holds significant importance in achieving the EU's energy and climate goals.

To boost the energy performance of buildings, the EU has established a legislative framework that includes the Energy Performance of Buildings Directive EU/2010/31 and the Energy Efficiency Directive EU/2023/1791, both revised in 2023.

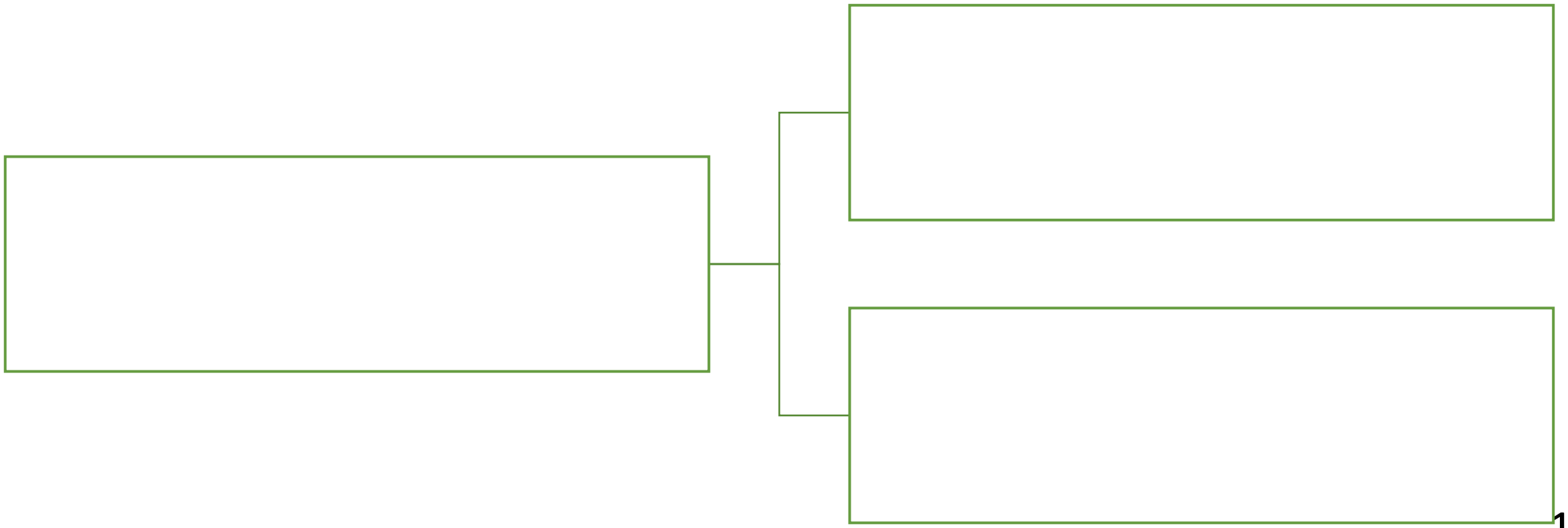
NEW VERSION OF THE EPBD DIRECTIVE

Source: https://pixabay.com/pl/photos/aktualizacja-publikacja-blog-5238354/

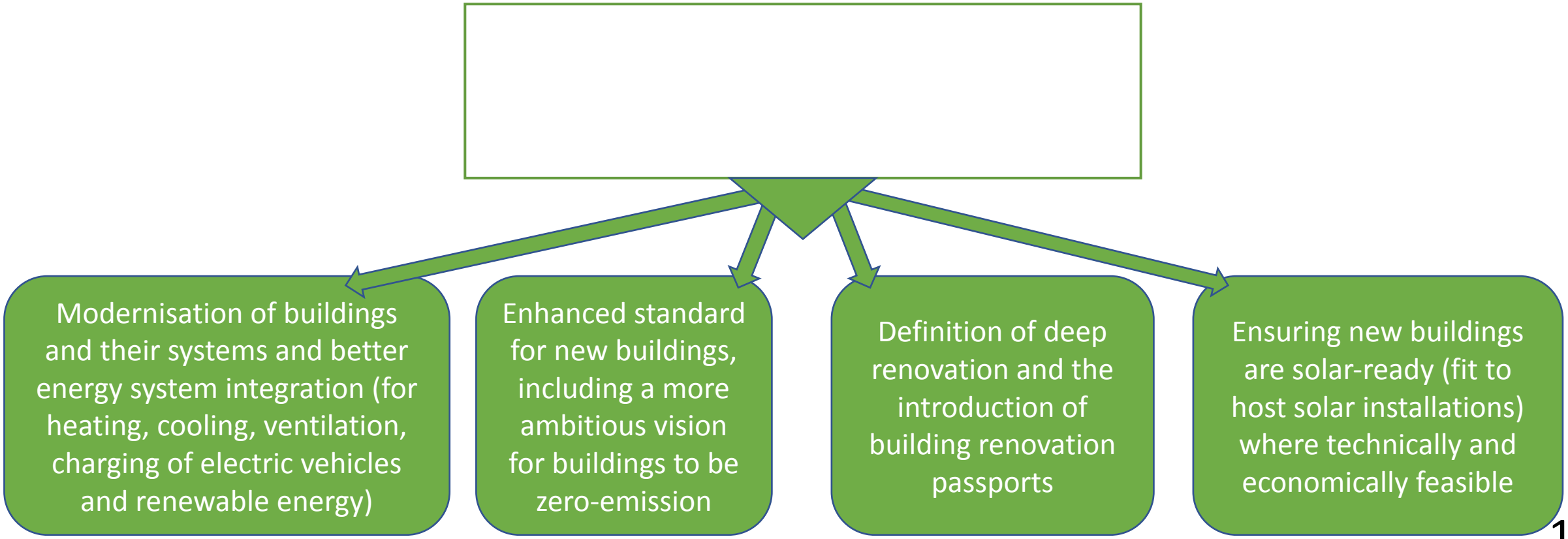
„Zero emission buildings" (ZEB) as the future building standard in the EU, applies to all new & renovated buildings from 2030.

The standard prohibits any on-site fossil fuel emissions within the building.

NEW VERSION OF THE EPBD DIRECTIVE



NEW VERSION OF THE EPBD DIRECTIVE



NEW VERSION OF THE EPBD DIRECTIVE

- A commitment by EU countries to provide safeguards for tenants, such as rent support or limits on rent increases.
- National trajectories to reduce the average primary energy use of residential buildings
- Gradual phase-out of stand-alone boilers powered by fossil fuels, starting with the end of subsidies to such boilers from 1 January 2025
- Increased reliability, quality and digitalisation of Energy Performance Certificates with energy performance classes to be based on common criteria

NEW VERSION OF THE EPBD DIRECTIVE

The revised directive will facilitate more targeted financing to investments in the building sector, complementing other EU instruments and fighting energy poverty by supporting vulnerable consumers

Enhanced long-term renovation strategies, to be renamed national Building Renovation Plans

ENERGY EFFICIENCY GAP

The gaps exist due to obstacles preventing improvements. These gaps include:

Fuel price distortions

Lead to an energy gap, as they skew economic incentives and hinder the shift to sustainable energy. This distortion discourages efficient energy use, obstructs the development of cleaner alternatives, and perpetuates an unsustainable energy landscape.

Misplaced incentives and motivations

Contribute to an energy gap by diverting resources from sustainable energy solutions, impeding the transition to cleaner alternatives.

Information gaps

Create an energy gap by restricting awareness and understanding, impeding informed decision-making, and obstructing progres toward sustainable energy practices.

ENERGY EFFICIENCY CERTIFICATION

Source:
https://pixabay.com/pl/photos/kalkulator-umowa-428301/

The outcomes of the energy audit are presented in an energy efficiency certificate, providing essential insights into the building's energy usage and efficiency.

BENEFITS OF ENERGY CERTIFICATION

Establishing energy efficiency requirements.
Facilitating energy-efficient property investments.
Encouraging sustainable building practices.
Promoting energy conservation measures.
Supporting government energy policy objectives.
Enabling benchmarking for industry standards.
Enhancing a building's market value.
Encouraging responsible environmental stewardship

ENERGY CONSERVATION AND EFFICIENCY

Energy conservation involves making an effort to reduce energy usage for both financial and environmental reasons, all while maintaining or enhancing the quality of services and products.

For example: Switching off lights when leaving a room is a simple energy conservation practice, as it contributes to reducing overall energy usage by eliminating unnecessary consumption.

Considering the finite nature of our planet's energy resources, it is beneficial for both individuals and larger energy systems to engage in active energy conservation whenever possible.

ENERGY CONSERVATION AND EFFICIENCY

Energy efficiency involves using products specifically designed to consume less energy.

For example: Transitioning to energy-efficient appliances, like those with ENERGY STAR ratings, exemplifies energy efficiency through the utilization of advanced technology to accomplish tasks with reduced energy, leading to decreased consumption and lower utility costs over time.

BENEFITS OF ENERGY EFFICIENCY

Environmental	Economic	Utility System Benefits	Risk Management
Reduction of greenhouse gas (GHG) emissions and other pollutants, as well as water usage.	Per monthly utility bills, creating new jobs and contributing to the stabilization of electricity prices.	Decreasing electricity demand, which can lead to savings on future electric bills.	Guard against the potential of high energy prices by diversifying your utility's resource mix.

WHAT SHOULD WE DO TO IMPROVE ENERGY EFFICIENCY?

Insulation – Insulating walls, ceilings, floors, and attics is essential for maintaining a comfortable temperature and decreasing the necessity for excessive heating or cooling.

Cool Roofs – Homes stay cooler in warm weather when they have cool roofs because they reflect more light and take in less heat from the sun.

Source: Pixabay

Energy Efficient Windows – Homes usually lose 25-30% of heating and cooling energy through windows. Replace single-pane with double-pane windows to minimize heat.

WHAT SHOULD WE DO TO IMPROVE ENERGY EFFICIENCY?

Source: Pixabay

Efficient Lighting – Use of minimally energy-consuming lighting.

Sealing Leaks – Identification and sealing of air leaks in a building's envelope, including areas around windows, doors, and ducts, helps to prevent drafts and minimize energy waste.

ENERGY EFFICIENCY IN BUILDINGS

ENERGY EFFICIENCY IN BUILDINGS

Efforts should be made to ensure that our homes prioritize energy efficiency, incorporate effective insulation and use renewable energy sources for heating whenever possible.

This will allow us to decrease the energy demand of our buildings. **For example**, measures such as deep thermo-modernization could lead to a reduction in energy consumption by around 35-85%. Consequently, by lowering the energy demand of buildings, it becomes possible to decrease more than 46 million tons of CO_2 and nearly 90,000 tons of particulate matter annually.

ENERGY CONSUMPTION IN BUILDINGS

Approximately 40% of the total energy consumption in the European Union is attributed to buildings.

The energy consumption in buildings is primarily related to heating, air conditioning, lighting, water consumption (in toilets and bathrooms), operation of household appliances (such as kettles, coffee makers, stoves, microwaves, refrigerators, washing machines), and electronic devices (computers, printers, TVs).

METHODS OF IMPROVING ENERGY EFFICIENCY

IN BUILDINGS

In both residential and commercial buildings consumers power the majority of appliances and devices. Enhancing energy efficiency in buildings can be achieved not only by replacing older, less efficient devices with newer ones but also **by implementing measures** such as improved design and insulation.

Modifying architectural design to enhance the energy efficiency of buildings includes installing windows for improved heating or cooling. Additionally, measures like relocating existing buildings, sealing sources of air leakage, and enhancing house insulation can minimize energy waste. This enables consumers to meet their needs with less energy consumption.

INDOOR CLIMATE IN BUILDINGS

An adult typically spends around 80% of their life indoors. For children, the sick and the elderly, this indoor time is even more extended. Given that it should be remembered that the composition of indoor air differs from that of the atmosphere and can be contaminated with many pollutants, examples of which you will find below:

PHYSICAL POLLUTION	BIOLOGICAL POLLUTION	CHEMICAL POLLUTION
Noise Vibration Ionizing radiation Electromagnetic radiation	Dust Saprophytes and their metabolic products Mould Mycotoxines Legionella pneumophilis bacteria	Nitrogen dioxide Sulphur dioxide Ammonia Carbon monoxide and dioxide Ozone Organic volatile impurities Second-hand smoke

INDOOR CLIMATE IN BUILDINGS

Source: https://pixabay.com/pl/photos/salon-kanapa-klimatyzator-ac-6940895/

Ensuring appropriate indoor air parameters is crucial for the comfort and health of building users!

Possibilities of improving indoor air quality:

- Reduction of pollution sources,
- Ensuring adequate ventilation and cleaning of the internal air,
- Monitoring of indoor air – allows to detect any abnormalities and find solution.

SICK BUILDING SYNDROME (SBS)

The **World Health Organization (WHO)** introduced the definition of Sick Building Syndrome (SBS) in 1982. According to this definition, a building is considered "sick" when 20% of its users report that the building negatively affects their well-being. This implies that symptoms of illness or discomfort arise or worsen while staying in the building but disappear upon leaving.

Source: https://www.mtatva.com/en/disease/sick-building-syndrome-meaning-diagnosis-and-overview/

HEALTH IMPACTS OF SBS

Source: https://pixabay.com/pl/photos/ludzie-facet-frustracja-b%C3%B3%C5%82-q%C5%82owy-2568886/

Illnesses resulting from staying in „sick" building are called Building Related Illness (BRI).

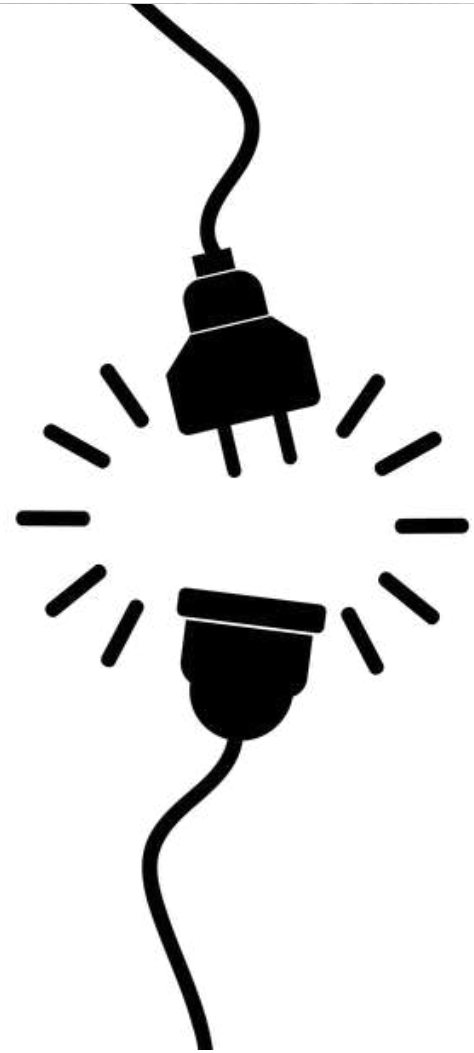
- General impacts – headaches, tiredness, spleen, dizziness, problems with concentration,
- Mucous membrane irritation,
- Skin problems – skin dryness, redness, allergies,
- Problems with respiratory, alimentary and nervous system.

ENERGY POVERTY

Energy poverty can be understood as a **'situation where a household cannot meet its domestic energy needs'**. The scale of energy poverty in the EU can be assessed in a number of ways. According to Eurostat, over 41 million people in the EU (9.3 % of the population) were unable to keep their home adequately warm in 2022. It is mainly driven by 3 underlying root causes:

- A HIGH PROPORTION OF HOUSEHOLD EXPENDITURE SPENT ON ENERGY
- LOW INCOME
- LOW ENERGY PERFORMANCE OF BUILDINGS AND APPLIANCES

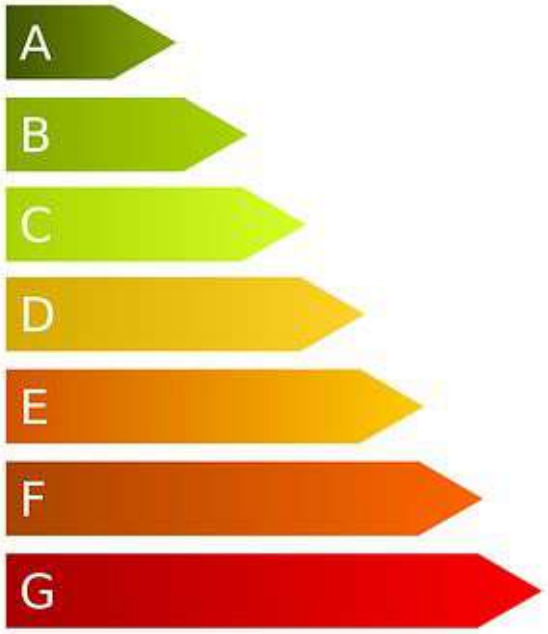
Due to its private nature, as it mainly affects households, and its complexity, energy poverty remains a major challenge to be further addressed in the EU.



Source: https://pixabay.com/pl/illustrations/brak-energii-gniazdka-wtyczka-7557626/

EU ENERGY LABELS

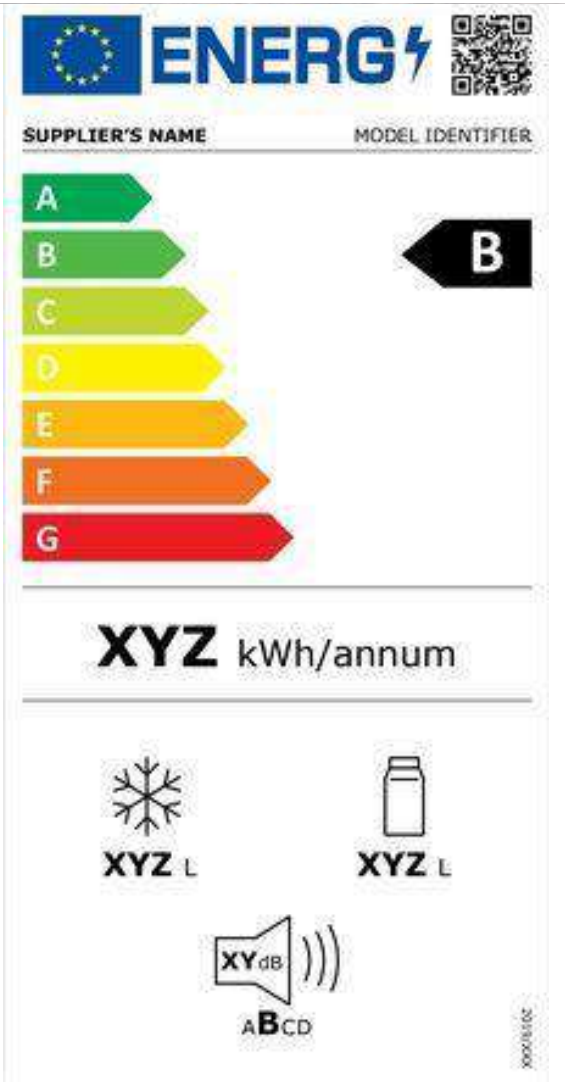
EU energy labels are a standardized system used to inform consumers about the energy efficiency of appliances and products.



Source: https://pixabay.com/pl/vectors/efektywno%C5%9Bci-energetycznej-energia-154006/

Energy labels, usually displayed as colorful stickers, provide clear and easy-to-understand information regarding energy consumption, performance, and environmental impact. They empower buyers to make informed decisions, promoting energy-saving choices and encouraging manufacturers to innovate towards more eco-friendly designs, consequently eliminating the least efficient appliances from the market.

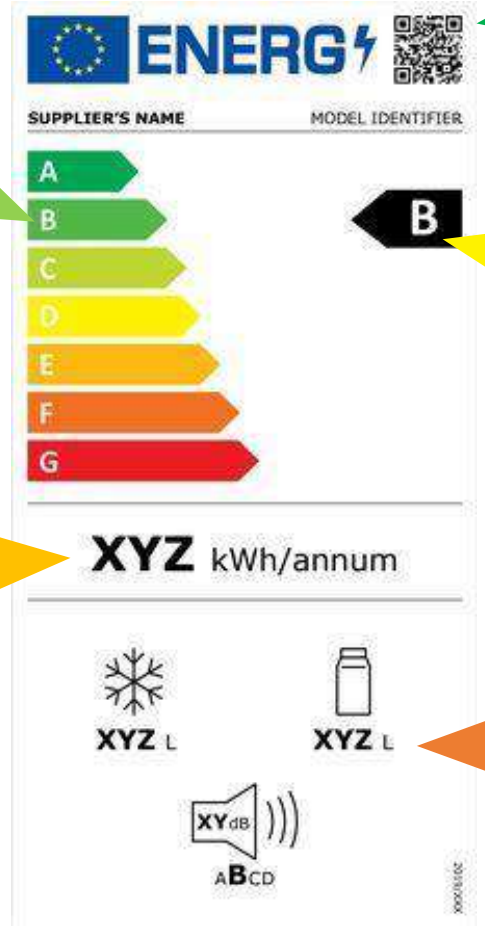
Until recently, the most energy-efficient appliances had an energy class of A++ or A+++ energy rating. Due to technological advances in 2021. a new energy label with a simpler scale from **A** to **G** has been introduced. Category A will not be awarded at all at first, to leave room for even more modern and energy-efficient models, which will appear in the future.



ON EACH ENERGY LABEL YOU WILL FIND

Scale

QR code to access additional information



Energy efficiency class of the product

The amount of energy consumption (depending on the appliance: per year, per 1,000 h of use or per 100 cycles)

Information on the level of noise emitted or the capacity of the device.

REBOUND EFFECT

Some people who invested in energy-efficient solutions some time ago complain to you that their expenses haven't gone down at all?
Ask them if they have heard about the ***rebound effect.***

Source: https://pixabay.com/pl/illustrations/spr%C4%99%C5%BCyna-spiralna-5168599/

REBOUND EFFECT

The rebound effect refers to the phenomenon in which measures to save energy or resources by improving efficiency lead people to consume even more of these resources, resulting in increased energy expenses.

This effect is generally driven by one of three things:

TAKE-BACK EFFECT - users increase their consumption of the energy-using service, rather than using the same service at lower energy or financial cost.

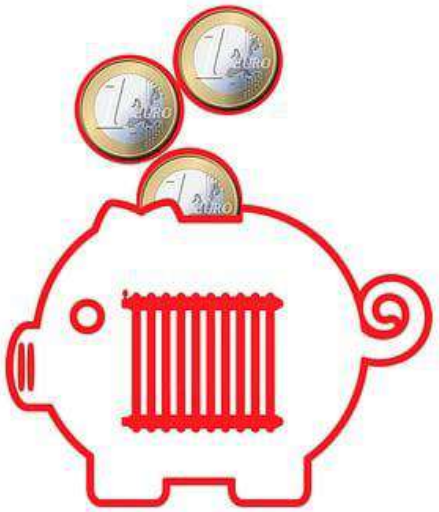
SPENDING EFFECT - energy users opt to spend their financial savings from reduced energy consumption in the purchase of other energy-consuming activities.

INVESTMENT EFFECT - investment in energy efficiency, stimulated by a policy, lead to an indirect increase in economic activity and energy consumption. Buying energy efficient products is not enough – they need to be used intelligently and efficiently.

Source: https://pixabay.com/pl/illustrations/dolar-pieni%C4%85dze-ucieka-finanse-3289367/

SHORT AND LONG TERM INVESTMENTS

Investing in energy-efficient solutions may seem expensive…but is it really?



Source: Pixabay

SHORT AND LONG TERM INVESTMENTS

What's the difference?

	Long-term investments	Short-term investments
FOCUS	Focus on quick returns and immediate energy savings.	Aim for sustained energy savings over a longer period.
PURPOSE	Solve specific energy efficiency problems or upgrade individual components.	Address broader energy efficiency challenges and consider holistic approaches.
COSTS	Lower costs and faster payback periods.	Higher upfront costs and significant long-term savings.
IMPACT	May not have long-lasting impact or scalability.	Can have a lasting impact, scalability, and other benefits like increased property value.

SHORT AND LONG TERM INVESTMENTS

Still not sure what that means? Here you will find a few examples of short and long term investments.

Long-term investments	Short-term investments
Retrofitting of the building	Replacing old, inefficient light bulbs with LED bulbs.
Installing a rooftop solar panel system	Installing programmable thermostats.
Implementing a building automation system that optimizes energy usage across various systems, including lighting, heating and cooling.	Upgrading insulation in specific areas of the building.

TIPS AND SOLUTIONS TO SAVE ENERGY IN BUILDINGS

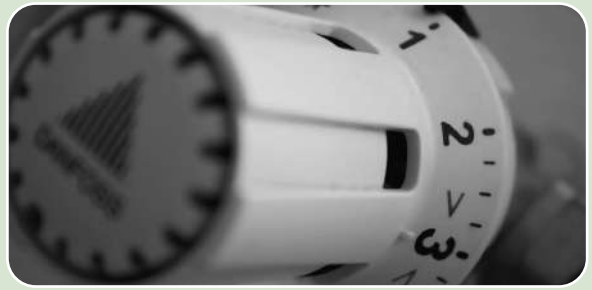
USER BEHAVIOUR AND HABITS

Research has indicated that monitoring energy consumption and costs has a significant effect on changing the behavior of consumers, while also enhancing their knowledge and motivation to take action.

Real-time energy consumption monitoring systems allow the identification of consumption patterns and associated costs as the first step towards behavioral change.

Source: https://pixabay.com/pl/illustrations/oszcz%C4%99dza%C4%87-energi%C4%99-7382275/

USER BEHAVIOUR AND HABITS



Source: Pixabay

Effective energy demand management has the potential to decrease overall electricity consumption by up to 40% and reduce the energy consumption of HVAC systems by 10%.

Proportionally to the reduction in consumption, costs decrease, providing users with an immediate financial benefit, which is highly significant.

Monitoring energy consumption is crucial for reducing its usage. It is important to integrate it with educational activities and introduce tools to encourage behavioural change.

SAVE ENERGY IN YOUR HOUSEHOLD - TIPS AND SOLUTIONS

Saving energy doesn't have to be difficult or expensive!
You don't have to reduce your living comfort either, on the contrary, you can even improve it.
In the next slides, you will learn how you can optimize energy consumption in your household. Have fun!

ELECTRICITY

HEAT

WATER

SAVE ENERGY IN YOUR HOUSEHOLD - ELECTRICITY

Use natural light as much as possible: avoid turning on lamps if the amount of natural light in the room is sufficient.

Clean lamps regularly, dirty bulbs can reduce light levels by up to 20-50%.

Turn off lights when you leave a room for an extended period of time.

Replace your old light bulbs with energy-saving LEDs, by doing this you can save up to 90% of energy.

Source: Pixabay

SAVE ENERGY IN YOUR HOUSEHOLD - ELECTRICITY

When boiling water in a kettle, pour only as much water as you need at the moment.

Iron as many clothes as possible at once.

Change the bags and filters in your vacuum cleaner regularly. A full bag and dirty filters increase vacuuming time and electricity consumption.

Source: Pixabay

Use energy-efficient consumer electronics - the energy efficiency of a given device is indicated by the so-called energy label (you will learn about it later in this lesson).

SAVE ENERGY IN YOUR HOUSEHOLD - ELECTRICITY

Regularly decalcify appliances where limescale can accumulate.

To make it easier to turn off more devices at once, use power strips with circuit breakers.

Turn off equipment you are not currently using. Remember that appliances in standby mode are not completely turned off and electricity still flows through them.

Use lids to make food cook faster.

Source: Pixabay

SAVE ENERGY IN YOUR HOUSEHOLD - HEAT

If the windows in your home are leaky seal them with adhesive foam or V-tape.

Use sealing tape or draft stoppers to secure gaps at the bottom of doors.

Source: Pixabay

Install electronic radiator thermostats - they allow you to control radiators and set the temperature individually.

SAVE ENERGY IN YOUR HOUSEHOLD - HEAT

Ventilate rooms briefly and intensively for a few minutes with radiators turned off.

Do not cover radiators with furniture or curtains. In addition, you can place heating mats made of Styrofoam and aluminum foil on the wall behind the radiator to increase its efficiency.

Close doors to rooms that are not in use to concentrate heat in occupied spaces.

Source: Pixabay

SAVE ENERGY IN YOUR HOUSEHOLD - WATER

Turn on the washing machine and dishwasher only when they are fully loaded.

Instead of taking a bath, choose a short shower.

Turn off the tap when you brush your teeth, shave or soap your body and hair in the shower.

Water can also be saved by installing water-efficient showerheads, single-lever faucets, aerators, and dual-function buttons in the toilet flush.

Source: Pixabay

SAVE ENERGY IN PUBLIC BUILDINGS - TIPS AND SOLUTIONS

Many of the solutions from your household can also find their way into public buildings, however, applying them here may not be enough. In the following slides you will learn about more advanced ways to save energy in public buildings.

ELECTRICITY

HEAT

WATER

SAVE ENERGY IN PUBLIC BUILDINGS - ELECTRICITY

Analyze contracts in terms of energy consumption.

Implement lighting control according to the presence of users.

Implement lighting intensity control.

Separate the lighting circuits.

Source: Pixabay

SAVE ENERGY IN PUBLIC BUILDINGS - ELECTRICITY

Increase (compensate) the power factor.

Install a small wind turbine.

Properly and regularly maintain equipment.

Replace electric dryers in bathrooms with paper towels.

Source: Pixabay

SAVE ENERGY IN PUBLIC BUILDINGS - ELECTRICITY

Equip rooms with solar chargers to charge cell phones and other portable devices.

Reduce the number of personal printers and replace them with a single mains device.

Remember to unplug self-service vending machines if they will not be used for an extended period of time (e.g., during the vacation season).

Source: Pixabay

SAVE ENERGY IN PUBLIC BUILDINGS - HEAT

Install programmable thermostats.

Ensure adequate insulation of individual system components (including pipes) to reduce distribution losses.

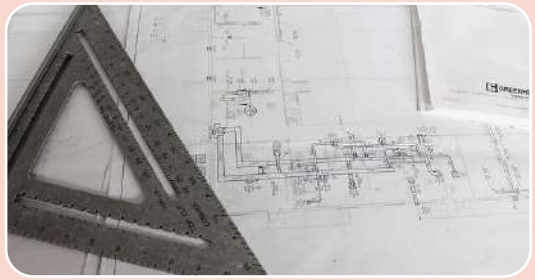
Insulate the central heating storage tank.

Use fans to reduce heat stratification in larger rooms.

Source: Pixabay

SAVE ENERGY IN PUBLIC BUILDINGS - HEAT

Install of a weather controller in the heat source.



Implement zonal heat energy metering, combined with a cost allocation system.

Implement remote control of radiators (zoning by room), using the option to regulate heating according to the calendar.

Source: Pixabay

Modernize the heat source by implementing burner automation.

SAVE ENERGY IN PUBLIC BUILDINGS - HEAT

Source: Pixabay

Modernize the heat source by implementing flue gas heat recovery.

Optimize thermostat settings for periods when the building is not in use (it is good compromise between maintaining the minimum temperature and turning off the heating completely).

Set the heating switch-on time programmers so that the building heats up to an appropriate level before the first residents arrive, and at the same time the heating does not run for too long (heating switch-on time optimization).

SAVE ENERGY IN PUBLIC BUILDINGS - WATER

Regularly inspect and maintain plumbing components and water consumers.

Insulate hot water storage tanks and hot water distribution pipes.

Use energy-efficient dishwashers, washing machines, etc. (or energy-saving modes of these appliances appliances).

Install timer for hot water circulation pumps.

Source: Pixabay

SAVE ENERGY IN PUBLIC BUILDINGS - WATER

Install mixing valves at the outlet of the hot water storage tank.

Continue to install other devices that help reduce the amount of water used and water loss (e.g., timer valves, motion sensors).

Regularly check and immediately repair leaking taps and flush toilets.

Source: Pixabay

GOOD PRACTICES AND PRATICAL EXAMPLES

GOOD PRACTICES FROM POLAND

Sometimes pointing out the usual solutions is not inspiring enough to take action, so in this part of the presentation we will show you what results (affecting both wallet thickness and health) they can bring.

EnergyMeasures

Source: http://www.pnec.org.pl/pl/energy-measures

Source: https://new.abb.com/news/pl/detail/27648/szkola-w-zukowie-z-najnowoczesniejszym-systemem-automatyki-budynkowej-od-abb

Source: https://o4.network/jak-wybrac-najlepsze-wirtualne-biuro-dla-swojej-firmy/

SMART SCHOOL BUILDING IN MUNICIPALITY OF ŻUKOWO

The school building with an area of over 2,000 m2 is equipped with the **smart system** and many other solutions such as the **control of lighting, heating and ventilation of the building managed by the weather station and and motion and presence sensors**. The system is programmed according to a timetable, so reducing heating and extinguishing unnecessary lighting brings significant savings. In addition, photovoltaic cells were installed on the school's roof to increase energy savings.

Source: https://new.abb.com/news/pl/detail/27648/szkola-w-zukowie-z-najnowoczesniejszym-systemem-automatyki-budynkowej-od-abb

SMART SCHOOL BUILDING IN MUNICIPALITY OF ŻUKOWO

The planned saving in energy demand compared to the reference building, i.e. a building that would be built according to the requirements for 2017, is 65%. The reference building consumes 59.2 kWh/m2 per year, and the new school - 20.6 kWh/m2.

Source: https://new.abb.com/news/pl/detail/27648/szkola-w-zukowie-z-najnowoczesniejszym-systemem-automatyki-budynkowej-od-abb

CAMPUS OF BIAŁYSTOK UNIVERSITY

The campus is intended for students, scientists and University staff. It was open in 2014. That modern University building has broad ambition s- it really wants to **connect communities**, inspire on various levels, emanate ideas, promote culture and art.
A huge, modern scientific base, quiet rooms and laboratories guarantee the highest comfort of work. In additon, the University Cultural Center, Natural Center, Library, gardens on the terraces and a courtyard connect all environments, which is equally used by people of all faculties.

Source: https://bialystoksubiektywnie.com/blog/2017/11/24/kampus-uniwersytecki-w-bialymstoku/

CAMPUS OF BIAŁYSTOK UNIVERSITY

Source: https://bialystoksubiektywnie.com/blog/2017/11/24/kampus-uniwersytecki-w-bialymstoku/

The main entrances to all faculties are located in the square. We are welcomed by huge glass panes with engraved sentences, patterns and symbols specific to a given science.
Eachwing, ordepartment, also has its own additional, internal courtyard with a symbol appropriate for it, e.g. in the department of physics you will find a Focault pendulum and in biology, a DNA model of mammals.
That's to make it nice and quiet.

OLIVIA BUISNESS CENTRE IN CITY OF GDAŃSK

In the middle of one of the largest office complexes in Poland you can find 120 m2 of green space in which almost **3000 plants** grow which positively affects the well-being of the facility's employees.

In addition, offices and conference rooms are equipped **with air purification systems using ions**, **smooth surfaces** such as elevators, lobbies, paths to the garage are covered with **special layers of titanium** which causes bacteria, fungi and viruses to be broken down into carbon dioxide and water. **Air quality is monitored** throughout the facility with pollution and particle sensors, and ventilation is continuous with an air exchange intensity control system.

Source: https://o4.network/jak-wybrac-najlepsze-wirtualne-biuro-dla-swojej-firmy/

OLIVIA BUISNESS CENTRE IN CITY OF GDAŃSK

The solutions used in the construction of the Olivia Buisness Centre are primarily intended to have a positive impact on the health and well-being of users. All of this has helped Olivia Business Center achieve **International Well Building Institute (IWBI) certification** and become one of the world's leading buildings of its kind in terms of protecting users from pathogens - including coronaviruses.

INTERNATIONAL WELL BUILDING INSTITUTE™

Source: https://innowacje.newseria.pl/biuro-prasowe/ekologia/wielkie-otwarcie,b343606047

THE WARSAW HUB

Source: The Warsaw Hub, fot. Ghelamco

The Warsaw HUB is the most technologically advanced complex of three buildings: two 130 meters high and one 85 meters high, connected by a common podium.

Office space: 75,000 m2
Total area: 113,000 m2

Integrated building management systems and advanced mobile solutions for users are controlled by an artificial-intelligence-based system operated by Google Cloud Platform.

THE WARSAW HUB

Source: Urban Insight – Zdrowe budynki, miasta i Ty; Sweco; https://plgbc.org.pl/wp-content/uploads/2021/07/UrbanInsight_Raport_Nr_02_2021_PL.pdf

The building uses a number of technical solutions to ensure clean and safe indoor air:

- UV-C lamps in ventilation centers to disinfect the air and remove dangerous microbes and mold;
- UV-C lamps in elevators to disinfect all touchable surfaces (activated only when there are no people inside);
- fresh air supply much higher than required by EU standards;
- high-quality air filtration systems;
- contactless smartphone access to the building (including QR codes for visitors);
- elevator algorithms that limit the number of users to reduce the risk of infection.

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PROJECT ENERGY MEASURES

The goal of the project was to **improve the energy efficiency of households at risk of energy poverty by raising residents' energy awareness, changing their habits and applying low-cost energy-saving measures** such as installation of aerators, thermal insulation mats, etc.
Implementation of the **energy advisory program** in Poland (in the City of Bielsko-Biała) provided under the project has allowed selected households to obtain individual assessments of their current situation and expert advice, and as a result reduce energy consumption and costs by implementing specific solutions.
Project activities also included **improving local policies**, facilitating the diagnosis of energy poverty, as well as contributing to improving the well-being of residents and, by reducing energy consumption, reducing greenhouse gas emissions.

Source: http://www.pnec.org.pl/pl/energy-measures

PROJECT ENERGY MEASURES

In addition to disseminating knowledge, good practices and building awareness among residents, testing effective methods of cooperation and contact with residents, and obtaining data for local documents, the program has also resulted in a **reduction of energy consumption** by nearly 110,8 MWh (about 17%) in 450 households

EnergyMeasures

More about the project you can find here: *https://energymeasures.eu/*.
On the website you will also find descriptions of the activities of other participating countries, their achievements also numerous materials.

SAMRT READINESS INDICATOR FO BUILDINGS (PROJECT S3UNICA)

This indicator allows for rating the smart readiness of buildings, i.e. the capability of buildings (or building units) to adapt their operation to the needs of the occupant, also optimizing Energy efficiency and overall performance and to adapt their operation in reaction to signals from the grid (Energy flexibility). The smart readiness indicator will raise awareness amongst building owners and occupants of the value behind building automation and electronic monitoring of technical building systems and should give confidence to occupants about the actual savings of those new enhanced functionalities.

Source: https://www.rehva.eu/

More about the project you can find here: https://www.interregeurope.eu/s3unica/.

S3UNICA
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We hope that this lesson was useful and will allow you to make changes in your daily life. Remember that even small changes can have a huge impact if undertaken by many people.

By spreading the knowledge of ecology we are able to fight climate change more and more. If you have a chance to show someone that introducing sustainable habits doesn't have to cause a decrease in quality of life at all – do it!

"We Do Not Inherit the Earth from Our Ancestors; We Borrow It from Our Children. So we have to pass it on to them at least as it was passed on to us".
- Chief Seattle

WANT TO LEARN MORE?

- **CE51 TOGETHER TRAINING MATERIAL ON ENERGY EFFICIENCY IN PUBLIC BUILDINGS.**
- **Increasing importance of ensuring adequate indoor climate in public buildings**
- **MATERIAŁY SZKOLENIOWE NT. EFEKTYWNOŚCI ENERGETYCZNEJ W BUDYNKACH UŻYTECZNOŚCI PUBLICZNEJ – Aspekty techniczne**
- **Wskazówki, jak mądrze korzystać z energii i chronić swój domowy budżet**

Source: https://pixabay.com/pl/photos/ksi%C4%85%C5%BCki-ksi%C4%99garnia-ksi%C4%85%C5%BCka-czytanie-1204029/

If clicking on the selected position does not work, please copy the link and paste it in your browser

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Thank You for your attention!

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