

# SOLUTIONS FOR THE GREEN RECONSTRUCTION OF UKRAINE



**SVITLANA BERZINA**

# Climate and energy goals of the EU in 2030

**>32,5%**

Increasing  
energy efficiency

**>32%**

Renewable  
energy sources

**>50-55%**

Reduction of greenhouse  
gas emissions  
(until 1990)



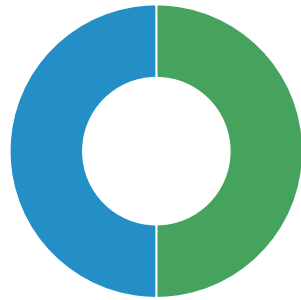
<https://ec.europa.eu/clima/policies/strategies/2030>

# Circular economy and the single market of green products

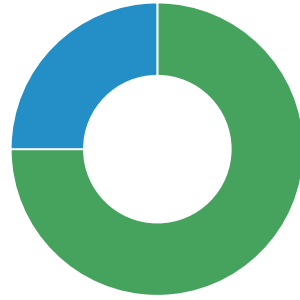


Green construction is energy-efficient and smart construction that has a minimal impact on the environment. Buildings that meet green construction standards provide significant savings in operating costs, are more comfortable, healthier, and have a higher investment value.

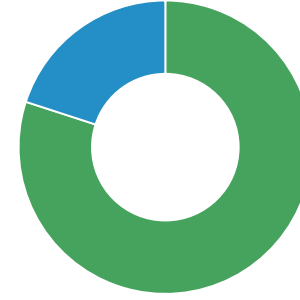
## Fate of construction and buildings from global impacts on the environment



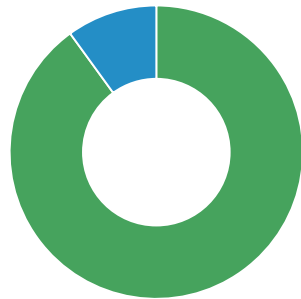
50% of natural resources



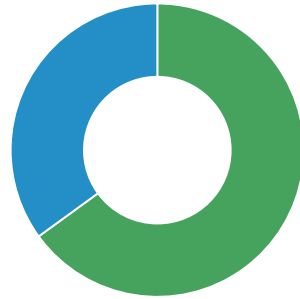
25% of the landfill



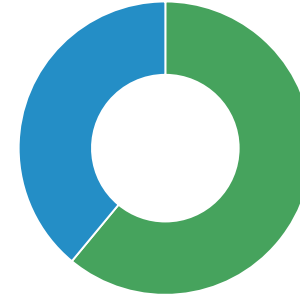
20% of water consumption



10% emissions of pollutants  
into the air



35% of greenhouse gases



39% energy use

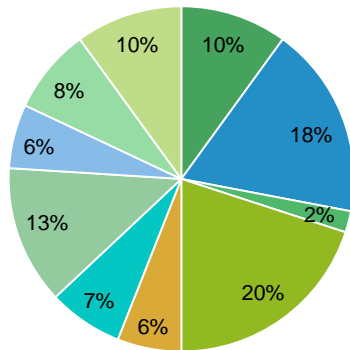
# BREEM

# LEED

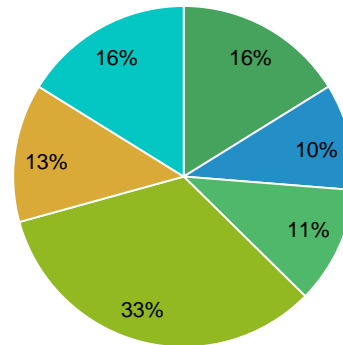
# DGNB



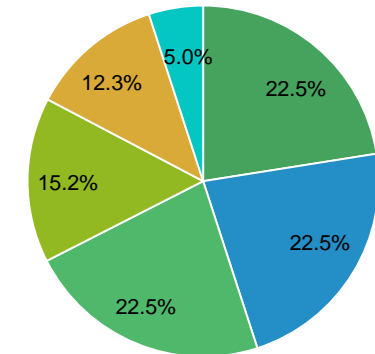
Rating	%	Rating	Points received	Rating	%
Impressive	≥ 85	Platinum	80+	Platinum	65...80+
Perfectly	≥ 70	Gold	60...79	Gold	50...65
Very good	≥ 55	Silver	50...59	Silver	35...50
Fine	≥ 45	Certified	40...49	Bronze	till 35
Fits	≥ 30				
Out of classification	<30				



- Management
- Dangers
- Transport
- Materials
- Territory use and ecology
- Health and well-being
- Energy
- Water
- Waste
- Pollution



- Location and transport
- Sustainability of the city
- Efficiency of water use
- Energy and atmosphere
- Materials and resources
- Environmental quality and microclimate



- Quality of the environment
- The quality of the economy
- Process quality
- Quality of place
- Technical quality

# Repayment

### ORDINARY BUILDING

\$150 000



The average cost is \$1,200/sq. m

\$3 000



Average annual costs for electricity and heating

### GREEN BUILDING

\$153 000



~ 2% more costs at the design and construction stage

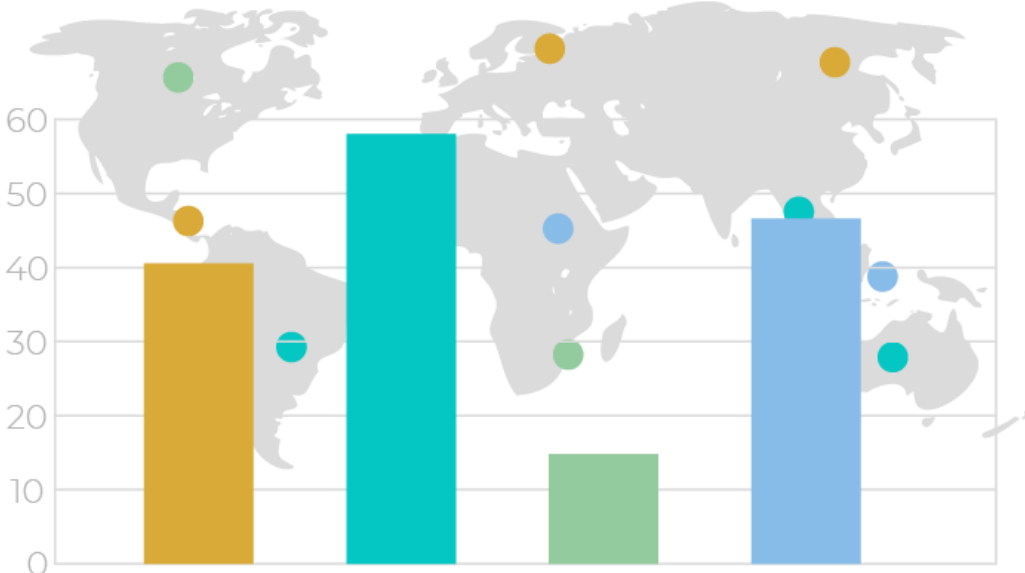
\$2 250



Average annual costs for electricity and heating (saving ~ 25%)

### Perception vs reality

"Is there a cost difference between green and standard building, building products and practices?" - survey of customers in the EU



**TERM FOR COMPENSATION OF ADDITIONAL COSTS**

=

**3 Years**

(without using state support for energy efficiency or RES 4-5 years)

# Other financial benefits

## Reducing the load on networks

Green buildings require less energy and water, which reduces the load on networks and increases opportunities for infrastructure

## Cost

Green buildings, new or renovated, have a higher asset value (over 9%) and a lower cost of ownership (operations over 20%)

## Modern design

40% of the respondents indicated that they would prefer buildings with skylights.

In addition, it allows you to save on artificial lighting

## Comfortable and healthy environment

According to the results of the survey, users of green buildings (employees, students) compared to:

70% are happier and healthier;

16% are more productive;

35% less absenteeism (students)

## Investments

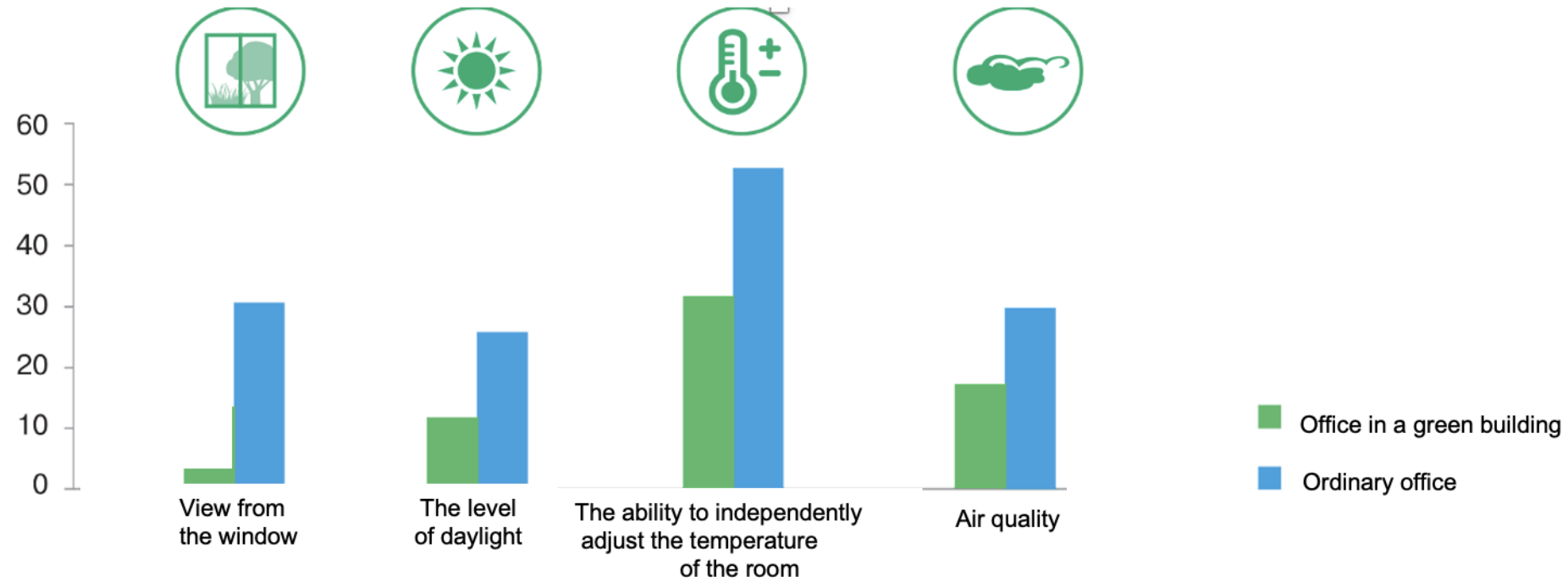
Green buildings have a return on investment of + 20%, even if only the energy efficiency indicator is considered

## Savings

~ 10.5% in the 1st year of savings on operating costs

~ 16.9% over a five-year period

# Research results

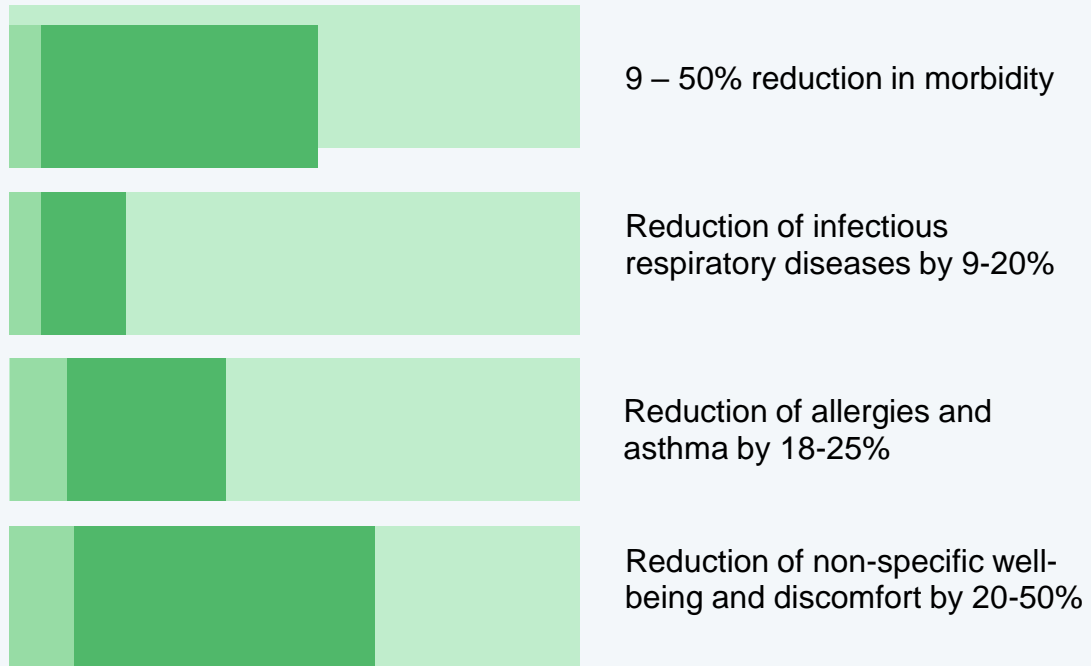


Results of the study "Health, well-being and productivity in offices" conducted in 2014 at the initiative of the World Green Building Council (WGBC)



# Environmental advantages of green construction

## The quality of the internal environment



## Ergonomics

Preservation of ecosystems and biodiversity

Minimum dependence on own vehicles due to improved access to infrastructure

Reducing soil erosion through sustainable greening

Minimal light pollution due to reduced and optimized lighting

# Environmental advantages of green construction

## Materials and resources

Waste reduction	Use of recycled materials
Chemical safety	Quality and durability
Renewable resources	Resource efficiency



## Energy and atmosphere

Reduction of emissions  
of greenhouse gases up to 35 %

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Reduction of energy consumption  
by 30-40%



## Water

Reducing water consumption  
By 20-30%

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Reuse and  
Collection of water



# Public procurement

The reduction of environmental impacts as well as the effectiveness of procurement in general should take into account the characteristics of the subject of procurement in terms of energy consumption and related indicators, such as energy efficiency, greenhouse gas emissions, etc. Thus, **energy-efficient public procurement** (EPP) should be considered as a component of the EPP focused on aspects of energy efficiency and other related characteristics.

**Sustainable public procurement** (SPP) is defined as a process by which authorities, when purchasing goods, works or services at all stages, strive to achieve an appropriate balance between the three components of sustainable development - economic, social and environmental.

Separating the ecological component from the concept of sustainable procurement, so-called **green public procurement** (GPP) is carried out — procurement aimed at protecting and improving the environment. GPP is defined as the process by which governments seek to procure goods, works or services with a reduced life-cycle environmental impact compared to goods, works or services with a similar functional purpose that could be purchased instead.



**Article 23.** Technical specifications, markings, certificates, test reports and other means of confirmation of conformity.

Technical specifications can be in the form of a list of operational or functional requirements, including **environmental characteristics**, provided that such requirements are sufficiently precise that the subject of the procurement is clearly understood by the customer and the participants.

Technical specifications may contain references to standard characteristics, technical regulations and conditions, requirements, conventional designations and terminology related to goods, works or services procured, provided by existing international, European standards, other joint technical European norms, other technical reference systems recognized by European standardization bodies or national standards, norms and rules. Each reference must be accompanied by the expression "or equivalent".

# Law of Ukraine "On Public Procurement" (new version)

## Article 29. Review and evaluation of tenders/proposals

The proposal evaluation criteria MAY be "... 3) price/life cycle cost together with other evaluation criteria, in particular, such as: ..... **the application of environmental and/or social protection measures that are related to the subject of procurement.**"

In the case of applying the life cycle cost assessment criterion, this criterion, in addition to the price of the product (work, service), may include one or more costs of the customer during the life cycle of the product (goods), work (works) or service (services), namely costs related to connected with:

- the use of goods (goods), work (works) or service (services), including consumption of energy and other resources;
- maintenance;
- collection and disposal of goods (goods);
- the impact of external environmental factors during the life cycle of the product(s), work(s) or service(s), if their monetary value can be determined, in particular the impact of emissions of greenhouse gases, other pollutants and other costs associated with reducing impact on the environment (environment).

In the case of applying the life cycle cost assessment criterion, all its components should not contain requirements that limit competition and lead to discrimination of participants.

# Law of Ukraine "On Energy Efficiency"

**Article 7.** Purchase of energy-consuming products (goods) and services related to energy consumption, as well as purchase or lease (rent) of buildings.

When conducting public procurement of energy-consuming products (goods), the requirements for which are defined in the legislation on energy labeling, environmental labeling and ecodesign, the value of which is equal to or exceeds the amount determined by **clause 1 of part one of article 3** of the Law of Ukraine "On Public Procurement", energy efficiency class of such products (goods) must not be lower than the energy efficiency class determined by the Cabinet of Ministers of Ukraine taking into account normative legal acts in the field of energy labeling, or the energy efficiency indicators of such products (goods) must correspond to indicative indicators determined by normative legal acts in the field of ecodesign , or such products (goods) must meet the standards in the field of type I environmental labeling.



Ukraine



Germany

Canada



<https://globalecolabelling.net/>



International Organization for Standardization

ISO 14024:2018

Створення закупівлі

Тестова

Зберегти

Скасувати

## Організатор

Назва: ТОВ "Смарттендер тест"  
Назва (англ): ST  
Код ЄДРПОУ:  
Адреса:

Контактна особа:  
Контактна особа (англ):  
E-mail:  
Телефон:



## Тип процедури

\* Тип процедури

Відкриті торги з особливостями

\* Мір

1 <https://infobox.prozorro.org/articles/instrukciya-a-z-zastosuvannya-ekologichnih-vimog-i-ekologichnih-kriterijiv>

Екологічні вимоги ⓘ

Вартість життєвого циклу

Застосовано аукціон

**The environmental characteristics of thermal insulation materials [or the name of the category according to the CPV code] must meet the requirements of the environmental criteria established in accordance with DSTU ISO 14024:2018 (ISO 14024:2018, IDT).**

### Confirmation of compliance with the requirement:

1) A copy of the certificate of compliance with environmental criteria according to the certification scheme in accordance with DSTU ISO 14024 (reference to ND is indicated in the field of accreditation of the body).

2) A copy of the accreditation certificate of the body in the field of environmental labeling of type I that issued the certificate in accordance with the Law of Ukraine "On Accreditation".





**EU4Environment**  
Green Economy in Eastern Partner Countries

Action implemented by:



## HOW TO DETERMINE ENVIRONMENTAL REQUIREMENTS FOR GOODS, WORKS OR SERVICES USING E-FIELDS PROZORRO



**prozorro**

<https://www.youtube.com/watch?v=ywJCoCQclv0>

A bidder who submits an offer in the amount of UAH 100,000 and has fulfilled all the requirements of non-price criteria with a maximum weight of 30%

The correction factor of this offer will be equal to:

$$KK = 1 + (0,1 + 0,15 + 0,05) / 0,7 = 1,85$$

Then the quoted price at which the Supplier will participate in the auction will be equal to:

$$100\ 000 \text{ грн} / 1,85 = 54\ 054,05 \text{ UAH.}$$

That is, an offer of UAH 100,000. which corresponds to the total value of the non-price criteria is UAH 54,054.05. in a competitive auction relative to the price offer of participants who do not meet the requirements of non-price criteria.



proz•rro

# DSTU ISO 15686-5:2020 Buildings and real estate objects. Lifetime planning. Part 5. Life cycle cost assessment (ISO 15686-5:2017, IDT)

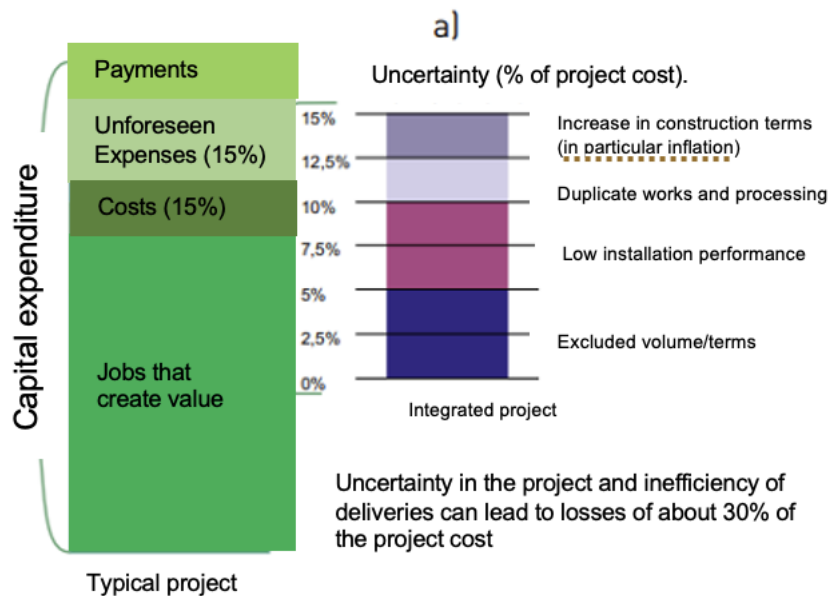
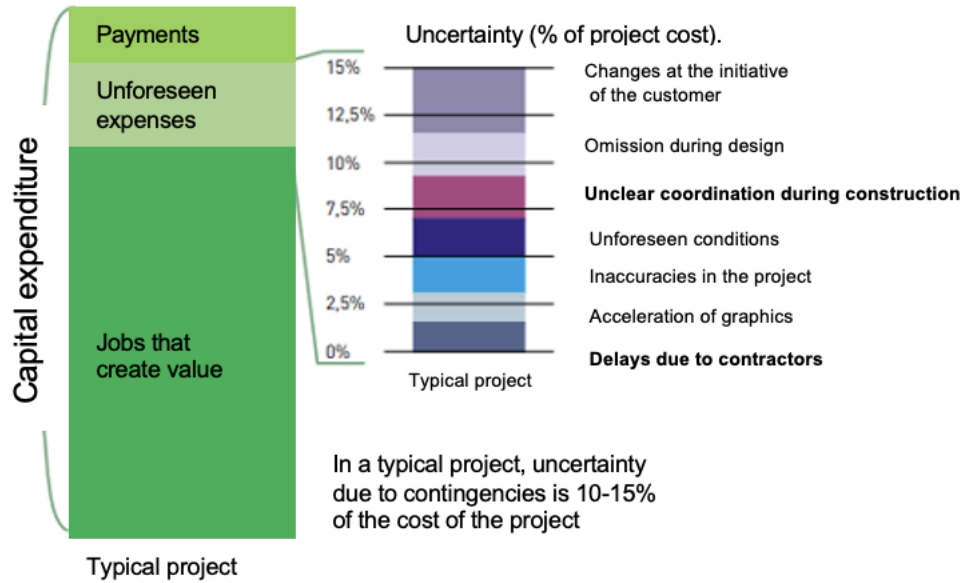
Application of the life-cycle costing (LCC) approach according to a standardized methodology that is unified at the international level:

- brings closer the implementation of EU legislation in the field of construction and public procurement;
- provides an assessment of the effectiveness of public sector spending on construction;
- creates more favorable conditions for the introduction of energy-efficient, resource-saving and cleaner technologies in construction.

LCC will allow you to determine the real cost of 1 square meter. m of the facility based on its operational characteristics, all maintenance costs (including energy), environmental impacts, service life and disposal.



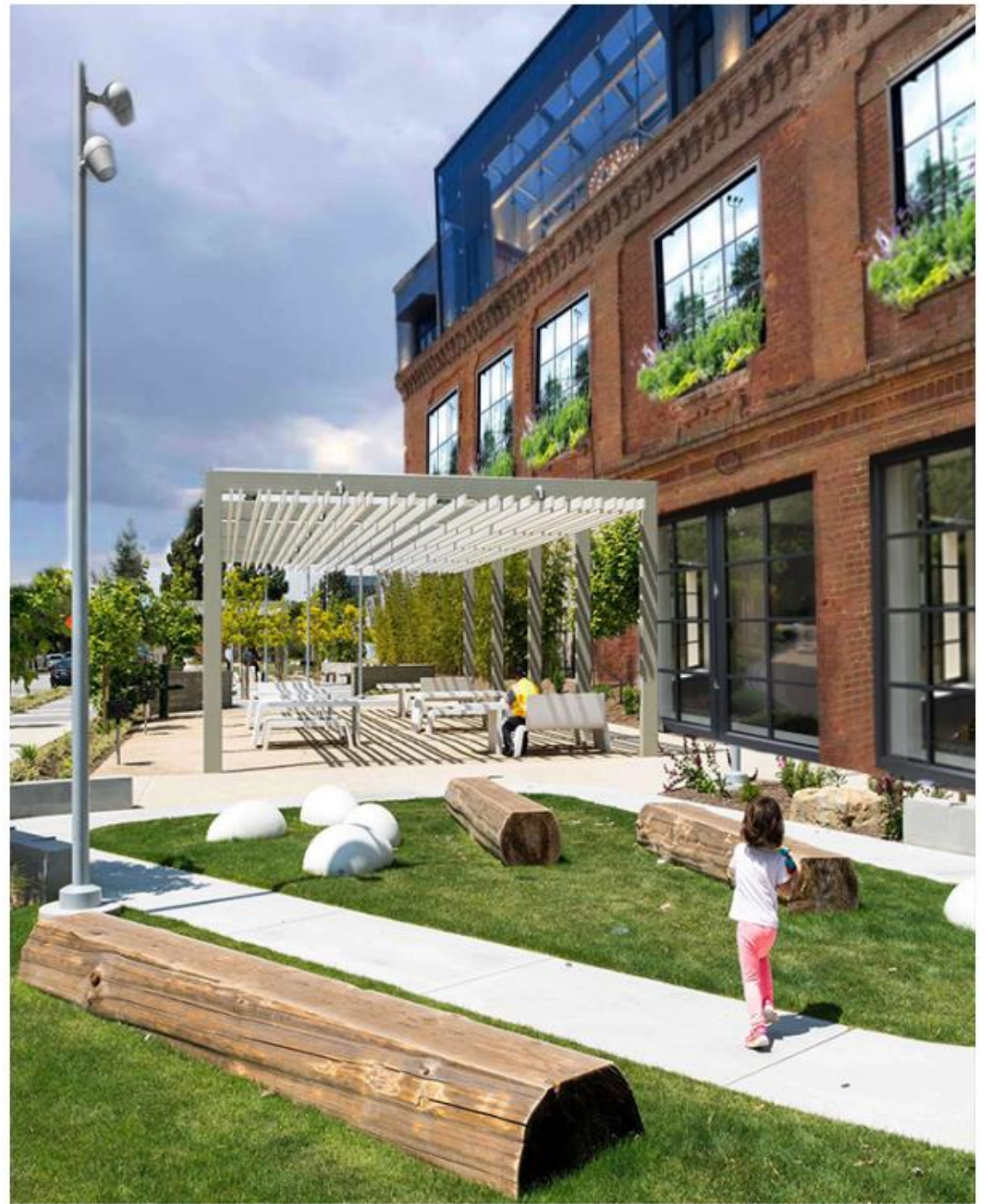
# Losses from (a) uncertainty and (b) project inefficiencies

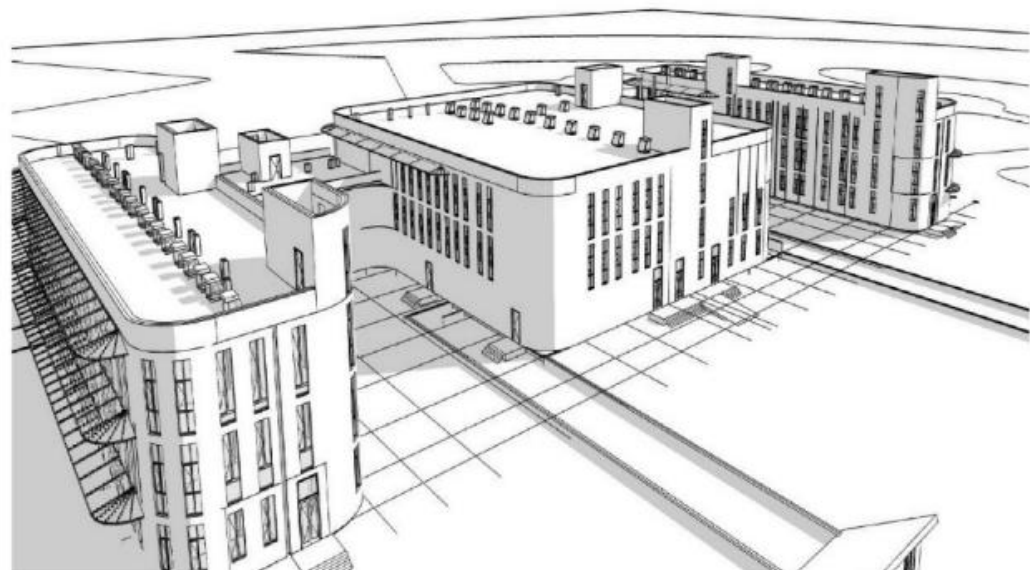
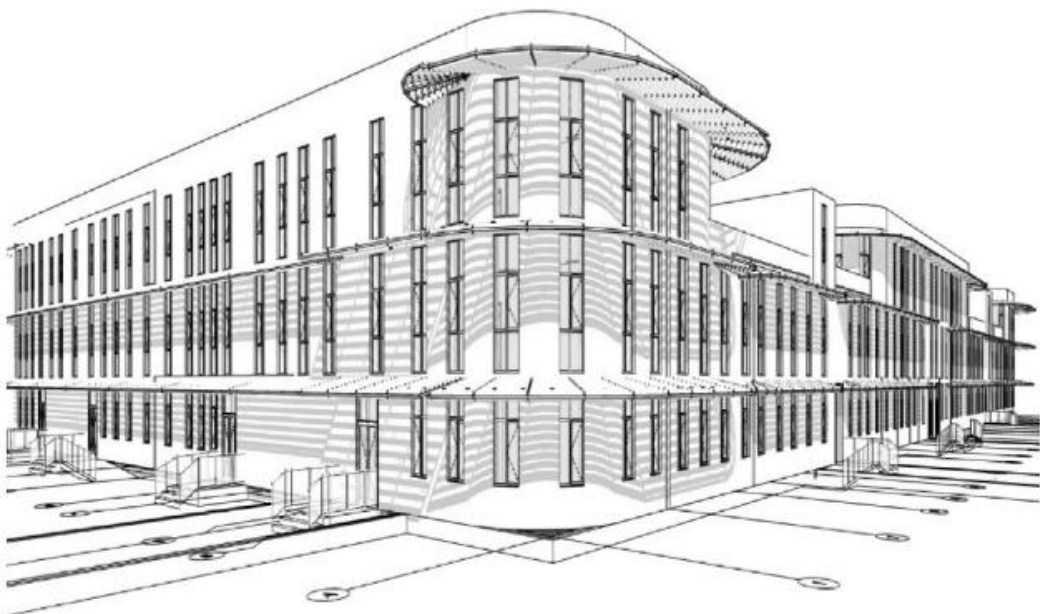


The methods of selection can be: expert point assessment, analysis of disadvantages and advantages or SWOT analysis and others.

The use of efficiency improvement tools and more complex methods of algorithmic optimization of structures can provide improved parameters of the life cycle.

To process project data arrays and automate calculations, as well as increase their accuracy, it is advisable to use a computer model of the building, which includes all information about the future object: Building Information Model (BIM).





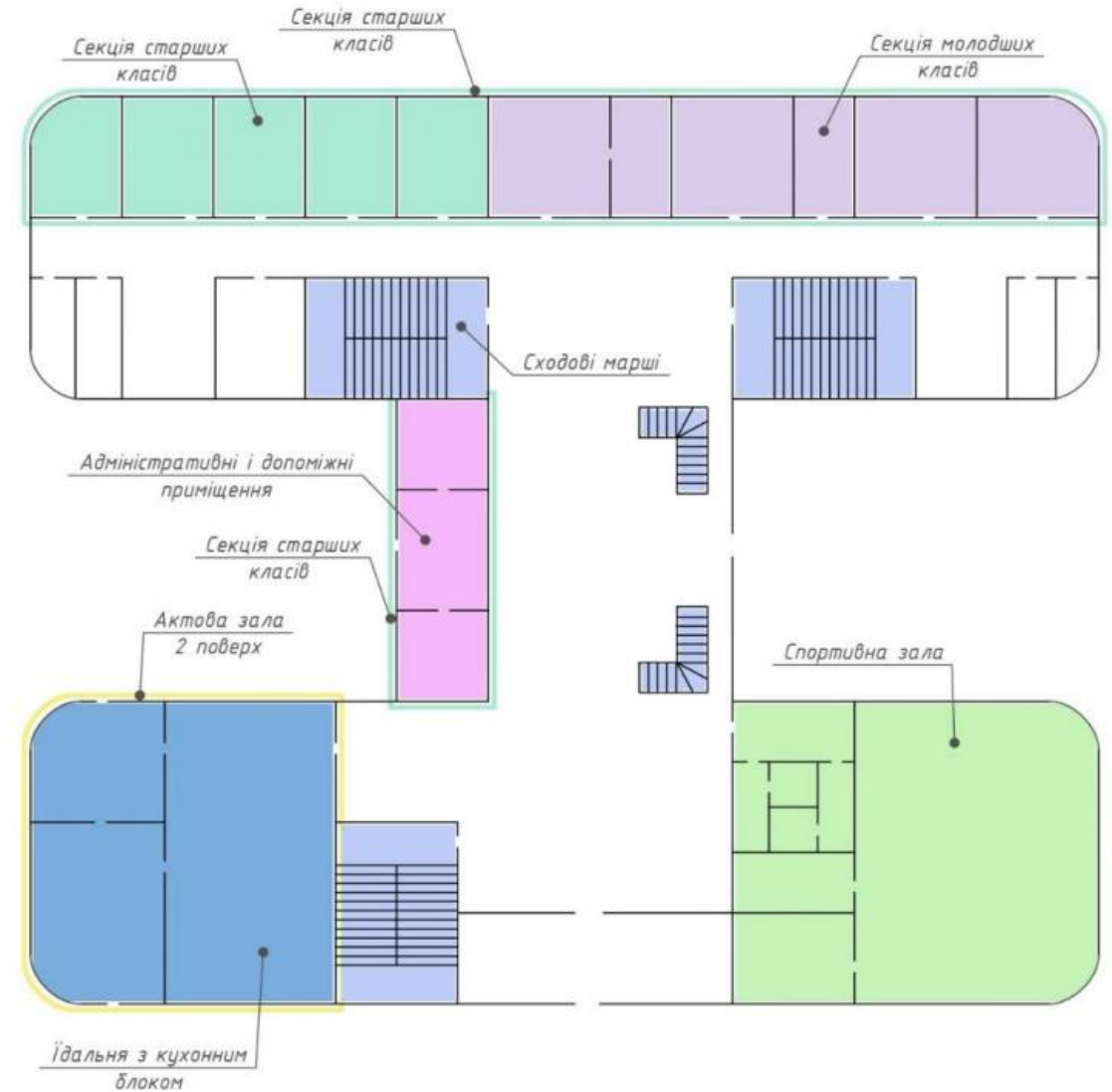
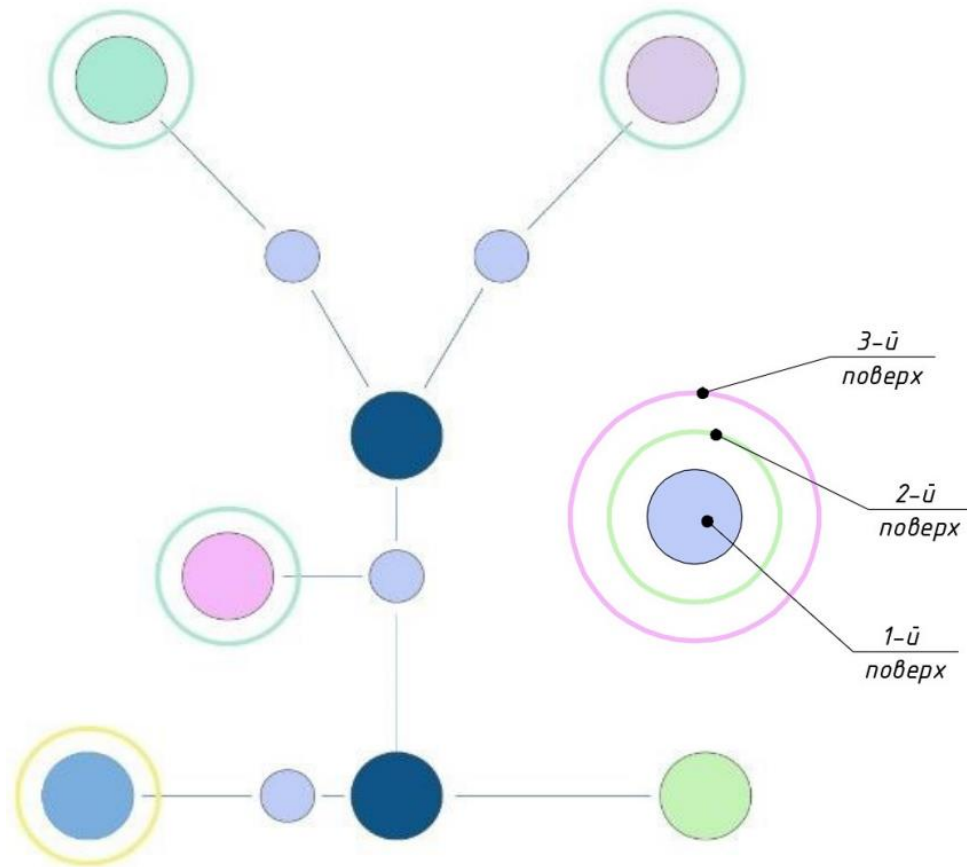
## Projects of reuse of energy-efficient schools and kindergartens with improved environmental characteristics

The main idea is to develop the most energy-efficient projects of schools and kindergartens using the most successful experience of implementing green construction projects, using the most modern architectural, constructive and engineering solutions and technologies, including alternative energy sources.

In the design process, we used complex numerical modeling of the building's energy balance and optimization of its global architectural solutions using artificial intelligence and computer modeling tools based on discrete applied geometry.



Functional blocks are expressed in simplified graphic models that can be optimized and adapted to the shape of the existing construction site.



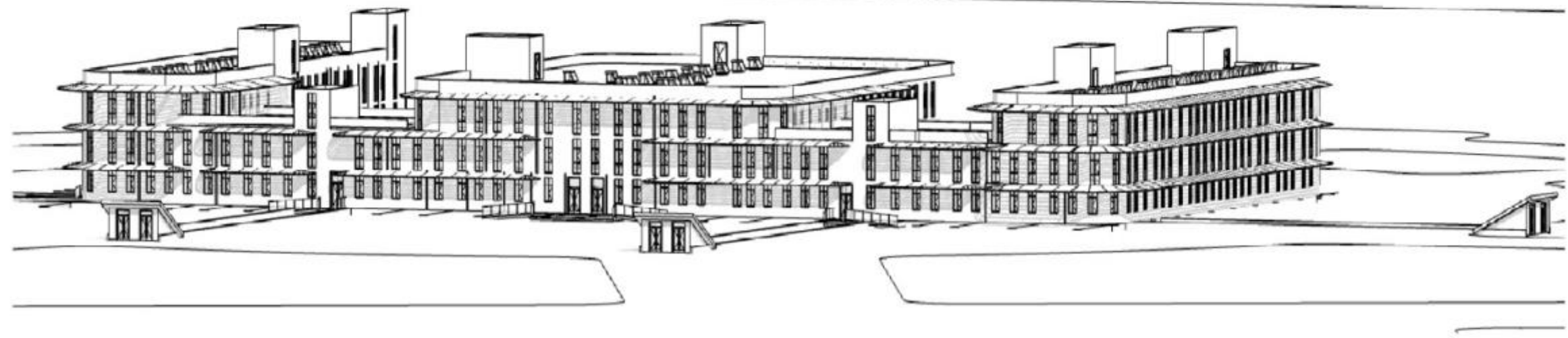
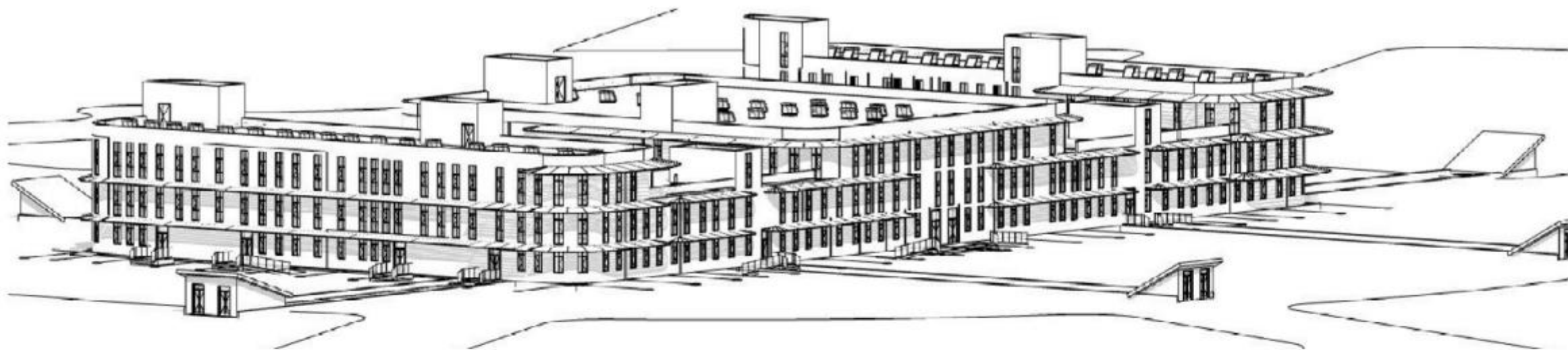
Scale of energy efficiency classes (kWh/m<sup>3</sup>)

Energy efficiency class and specific costs (kWh/m<sup>3</sup>)

	<[20,58]	
	<[32,92]	
	≤[41,15]	
	≤[49,38]	
	≤[55,55]	
	≤[61,73]	
	>[61,73]	

**A**





# Landscaping, shelter and optimization of space for children's development and activity









**Buildings and structures. Ecological criteria and life cycle assessment method –**

assessment of improved environmental characteristics of public buildings and structures at the stages of design, construction, commissioning, maintenance, repair and end of service life.

**WG PC 3 "Life cycle assessment" TC 82 "Environmental protection"** develops a standard based on the results of the analysis of the life cycle of objects built in accordance with the requirements of energy-efficient, green and sustainable construction standards.

**ISO 21929-1:2011;**

**ISO 14040:2013; ISO 14024:2018**

# Projects of energy-efficient green construction - customer support

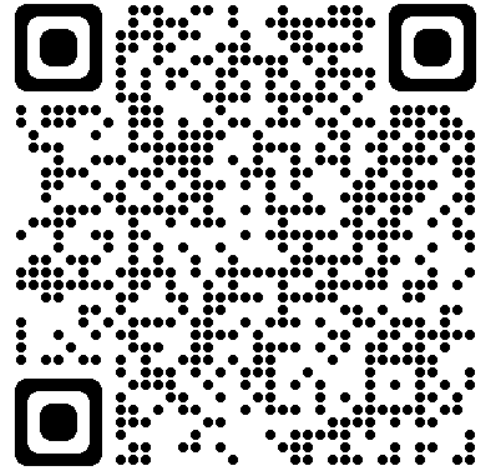
- Online training course (5 modules) to support the implementation of energy-efficient public procurement for the green reconstruction of Ukraine
- New construction and reconstruction of kindergartens and schools: methodological recommendations and reuse projects
- Consultations at the stage of developing a design task
- Consultations on the life cycle cost assessment methodology (energy-dependent products, buildings and structures)
- Requirements for energy efficiency and environmental characteristics of construction products
- Other



# Green Agenda for Ukraine

## Project Objectives

To assist Ukraine in its pathway towards climate neutrality through green transition and recovery by:



Roadmap

**Ukraine's Climate Neutrality Roadmap** facilitating alignment with the European Green Deal and EU accession requirements

Project pipeline

**Investment-ready projects** bridging the Roadmap to its implementation

Public Awareness

**External outreach** supporting the implementation of the Roadmap and maximizing its impact

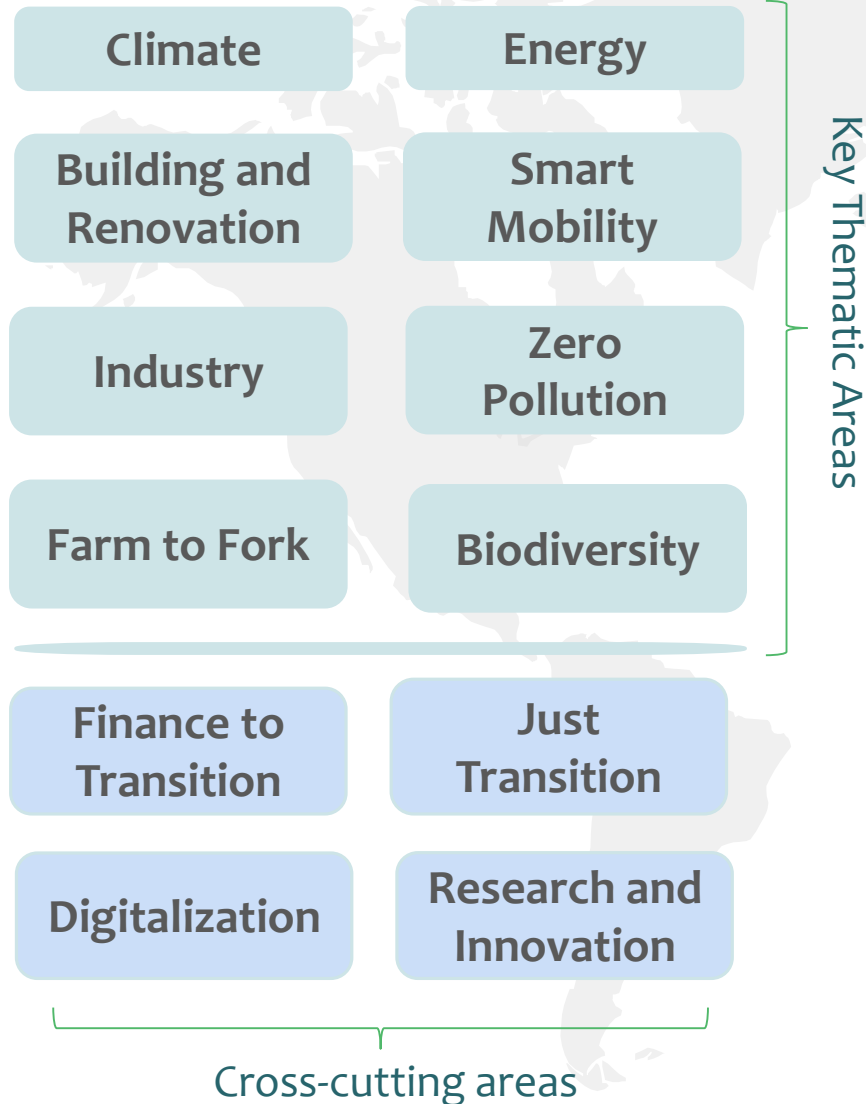
Capacity Building

**Capacity-building** and **Technical assistance** support for critical stakeholders, primarily aiming at civil servants

Regional Coherence

**Regional coherence** in the pursuit of climate neutrality across countries

# European Green Deal Assessment: Thematic Areas



- Comprehensive approach towards climate neutrality
- Countries need to align with EU policy framework and EGD
- EU needs Green Agenda countries to align with EGD to reach climate neutrality





# Key Project Deliverables



**Comprehensive  
Green Transition  
Assessments**

Sep 2023 – Jun 2024



**Ukraine's Climate  
Neutrality  
Roadmap 2050**

Jul 2024 – Jun 2025



**Priority project  
proposal  
preparation**

Jul 2025 – Mar 2026



**Capacity  
building and  
technical  
assistance**

Jul 2025 – Mar 2026

2023

2024

2025

2026



# Thank you for attention!

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