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Methods for assessing the potential of local strategies and programmes in the field of energy and energy efficiency in communities of Ukraine

Metody oceny potencjału lokalnych strategii i programów w zakresie energii i efektywności energetycznej w społecznościach Ukrainy

Keywords:
Green Deal, local strategies and programmes, communities, methods for assessing, energy efficiency

Słowa kluczowe:
Zielony Ład, lokalne strategie i programy, społeczności, metody oceny, efektywność energetyczna

Methods for assessing the potential of local strategies and programmes in the field of energy and energy efficiency in communities of Ukraine

This paper proposes methods for assessing the potential of local strategies and programmes as practical tools to evaluate their effectiveness in the fields of energy and energy efficiency. By employing these methods, local communities and specific energy cities can determine the level of compliance of their strategies or programmes with legislative and regulatory acts at both national and regional levels. This assessment of local strategies and programmes aims to establish an organised system and represents a significant step towards the implementation of energy efficiency and sustainability practices.

The paper conducts an analysis of strategies and programmes in six local communities across six regions (oblasts) of Ukraine using the suggested methods. This approach allows for a comprehensive analysis of different regions in Ukraine, and the findings will be presented in the conclusions.

The practical implications of the findings presented in this paper may be of interest to energy companies, local self-government authorities, utility companies, academia, and a broader audience concerned with energy and energy efficiency issues. While the methods are applied and tested using Ukrainian communities as examples, they serve as a valuable model that can be adapted for use in territorial units across various countries.

Metody oceny potencjału lokalnych strategii i programów w zakresie energii i efektywności energetycznej w społecznościach Ukrainy

W niniejszym artykule proponowane są metody oceny potencjału lokalnych strategii i programów jako praktyczne narzędzia do oceny ich efektywności w obszarach energii i efektywności energetycznej. Poprzez zastosowanie tych metod społeczności lokalne oraz określone miasta energetyczne mogą określić stopień zgodności swoich strategii lub programów z aktami legislacyjnymi i regulacyjnymi zarówno na poziomie krajowym, jak i regionalnym. Taka ocena lokalnych strategii i programów ma na celu ustanowienie zorganizowanego systemu i stanowi znaczący krok w kierunku wdrożenia praktyk w zakresie efektywności energetycznej i zrównoważonego rozwoju. W artykule przeprowadzono analizę strategii i programów sześciu społeczności lokalnych w sześciu regionach (obwodach) Ukrainy, wykorzystując zaproponowane metody. Takie podejście pozwala na wszechstronną analizę różnych regionów Ukrainy ze sformułowaniem określonych wniosków. Praktyczne implikacje wniosków przedstawionych w tym artykule zainteresują przedsiębiorstwa energetyczne, władze samorządowe, przedsiębiorstwa użyteczności publicznej, środowisko akademickie oraz szerszą publiczność wzbudzając ich uwagę zagadnieniami energii i efektywności energetycznej. Chociaż metody te są stosowane i testowane na przykładach społeczności ukraińskich, to posłużą także jako cenny model, który można zaadaptować do stosowania w jednostkach terytorialnych w różnych krajach.

1. Introduction

Ukraine has accepted the climate challenge with the rest of Europe, and has started its own journey within the Green Deal. Working out the package of national normative and legislative documents as well as national strategies and programmes aimed at regulation in the field of energy, energy efficiency, and energy safety was one of the first steps. In accordance with these documents, regional strategies and programmes were developed. These regional documents became the basis for approving both general and targeted local documents.

However, as practice demonstrates, regional acts do not always correlate with national regulations, and local strategies and programmes do not always correlate with regional and national documents. This issue is especially topical for mono-profile areas, particularly for energy generation communities as they are the first objects of the Just Transition as one of the tools of the Green Deal. However, the process of implementing strategies and programmes often demonstrates their inability, that is, they are ineffective, unsuitable for implementing in practice.

This is why the issue of the assessing regional/local strategies and programmes on their ability and in accordance with normative and legislative acts at higher levels is urgent. To resolve this issue, the method for assessing the ability of local strategies and programmes in the field of energy and energy efficiency was worked out. Two groups of ability indicators are suggested. Ability indicators are indexes that allow estimation of the ability of a local/regional strategy or programme and its conformity with the provisions of national legislation.

This method is a practical tool for assessing the ability of local strategies and programmes in the field of energy and energy efficiency. Due to use of this method, local communities and specific energy cities will be able to determine the level of accordance of their local strategies/programmes with regional regulative acts and national legislation. Such an assessment of ability is the first step towards energy efficiency and energy sustainability.

In practice, the research could be interesting for companies working in the energy field, local self-governmental authorities, utility companies, scientists, and wider audiences interested in the issues of energy and energy efficiency.

2. Research framework

The overarching objective of this paper is to assess the potential of local strategies and programmes within the context of energy and energy efficiency in Ukrainian communities. Specifically, the paper aims to elucidate the role played by local strategies and programmes in the broader landscape of strategic development planning for communities, with a particular focus on the realms of energy and energy efficiency.

To fulfil this objective, a methodology for evaluating the potential of local strategies and programmes in the field of energy and energy efficiency was devised. Throughout this paper, we endeavour to meticulously expound upon this methodology and substantiate its importance for the strategic planning and effective development of local communities in Ukraine.

The methodology, outlined in detail in the research publication 'Methods for Assessing the Potential of Local Strategies and Programmes in the Field of Energy and Energy Efficiency'[1], is characterised by its uniqueness, and its underlying logic can be extrapolated to various facets of strategic planning.

The driving force behind the selection of the research direction is the Green Deal, a European initiative aimed at achieving carbon neutrality by 2050 through phasing out the use of fossil fuels in favour of alternative energy sources such as solar and wind. Ukraine has aligned itself with this initiative, embarking on a journey within the Green Deal framework. One of the initial steps involved the development of a comprehensive package of national normative and legal acts, as well as strategies and programmes, to regulate the fields of energy, energy efficiency, and energy safety. These acts paved the way for the creation of regional target strategies and programmes, which, in turn, served as the foundation for the formulation of both local target and general documents.

In essence, this paper unfolds as a critical exploration of the dynamic interplay between local strategies, energy efficiency, and the broader scope of community development planning in the context of Ukraine's commitment to the principles of the Green Deal.

However, an additional motivating factor for the selection of the research direction is the ongoing war in Ukraine, with Russian troops actively

1 I Kostetska, E Moldovan, *Methods of the assessing ability of local strategic and programmatic documents in the field of energy and energy efficiency*, 2022.

targeting and destroying the country's energy infrastructure. In the aftermath of the conflict, Ukraine is presented with a significant opportunity to rebuild and modernise its energy sector by embracing alternative energy sources.

The local communities chosen for this research were selected based on specific criteria:

– The presence of an energy infrastructure object, such as a power plant, within the territory of the local community.

– The mono-profile nature of the local community, indicating that the community's budget is primarily derived from taxes and fees collected from energy enterprises.

The primary objective of the devised methodology is to assess the ability and alignment of regional/local strategies and programmes with higher-level regulatory legal acts. Consequently, the proposed methodology serves not only as a practical managerial tool for the development of strategies by local self-government authorities at regional and local levels but also represents a unique attempt at conducting correlation analyses of target programmes and strategies across different hierarchical levels. This dual purpose underscores the significance of the methodology in addressing the complex challenges faced by local communities, particularly those arising from the war-induced damage to Ukraine's energy infrastructure.

In the methodology, the authors suggested two groups of *ability indicators*. These are indicators that allow the assessment of local/regional strategies or programmes on their ability and compliance with the provisions of national normative and legal acts. The structure of the indicators is shown in Figure 1.

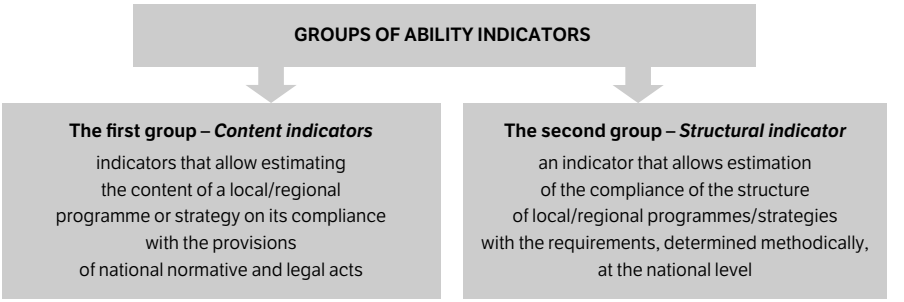

Figure 1. The structure of the ability indicators

Developed by the authors (I Kostetska, E Moldovan, *Methods of the assessing ability of local strategic and programmatic documents in the fi eld of energy and energy eff iciency*, 2022.

The basis for the developed content indicators includes major national normative and legal acts, particularly:

– Decree of the President of Ukraine 'On the goals of the sustainable development of Ukraine for the period until 2030', dated 30 September 2019, no. 722/2019;

– Resolution of the Cabinet of Ministers of Ukraine 'On approval of the National Economic Strategy for the period until 2030', dated 3 March 2021, no. 179;

– Resolution of the Cabinet of Ministers of Ukraine 'On approval of the State Strategy for Regional Development for 2021–2027', dated 5 August 2020, no. 695;

– Resolution of the Cabinet of Ministers of Ukraine 'On implementation of the Energy Management System', dated 23 December 2021, no. 1460;

– Order of the Cabinet of Ministers of Ukraine 'On approval of the Energy Safety Strategy', dated 4 August 2021, no. 907;

– Order of the Cabinet of Ministers of Ukraine "On approval of the Energy Strategy of Ukraine for the period until 2035 "Safety, energy efficiency, competitiveness"", dated 18 August 2017, no. 605-p;

– Order of the Cabinet of Ministers of Ukraine 'On approval of the National Action Plan on Energy Efficiency for the period until 2030' dated 29 December 2021, no. 1803-p.

With the help of content analysis of the regulative acts mentioned above, the content indicators were developed. Using these, we can assess the ability, that is, the effectiveness and practicality of strategies and programmes with their compliance with the content of the national normative and legal acts in the field of energy and energy efficiency (Figure 2).

Representation of the structural indicator is the next stage of the research. The structural indicator was worked out during the research into conducting effective diagnostics of strategic planning documents. 'Methodical recommendations on the procedure for the development, approval, implementation, monitoring and evaluation of the implementation of strategies for the development of local communities', approved by the Ministry of Development of Communities and Territories of Ukraine (Order no. 265, dated 12 December 2022) was taken as the basis for the structural indicator. Its content is shown in Table 1.

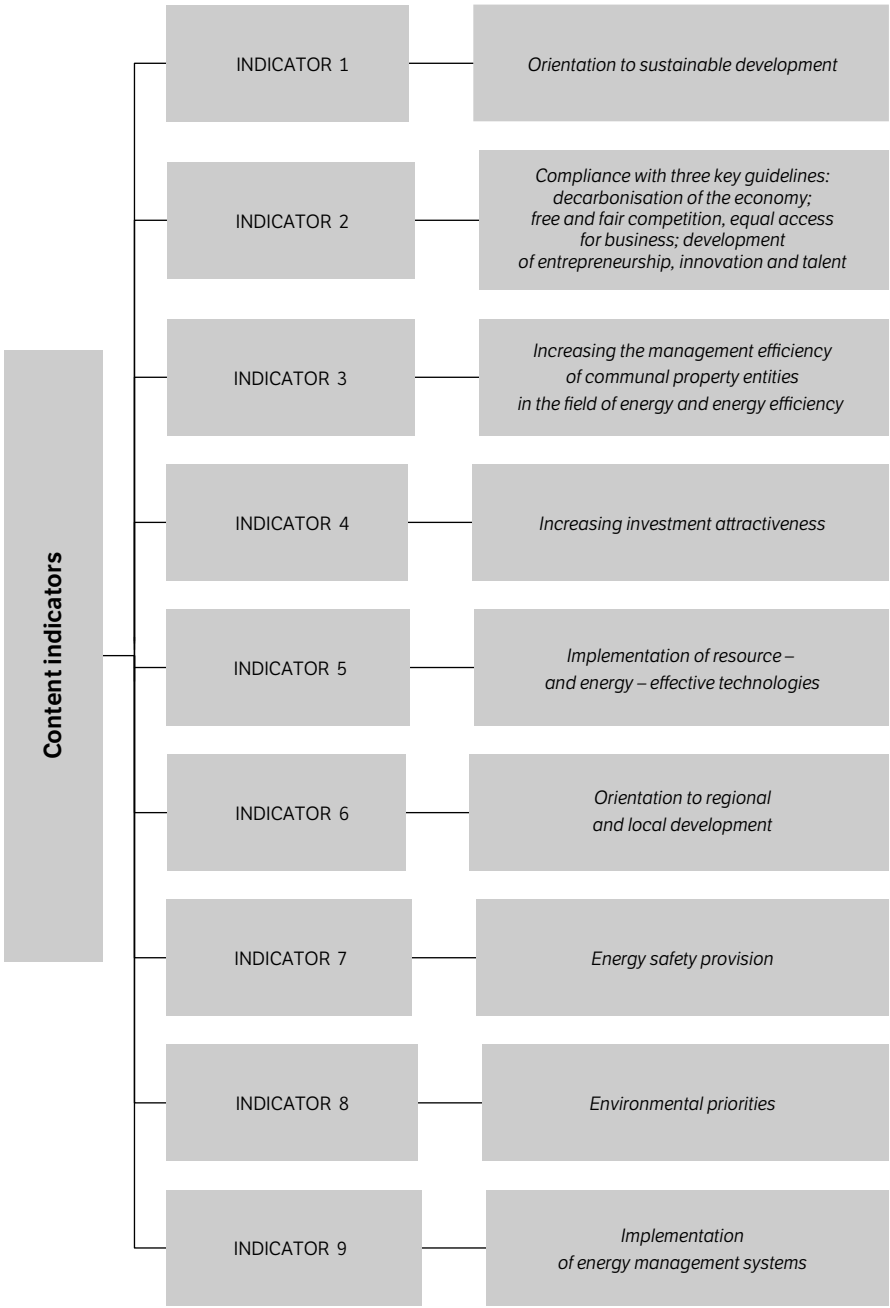

Figure 2. Content indicators

Developed by the authors.

Table 1. Structural indicator. Compliance with the typical structure of a strategy/programme

No.	Typical structure of a strategy/programme	Content
1	*Introduction*	Prerequisites and grounds for the development of a strategy or programme are described briefly.
2	*Analytical part*	Description and analysis of a local community or other territorial unit of the historical, geographical, natural resource, socio-economic, etc., features of development.
3	*SWOT analysis*	Strengths and weaknesses, advantages and disadvantages of a local community in the field of energy and energy efficiency are mentioned. This structural component of a strategy/programme should be represented as the SWOT matrix. Determination of ways to transform disadvantages into advantages, weaknesses into strengths should be the logical outcome of the SWOT analysis.
4	*Development scenarios*	As a rule, three alternative variants of the development of a community are modelled; pessimistic, realistic and optimistic. In the *pessimistic scenario*, assumptions are made about stagnant socio-economic processes and their influence on the development of the field of energy and energy efficiency in a local community. In the *realistic scenario*, current social and economic indexes are used as a basis for the prognosis of the development of local socio-economic processes and the field of energy and energy efficiency. The *optimistic scenario* provides modelling processes and indexes for the development of a local community (or other location) on the basis of inflated expectations from socio-economic and socio-political processes in the state.
5	*Strategic vision of the development of a local community*	The mission, vision, and main strategic tasks for the development of a local community in the field of energy and energy efficiency.
6	*Strategic goals, operative objectives, and tasks*	The strategic goals of the energy and energy efficiency sector are formulated. They should be detailed with the help of operative objectives. Tasks and measures that have to be implemented to achieve the operative objectives and strategic goals should also be included.
7	*Monitoring and estimating implementation of a strategy/ programme, and risk management*	A set of indexes for assessing the achieved strategic or programme goals and implemented tasks has to be described. The risk management system, or at least directions for mitigating possible risks, has to be indicated.

Developed by the authors after I Kostetska, E Moldovan, *Methods of the assessing ability....*

3. Findings

The methodology was used in six regions (oblasts) of Ukraine in different parts of the country. The main criteria for the selection of the oblasts, and later – communities, was the presence of an operating energy enterprise. In assessing the ability of regional strategies and programmes in the field of energy and energy efficiency, we present two example oblasts in particular, Ivano-Frankivsk and Donetsk.

The main regional strategy of the Ivano-Frankivsk Oblast is the Strategy for the Development of the Ivano-Frankivsk Oblast for 2021–2027 (approved by the Decision of the Regional Council dated 21 February

2020, No. 1381-34/2020). According to the strategy, one of the scenarios for the development of the Ivano-Frankivsk Oblast until 2027 developed as a component of the Regional Planning Schemes until 2036 and approved by the Decision of the Regional Council dated 30 June 2017, No. 548-16/2017, is an improvement in the environmental conditions of the region. In particular, it includes construction of stations and factories for the processing of solid household waste in the largest economic centres and nodes of the Ivano-Frankivsk Oblast, the implementation of eco-friendly production technologies, etc. However, within the strategy's strategic goals, operative objective 1.2 'Energy self-sufficiency' is proposed. In compliance with this objective, task 1.2.1 'Development of alternative energy' is provided. This task covers prospective projects such as:

– development of energy infrastructure, in particular, building, modernisation, and reconstruction of power lines;

– integration into the European energy infrastructure;

– establishment of mechanisms for the use of local types of fuel;

– support of development of renewable and alternative energy on a local raw material basis;

– establishment of relations with all interested stakeholders for the diversification of electricity sales markets;

– replacement of existing coal and gas boilers with biomass boilers in the budgetary sphere and communal heat energy;

– installation of solar collectors for heating water for the hot water supply needs of public sector institutions, private houses;

– implementation of heat pumps, electric heat storage heating and hot water supply.

Task 1.2.2 'Formation of an energy-efficient society' provides the following areas of project implementation:

– development of the complex of measures for the stimulation and use of renewable energy sources, waste in heat supply, combined production of heat and electricity;

– establishment and implementation of the financing mechanism for alternative technologies of producing electricity, the use of bio-fuel (waste), and other sources with prospective potential.

The next significant document in the field of energy and energy efficiency in the Ivano-Frankivsk Oblast is the 'ENERGODIM' Regional Target Programme for the Support Condominium of the Ivano-Frankivsk Oblast

for 2022–2023 (approved by the Order of the Ivano-Frankivsk Regional State Administration dated 12 December 2021, no. 514).

The main regional strategy for the Donetsk Oblast is the Strategy for the Development of the Donetsk Oblast for the period until 2027. The organisational aspects of the development of the strategy are determined by the Order of the Head of the Regional State Administration, the Head of the Regional Military-Civilian Administration of 24 January 2019, no. 65/5-19 'On the development of the Donetsk Oblast Development Strategy and the Plan of Measures for its Implementation' (with changes).

We will analyse the documents in the field of energy and energy efficiency of the two oblasts on compliance with the content indicators (Table 2).

Thus, as we can see from Table 2, the provisions of the 'ENERGODIM' Regional Target Programme for the Support Condominium of the Ivano-Frankivsk Oblast for 2022–2023 fully correspond to indicators 3, 5 and 9, and partially to indicator 1. At the same time, the analysed programme does not include provisions that correspond to indicators 2, 4, 6, 7 and 8.

Taking into account the conclusions mentioned above, we recommend further development of the target programmes in the Ivano-Frankivsk Oblast to:

– develop a wider programme which includes more priorities;

– add provisions on the decarbonisation of the economy, free and honest competitiveness for corresponding indicator 2;

– include provisions for the development and support of small and medium businesses. The development of entrepreneurship will establish new jobs for employees retired from the field of energy (due to the decarbonisation of the economy and following the Green Deal policy), contribute to developing the infrastructure of the oblast, and improve the quality of life quality of the oblast's residents. However, the provisions on the development of both entrepreneurship and small and medium businesses will relate to the goal 13 of sustainable development;

– add provisions on increasing the investment attraction of the oblast in the field of energy and energy efficiency in general and in areas of energy generation in particular to make the programme relevant to indicator 4. It will also comply with the operative objectives of the development strategy of the Ivano-Frankivsk Oblast for 2021–2027;

– pay attention to statements on the development of innovation and talent in the field of the energy and energy efficiency for the corresponding indicator 2.

Table 2. Compliance of the provisions of the 'ENERGODIM' Regional Target Programme for the Support Condominium of the Ivano-Frankivsk Oblast for 2022–2023 and the Strategy for Development of the Donetsk Oblast for the period until 2027 with the content indicators

No.	Content indicators	Provisions of the programme/strategy	
		Ivano-Frankivsk Oblast	Donetsk Oblast
1.	*Orientation to sustainable development*	Corresponds to goals 7 and 12 Does not correspond to goal 8	Corresponds to goals 7, 8, 13
2.	*Decarbonisation of the economy; free and fair competition, equal access for business; development of entrepreneurship, innovation and talent*	–	Operative objective 1.2. Smart specialisation based on knowledge and innovation Task 1.2.1. Development and effective use of scientific and innovative potential Operative objective 3.4. Informatisation and digitalisation of public services Task 3.4.1. Implementation of information technologies for providing services to the population Task 3.4.2. Improvement of the digital skills of the population Task 3.4.3. Development of space planning system using digital resources.
3.	*Increasing the management efficiency of communal property entities in the field of energy and energy efficiency*	– incentives for the condominium to finance measures to improve the energy efficiency of multi-apartment buildings; – formation of residents' awareness of a thrifty attitude to energy resources; – encouraging residents of multi-apartment buildings to become responsible owners of their common property.	Task 4.3.1. Providing Just Transition of the coal industry and increasing effectiveness of the management of traditional energy resources • mplementation of energy saving measures in all fields of the economy, in particular for communal property enterprises and housing stock; Task 4.3.2. Development of alternative energy • support of usage of alternative energy in the oblast, including in communal enterprises and budget institutions.
4.	*Increasing investment attractiveness*	–	Operative objective 1.2. Smart specialisation based on knowledge Task 1.2.3. Support for branches with economic and innovative potential for development Operative objective 1.3. Transport accessibility and spatial connection Task 1.3.1. Increasing the quality and accessibility of transport-logistic services taking into account internal and inter-regional relations Task 4.3.2. Development of alternative energy • involving and facilitating investment projects in the field of alternative energy, including the establishment of an investment projects regional bank.

No.	Content indicators	Provisions of the programme/strategy	
		Ivano-Frankivsk Oblast	Donetsk Oblast
5.	*Implementation of resource- and energy-effective technologies*	– decreasing the financial burden of residents of condominiums during the implementation of energy efficiency measures; – increasing the heat protective properties of buildings; – modernisation of heating networks, heating water supplies, and building lighting systems; – improving the operational characteristics of multi-apartment buildings and increasing their service life; – increasing the level of comfort and quality of life of residents.	Task 4.3.2. Development of alternative energy • development of non-traditional and alternative energy sources (solar, wind, etc.); • establishment of a register of areas suitable for the location of alternative energy facilities according to their types.
6.	*Orientation to regional and local development*	–	Operative objective 3.2. Equal access of population to basic social and administrative services Task 3.2.1. Increasing the quality and accessibility of administrative and social services Task 3.2.2. Providing water supply and water savage services Operative objective 3.3. Effective territorial development management Task 3.3.1. Development of rural areas with low population density Task 3.3.2. Support of small mono-profile cities Task 3.3.3. Eliminating the consequences of the armed conflict in settlements along the 'contact line'.
7.	*Energy safety provision*	–	Strategic goal 4. Environmental safety and balanced nature use Operative objective 4.3. Energy safety and development of alternative energy Task 4.3.1. Providing Just Transition of the coal industry and increasing the effectiveness of the management of traditional energy resources Task 4.3.2. Development of alternative energy.

No.	Content indicators	Provisions of the programme/strategy	
		Ivano-Frankivsk Oblast	Donetsk Oblast
8.	*Environmental priorities*	–	Strategic goal 4. Environmental safety and balanced nature use Operative objective 1.3. Transport accessibility and spatial connection Task 1.3.2. Development of ecologically safe transport Operative objective 4.1. Safe condition of the environment Task 4.1.1. Improvement of public environmental management and monitoring Task 4.1.2. Increasing the environmental awareness of the population Task 4.1.3. Protecting water resources from depletion and pollution Task 4.1.4. Decreasing the burden on the atmosphere Task 4.1.5. Preservation of biological and landscape diversity, land fertility
9.	*Implementation of energy management systems*	Conduction of previous energy audit (requirements of the energy audit of a building and its conclusions, and criteria for the assessment of these conclusions are approved by the order of actions of participants in the programme of *Support of Energy Modernisation of multi-apartment houses, 'ENERGODIM', approved by the Decision of the Supervisory Board of a State Institution Energy Efficiency Fund* dated 16 July 2019); Development of project documents and' assessment (including inspection of the object).	Operative objective 4.2. Sustainable management of waste and dangerous chemical substances Task 4.2.1. Improving the system of collecting and processing solid household waste Task 4.2.2. Facilitating decreasing volumes of solid household waste Task 4.2.3. Improving the system of the management of industrial waste Task 4.3.1. Providing Just Transition of the coal industry and increasing the effectiveness of management of traditional energy resources • implementation of energy management system; • introduction of modern systems for monitoring and controlling energy consumption.

Developed by the autho rs ('ENERGODIM' Regional Target Programme...; Strategy for Development of the Donetsk Oblast for the period until 2027).

Provisions of the Strategy for the Development of the Donetsk Oblast for the period until 2027 correspond with all the content indicators. Simultaneously, although there is no the target programme in the field of energy safety and energy efficiency in the Donetsk Oblast, the detailed

strategy is a wonderful basis for developing such a programme. This is the reason for our recommendation to develop a short- or mid-term programme in the field of energy safety and energy efficiency for the Donetsk Oblast.

The next stage is assessment of the compliance of the provisions of the 'ENERGODIM' Regional Target Programme for the Support Condominium of the Ivano-Frankivsk Oblast for 2022–2023 and the Strategy for the Development of the Donetsk Oblast for the period until 2027 with the structural indicator (Table 3).

Table 3. Compliance of the provisions of the 'ENERGODIM' Regional Target Programme for the Support Condominium of the Ivano-Frankivsk Oblast for 2022–2023 and the Strategy for the Development of the Donetsk Oblast for the period until 2027 with the structural indicator

No.	Component of the structural indicator	Structural component of the programme/strategy	
		Ivano-Frankivsk Oblast	Donetsk Oblast
1.	*Introduction*	General features of the programme	Introduction
2.	*Analytical part*	Issues, which the programme aims to resolve	Donetsk Oblast today
3.	*SWOT analysis*	–	Results of the SWOT analysis
4.	*Development scenarios*	–	Donetsk Oblast today
5.	*Strategic vision of the development of a local community*	Programme goal	Strategic vision for the Donetsk Oblast: A prosperous region with an innovative economy based on a powerful industrial complex, the latest IT solutions and dynamic development of the agricultural sector, with comfortable living conditions for people based on effective management and balanced environmental management.
6.	*Strategic goals, operative objectives, and tasks*	Analysis of the issues and justification of the feasibility of developing the programme. Main tasks of the programme. Expected results of the programme Annex 1. Measures of the 'ENERGODIM' regional target programme.	Strategic goal 1. Updated, competitive economy Strategic goal 2. The brilliance of life and human development – Strategic goal 3. Efficient management and safe conditions for external and internal challenges Strategic goal 4. Environmental safety and balanced nature use.
7.	*Monitoring and estimating implementation of a strategy/ programme, and risk management*	Directions of activities and conditions of participation in the programme Coordination and control over the implementation of the programme.	Monitoring and assessing effectiveness The list of indicators (indexes) for assessing effectiveness.

Developed by the authors ('ENERGODIM' Regional Target Programme...; Strategy for the Development of the Donetsk Oblast for the period until 2027).

As seen in Table 3, the structure of the 'ENERGODIM' Regional Target Programme for the Support Condominium of the Ivano-Frankivsk Oblast for 2022–2023 does not include such components as a SWOT analysis and development scenarios. At first glance, this is not a critical lack, since these components are more necessary for strategic documents than programmatic ones. However, in our opinion, the programme would be significantly more meaningful and would outline potential ways of turning weaknesses and problems into advantages if it included a SWOT analysis. Usage of the scenario approach would not be excessive, but only for scenario modelling, using current economic and technological indexes; it will provide relatively objective forecasts.

Taking into account that mentioned above, we propose the following recommendations:

– conduction of a SWOT analysis during the development of the programme after 2022;

– if necessary, develop three scenarios (pessimistic, optimistic, and realistic) of the development within the programme of the field of energy and energy efficiency.

However, it is obvious the structure of the strategy of the Donetsk Oblast corresponds to the proposed structural indicator. Thus, we are sure, it can be implemented successfully both in general and specifically for energy safety and energy efficiency.

The next stage in the research is assessing the abilities of local strategies/programmes in the field of the energy and energy efficiency. In the pilot oblasts pre-selected for research, we selected energy communities. These communities are the Burshtyn Local Community in the Ivano-Frankivsk Oblast and the Kurakhove Local Community in the Donetsk Oblast.

The main local strategic document of the Burshtyn Local Community is the Strategy for the Sustainable Development of the Burshtyn Local Community until 2030 (dated 2021). This includes Priority VI. CH1: Energy efficiency and resource preservation. Unfortunately, the specific programme in the field of the energy and energy efficiency is not developed. Thus, we analyse the strategic direction of the strategy mentioned above on its compliance with the content indicators and the structural indicator (Tables 4 and 5 as appropriate).

Table 4. Compliance of the provisions of Priority V . 1: Energy efficiency and resource preservation of the Strategy for the Sustainable Development of the Burshtyn Local Community until 2030 with the content indicators

No.	Content indicator	Provision of the strategy
1.	*Orientation to sustainable development*	Corresponds to goals 7 and 12 Does not correspond to goal 8
2.	*Decarbonisation of the economy; free and fair competition, equal access for business; development of entrepreneurship, innovation and talent*	–
3.	*Increasing the management efficiency of communal property entities in the field of energy and energy efficiency*	1. Increasing the energy efficiency of residential buildings and communal property buildings and constructions. Task: Creation of conditions and implementation of mechanisms for carrying out capital repairs and thermal modernisation of residential buildings and communal property buildings and constructions.
4.	*Increasing investment attractiveness*	–
5.	*Implementation of resource- and energy-effective technologies*	
6.	*Orientation to regional and local development*	
7.	*Energy safety provision*	–
8.	*Environmental priorities*	2. Increasing the effective use of water resources. Task: Rational use of water resources, decreasing water loss.
9.	*Implementation of energy management systems*	3. Increasing effective use of energy resources. Task: Implementation of the efficient energy management; modernisation of heat- and water -supply systems, spread of use of renewable energy sources.

Developed by the authors (Strategy for the Sustainable Development of the Burshtyn Local Community until 2030).

As can be seen from Table 4, the statements of Priority VI. CH1: Energy efficiency and resource preservation of the *Strategy for the Sustainable Development of the Burshtyn Local Community until 2030* correspond fully with content indicators 3, 8 and 9, and partly with content indicator 1. At the same time, the analysed priority does not include provisions that would correspond to content indicators 2, 4, 5, 6 and 7.

According to this conclusion, we suggest developing short-term target programmes in the field of the energy and energy efficiency. These will assist the implementation of the strategy mentioned above, and in particular, diversifying the energy direction in the Burshtyn Local Community.

Now, we will analyse the *Strategy for the Sustainable Development of the Burshtyn Local Community until 2030* on its compliance with the structural indicator (Table 5).

Table 5. Compliance of the provisions of the Strategy for the Sustainable Development of the Burshtyn Local Community until 2030 with the structural indicator

No.	Component of the structural indicator	Component of the strategy
1.	*Introduction*	Introduction
2.	*Analytical part*	General characteristics of the Burshtyn Local Community
3.	*SWOT analysis*	Comprehensive analysis of the development potential of the Starostynskyi Okrugs (districts) of the Burshtyn Local Community
4.	*Development scenarios*	–
5.	*Strategic vision of the development of a local community*	Strategic vision for the sustainable development of the Burshtyn Local Community.
6.	*Strategic goals, operative objectives, and tasks*	Determination of the strategic directions of development of the Burshtyn Local Community
7.	*Monitoring and estimating implementation of a strategy/programme, and risk management*	Control over implementation of the strategy

Developed by the authors (Strategy for the Sustainable Development of the Burshtyn Local Community until 2030).

From Table 5, it can be seen the strategy does not include such structural components as a SWOT analysis and development scenarios. However, the SWOT analysis is replaced partially by the 'Comprehensive analysis of the development potential of the Starostynskyi Okrugs (districts) of the Burshtyn Local Community'.

Taking into account these conclusions, we recommend the following:

– developing the programme in the field of energy and energy efficiency for the next planned period;

– amending the strategy by carrying out a SWOT analysis. The strategy would be significantly more meaningful and would outline potential ways of turning weaknesses and problems into advantages if it included this;

– developing three scenarios (optimistic, pessimistic, and realistic) for the strategy. Use of the scenario approach would not be excessive, but only for scenario modelling, using current economic and technological indexes; it will provide relatively objective forecasts.

Today, unfortunately, there is neither a programme nor a strategy in the Kurakhove Local Community. Therefore, we recommend developing a strategic document and a target programmatic document in the field of the energy and energy efficiency for the Kurakhove Local Community.

4. Results and discussion

The findings from the analysis of regional and local strategies/programmes in the field of energy and energy efficiency on compliance with the ability indicators have demonstrated trends such as:

– the absence of target strategies at the level of oblasts and the prevailing presence of strategies of a general character, that is, strategies for regional development;

– the prevailing availability of target programmes in the field of the energy and energy efficiency in oblasts (there is no target programmatic document in only one of the three oblasts which we analysed);

– the complete absence of target strategies and programmes in the field of the energy and energy efficiency in local communities (Table 6);

Table 6. Summarised information on the availability of strategies/programmes in the field of energy and energy efficiency in certain areas of energy generation*

No.	Location	General strategy/target strategy	Programme
		Oblast	
1	Vinnytsia	–	+
2	Ivano-Frankivsk	+/–	+
3	Donetsk	+/–	–
4	Zaporizhzhia	+/–	–
5	Dnipropetrovsk	+	+
6	Lviv	–/–	+
		Community	
7	Ladyzhyn	+/–	–
8	Burshtyn	+/–	–
9	Kurakhove	–	–
10	Enerhodar	+/–	–
11	Zelenodolsk	+/–	–
12	Dobrotvir	–	–

Developed by the authors (Complex Programme... for 2021–2025; Energy Saving Programme... of the Vinnytsia Oblast for 2020–2025; Programme for Increasing Energy Efficiency... for 2017–2022; 'ENERGODIM' Regional Target Programme... for 2022–2023; Strategic Plan... until 2027; Strategy for Energy Saving... for 2018–2035; Strategy for Regional Development... until 2027; Strategy for Development... until 2027; Strategy for Development... for 2020–2027; Strategy for the Development of Ladyzhyn City until 2025; Strategy for the Sustainable Development of the Burshtyn Local Community until 2030; Strategy for the Sustainable Development of Zelenodolsk City for 2018–2028).

– partial compliance with the content indicators (most often, the analysed documents did not contain provisions corresponding to indicators 4, 6 and 9);

– practically total non-compliance with the structural indicator (Table 7):

Table 7. Summarised information on the compliance of strategic/programmatic documents in the field of energy and energy efficiency in certain areas of energy generation with the ability indicators

No.	Location	Document	Content indicators	Structural indicator
			Oblast	
1	Vinnytsia Ivano–Frankivsk	Programme	– 4	– 2, 3
		Programme	– 1, 2, 4, 9	– 3, 4
2	Donetsk Zaporizhzhia	Strategy	– 1	– 3, 4
		Programme	– 2, 4, 6, 7, 8	+
3	Dnipropetrovsk	Strategy	+	+
4	Lviv	Strategy	– 3, 4, 9	+
5	Vinnytsia	Strategy	+	– 3, 4
6	Ivano–Frankivsk	Programme	– 4, 8	– 3, 4
			Community	
7	Ladyzhyn	Strategy	– 7	– 4
8	Burshtyn	Strategy	– 2, 4, 5, 6, 7	– 4
9	Kurakhove	–	–	–
10	Enerhodar	Strategy	– 3, 9	– 4
11	Zelenodolsk	Strategy	+	– 4
12	Dobrotvir	–	–	–

Developed by the authors (Complex Programme ... for 2021–2025; Energy Saving Programme ... of the Vinnytsia Oblast for 2020–2025; Programme for Increasing Energy Efficiency ... for 2017–2022; 'ENERGODIM' Regional Target Programme ... for 2022–2023; Strategic Plan ... until 2027; Strategy for Energy Saving ... for 2018–2035; Strategy fir Regional Development ... until 2027; Strategy for Development ... until 2027; Strategy for Development ... for 2020–2027; Strategy for the Development of Ladyzhyn City until 2025; Strategy for the Sustainable Development of the Burshtyn Local Community until 2030; Strategy for the Sustainable Development of Zelenodolsk City for 2018–2028).

In conclusion, the analysis of regional and local strategies/programmes in the field of energy and energy efficiency has provided valuable insights into their alignment with the ability indicators. The key trends identified through this examination include the absence of target strategies at the oblast level, with a prevalence of general development strategies. However, target programmes in the field of energy and energy efficiency are predominantly available in oblasts, with only one out of the three analysed lacking a specific target programmatic document.

Remarkably, the absence of both target strategies and programmes in the energy and energy efficiency domain is evident at the local community level. This underscores a critical gap that needs attention and strategic intervention for fostering energy sustainability at the grassroots level.

Examining the content indicators reveals partial compliance, with particular deficiencies observed in indicators 4, 6 and 9 across the analysed documents. Furthermore, the structural indicator demonstrates a striking lack of alignment, indicating a need for more cohesive and standardised approaches for the development of strategies and programmes in this crucial sector.

These findings emphasise the necessity for comprehensive revisions and enhancements in the formulation of regional and local strategies/programmes, with a focus on establishing clear targets, addressing content deficiencies, and ensuring a more robust structural framework. Such improvements will not only enhance the effectiveness of these initiatives but will also contribute significantly to the overarching goals of energy efficiency and sustainability. It is imperative for stakeholders, including oblasts, local communities, and policymakers, to collaborate in bridging these identified gaps and fostering a more resilient and coherent approach to energy planning and implementation.

Bibliography

Complex Programme of Increasing Energy Efficient, Energy Saving, and Development of renewable Energy in Lviv Oblast for 2021–2025, approved by the Decision of Lviv Oblast Council dated December 18, 2021 no. 62, L'vìvs'ka oblasna rada [online, accessed: 15 XI 2023]: <https://lvivoblrada.gov.ua/programi-2021-2025-rokiv>.

Decree of the President of Ukraine "On the goals of sustainable development of Ukraine for the period until 2030" dated September 30, 2019, no. 722/2019, Verhovna Rada Ukraïni [online], 30 IX 2019 [accessed: 15 XI 2023]: <https://zakon.rada.gov.ua/laws/show/722/2019#Text>.

Energy Saving Programme for the population and associations of co-owners of multi-apartment buildings of the Vinnytsia Oblast for 2020 – 2025 approved by Decision of Vinnytsia Oblast Council dated July 23, 2020, no. 948: <https://vinrada.gov.ua/upload/docs/addons/3d0180ab01eceeebb8f6ccf46a8f1dde.pdf> [accessed: 15 XI 2023].

Kostetska I., Moldovan E., *Methods of the assessing ability of local strategic and programmatic documents in the field of energy and energy efficiency*, 2022, 65 p.

Methodical recommendations on the procedure for the development, approval, implementation, monitoring and evaluation of the implementation of strategies for the development of local communities, approved by the Order of Ministry of Development of Communities and Territories of Ukraine, no. 265, dated December 12, 2022, Minregion [online, accessed: 15 XI 2023]: <https://www.minregion.gov.ua/napryamki-diyalnosti/derzhavna-rehional-na-polityka/

strategichne-planuvannya-regionalnogo-rozvitku/strategichne-planuvannya-rozvytku-terytorialnyh-gromad/metodychne-zabezpechennya/metodychni-rekomendacziyi-shhodo-poryadku-rozroblennya-zatverdzhennya-realizacziyi-provedennya-monitoryngu-ta-oczinyuvannya-realizacziyi-strategij-rozvytku-terytorialnyh-gromad/>.

Order of the Cabinet of Ministers of Ukraine "On approval of the National Action Plan on Energy Efficiency for period until 2030" dated December 29, 2021, no. 1803-p, Verhovna Rada Ukraïni [online], 6 X 2023 [accessed: 15 XI 2023]: <https://zakon.rada.gov.ua/laws/show/1803-2021-%D1%80#Text>.

Order of the Cabinet of Ministers of Ukraine "On approval of the Energy Strategy of Ukraine for period until 2035 "Safety, energy efficiency, competitiveness" dated August 18, 2017, no. 605-p, Verhovna Rada Ukraïni [online], 21 IV 2023 [accessed: 15 XI 2023]: <https://zakon.rada.gov.ua/laws/show/605-2017-%D1%80#Text>.

Order of the Cabinet of Ministers of Ukraine "On approval of the Energy Safety Strategy" dated August 4, 2021, no. 907, Verhovna Rada Ukraïni [online], 4 VIII 2021 [accessed: 15 XI 2023]: <https://zakon.rada.gov.ua/laws/show/907-2021-%D1%80#Text>.

Programme for Increasing Energy Efficiency and Reducing Energy Consumption in the Vinnytsia Oblast for 2017–2022 approved by Decision of the 17th Session of Oblast Council dated March 24, 2017, no. 310, [online, accessed: 15 XI 2023]: <http://webcache.googleusercontent.com/search?q=cache:979hsMy3dp4J:www.vin.gov.ua/images/doc/vin/dep-jkg/En.efficiency/Program390.doc&cd=2&hl=ru&ct=clnk&gl=ua>.

Regional Target Programme "ENERGODIM" for Support Condominium of the Ivano-Frankivsk Oblast for 2022–2023 approved by Order of the Ivano-Frankivsk Regional State Administration dated December 12, 2021, no. 514, Ivano-Frankivs'ka oblasna derzhavna administratsiya [online, accessed: 15 XI 2023]: <https://www.if.gov.ua/npas/pro-shvalennya-proyektu-regionalnoyi-cilovoyi-programi-energodim-dlya-pidtrimki-osbb-ivano-frankivskoyi-oblasti-na-2022-2023-roki>.

Resolution of the Cabinet of Ministers of Ukraine "On approval of the State Strategy for the Regional Development for 2021–2027", dated August 5, 2020, no. 695, Verhovna Rada Ukraïni [online], 5 VIII 2020 [accessed: 15 XI 2023]: <https://zakon.rada.gov.ua/laws/show/695-2020-%D0%BF#Text>.

Resolution of the Cabinet of Ministers of Ukraine "On approval of the National Economic Strategy for the period until 2030" dated March 3, 2021, no. 179, Verhovna Rada Ukraïni [online], 4 V 2023 [accessed: 15 XI 2023]: <https://zakon.rada.gov.ua/laws/show/179-2021-%D0%BF#Text>.

Resolution of the Cabinet of Ministers of Ukraine "On implementation of Energy Management System" dated December 23, 2021, no. 1460, Verhovna Rada Ukraïni [online], 3 V 2023 [accessed: 15 XI 2023]: <https://zakon.rada.gov.ua/laws/show/1460-2021-%D0%BF#Text>.

Strategic Plan of the Development of the Enerhodar City until 2027, Tovarystvo z obmezhenoyu vidpovidal'nistyu DTEK ENERHO: <http://pleddg.org.ua/wp-content/uploads/2018/09/Strategichniy-plan-mista-Energodara.pdf> [accessed: 15 XI 2023].

Strategy for Development of the Donetsk Oblast for period until 2027, Minregion [online, accessed: 15 XI 2023]: <https://www.minregion.gov.ua/wp-content/uploads/2020/04/doneczka-strategiya-rozvytku-doneczkoyi-oblasti-na-period-do-2027-roku.pdf>.

Strategy for Development of the Ivano-Frankivsk Oblast for 2020–2027 approved by Decision of Oblast Council dated February 21, 2020 No. F 1381-34/2020, Minregion [online, accessed: 15 XI 2023]: <https://www.minregion.gov.ua/wp-content/uploads/2020/04/ivano-frankivska-strategiya-rozvytku-ivano-frankivskoyi-oblasti-na-2021-2027-roky.pdf>.

Strategy for Development of the Ladyzhyn City until 2025: <http://pleddg.org.ua/wp-content/uploads/2018/09/Strategiya-rozvitku-mista-Ladizhina-do-2025-roku.pdf> [accessed: 15 XI 2023].

Strategy for energy saving, energy efficiency, and development of renewable energy sources of the Dnipropetrovsk Oblast for 2018–2035 approved by Decision of Oblast Council dated December 12, 2017, no. 275-11/VII, Dnipropetrovs'ka oblasna rada [online, accessed: 15 XI 2023]: <https://oblrada.dp.gov.ua/rishennia/sklikannia-7/xi-sesiya/%E2%84%96-275-11vi%D1%96-01-12-2017/>.

Strategy for Sustainable Development of the Burshtyn Local Community until 2030

Strategy for Sustainable Development of the Zelenodolsk City for 2018–2028: <https://zelenodolsk.otg.dp.gov.ua/storage/app/sites/17/uploaded-files/Strategia_Zelenodolsk_Fin.pdf> [accessed: 15 XI 2023].

Strategy of Regional Development of the Zaporizhzhia Oblast until 2027 approved by Decision of Oblast Council dated December 12, 2019, no. 134, Zaporiz'ka Oblasna Derzhavna Administratsiya [online], 16 XII 201 [accessed: 15 XI 2023]: <https://www.zoda.gov.ua/news/48277/strategiya-regionalnogo-rozvitku-na-period-do-2027-roku.html>.