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Comprehensive study assessing the degree of alignment between Ukrainian legislation and relevant European Union regulations in the field of district heating

Final Report

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PROJECT:	Reform of District Heating Sector in Ukraine (ReWarm)

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1. Executive Summary

This Final Report presents the results of a comprehensive comparative legal and market gap analysis of Ukraine's district-heating (DH) sector in relation to the European Union's regulatory and strategic framework.

The assessment was conducted under the ReWarm Project, a German–Ukrainian cooperation initiative implemented with the support of the Federal Ministry for Economic Affairs and Climate Action (BMWK) and the Government of Ukraine.

Its objective is to facilitate the sustainable reform of Ukraine's centralised heat-supply systems through harmonisation with the EU acquis communautaire in the areas of energy efficiency, renewable energy and building performance.

The Report identifies the degree of alignment between Ukraine's national laws and the principal EU directives governing the heating sector:

–the Energy Efficiency Directive (EED 2023/1791),

– the Energy Performance of Buildings Directive (EPBD 2024/1275), and

– the Renewable Energy Directive (RED III 2023/2413).

In parallel, it evaluates the correspondence between Ukraine's strategic instruments — notably the National Energy and Climate Plan (NECP 2030) and the State Target Programme for the Modernisation of Heat-Supply Enterprises — and the EU's long-term frameworks, including the EU Heating and Cooling Strategy and the "Fit for 55" package.

Overall, Ukraine has achieved a substantial level of formal convergence with the EU model. The key enabling laws — *On Energy Efficiency* (1818-IX), *On Heat Supply* (2633-IV), *On Commercial Metering of Thermal Energy and Water Supply* (2119-VIII), and *On Energy Efficiency of Buildings* (2118-VIII) — already incorporate fundamental principles of energy efficiency, consumer protection, and market reform.

However, material implementation remains partial. Critical gaps persist in the legal enforceability of the "Energy Efficiency First" principle, the universality of apartment-level metering, mandatory installation of individual heat substations (ITS), and updated criteria for "efficient district heating and cooling".

The Roadmap presented herein outlines short-, medium-, and long-term actions needed to achieve full regulatory and functional convergence with EU standards by 2050.

Immediate priorities include: codifying the EE1st principle, enacting a Law on ITS, introducing annual renewable-heat growth targets, establishing mechanisms for third-party network access, ensure heat meters/allocators for each apartment/radiator and a control/thermostat for each radiator, and integrating heat-planning with electricity-system development.

Medium-term actions concern the modernisation of networks, incentives for high-efficiency cogeneration and waste-heat recovery, and digitalisation of metering.

The long-term horizon envisions a decarbonised, competitive and socially equitable heating sector aligned with the EU climate-neutrality trajectory.

2. Introduction

Context and Purpose

Ukraine's district-heating sector is one of the largest in Eastern Europe, serving more than 50 percent of the urban population. Yet it remains characterised by obsolete infrastructure, high network losses, limited flexibility, and strong dependence on natural gas. Reforming this sector is pivotal for both national energy security and alignment with the EU regulations and Green Deal objectives.

The ReWarm Project (Reform of Centralised Heating in Ukraine) was launched in 2023 as part of the German–Ukrainian energy-partnership framework to support this transition. Within ReWarm, the present comparative analysis was requested by the State Agency on Energy Efficiency and Energy Saving (SAEE) to provide an evidence-based assessment of legislative gaps and to propose actionable recommendations for harmonisation with the EU acquis.

Scope and Methodology

The analysis covers:

- national legal acts governing energy efficiency, building performance, heat supply, metering, cogeneration and renewables;
- the EU directives (EED, EPBD, RED III) and complementary policy strategies (Fit for 55, Heating and Cooling Strategy 2050); and
- institutional, market and technical factors affecting implementation.

The study applied a two-layer methodology:

1. Comparative legal mapping — article-by-article juxtaposition of EU requirements against Ukrainian provisions;
2. Gap assessment and prioritisation — qualitative scoring of compliance (Full / Partial / Needs Improvement) and identification of reform priorities.

Outputs include a bilingual Comparative Gap Analysis Report, draft legal proposals (including revision of the Cogeneration Qualification Procedure), and this Final Report summarising findings, Roadmap, and Recommendations.

3. Legal and Market Context

The Ukrainian district-heating (DH) sector remains a cornerstone of national energy supply, providing heat to approximately 40 percent of all households and more than 60 percent of multi-apartment buildings.

Despite its strategic role, the sector is characterised by structural inefficiencies, high technical losses, and limited investment attractiveness. Nearly 80 percent of pipelines are beyond their designed service life, and the average network loss exceeds 18–20 percent of generated heat. More than 85 percent of production still relies on natural gas, exposing municipalities to fuel-price volatility and geopolitical risks. The average heat tariff, while heavily regulated, does not fully reflect cost recovery or incentivise efficiency improvements.

From a regulatory standpoint, the DH sector operates within a fragmented legal framework shaped by several primary laws — *On Heat Supply* (2005), *On Energy Efficiency* (2021), *On Commercial Metering of Thermal Energy and Water Supply* (2017), and *On Energy Efficiency of Buildings* (2017).

These acts collectively define the technical and institutional foundations of the heat market, but they remain largely oriented toward maintaining operational stability rather than facilitating decarbonisation and competition. Although the Law *On Heat Supply* introduced the concept of "efficient district heating," it has not been updated to reflect the multi-stage efficiency thresholds of the EU acquis. The principle of "Energy Efficiency First," while recognised in national strategies, is not legally binding in investment or planning decisions *(consolidated legal and regulatory matrix for the Ukrainian district heating (DH) sector is attached in Annex 1).*

Regulation of heat tariffs and market access is centralised under the National Energy and Utilities Regulatory Commission (NEURC) for major operators, while municipal authorities retain jurisdiction over smaller utilities. This dual structure leads to inconsistent tariff methodologies and limited transparency. Tariffs are primarily cost-based and do not include performance or efficiency indicators. As a result, energy utilities have weak incentives to modernise systems or integrate renewable energy sources. Furthermore, independent producers of renewable or waste heat face institutional barriers to entering the market due to the absence of a functioning Third-Party Access (TPA) mechanism and a lack of standardised purchase agreements for thermal energy.

The financing environment for heat-sector modernisation is constrained. The sector has historically depended on local budgets and international donor support, with limited access to commercial credit or green investment instruments. Although the Energy Efficiency Fund provides grants for building renovation, there is no dedicated fund for network-level investments or large-scale decarbonisation projects. The debt burden of municipal utilities remains high, discouraging private participation. In parallel, the absence of long-term tariff guarantees and predictable policy frameworks limits the bankability of renewable-heat and cogeneration projects.

Market concentration remains high, with more than 70 percent of total heat supply controlled by municipal enterprises. Privately owned or independent heat producers account for less than 10 percent of total generation, and most operate in isolated segments. Competition in heat generation is therefore limited, and consumers effectively lack the option to switch suppliers. The market model remains vertically integrated, with combined functions of production, distribution, and supply performed by the same entities. This structure contrasts with the liberalised models established under the EU's Third Energy Package.

The ongoing war has further exacerbated sectoral challenges by damaging generation assets and networks in multiple regions. Emergency reconstruction has focused on restoring supply rather than introducing new technologies. Nonetheless, the crisis has accelerated public recognition of the need for diversification and decentralisation, particularly through renewable energy integration and distributed heat generation. The experience of 2022–2024 demonstrated that localised biomass and electric heating can enhance resilience and reduce

dependency on imported gas (*structured risk matrix reflecting the key challenges currently facing Ukraine's district heating sector is attached in Annex 2).*

On the legislative front, several reform processes are under way. A draft law on mandatory installation of Individual Heat Substations (ITS) is being finalised to ensure building-level regulation and balance. In addition, revisions to the Cogeneration Qualification Procedure are under consideration to align national definitions with the EU efficiency standards. The Ministry of Energy and the State Agency on Energy Efficiency (SAEE) are also preparing secondary legislation for heat-network access, waste-heat utilisation, and Power-to-Heat technologies. These developments indicate a gradual transition from a state-controlled, supply-oriented system toward a more competitive, consumer-oriented and sustainable model.

From the market perspective, the greatest untapped potential lies in the deployment of renewable and waste heat, energy-from-waste, and high-efficiency cogeneration.

According to the National Action Plan for Renewable Energy Development until 2030, up to 25% of Ukraine's centralised heat supply needs should be covered by renewable sources — primarily biomass, biogas and heat pumps — provided that appropriate regulatory and financial mechanisms are put in place. The integration of industrial waste heat into municipal systems should provide an additional 5–7% of heat demand.

However, realisation of this potential requires clear connection procedures, cost-sharing models, and digital coordination between network operators.

Institutionally, responsibilities in the heat sector are dispersed among multiple actors — the Ministry of Energy, Ministry for Communities, Territories and Infrastructure Development, SAEE, NEURC, and municipal authorities. The absence of a unified coordination platform impedes consistent policy implementation and monitoring. Current heat-supply schemes, which serve as local planning instruments, often lack correlation with national energy-efficiency and renewable strategies. Introducing a harmonised system of municipal heating-and-cooling plans, as required by the EU EED, would significantly improve coherence and data quality.

Socially, energy poverty remains a persistent issue. More than 30 percent of households receive some form of heat-subsidy support. However, these subsidies are consumption-based and do not incentivise efficiency improvements or connection to efficient networks. The European model, which links social protection with renovation programmes and targeted assistance for vulnerable groups, could serve as a blueprint for Ukraine's future reforms.

In summary, the Ukrainian district-heating sector is in a transitional stage — formally regulated but still structurally inefficient.

The current market and legal architecture provide a foundation for reform but lack the instruments needed to achieve large-scale decarbonisation and market liberalisation. Aligning with the EU framework will require transforming policy orientation from operational maintenance toward systemic modernisation, competition, and consumer empowerment. With sustained political commitment, international cooperation, and institutional reform, Ukraine can gradually transition to a low-carbon, resilient, and financially sustainable heat market consistent with European standards.

4. EU Legal and Policy Framework Overview

Energy Efficiency Directive (EED 2023/1791)

The recast EED establishes a binding EU-wide target of reducing final energy consumption by 11.7 percent by 2030 relative to 2020 projections, and introduces stronger obligations for Member States to deliver cumulative savings. The Directive operationalises the principle of "Energy Efficiency First" (EE1st) — requiring policymakers and investors to prioritise demand-side measures wherever these are more cost-effective than supply-side investments.

Other key components include:

- national energy-saving contributions and mandatory annual savings obligations;
- obligations for large enterprises to perform energy audits or implement certified energy-management systems;
- specific provisions on metering, billing and consumer information;
- requirements for local heating-and-cooling planning in municipalities > 45,000 inhabitants; and
- reinforced definitions and efficiency thresholds for "efficient district heating and cooling".

Energy Performance of Buildings Directive (EPBD 2024/1275)

The EPBD 2024/1275, adopted in May 2024 within the EU Green Deal framework, sets the foundation for a climate-neutral building stock by 2050. It introduces three core instruments:

1. Zero-Emission Buildings (ZEB) — new buildings must have very low energy demand fully covered by renewable sources;
2. Minimum Energy Performance Standards (MEPS) — progressive thresholds for upgrading the lowest-performing buildings; and
3. Smart Readiness Indicator (SRI) — a metric of a building's capability for digital energy management.

Member States must prepare long-term renovation strategies, integrate renewables into heating systems, ensure interoperability of building-data registries, and address energy poverty through inclusive renovation programmes.

Renewable Energy Directive (RED III 2023/2413)

The RED III Directive raises the EU's overall renewable-energy target to at least 42.5 percent of gross final consumption by 2030, with a voluntary aspiration of 45 percent. For the heating-and-cooling sector, it mandates an average annual increase in the share of renewables of +0.8 percentage points during 2021–2025 and +1.1 points during 2026–2030.

The Directive further requires Member States to:

- evaluate the potential of renewable and waste heat;
- implement at least two policy measures to promote renewable heat;
- encourage the integration of waste heat recovery and Power-to-Heat technologies;
- ensure non-discriminatory third-party access to district-heating networks; and
- disclose to consumers the share of renewables and waste heat in supplied energy.

Together, these directives form the core legislative framework guiding the decarbonisation of Europe's heating sector. Alignment with them is a prerequisite for Ukraine's integration into the EU energy market and for achieving its own National Energy and Climate targets.

Mapping of EU legal and policy framework for DH sector is attached *in Annex 3.*

5. Comparative Gap Analysis

The comparative assessment demonstrates that Ukraine's legislative framework is partially aligned with the EU's acquis on energy efficiency, building performance, and renewables in the heating sector. While key concepts such as energy audits, efficient district heating, cogeneration, and consumer metering have been introduced, the binding enforceability and systematic implementation mechanisms remain incomplete.

The following synthesis summarises compliance by thematic area:

Energy Efficiency Directive (EED 2023/1791)

Ukraine has incorporated the core definitions and institutional framework of the EED into national law but lacks binding quantitative obligations.

- The EE1st principle is declared in policy documents but is not a legal decision-making criterion.
- Obligatory annual energy-saving targets, as mandated by the Directive, have not yet been legislated.
- Energy audits are implemented through the Energy Efficiency Law but monitoring of compliance and follow-up on audit recommendations remain limited.
- Heat and water metering are mandatory at the building level; however, apartment-level metering and remote data collection have remained unimplemented in most cases.
- Meters need to be remotely readable.
- Municipal heat planning is required through "heat supply schemes," yet these are often outdated and not linked with decarbonisation goals.
- The concept of "efficient district heating and cooling" has been defined, but the updated EU efficiency thresholds (2028, 2035, 2050) are absent.
- Legislation does not provide compensation to end consumers if energy supply does not comply with the terms of the contract.
- A national competence center needs to be established to advise local authorities on district heating/cooling issues.
- Legislation on the exemplary role of government buildings and the corresponding building database should cover all public buildings.

Overall compliance: Partial – Needs further major codification and enforcement.

Energy Performance of Buildings Directive (EPBD 2024/1275)

Ukraine's current legislation corresponds to the 2010 version of the EPBD but not to the recast 2024 framework.

- The notion of Zero-Emission Buildings (ZEB) is absent, and no national roadmap to 2050 has been adopted.
- Minimum Energy Performance Standards (MEPS) for existing buildings are not yet established.
- Building automation, hydraulic balancing, and smart control are not mandatory across the existing stock.
- The Smart Readiness Indicator (SRI) is not implemented, and interoperability between registries of energy performance certificates (EPCs), audits, and heating systems is limited.
- The digital exchange of building data for integrated energy planning is fragmented.
- Solar plants aren't mandatory for any existing public building
- Requirements for renovation passport and inspection report need to be implemented.
- No subsidy for any fossil-based boiler after 1.1.25

Overall compliance: Moderate – legislative update required.

Renewable Energy Directive (RED III 2023/2413)

Ukraine's National Energy and Climate Plan (NECP 2030) sets an indicative renewable-heat target of 33 percent by 2030, which is strategically consistent with RED III but not legally binding.

- The law does not specify annual incremental increases in renewable heat (+0.8 / +1.1 percentage points per year).
- The integration of waste heat and Power-to-Heat technologies is not systemically regulated.
- No dedicated financial or tariff mechanisms exist for renewable heat injection or for storage.
- Access of independent producers to district-heating networks (Third-Party Access, TPA) is only partially defined.
- Consumer transparency regarding renewable shares in heat supply is not obligatory.

Overall compliance: Conceptual alignment – regulatory instruments missing.

Strategic and Programmatic Level (NECP and Modernisation Programme)

The NECP 2030 reflects EU-like structure and thematic alignment but remains declarative. It lacks annual trajectories, enforcement measures, and mechanisms for sanctions or corrective action. The State Target Programme for Heat-Supply Modernisation (2030) is technically oriented — focused on replacement of boilers, pipe renovation, and reliability improvement — but it lacks climate-related targets and measurable renewable integration indicators.

Comparative Tables are attached in *Annex 4.*

Summary Table: Overall, Degree of Alignment

Directive	Scope of Alignment	Implementation Status	Key Gaps
EED 2023/1791	Core principles transposed	Partial implementation	No binding EE1st, no EEO, partial metering, outdated DHC criteria
EPBD 2024/1275	2010 version implemented	Needs full update	Missing ZEB, MEPS, SRI, automation standards
RED III 2023/2413	Strategic correspondence	Regulatory instruments absent	No binding RES-heat trajectory, limited TPA, no waste-heat framework

6. Cogeneration (CHP) Reform

EU framework for High-Efficiency Cogeneration (HE-CHP) – main EED/RED provisions

The European Union recognises high-efficiency cogeneration (HE-CHP) as a core mechanism for improving energy efficiency and decarbonising the heating and electricity sectors. The Energy Efficiency Directive (EED) and Renewable Energy Directive (RED III) jointly establish performance thresholds and monitoring obligations for CHP units, linking their qualification to fuel efficiency and carbon intensity.

By 2028, efficient district heating systems are expected to include at least 80% CHP-based or renewable heat; by 2035, this proportion should reach 80% combined share with at least 35% renewable or waste heat. Member States are required to certify CHP installations based on harmonised efficiency criteria, report verified data through digital registries, and integrate waste-heat recovery into planning frameworks.

For 2040 and 2050, the EU's CHP requirements focus on deep decarbonization, shifting to renewables/low-carbon fuels (hydrogen, biogas), maximizing system efficiency, and integrating with a net-zero grid, with key targets being a 90% net GHG reduction by 2040 and climate neutrality by 2050, making high-efficiency CHP crucial for flexibility and integrating variable renewables.

Ukraine's current model and identified gaps

Ukraine's legal framework for cogeneration is defined by the Law *On Cogeneration and Waste Energy Utilisation* No. 2957-IX and related provisions of the Law *On Energy Efficiency* No. 1818-IX. The current system introduces the concept of "high-efficiency cogeneration" but retains outdated thresholds (≥ 75% CHP, ≥ 50% RES + waste heat) inherited from previous EU directives. There is no unified qualification procedure, centralised database, or monitoring cycle for verifying plant performance.

Certification remains paper-based, and CHP operators are not required to submit regular efficiency data. Moreover, waste-heat utilisation is poorly integrated into network planning, and independent producers face technical and procedural barriers to grid connection. The lack of financial incentives and digital oversight mechanisms limits the attractiveness of CHP investment.

Proposed amendments to the Law on Cogeneration

The forthcoming legislative amendments aim to update efficiency thresholds, align definitions with EU taxonomy, and create a transparent digital qualification process. The revised law should introduce staged benchmarks: ≥ 80% efficiency for 2028, ≥ 85% for 2035, and full carbon neutrality by 2050. It should also provide a legal basis for the registration, certification, and monitoring of CHP units in an integrated digital environment.

The law will define the roles of competent authorities (SAEE, Ministry of Energy, NEURC), including responsibilities for data verification, issuance of guarantees of origin, and oversight of compliance with energy-efficiency trajectories. In addition, it will ensure that waste-heat recovery systems are recognised as eligible contributors to efficiency targets.

Structure of the new Procedure / digital ICS "Cogeneration"

A new *Cogeneration Qualification Procedure* will serve as the core implementation instrument. It will establish the methodology for calculating fuel savings, verifying operational parameters, and categorising installations by scale and technology type. The Procedure will be supported by an Integrated Certification System (ICS "Cogeneration"), a digital platform connecting plant operators, certifying bodies, and regulators. The ICS will enable electronic data exchange, performance tracking, and automated issuance of digital certificates of efficiency. It will also integrate with the National Register of Guarantees of Origin for renewable and recovered heat, ensuring traceability and preventing double counting. The system will operate under unified technical protocols compatible with EU data-exchange standards.

Monitoring, verification, and audit cycle

The monitoring framework will require CHP operators to report annual performance indicators — fuel consumption, heat and electricity output, efficiency ratio, and CO_2 intensity. Accredited verification bodies will audit reported data and issue conformity statements. The audit cycle is expected to follow a three-year verification interval with annual self-reporting and random inspections. Non-compliance will trigger corrective measures or suspension of the efficiency certificate. The data collected will feed into national statistics and support Ukraine's reporting under the Energy Community obligations.

EU alignment benefits and implementation roadmap

The reform will bring significant economic and environmental benefits. It will stimulate investment in modern cogeneration, reduce gas dependency, and enable more flexible heat generation. The digital qualification and monitoring system will increase transparency, data reliability, and investor confidence. In the long term, integration with EU-style guarantees of origin will facilitate cross-border trade in "green heat" and support Ukraine's entry into the EU energy market. The implementation roadmap foresees:

(1) adoption of the amended Law on Cogeneration (2025);

(2) approval of the Cogeneration Qualification Procedure and launch of ICS "Cogeneration" (2026);

(3) full operationalisation of monitoring, verification, and data exchange (2027); and

(4) integration of CHP data into national energy planning and decarbonisation monitoring (2028 onwards).

These steps will ensure full legal and technical convergence with EU practice and position Ukraine as a regional leader in high-efficiency cogeneration.

7. Roadmap for Harmonisation

The Roadmap provides a phased approach to full legal and institutional convergence with EU directives and strategies. It is structured around three-time horizons: short-term (2025–2027), medium-term (2028–2035), and long-term (2035–2050).

Short-Term Priorities (2025–2027)

Legal and Regulatory Actions

- ✓ Amend the Law on Energy Efficiency to confer legally binding status on the EE1st principle for all investment and planning decisions.
- ✓ Adopt a Law on Individual Heat Substations (ITS), defining mandatory installation, allocation of responsibilities, and financing mechanisms.
- ✓ Amend the laws on heat supply and commercial metering to ensure apartment-level metering and remote reading in all buildings by 2027
- ✓ Define national annual trajectories for energy savings and renewable-heat growth in line with the EED and RED III.
- ✓ Adopt Third-Party Access (TPA) rules for district-heating networks, with standard contract templates and transparent approval procedures.

Institutional and Planning Actions

- ✓ Revise the methodology for heat-supply schemes to the format of local heating-and-cooling plans, integrating the potential of energy efficiency (EE), renewables (RES) and waste heat.
- ✓ Establish a Heat Decarbonisation Coordination Platform under the auspices of the Ministry of Economy, with the participation of the State Agency on Energy Efficiency, the Ministry of Energy, the Ministry for Communities, Territories and Infrastructure Development, and representatives of municipalities.
- ✓ Launch pilot projects on Power-to-Heat and on waste-heat recovery. Initiate a national programme for the roll-out of ITS with partial state co-financing for public and residential buildings.

Financial Instruments

- ✓ Strengthen the Energy Efficiency Fund and Decarbonisation Fund to finance ITS deployment, metering, and RES integration.
- ✓ Introduce concessional credit lines and green bonds for district-heating modernisation.

Medium-Term Actions (2028–2035)

Regulatory Development

- ✓ Implement Minimum Energy Performance Standards (MEPS) for the existing stock, starting with the worst-performing 15 percent.
- ✓ Create a national framework for the Smart Readiness Indicator (SRI), linked to building certification and digital platforms.
- ✓ Update the definition of “efficient district heating” to the EU thresholds for 2028 and 2035.
- ✓ Introduce guarantees of origin for renewable and recovered heat.

Technological Integration

- ✓ Scale up low-temperature 4th-generation district-heating (4GDH) networks.
- ✓ Develop thermal storage and sector coupling between electricity and heat.
- ✓ Digitalise heat-network operation and data exchange with electricity system operators.

Market and Institutional Reform

- ✓ Ensure full market entry for independent producers under TPA rules.
- ✓ Establish a National Heat Market Observatory to monitor efficiency, RES shares, and emissions.
- ✓ Strengthen coordination among the national regulator (NEURC), the State Agency on Energy Efficiency, and local authorities.

Long-Term Actions (2035–2050)

Decarbonisation and Integration

- ✓ Achieve 100 percent efficient district heating with net-zero emissions by 2050.
- ✓ Fully integrate renewable and recovered heat sources; phase out gas-based systems.
- ✓ Transition to a competitive, transparent, and consumer-oriented heat market.

Social Resilience

- ✓ Integrate the transformation of the district-heating sector into social policy to mitigate energy poverty.
- ✓ Introduce a universal MRV system (monitoring, reporting, verification) for performance, emissions, and consumer welfare.

8. Conclusions and Recommendations

Ukraine has formally aligned its regulatory framework with the key EU legal acts on energy efficiency—most notably the recast directive on energy efficiency, the directive on the energy performance of buildings, and the directive on renewable energy (as regards district heating).

At the level of targets, the National Energy and Climate Plan (NECP) to 2030 sets out benchmarks (reduced energy consumption, increased share of renewables, modernisation of district heating, and building retrofits) that broadly correlate with the EU decarbonisation and energy-efficiency trajectory. However, the ambition and legal enforceability of Ukraine's indicators remain below the requirements of the updated EU directives, and critical delivery mechanisms have not yet been translated into binding, monitorable, and sanctionable obligations.

The state of implementation can be characterised as "high framework alignment in primary legislation—medium practical alignment in secondary legislation and execution." Ukraine has introduced mandatory commercial metering of heat and water; established a regime of energy audits for large enterprises; codified the concept of "efficient district heating" and advanced high-efficiency cogeneration; and developed programmes for deep renovation and energy service (ESCO).

Substantial gaps nevertheless persist that hinder de facto convergence with EU standards: the "energy efficiency first" (EE1st) principle does not yet operate as a legally binding filter for decision-making; comprehensive mandatory apartment-level heat metering and remote reading are lacking; no legally mandated annual energy-savings obligations exist at levels commensurate with the new EU requirements; the mandatory 3% annual renovation rate for public buildings has not been embedded; the legislative framework for compulsory individual heat substations (IHS) is unfinished; third-party access to heat networks and the integration of waste heat require strengthening.

In sum, legal harmonisation has occurred predominantly at a conceptual level. To shift to an "EU-equivalent" pace of results, Ukraine must: raise the ambition and binding nature of national targets; detail and standardise the secondary framework (metering, billing, IHS, energy management, obligation schemes); and establish robust MRV (monitoring, reporting, verification) with clear accountability for non-compliance. Implementing these steps will align Ukraine's tempo with the EU on energy efficiency, building renovation, and the "greening" of district heating—delivering practical, not merely formal, conformity with the directives.

EU and Ukrainian Strategic Documents

The National Energy and Climate Plan (NECP-2030), approved in 2024, sets Ukraine's key 2030 objectives on decarbonisation, energy efficiency, and renewables. The NECP endorses overall renewables target of 27% in gross final consumption by 2030 (as aligned with the Energy Community), and 33% in heating and cooling. The plan outlines a wide array of measures: district heating reform under Third Energy Package principles (open market design, enhanced connection rules, incentives for cogeneration and renewables); bioenergy development (biomass/biogas pathway, biomethane guarantees of origin register); large-scale residential renovation via the Energy Efficiency Fund; support for distributed generation (heat pumps, community biomass); and approximation of national standards to EU norms (the "green deal" agenda). The State Target Programme for the Modernisation of District Heating Utilities (to 2030) focuses on reducing network losses, lowering specific fuel consumption, deploying individual heat substations (IHS), and achieving full building-level heat metering.

Alignment of Targets

Ukraine's strategic targets in the NECP are partly consistent with those of the EU. Ukraine likewise aims at climate neutrality and major emission reductions (65% by 2030). The NECP acknowledges that the district heating sector should reach the highest share of renewables (33%) across energy sectors, consistent with the EU's prioritisation of heating in the renewables agenda. That said, the formal benchmarks are more modest: 27% renewables

overall versus the EU's higher ambition. The key shortfall is the absence of legally binding delivery mechanisms: the NECP sets declarative goals without specific annual "stepping-stone" trajectories or sanctions for non-achievement. Experts stress the need to "translate the NECP's paper targets into enforceable instruments" through primary and secondary legislation.

Recommendations: Embed in the NECP (and statute) mandatory annual trajectories for increasing the renewables share in heat, with clear indicators (e.g., stepped annual thresholds through 2030/2050). Ensure implementation of climate goals through new normative acts, including MRV mechanisms for progress and compliance.

District Heating Sector Reform

The NECP envisages EU-style reform of district heating: competitive market structures, support for cogeneration and renewables, non-discriminatory access for independent producers, improved boiler-house efficiency, and network modernisation. The modernisation programme also includes technical measures (IHS deployment, metering, network rehabilitation).

Assessment: These measures are important but lack explicit "green transition" targets. Comparative analysis indicates that while the strategic aim of reducing gas dependence and enhancing reliability aligns with the EU's decarbonisation emphasis (towards 2050 and a 2030 renewables uplift in heat), the programme does not set concrete climate benchmarks, focusing instead on security and efficiency.

Recommendations: Beyond technical modernisation, include explicit climate targets (e.g., reducing gas share in district heating to zero by 2050) and instruments to deliver them. Introduce quantified renewables benchmarks within the State Programme (annual increases, minimum quotas, etc.).

The "Energy Efficiency First" Principle

The programme references energy efficiency objectives but does not operationalise EE1st as a mandatory decision-making criterion. In contrast, EU law makes EE1st a legal obligation, requiring the assessment of demand-side measures prior to infrastructure investment.

Assessment: EE1st is declared but not applied as a binding screen for projects in the heat sector.

Recommendations:
— Integrate EE1st into state programmes and primary legislation (e.g., the Law "On Energy Efficiency");
— Introduce a cost-benefit analysis methodology for every district heating project, prioritising demand reduction;
— Establish monitoring of achieved savings.

Individual Heat Substations (IHS) and Metering

The programme envisages progressive IHS deployment, yet apartment-level metering in multi-apartment buildings is not mandatory. Comparative analysis concludes that IHS and sub-metering should become standard, as reflected in EU practice and regulation.

Recommendations: Amend the laws on district heating and commercial metering to mandate IHS and apartment-level metering in all buildings. Legally clarify allocation of responsibilities (utility versus owner) and financing mechanisms (e.g., tariff-based recovery).

Incentives for Renewables and Cogeneration

The programme promotes biomass and biogas without hard quotas, whereas the directives require obligatory annual increases in renewable heat.

Assessment: There are no quantified obligations for the renewables share in heat.

Recommendations: Introduce annual sectoral renewables growth targets for heat, with appropriate monitoring. Ensure coordinated planning for waste-heat recovery and the roll-out of high-efficiency cogeneration.

Market Openness (Third-Party Access, TPA)

National documents lack a comprehensive open-access regime for third parties to connect to heat networks; networks remain de facto municipal monopolies.

Recommendations: Implement Third Energy Package principles by granting independent “green heat” producers non-discriminatory connection rights. Develop standardised heat purchase agreements (PPAs), clear connection procedures, service-level agreements (SLAs), and appeal mechanisms with sanctions for unjustified refusals.

Financing Mechanisms

The programme provides for budgetary and credit instruments but no stable modernisation fund. The EU employs comprehensive facilities (e.g., investment vehicles and national funds).

Recommendations: Establish a national, stable financing mechanism for district heating modernisation—e.g., by expanding the Energy Efficiency Fund’s mandate or creating a State Decarbonisation Fund for Heat.

Social Dimensions

In Ukraine, energy poverty is addressed via a separate system of subsidies and is not embedded in the modernisation programme. The EU, by contrast, foregrounds support for vulnerable consumers during the transition.

Recommendations: Integrate a social component into modernisation programmes: targeted measures and financial incentives for low-income households (e.g., grants for connection to efficient district heating or building envelope upgrades).

Coordination

Responsibilities are split among the Ministry for Communities Development, the Ministry of Energy, the State Agency on Energy Efficiency, and local authorities. EU practice requires cohesion via national strategies and municipal plans.

Recommendations: Enhance inter-institutional coordination at national level (e.g., inter-ministerial task forces or centralised planning within the NECP framework) and align heat-supply schemes with municipal energy plans.

Directive (EU) 2023/1791 on Energy Efficiency

This directive establishes a modern framework for improving energy efficiency, emphasising the EE1st principle; introducing mandatory national energy-savings contributions (circa 11.7% by 2030); energy efficiency obligation schemes (EEOs) for energy suppliers; strengthened requirements for metering, energy management, and consumer protection. Ukraine has enacted a suite of laws (energy efficiency No. 1818-IX; heat metering No. 2119-VIII; district heating No. 2633-IV; building energy efficiency No. 2118-VIII; cogeneration No. 2957-IX, inter alia) that broadly reflect the directive’s core architecture. The report compares the directive’s articles with existing national provisions, presenting a concordance table and compliance assessment.

Findings and Recommendations

1. EE1st: EU law renders EE1st legally binding across planning and investment. In Ukraine, EE1st is recognised in statute and the NECP but without binding effect. Recommendation: Enshrine EE1st as a compulsory criterion (amend Law 1818-IX or adopt a dedicated act), require cost-benefit analysis prioritising demand reduction for every project, and integrate EE1st into heat-supply schemes and the NECP.

2. National energy-savings targets: The directive requires a mandatory incremental target.
Finding: No government-approved annual final-energy reduction path exists.

Recommendation: Legislate or enact by government decree a national annual reduction trajectory to 2030.

3. Exemplary role of public bodies buildings (Art.6) the directive requires a mandatory renovation for 3% floor area of public buildings.

Recommendation: Legislation for the government buildings and the corresponding building database should cover all public buildings. And 3%/a renovation requirements should be also implemented.

4. Energy Efficiency Obligation (EEO) schemes (Art. 9): Suppliers should deliver annual savings

Finding: The principle is acknowledged, but no state-approved quotas or scheme design is in force

Recommendation: Adopt a government-level EEO framework (by law or decree) requiring annual reporting on verified savings, with a focus on vulnerable consumers.

5. Energy management and audits (Art. 11): Large enterprises (>85 TJ/year) must implement ISO-compliant systems by 2027; entities >10 TJ must audit every four years.
Finding: Law 1818-IX mandates audits for large consumers; functional alignment exists, but coverage thresholds and follow-up enforcement could be strengthened.
Recommendation: Adjust thresholds to capture more enterprises and implement compliance monitoring for audit recommendations.

6. Heat and hot water metering (Arts. 14–15): Meters reflecting actual consumption are required; apartment-level metering or allocators in multi-apartment buildings.
Finding: Ukrainian law robustly regulates commercial metering but lacks a clear legal mandate for universal apartment-level metering wherever technically/economically feasible.
Recommendation: Amend Law 2119-VIII to mandate sub-metering, adopt a cost-allocation methodology, and require remote reading.

7. Individual Heat Substations (linked to EPBD/EED): A 2025 draft law proposes mandatory IHS in all buildings connected to district heating by 2030.

Finding: Current legislation does not contain requirements for the establishment of ITPs.

Recommendation: Adopt an IHS law specifying roles (design/installation by utilities; cost recovery via tariffs), phased deadlines to 2030, co-financing for social and residential buildings, and technical regulations (including cybersecurity).

8. Social measures and consumer information (Arts. 21–22): The directive highlights vulnerable consumers and awareness.

Finding: Awareness-raising is mandated in general terms; no formal definition of energy poverty or binding programmes.

Recommendation: Establish national programmes for consumer awareness and targeted support; legally define energy poverty criteria.

9. Heat planning (Arts. 25–26): Cities over 45,000 residents must adopt heat plans mapping EE, RES, and CHP potential.

Finding: Ukrainian law requires heat-supply schemes and municipal energy plans.
Recommendation: to reach full compliance with Article 25, Ukraine should:

- Legally embed the EE1st principle in local planning procedures;
- Mandate GIS-based mapping of RES and waste-heat potential;
- Introduce obligatory public consultation and cross-municipal coordination mechanisms;
- Define standardized indicators, monitoring, and reporting; and incorporate financial, social, and community-energy dimensions.

10. Efficient district heating (Art. 26): Progressive thresholds toward 100% “green heat” by 2050.

Finding: Ukraine defines “efficient district heating” (≥50% RES/waste heat; ≥75% CHP), but updated EU thresholds (2028/2035/2050) are not reflected; no comprehensive heat-mix monitoring.

Recommendation: Update cogeneration law No. 2957-IX with a compliance trajectory; implement mandatory heat-mix monitoring and a guarantee of origin system for renewable heat.

11. Skills and accreditation (Art. 28): Certification of auditors and managers.

Finding: Auditor accreditation exists; coverage can be improved.

Recommendation: Align national certification standards with the latest EU criteria.

Synthesis: The most material gaps relate to the lack of a binding EE1st, incomplete apartment-level metering, absence of a mandatory IHS law, and outdated thresholds for “efficient DH.” Implementing the above measures and establishment of national center of competency to advise local agencies on district heating/cooling would enable Ukraine to practically implement the bulk of the directive’s key provisions.

Directive (EU) 2024/1275 on the Energy Performance of Buildings (EPBD)

This directive aims to fully decarbonise the building stock by 2050. The principal instruments are: Zero-Emission Buildings (ZEB) for all new buildings; Minimum Energy Performance Standards (MEPS) for the existing stock; and the Smart Readiness Indicator (SRI) to drive digital energy management. The EPBD provides the legal basis for mass renovation, integration of renewables in heating and cooling, and the reduction of energy poverty. Ukraine’s Law No. 2118-VIII (2017) implemented the 2010 EPBD version; the 2024/1275 updates are not yet reflected in national law.

Findings and Recommendation

1. Zero emissions and ZEB (Arts. 1–2, 11): The directive sets the ZEB objective by 2050 and requires ZEB standards for new public (from 2027) and all new buildings thereafter.

Finding: No ZEB definition or 2050 roadmap exists in Ukrainian law; standards for new builds rely on local building codes (DBN).

Recommendation: Amend Law 2118-VIII to define ZEB and establish a staged roadmap with interim milestones (e.g., 2027, 2035).

2. MEPS for the existing stock (Art. 9): Start with the bottom 15% of buildings.

   Finding: No binding MEPS; only voluntary energy classes. Recommendation: Adopt national MEPS for residential and non-residential buildings, beginning with the worst-performing 15% and expanding coverage over time.

3. Integration of renewables (Arts. 10, 11): Rooftop solar and recognition of efficient district heating as part of ZEB compliance.

   Finding: Isolated rooftop incentives exist; systemic regulation of integration with district heating is lacking; ZEB criteria are absent.

   Recommendation: Introduce incentives for rooftop RES (e.g., guarantees of origin) and formally recognise connection to efficient district heating within ZEB criteria. Solar plants should be mandatory for public buildings

4. Automation and IHS (Arts. 13–15): Requires system tuning, automation, hydraulic balancing, weather compensation.

Finding: Weather compensation is required for new buildings; mandatory hydraulic balancing and automation for the existing stock are absent; IHS are not compulsory in all multi-apartment buildings.

Recommendation: Mandate balancing and automated control for all new and renovated buildings connected to district heating; update DBN and operational rules accordingly.

5. SRI (Art. 15): Mandatory from 2027 for large non-residential systems.

   Finding: SRI not implemented.

   Recommendation: Introduce SRI methodology and integrate it into comprehensive building certification; link SRI to “smart district heating” programmes.

6. Data exchange and oversight (Arts. 16, 23–24): Interoperable data flows between EPC registries, HVAC systems, and heat-planning tools.

   Finding: EPC and auditor registries exist, but no single digital platform or full quality control.

   Recommendation: Build an integrated data platform connecting EPC registries with heating-system data and municipal heat-planning; enable digital workflows among clients, certifiers, and network operators.

7. Inspections and independent experts (Arts. 23–27): Periodic inspections with mandatory reporting; accreditation and quality control of experts.

   Finding: Technical supervision exists and energy auditors are accredited, but quality control and linkage to network planning are incomplete.

Recommendation: Establish transparent quality-assurance for certification and reporting (e.g., cross-checking audit findings with inspection results) and link auditor/EPC registries to municipal heat-supply planning. Requirements for renovation passport and inspection report need to be implemented.

Summary: Ukraine partially aligns with EPBD 2010 but requires substantial updates to implement EPBD 2024/1275. Key gaps include the absence of a ZEB definition and 2050 roadmap, lack of binding MEPS for the worst-performing buildings, non-implementation of SRI, insufficient automation of the existing stock, and lack of a unified information system. Advancing these instruments (ZEB, MEPS, SRI, integrated digital platform, deep renovation) will enable a shift from formal auditing to full-fledged building energy management, reducing consumption by 40–60% and aligning national policy with the EU’s 2050 goals.

Renewable Energy Directive (RED III)

Directive (EU) 2023/2413 raises the EU-wide renewables ambition to at least 42.5% of gross final consumption by 2030, with sectoral sub-targets.

In heating and cooling, RED III requires accelerated growth of “green heat” (RES + waste heat): +0.8 percentage points per year in 2021–2025 and +1.1 p.p. per year in 2026–2030; an assessment of waste-heat potential; implementation of at least two measures from the indicative list (e.g., connection to efficient district heating, fossil heat displacement, support for heat pumps); an indicative +2.2 p.p./year increase of RES + waste heat in district heating; open access for independent RES/waste-heat producers to large networks (>25 MW); and consumer transparency (disclosure of the RES share on bills).

These obligations interplay with wider “Fit for 55” initiatives for decarbonising heat.

Findings and Recommendations

1. National targets and law: The NECP-2030 sets 33% RES in heat (27% overall). Finding: The target is indicative, without statutory annual stepping-stones akin to RED III.

Some incentives exist (boiler-house upgrades, partial biomass substitution), but no binding requirements or waste-heat accounting methodologies.

Recommendation: Legally codify annual RES growth trajectories in heat; adopt waste-heat accounting rules.

2. Potential assessment and measures: RED III requires potential assessments and at least two measures from the list

Finding: Heat-supply schemes and energy plans exist but vary in quality; the RED III measures are referenced in policy but not defined as a mandatory minimum in law.

Recommendation: Codify a mandatory policy package (e.g., heat-pump roll-out, efficient DH connections, fossil heat displacement) and require their reflection in municipal plans.

3. Third-party access (TPA): Non-discriminatory access and standardised connection rules.

Finding: Connection rules are being developed, but detailed procedures, standard heat PPAs, and effective sanctions for abuse of market power are missing.

Recommendation: Adopt comprehensive TPA regulations: standardised green-heat PPAs, clear timelines/SLAs, exhaustive refusal grounds with appeal procedures; empower the regulator to enforce and sanction.

4. Waste heat and storage: RED III promotes the accounting of waste heat and Power-to-Heat.

Finding: No national statistical methodology for waste heat; no coordination platforms between sources and network operators; no targeted finance for PtH or heat storage.

Recommendation: Approve a waste-heat accounting methodology, establish regional coordination platforms, and create financial incentives (grants, concessional finance, tariff recognition) for PtH and thermal storage.

5. Transparency and consumer rights:

Finding: Data openness has improved, but no standardised disclosure of fuel mix and RES share to end-users.

Recommendation: Oblige licensees to publish annual fuel mix, RES/waste-heat shares, and efficiency KPIs by network; display these data on bills or in customer portals; define community communication rules on “green” network retrofit plans.

6. Integrated planning with the power system:

Finding: No obligation for regular joint assessments of PtH/storage potential; storage projects are nascent.

Recommendation: Require four-yearly joint assessments by electricity and heat network operators; integrate results into network development plans; allow tariff-based capitalisation of storage investments.

7. NECP coherence:

Recommendation: Synchronise NECP indicators with RED III by making the targets annual, reportable, and enforceable, and by embedding TPA, waste-heat accounting, and system flexibility (storage, PtH) in national planning.

Summary: Ukraine’s strategic alignment with RED III is high, but regulatory detailing is insufficient. Critical levers are: legally mandated annual RES increases in heat; an effective TPA regime; waste-heat statistics and incentives; consumer transparency; and integrated planning. Implementing these measures will foster competition in heat generation, accelerate the “greening” of district heating, reduce gas dependence, and enhance system flexibility.

Priority actions include: setting annual RES growth and DH targets; adopting TPA rules and a standard contract; implementing waste-heat accounting; mandating disclosure of RES shares on bills; and integrating PtH/storage into network plans. Executing this package would

move Ukraine from partial compliance to practical full harmonisation with RED III in district heating.

Annex 1: Consolidated legal and regulatory matrix for the Ukrainian district heating (DH) sector

Gap Description	De Facto Situation	Possible Legislative Amendments
Absence of a strategic legislative document	No national-level law establishing a district heating strategy until 2035 exists	Only government concepts and donor-led technical assistance programs (e.g. ReWarm, UDEPP) are in place
Insufficient regulation of third-party access	The Law "On Heat Supply" outlines general conditions, but lacks implementation mechanisms, sanctions, and oversight	Law No. 4213 introduces transparency and access provisions, but lacks institutional control and sanctions
Weakness of the "cost+" tariff model	Tariffs do not reflect gas price fluctuations and fail to incentivize efficiency	NEURC and local authorities do not ensure full cost recovery
Gaps in the Regulation of Heat Consumption on the Demand Side	Despite the adoption of laws on commercial metering and energy efficiency, implementation remains incomplete. There are no mandatory requirements for remote data reading or standardized consumer information. Very low rates of implementation of heat consumption metering and management at the apartment level, allocation methodologies exist, but there is no nationwide system of individual meters or allocators with transparent rules. There is no comprehensive demand-side management mechanism, limiting consumer impact on cost reduction and energy savings. Individual heat substations (IHS) are still not mandatory, although they are crucial for efficiency. Billing based on actual consumption is often non-transparent; allocation rules differ across municipalities.	Amend the legislation to specify: ✓ the mandatory use of individual meters, or if technically impossible/economically impractical, the mandatory use of distributors; ✓ the financing model (in tariffs/programmes); ✓ equipment standards (automatic weather-dependent regulation, balancing, metering/telemetry); ✓ the procedure for accessing data; ✓ standardise bill content (Annex IX EED), introduce APIs/accounts with consumption data, unify the rules for paying for submetering services (non-profitability/reasonableness); ✓ implement the draft law on mandatory ITPs approved by the Government in September this year.

Gap Description	De Facto Situation	Possible Legislative Amendments
Incomplete implementation of energy management and monitoring	The Law “On Energy Efficiency” introduces relevant instruments, but does not make their implementation mandatory	General requirements are in place but are not obligatory for district heating operators; oversight is limited
Insufficient transparency and accountability	No systems for impact evaluation or independent monitoring of reforms	Limited audit practices and lack of ESG reporting persist
Barriers to ESCO projects	Financial unpredictability and unclear tariff inclusion of ESCO-related costs	Law No. 202-IX introduces general opportunities, but lacks detailed financial mechanisms and regulatory stability
No legal integration with urban planning	No legal obligation to integrate district heating into spatial and urban planning	Proposals exist in analytical documents, but are not enshrined in law
Unstable incentives for RES and cogeneration	Laws exist, but lack long-term guarantees and standard clarity	EU criteria have been introduced, but implementation and regulatory stability are uncertain
Cumbersome procedures for state aid	No simplified legal mechanism for approving state support (e.g. state guarantees)	Donor-funded DH projects require individual AMCU decisions, with excessive bureaucracy
Limited role of the regulator and antitrust authority	NEURC has limited legislative initiative and local oversight powers	Regulates combined production, but not the entire system; AMCU has weak powers in DH sector
Institutional fragmentation	Lack of coordination among MinDEV, NEURC, SAEE, and local authorities	Sectoral policies exist, but are not integrated into a unified reform strategy

Annex 2: Structured risk matrix reflecting the key challenges currently facing Ukrainian district heating (DH) sector

Risk Category	Risk Description	Consequences	Potential Mitigation Measures
Monopolization and Weak Competition	The DH market is oligopolistic at the national level and monopolistic at the local level.	Low efficiency, lack of modernization incentives, risk of monopoly abuse.	Introduce third-party access mechanisms, efficiency benchmarking, and incentive-based regulation.
Financial Instability	Tariffs do not cover actual costs; significant debt owed by DH utilities to Naftogaz; reliance on local subsidies.	Network deterioration (60–70%), increased system failures, inability to invest in modernization.	Transition to cost-reflective tariffs, implement targeted subsidies, establish energy efficiency funds, promote PPPs, and mobilize IFIs.
Fuel Dependency on Natural Gas	~90% of heat is generated from gas; biomass share remains low (~8%).	Price and energy security vulnerability, poor environmental performance, uncompetitive DH systems.	Scale up biomass, cogeneration, and heat pumps, and diversify the fuel mix.
Lack of Efficiency Incentives	The “cost-plus” tariff system covers costs regardless of efficiency; no non-price performance criteria.	No motivation to reduce losses or improve service quality.	Integrate quality indicators, establish public DH utility ratings, and include green criteria in financing schemes.
Wartime and Technological Safety Risks	Large-scale attacks on CHPs, boiler houses, and networks; dependence on centralized infrastructure.	Disconnection of cities from heating, frequent breakdowns, threat to population welfare.	Improve network resilience: deploy modular backup boilers, infrastructure duplication, protective shelters, and distributed heat sources.
Investment Barriers and Weak Institutional Support	Low investment attractiveness due to regulatory instability and lack of return guarantees.	Failure to implement investment plans; slow modernization; underperformance in IFI-funded projects.	Ensure transparent investment procedures, stable regulatory framework, and robust third-party access.
Cybersecurity Risks	Increased vulnerability due to digitalization (SCADA, dispatching systems).	Service interruptions, loss of operational control, potential for accidents.	Integrate cybersecurity protocols into critical energy infrastructure; implement backup control systems.
Information Opacity	GIS data and connection terms are often unpublished or poorly monitored.	Investors face limited market access and high entry barriers.	Mandate data transparency: publish GIS models and enforce monitoring by the regulator.
Climatic and Seasonal Risks	Extreme temperatures require	Service interruptions during winter,	Emergency planning, building insulation, and

Risk Category	Risk Description	Consequences	Potential Mitigation Measures
	robust heating systems.	heightened social tensions.	demand-side reduction through energy efficiency measures.

Annex 3: Mapping of EU legal and policy framework for DH sector

EU Framework / Directive	Targets/Key Article(s) / Policy	Implications for DH Sector	Core Pillars
EU 2050 Strategy	Net-zero by 2050 Fit-for-55 target (-55 % GHG by 2030) Deep fuel switching	Frames long-term DH decarbonisation via renewables, efficiency, electrification, waste-heat recovery.	
EU 2016 Heating & Cooling Strategy	**Facilitate building renovation** – tackle building waste, boost renovation rates (<1 %/yr).	Reduces heat demand, necessity for efficient DH networks	
	Integrate heating/cooling with the electricity system– enable flexibility, smart grids.	Smart DH infrastructures can provide grid flexibility via heat storage and demand response	
	Reuse waste heat/cold from industry – map industrial heat, feed into DH networks.	Industrial waste heat should feed into nearby DH networks	
	Engage consumers and industry – promote awareness, smart controls	Awareness, energy labelling, customer choice, demand-side management in DH	
RED III (EU/2023/2413)	**Guidance & Definitions – Waste Heat & Waste Cold** **Content**: Clarifies the definition of waste heat/cold (Article 2(9) RED): must be “unavoidable,” a by-product, generated in industrial/power or tertiary sector, and would be dissipated without a DH system. Guidance interprets its use under Articles 15a, 22a, 23, 24.	Establishes clear criteria for when industrial or residual heat qualifies as “waste heat” eligible for counting.	
	Article 15a – Minimum share of renewables in buildings **Content**: Member States should promote renewable energy in buildings up to ~49 % by 2030 (onsite, nearby, grid-based), including district heating-sourced renewables and waste heat. Encourages local authorities to support energy communities via public procurement.	DH systems supplying buildings must integrate increasing shares of renewables (e.g. waste heat, heat pumps, solar thermal).	
RED III (EU/2023/2413)	**Article 22a – Renewable Energy in Industry** **Content**: Introduces an **indicative growth target of 1.6 pp/year** in renewables and allows waste heat from *efficient DH systems* to count toward industry targets. Upper limits waived when heat delivered from district heat sources.	Validates waste heat from DH systems as counted toward broader industry decarbonisation quotas.	
	Article 23 – Heating & Cooling Sector Targets **Content**: Establishes binding targets for renewable energy use in heating and cooling by 2030, expressed in gross final energy consumption; includes waste heat and renewable electricity (efficiency >100%) as eligible contributions. Member States must conduct sectoral assessments on	Enables DH systems to incorporate waste heat and renewable electricity (e.g., heat pumps) into the renewable share calculation; requires strategic planning for DH decarbonisation.	

EU Framework / Directive	Targets/Key Article(s) / Policy	Implications for DH Sector	Core Pillars
RED III (EU/2023/2413)	potential use of renewables and waste heat in their H&C sector. To achieve the average annual increase Member States shall endeavour to implement at least two of the following measures: recast of Article 23, paragraph 4, Member States should implement **at least two** of the following: 1. **Promotion of renewables-based district heating and cooling networks**, in particular via renewable energy communities (RECs), including support through regulatory, financial and cooperative frameworks. 2. **Incentives for renewable heat installations** in buildings (e.g. solar thermal, biomass boilers, heat pumps). 3. **Support for waste-heat and waste-cold recovery**, linking industrial waste heat to district heating networks. 4. **Facilitation of heat pumps and hybrid systems**, including thermal storage integration. 5. **Encourage conversion from fossil-fuel boilers to renewable-based systems** through public procurement. 6. **Support for renewable energy communities (RECs)** engaged in heating & cooling. 7. **Use of guarantees of origin** for renewable heat and thermal energy.		
	1. **Improving transparency** of district heating system performance and renewable share information to consumers. 2. **Education and consumer information campaigns** to empower vulnerable or low-income households. 3. **Integration of heating and cooling in energy system flexibility services**, e.g. participation in demand response, grid balancing. 4. **Smart metering and controls** in district heating networks for efficiency.		

EU Framework / Directive	Targets/Key Article(s) / Policy	Implications for DH Sector	Core Pillars
	Energy-efficiency-first assessments in planning heating & cooling projects.		
	Article 24 – Annual indicative increase in renewables in H&C **Content**: Sets an *indicative annual increase* of **2.2 percentage points** (2021–2030) in renewable energy and waste heat share for district heating/cooling. Requires Member States to encourage DH operators to connect third-party suppliers of renewable or waste heat	Strong emphasis on integrating additional renewables and waste heat into DH networks; promotes market opening to external suppliers.	
EED **(revised 2023)**	**Articles 1–2 – Framework & General Duties** **Content:** Establish the Directive's objectives: collective binding EU target of ~11.7% additional final energy savings by 2030 relative to 2020 reference scenario; obligations for public sector energy reduction; extension of energy audit obligations to more enterprises & definition of efficient district heating and cooling that means a district heating or cooling system meeting the criteria laid down in Article 26.	Sets the broader context for energy demand reduction and energy efficiency across sectors, encouraging demand-side solutions and heating demand reduction—thus affecting overall thermal energy demand that DH must serve efficiently.	
	Article 3 – Energy Efficiency First (EE1st) **Content:** Establishes EE1st principle applied across all planning, policy and investment decisions, requiring cost-benefit analysis including systemic and life-cycle perspectives; addresses energy poverty explicitly. Makes EE1st a legal obligation. Requires Member States to assess demand-side and system flexibility measures before supply-side investments, to apply cost-benefit methodologies, monitor implementation, and report in NECPs.	Requires prioritisation of energy efficiency before adding supply capacity; favors demand reduction, system optimisation, and flexibility provided by DH (e.g. via heat storage, smart controls).	
	Article 9 - Energy Efficiency Obligation Schemes **Content:** Member States using obligation schemes must require designated energy actors (e.g. suppliers, network operators) to deliver **cumulative end-use energy savings** annually, including among vulnerable groups. Obligated parties may implement measures directly or via certified third parties, and savings must be verifiable and reported annually.	Energy suppliers/distributors obligated under the scheme can **invest in district heating energy efficiency** (e.g. pipe upgrades, building retrofits, smart controls), especially for vulnerable groups. This can serve as a financing mechanism to improve DH efficiency and reduce customer bills.	
	Article 11 **- Energy management systems and energy audits** **Content:** Obliges enterprises with large energy consumption (over 85 TJ annually) to implement a certified energy management system (EnMS) by	Most large municipal DH companies exceed these thresholds, so EnMS/audits will uncover heat-loss "hot-spots", favour waste-heat recovery, smart pumping, low-temperature	

EU Framework / Directive	Targets/Key Article(s) / Policy	Implications for DH Sector	Core Pillars
EED (revised 2023)	11 October 2027, while enterprises consuming more than 10 TJ/year must undergo audits by 11 October 2026 and repeat them every four years. Member States may require an assessment of the technical and economic feasibility of connection to an existing or planned district heating or cooling network to be part of the energy audit.	upgrades and other measures that cut fuel use before adding new capacity. These obligations ensure systematic identification and implementation of energy-saving measures—such as waste-heat integration or heat pump adoption—within district heating operators or industrial heat suppliers, thereby supporting optimisation of thermal efficiency across the DH value chain.	
	Article 14- Metering for heating, cooling and domestic hot water **Content:** Member States shall ensure that, for district heating, district cooling and domestic hot water, final customers are provided with competitively priced meters that accurately reflect their actual energy consumption.	Accurate building meters make heat demand transparent, let operators bill on real use and expose network losses—driving both consumers and DH utilities toward efficiency	
	Article 15 – Sub-metering & cost allocation for heating, cooling & DHW **Content:** In multi-apartment or multi-purpose buildings fed by DH/DHC, individual unit meters or cost allocators must be installed where technically feasible and cost-effective; Member States must set transparent rules for allocating energy costs in those buildings	Unit-level feedback typically cuts final heat use 15-25 %; fair cost-allocation also reduces “free-rider” behaviour and stabilises DH revenues	
EED (revised 2023)	**Article 25 – Heating & Cooling Planning** **Content:** Member States must ensure that **municipalities with populations over 45,000** develop **local Heating & Cooling Plans**, aligned with national energy strategies. Key obligations include: a. **Mapping and estimating potential** for energy efficiency, waste heat recovery, renewable heating, high-efficiency cogeneration, and low-temperature DH readiness. b. Ensure compliance with the **Energy Efficiency First (EE1st)** principle. c. Include **strategies** to exploit identified potential. d. Develop plans in participation with local stakeholders, general public, and infrastructure operators. e. Account for existing local energy infrastructure. f. Coordinate across neighboring administrative units for joint investments. g. Evaluate involvement of **energy communities** and consumer-led	Supports integrated spatial planning of DH networks, demand-side measures, and alignment with local energy needs and technology options.	

EU Framework / Directive	Targets/Key Article(s) / Policy	Implications for DH Sector	Core Pillars
EED (revised 2023)	initiatives. h. Analyze appliance/system stock and address worst-performing buildings and vulnerable households. i. Assess financing mechanisms enabling shift to renewable heating. j. Set progressive trajectories aligned with climate neutrality, and define monitoring indicators. k. Phase out inefficient heating/cooling appliances in public buildings, prioritizing high-efficiency alternatives. l. Evaluate synergies with neighboring plans for joint implementation. Member States must support municipalities with technical and financial resources.		
	Article 26 - Efficient District Heating & Cooling (DH&C) **Content:** Defines the criteria for a DH&C system to qualify as **efficient**, with progressive thresholds: **By 31 Dec 2027**: ≥ 50% renewable energy or waste heat or 75% cogenerated heat (or ≥ 50% combination). From **2028**: ≥ 50% renewable + waste heat OR 80% high-efficiency cogeneration (with ≥ 5% renewable baseline). From **2035**: total ≥ 80% combination, with at least 35% renewable or waste heat. From **2040–2045**: steepening requirements up to **100% renewables & waste heat by 2050**. Alternatively, Member States may adopt **GHG emission thresholds**: starting at 200 gCO_2/kWh in 2025, declining to 0 g/kWh by 2050	Establishes a clear **decarbonisation pathway** and minimal performance baseline for DH&C. It mandates system transformation—via renewables integration, waste heat recovery, cogeneration, network efficiency upgrades—and guides operators in infrastructure refurbishment and fuel-switch planning.	
	Article 30 - National Energy Efficiency Fund & Financing **Content:** Member States must facilitate financing facilities—public or existing—for energy efficiency improvements, especially including for district heating and cooling refurbishments. This includes green loans, on-bill/on-tax financing, grants, technical assistance, and optional creation of a national energy efficiency fund, possibly fueled by EU ETS revenues. The Commission will support via guidance, best-practice exchange, and private capital mobilisation	Article 30 enables and encourages **public-private financing instruments** targeted to modernise and decarbonise DH systems: network upgrades, high-efficiency cogeneration retrofits, renewable integration, and support for low-income or energy-poor consumers within DH territories.	

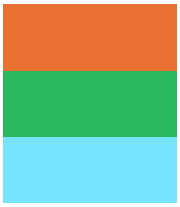
EU Framework / Directive	Targets/Key Article(s) / Policy	Implications for DH Sector	Core Pillars
EPBD 2024/1275	**Articles 1 – 2 - Subject Matter & Scope&Definitions** **Content:** Establishes the goal of achieving a zero-emission building stock by 2050, reducing greenhouse gas emissions and boosting energy performance, including via efficient DH&C systems. Defines **district heating' or 'district cooling' -** the distribution of thermal energy in the form of steam, hot water or chilled liquids, from a central or decentralised source of production through a network to multiple buildings or sites, for the use of space or process heating or cooling.	Recognises DH networks as key tools for reducing emissions in buildings—and mandates that buildings' heating systems align with the decarbonisation objectives.	
EPBD 2024/1275	**Article 9 – Minimum Energy Performance Standards (MEPS)** **Content:** Requires Member States to set MEPS for existing non-residential buildings, focusing initially on the worst-performing segments by 2030/2033. MEPS also covers building systems including heating.	Retrofitting buildings to meet MEPS often necessitates switching to efficient DH networks or low-temperature DH solutions—especially in public and large buildings.	
	Article 10 – Solar Energy in Buildings **Content:** Mandatory installation of solar PV/thermal on the roofs of public buildings (≥2000 m² by 2027, scaled to ≥250 m² by 2030) or when roofs are renovated. Encourages integration of solar systems with DH networks.	Promotes **on-site solar thermal or PV–heat coupling** feeding into local DH systems, maximizing renewable supply for building heating.	
	Article 11 – Zero Emission Buildings (ZEB) **Content:** From 2028, all new public buildings—and from 2030, all new buildings—must meet zero-emission building (ZEB) standards: no onsite fossil-fuel emissions and high energy performance. Life-cycle GWP must be calculated and disclosed. Efficient DH&C integration counts toward ZEB compliance.	Buildings connected to **efficient DH systems** (as defined in EED Article 26) can use that connection to achieve ZEB status, promoting thermal networks as compliant low-carbon solutions.	
	Article 13 – Technical Building Systems **Content:** Member States must define minimum system standards for technical building systems—including installation, dimensioning, adjustment, control, and, where feasible, hydraulic balancing in new and renovated buildings. Buildings must meet cost-optimal energy performance levels. Requirements can include GHG limits, fuel type restrictions, and mandated shares of renewable-based heating, provided they don't create unjustified market barriers. Also encourages phase-out of fossil fuel standalone boilers by 2040 and	These provisions support the uptake of **low-temperature heating systems**, smart controls, and hydronic balancing—critical for optimizing building integration with **district heating networks**. They encourage system upgrades that reduce heat demand and improve end-user efficiency, making buildings better suited for connection to efficient DH systems.	

EU Framework / Directive	Targets/Key Article(s) / Policy	Implications for DH Sector	Core Pillars
	promotion of energy storage and control system deployment.		
	Article 15 – Smart Readiness of Buildings **Content:**The Commission is tasked with adopting delegated and implementing acts to establish an optional common EU Smart Readiness Indicator (SRI) scheme, as per Annex IV. This rating assesses a building's capacity to adapt operations to occupant needs, indoor environment quality, and grid flexibility, enhancing energy performance. By 30 June 2027, the SRI will become mandatory for non-residential buildings with heating/ventilation systems over 290 kW.	Buildings with high SRI scores are likely integrated with **smart DH systems** (e.g. demand-response, heat pumps, smart controls). The SRI promotes connection to efficient DH&C networks that support grid flexibility and renewable energy use.	
	Article 16 – Data Exchange **Content:** Under Article 16, Member States must ensure building owners, tenants, and managers have direct access to their building systems' data (e.g. energy performance, system lifespan, meters, automation systems, EV charging points), with opt-in access for third parties. Full interoperability and transparency are required, with no extra cost to users.	Access to static and dynamic building data helps map heat demand, detect inefficiencies, target buildings for DH network connection, and enable smart building services like demand-response that interact with DH systems.	
EPBD 2024/1275	**Articles 23 - 24 – Inspection Reports of Heating, Ventilation & AC Systems** **Content:** Every inspection of systems >70 kW (or >290 kW for more frequent intervals) must result in a written inspection report based on Article 23 criteria. It must include cost-effective recommendations for improving performance (including reducing fossil fuel use) and highlight any safety issues. Reports are handed to the owner and uploaded into the national building performance database.	Inspection reports for large boiler or chiller systems connected to district heating networks provide documented opportunities to connect to **efficient DH systems**, install smart controls, or improve hydraulic balancing—all visible in national records and enabling regulatory oversight.	
EPBD 2024/1275	**Article 25 – Independent Experts** **Content:** Mandates that EPCs, renovation passports, smart readiness indicators, and system inspections are performed by independent, certified experts, operating either privately or publicly; states must maintain public lists of certified professionals and training access.	Ensures that individuals assessing heating systems and building performance **accurately document DH connectivity and system characteristics**, enabling consistent recommendations, reliable data for network planning, and real insight into building-DH system synergy.	
	Article 27 – Independent Control System for EPCs, Renovation Passports, SRI & Inspection Reports **Content:** Member States must establish independent quality control systems for Energy Performance Certificates (EPCs), Renovation Passports, Smart Readiness Indicators, and inspection	Controls ensure accuracy and integrity of data on a building's heating performance—including whether it is connected to an efficient district heating/cooling system—thus ensuring that DH	

EU Framework / Directive	Targets/Key Article(s) / Policy	Implications for DH Sector	Core Pillars
	reports of heating, ventilation and air conditioning systems—all in line with the minimum requirements in Annex VI. These documents must be made available to competent authorities upon request.	benefits are correctly reflected in EPCs or renovation documents.	

The findings indicate that EU norms and policies are fundamentally focused on implementing three core pillars of the European strategy for district heating and cooling system development:

1. Demand-side management -
2. Development of renewables &waste heat(cold)& cogeneration-
3. Decarbonisation of district heating and cooling systems -



Annex 4: Comparative Tables EU vs. Ukraine

Comparative Table — Directive (EU) 2023/1791 on Energy Efficiency (EED) Ukrainian Legislation

Directive Article	Ukrainian Legislation	Compliance and Recommendations
Articles 1–2 — Framework and general obligations. Content: Define the Directive's objectives: a joint, binding EU target of ~11.7% additional final energy savings by 2030 compared with the 2020 baseline; obligations to reduce energy consumption in the public sector; expansion of mandatory energy audits for enterprises; definition of efficient district heating pursuant to Article 26.	Law "On Energy Efficiency" No. 1818-IX; National Energy and Climate Plan (NECP)	Partially compliant. Requires approval, at Cabinet level, of an annual reduction indicator.
Article 3 — Energy Efficiency First (EE1st). Content: Enshrines the EE1st principle, applicable to all planning, policy, and investment decisions, requiring cost-benefit analysis, including system-wide and life-cycle perspectives; explicitly addresses energy poverty. Makes EE1st a legal obligation. Requires Member States to assess demand-side measures and system flexibility before supply-side investments, apply cost-benefit methodologies, monitor implementation, and report within the NECP.	Law "On Energy Efficiency" No. 1818-IX; National Energy and Climate Plan (NECP)	Needs improvement. The principle is only declaratively embedded. It is necessary to make compliance with EE1st a legal obligation. Introduce evaluations in the district heating sector prioritising demand reduction and system flexibility before new capacity investments; apply benefit-analysis methodologies, track implementation, and report.
Article 9 — Energy Efficiency Obligation schemes. Content: Where such schemes are applied, obligated parties (e.g., suppliers, network operators) must achieve annual final energy savings, including measures for vulnerable groups. Obligations may be delivered directly or via certified third parties; savings must be verified and reported annually.	—	Needs improvement. The principle is only declaratively stated. A Government-level scheme must be approved. Energy suppliers or distribution companies may invest in district heating efficiency (e.g., pipe upgrades, building insulation, "smart" control), with particular attention to vulnerable consumers. This is also a financing instrument for DH modernisation and bill reduction.
Article 11 — Energy management systems and energy audits. Content: Obligates enterprises with high energy consumption (>85 TJ/year) to implement a certified energy management system by 11 October 2027; enterprises >10 TJ/year must undergo an energy audit by 11	Law No. 1818-IX "On Energy Efficiency," Article 10 established requirements for mandatory energy audits.	Compliant. Mandatory audits for large enterprises are envisaged, but the consumption threshold that triggers audits should be lowered.

Directive Article	Ukrainian Legislation	Compliance and Recommendations
October 2026 and repeat it every four years.		
Article 14 — Metering of heat, cooling, and domestic hot water. Content: Member States shall ensure that, for district heating, district cooling, and DHW, end-users are provided with meters accurately reflecting actual energy use at a competitive price.	Law “On Commercial Metering of Thermal Energy and Water Supply” No. 2119-VIII; Law “On Housing and Communal Services”; draft law “On Amendments to the Law ‘On District Heating’ to Ensure Individual Regulation of Thermal Energy Consumption” (prepared by the Cabinet of Ministers in 2025).	Compliant. Ukrainian legislation aligns with the Directive’s baseline provisions on metering. The new IHS bill strengthens control and automation, going beyond the Directive’s minimum requirements.
Article 15 — Apartment-level metering and cost allocation for space heating, cooling, and DHW. Content: In multi-apartment or multi-purpose buildings connected to DH/DC, individual meters or heat cost allocators shall be installed where technically feasible and economically justified. States must define transparent cost-allocation rules.	The Law on Commercial Metering of Thermal Energy and Water Supply, in particular: Article 3 prohibits connecting buildings to networks without commercial metering units; the operator or owner is obliged to install meters, with costs potentially included in tariffs; compensation for owners who have installed meters at their own expense. Article 4 obliges equipping individual premises with heat and water meters and allocators, defines exemptions, and sets a three-year period for retrofitting. Article 5 requires that new buildings be commissioned only if metering units are installed, and Article 6 regulates their maintenance and replacement.	Needs improvement. It is necessary to introduce binding norms on apartment-level heat metering. Requirements should be deepened and specified to achieve full harmonisation with EU law, in particular regarding apartment-level metering and the use of control devices.
Articles 21–22 — Policies on energy poverty and consumer information. The Directive emphasises equal access to energy-efficiency measures for vulnerable groups and energy-poor households (Art. 21), as well as raising public awareness on energy efficiency through information campaigns and education (Art. 22). Examples include creating “expert networks” to support local authorities in tackling energy poverty, offering consumer advice on savings, and developing training programmes.	Law No. 1818-IX “On Energy Efficiency,” Article 18: “Promotion and incentivisation of higher levels of energy efficiency among consumers.” This article assigns public authorities the task of motivating consumers to implement energy-efficiency measures through information campaigns, outreach, demonstration projects, etc.	Needs improvement. Information activities are stipulated formally but without mandatory national programmes or a consumer-protection focus. Definitions, criteria, and a policy framework for addressing energy poverty—required by the Directive—are absent. This is a conceptual gap, with responsibilities dispersed between social and energy policy.
Article 25 — Heating and cooling planning. Content: Member States shall ensure that municipalities with populations over 45,000 prepare local heating and cooling plans aligned with national energy strategies. Core obligations include: (1) mapping/assessing potential for energy efficiency, waste heat recovery, renewable heat, cogeneration, and readiness for low-temperature systems; (2) ensuring compliance with the EE1st principle; (3) embedding strategies to realise identified	Law “On Energy Efficiency” No. 1818-IX; Law of Ukraine “On District Heating”; Methodology for District Heating Schemes (Order of the Ministry for Communities and Territories Development No. 235 of 02.10.2020) establishes the planning framework and mandates the development and approval of district heating schemes and municipal energy plans.	Partially compliant To reach full compliance with Article 25, Ukraine should: Legally embed the EE1st principle in local planning procedures; Mandate GIS-based mapping of RES and waste-heat potential; Introduce obligatory public consultation and

Directive Article	Ukrainian Legislation	Compliance and Recommendations
potential; (4) preparing plans with local stakeholders, the public, and infrastructure operators; (5) accounting for existing local energy infrastructure; (6) coordinating with neighbouring jurisdictions for joint investment; (7) assessing the role of energy communities and consumer-centric initiatives; (8) analysing existing equipment/systems and addressing worst-performing buildings and vulnerable households; (9) evaluating finance mechanisms for the renewable-heat transition; (10) setting progressive trajectories aligned with climate neutrality and defining monitoring indicators; (11) decommissioning inefficient equipment in public buildings with priority for high-efficiency alternatives; (12) assessing synergies with neighbouring plans for joint delivery. States must provide technical and financial support to municipalities.		cross-municipal coordination mechanisms; Define standardized indicators, monitoring, and reporting; and Incorporate financial, social, and community-energy dimensions into both
Article 26 — Efficient district heating and cooling. Content: Sets criteria under which a district heating/cooling system is deemed efficient. Progressive thresholds: by 31 December 2027: at least 50% renewable energy or waste heat, or 75% cogenerated heat (or ≥50% in combination); from 2028: ≥50% renewable + waste heat or ≥80% high-efficiency cogeneration (with a baseline ≥5% renewable); from 2035: ≥80% in total combination, of which at least 35% must be renewable or waste heat; 2040–2045: progressive increase to reach 100% renewable and waste heat by 2050. Alternatively, Member States may apply GHG-emissions thresholds: starting at 200 g CO_2/kWh in 2025, progressively declining to 0 g/kWh by 2050.	Law No. 1818-IX “On Energy Efficiency” introduced the definition of “efficient district heating,” mirroring the Directive (a system using ≥50% renewable energy, or ≥50% waste heat, or ≥75% cogenerated heat, or ≥50% of such sources in combination). In 2023, Law No. 2957-IX on the development of high-efficiency cogeneration was adopted, implementing EU qualification criteria for CHP units and guarantees of origin for electricity produced by cogeneration. Article 11 of the Law “On District Heating” obliges local self-government to develop municipal district heating schemes. Order No. 235 (2020) approved the Methodology for DH schemes, including a section on assessing efficient DH and cogeneration potential based on cost-benefit analysis.	Needs improvement in line with the new EU monitoring and regulatory thresholds.
Article 28 — Qualifications, accreditation, and certification of professionals. Requires accessible schemes for certification/accreditation or equivalent training for energy-efficiency professionals—ESCOs, energy auditors, energy managers, installers of building energy-efficiency components, etc. The State must accredit certification bodies.	Law No. 1818-IX “On Energy Efficiency,” Article 11: “Energy auditors.” Establishes a professional energy-auditor institution: individuals must be certified (qualification certificate) to perform energy audits. Qualification requirements and the certification procedure are set by the authorised body (State Agency on Energy Efficiency) in coordination with the Ministry of Education and Science, reflecting European standards; the procedure was	Compliant.

Directive Article	Ukrainian Legislation	Compliance and Recommendations
	approved by Cabinet Resolution No. 843 (2021).	
Article 29 — Energy services (ESCO) and the energy-efficiency market. Obligates States to develop the ESCO market: publish standard ESCO contracts with required clauses (per Annex XV); create and maintain an official register of qualified energy-service providers; ensure a point of contact for information on services, finance, and M&V methods; promote quality (e.g., voluntary ESCO labels/standards). Public authorities must consider ESCO models for refurbishing large buildings (>750 m²). States should also remove accounting/legal barriers and enable independent dispute resolution (ombudsman).	Law No. 1818-IX "On Energy Efficiency," Article 17: "Energy service." Recognises that energy-efficiency measures may be implemented via ESCO contracts in both the public and private sectors. Refers to the special Law No. 327-VIII "On Introducing New Investment Opportunities… for Large-Scale Energy Modernisation" (2015), which regulates ESCO contracting with budgetary institutions.	Compliant.
Article 30 — National energy efficiency fund and financing. Content: Member States shall facilitate financial mechanisms—public or existing—to implement energy-efficiency measures, including the modernisation of district heating/cooling systems. Such mechanisms include green loans, on-bill or tax-based financing, grants, technical assistance, and—optionally—the establishment of a national energy-efficiency fund, which may be capitalised from emissions trading revenues. The Commission supports via guidance, best-practice exchange, and mobilisation of private capital.	Law No. 1818-IX "On Energy Efficiency"; Law of Ukraine "On the Energy Efficiency Fund"; Article 24-6 of the Budget Code — State Fund for Decarbonisation and Energy-Efficiency Transformation.	Compliant. Additional incentives for apartment-level heat metering may be introduced.

Article-by-Article Assessment of the Alignment of Directive (EU) 2024/1275 with Ukrainian Legislation on Energy Efficiency and District Heating

Article of the Directive	Provision of Ukrainian Legislation	Degree of Alignment
Articles 1–2 — Objective of a zero-emission building stock (ZEB) by 2050; definition of district heating; role of networks in building decarbonisation.	The Law of Ukraine "On Energy Efficiency of Buildings" No. 2118-VIII provides the general framework. A ZEB target is not yet legally enshrined; the role of efficient district heating is partially recognised through provisions related to the Energy Efficiency Directive.	Partial
Article 9 — MEPS for the worst-performing non-residential buildings; includes heating systems.	Minimum energy performance standards for the existing building stock as a systemic instrument are absent; only isolated requirements exist in building codes (DBN) and certification rules.	Needs improvement
Article 10 — Solar energy in buildings; integration with district heating networks.	Incentive provisions for rooftop PV and solar thermal systems are fragmented; integration with district heating is not regulated as a widespread practice.	Needs improvement

Article 11 — ZEB: new public buildings and all new constructions; connection to efficient district heating counts toward compliance.	ZEB criteria have not yet been introduced in Ukrainian law; conceptually, efficient district heating could be taken into account.	Needs improvement
Article 13 — Building technical systems: adjustment, management, hydraulic balancing, low-temperature solutions.	Building codes (DBN) and operational rules contain general requirements but lack mandatory hydraulic balancing and automation across the entire stock; individual heating substations (IHS) are not compulsory in all multi-apartment buildings.	Partial / Needs improvement
Article 15 — Smart Readiness Indicator (SRI), mandatory from 2027 for large non-residential systems; synergy with "smart" district heating.	The Smart Readiness Indicator has not been implemented.	Requires implementation
Article 16 — Data exchange on buildings and their systems (planning of connections to district heating).	Separate registries (EPCs) exist, but there is no fully interoperable data platform.	Needs improvement
Articles 23–24 — Periodic inspections of large systems (reports with recommendations, submission to the database).	Inspections of heating and domestic hot water systems are fragmented; technical supervision exists, but no unified digital reporting and quality-control framework is in place.	Needs improvement
Article 25 — Independent experts (certification, public registers).	The institution of energy auditors has been established (Law No. 1818-IX), and registries are maintained; however, coverage of all EPBD	

Article-by-Article Alignment Table for RED III (2023/2413) and Ukrainian Legislation on Energy Efficiency and District Heating

Article of the Directive	**Provision of Ukrainian Legislation**	**Degree of Alignment**
Definition of "waste heat/cold" (referenced in Articles 15a, 22a, 23, 24)	Basic definitions are partially reflected in by-laws to the *Law of Ukraine "On Heat Supply" No. 2633-IV* and in heat-supply planning methodologies; however, there is no comprehensive definition or mechanism for large-scale integration into district heating systems.	Partial
Article 15a — Minimum share of renewables in buildings; inclusion of district-heating heat as a contribution toward renewable targets	*Law of Ukraine "On Energy Efficiency" No. 1818-IX*; *Law of Ukraine "On Energy Efficiency of Buildings" No. 2118-VIII* (sector-specific). There is no explicit renewable-energy "quota" for buildings; heat supply from efficient networks may be considered in design solutions.	Needs improvement
Article 22a — Renewables in industry (possibility of counting waste heat from efficient DHS; indicative growth)	*Law No. 1818-IX* and *Law No. 2957-IX* on high-efficiency cogeneration. A systematic mechanism for accounting/crediting "waste heat" in industry is not yet fully regulated.	Partial
Article 23 — Binding growth targets for renewables in heating/cooling; sectoral potential	The *National Energy and Climate Plan (NECP)* and *Law No. 1818-IX* provide a general framework; however, no statutory "binding" annual trajectory exists. Sectoral assessments	Needs improvement

Article of the Directive	Provision of Ukrainian Legislation	Degree of Alignment
assessment; minimum set of measures	are fragmented and based only on local heating-supply schemes.	
List of measures under Article 23 (renewable DHS, heat pumps, waste-heat recovery, etc.)	Support instruments exist sporadically (Energy Efficiency Fund, donor programmes), but there is no nationwide state programme for DHS; several pilots have been funded, yet no large-scale policy exists.	Partial
Article 24 — Indicative +2.2 p.p./year increase in RES + waste heat in DHS; network openness to third-party suppliers	*Law No. 2633-IV* does not establish an annual benchmark or a comprehensive regime of "open access" for independent heat producers. Local heat-purchase contracts are possible, but unified rules are lacking.	Needs improvement
Consumer transparency (share of renewables in the network; information disclosure)	*Laws "On Housing and Communal Services"* and *"On Commercial Metering of Thermal Energy and Water Supply" No. 2119-VIII* ensure basic transparency; however, the "green composition" of networks is not disclosed systematically.	Partial
Integration with power-system flexibility; metering and automation in DHS	Provisions on automation and individual heating substations (IHS) are fragmentary; there is no legal obligation for large-scale DHS automation, nor effective linkage with power-system balancing.	Needs improvement