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Legal and Market Analysis Report of the Ukrainian DH sector

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

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Table of Contents

Introduction

German-Ukrainian cooperation within the project “Reform of the District Heating Sector in Ukraine” (ReWarm) was initiated in April 2023 between the German Federal Ministry for Economic Affairs and Climate Action (BMWK) and the Government of Ukraine. The project aims at reforming municipal district heating systems.

ReWarm is designed to improve the legislative, regulatory, and financial frameworks necessary for sustainable reform of the Ukrainian district heating (DH) sector. It also targets the economic consolidation of heating companies and the attraction of investments in energy efficiency measures.

Strategic alignment with national institutions is crucial for the successful implementation of this project. In this context, the State Agency on Energy Efficiency and Energy Saving of Ukraine (SAEE), as a strategic partner of ReWarm, requested the initiation of comprehensive research to assess the compliance of Ukrainian legislation with EU requirements in the district heating sector. The objective is to identify existing legislative gaps, define harmonization steps, and support the development of evidence-based legislative and regulatory proposals aimed at integrating Ukraine into the European energy space.

To accomplish this task, a group of experts conducted an analysis of market conditions and regulatory barriers in Ukraine’s DH sector. During the preparation phase, preliminary consultations were held with representatives of the SAEE regarding the content and main provisions of the recommendations.

Based on the results of these consultations, this report includes the methodological framework of the research, a legal analysis, an assessment of market conditions and institutional structure, an evaluation of risks and opportunities, and recommendations based on the conducted analyses.

The draft analysis was presented to the SAEE, and following its review, no comments were received from the Agency’s representatives regarding its content.

I. Methodological Framework of the Analysis

Theoretical Foundations.

The district heating (DH) market in Ukraine is examined through the lens of the theoretical approaches developed for energy integration processes and the transformation of energy markets in transition economies. The specificity of Ukraine's DH sector lies in the fact that a significant share of the population is connected to centralized heat supply, which makes this segment critical for both energy security and social protection.

According to energy integration theories, the integration of Ukraine's district heating market into the European Energy Union requires:

- harmonization of national legislation and technical regulations with EU norms;
- introduction of a competitive market environment;
- diversification of primary energy sources;
- unbundling of services (generation, transportation, and supply);
- clear access rules for independent producers.

In countries with economies in transition, the traditional vertically integrated structure of DH services is being transformed into an unbundled model, with different entities responsible for generation, transmission, and distribution. This contributes to increasing transparency, investment attractiveness, and operational efficiency.

In the context of Ukraine's European integration and the implementation of the European Green Deal, the DH sector reform is viewed as an integral part of the broader energy transition, aimed at decarbonization, energy efficiency, and environmental sustainability.

Research Methods

The methodological approach of this analysis includes:

- Legal analysis of Ukrainian legislation in the areas of district heating and energy efficiency.
- Market structure and tariff system analysis, including forms of ownership, tariff-setting mechanisms (e.g., cost-plus), and the financial status of DH utilities (arrears, subsidies).
- Institutional analysis of key stakeholders in the DH sector.
- Case study analysis of international technical assistance projects (e.g., KeepWarm – Horizon 2020, EIB projects, Ukraine-Denmark Energy Partnership) and their applicability in Ukraine.
- Expert consultations with representatives of the State Agency on Energy Efficiency and Energy Saving of Ukraine (SAEE), sectoral associations, and project partners.

The combination of legal, economic, and institutional tools provides a comprehensive view of the challenges and opportunities in the reform of the Ukrainian DH sector.

II. Legal Analysis of Ukrainian Legislation

The district heating sector in Ukraine is governed by a range of laws and subordinate regulations that define the organizational and economic foundations of the industry:

The Law of Ukraine “On Heat Supply” (No. 2633-IV of 02.06.2005) serves as the primary legal act establishing the regulatory framework for the heat energy market.

It delineates the powers of public authorities in the field of heat supply, regulates the relationships among heat producers, transmission operators, and consumers, and introduces licensing requirements for heat supply organizations. The law enshrines the principle of state regulation of heat tariffs and centralized heating services.

In recent years, the law has been amended to reflect evolving sectoral needs. Notably, in 2023, Law No. 4213 was adopted to enhance transparency and access to district heating networks. Under this amendment, heat supply companies are obliged to publish information on connection conditions and develop geographic information systems (GIS) for their networks.

These innovations aim to simplify access for independent heat producers and foster competition. The law also permits the connection of third-party cogeneration units to heat supply networks, provided that the heat they generate is sold at no more than 50% of the current supplier’s tariff—an incentive for the integration of new heat sources without raising consumer prices.

The Law of Ukraine “On Energy Efficiency” (No. 1818-IX of 21.10.2021) provides a modern legal framework that replaces the outdated “energy saving” paradigm with a comprehensive approach to energy efficiency, aligned with European practices.

This law transposes the provisions of Directive 2012/27/EU (EED) on energy efficiency. It establishes legal, economic, and organizational principles for promoting energy efficiency throughout the production, transportation, distribution, supply, and consumption of energy.

The law introduces instruments such as energy audits, energy management systems, energy efficiency monitoring, national energy consumption reduction targets, and other mechanisms in line with the Energy Community’s requirements.

The Law of Ukraine “On the Energy Performance of Buildings” (No. 2118-VIII of 22.06.2017) was adopted as part of Ukraine’s commitments under the EU Association Agreement and fully transposes the provisions of Directive 2010/31/EU (EPBD).

The law establishes new rules on minimum energy performance requirements for buildings, mandatory energy performance certification, energy labeling, and more.

Since 2019, energy certification has been mandatory for public sector buildings, large public buildings, and buildings undergoing thermal modernization using budgetary funds.

This legal framework is designed to reduce heat losses in buildings, directly impacting heat demand and the efficiency of district heating systems.

Other legislative acts include:

- The Law “On Commercial Metering of Thermal Energy and Water Supply” (No. 2119-VIII of 22.06.2017), which requires the installation of heat metering devices in buildings to improve transparency and encourage energy savings.
- The Law “On the Introduction of New Investment Opportunities… for Large-Scale Energy Modernization” (No. 202-IX of 17.10.2019), which simplifies procedures for implementing energy service (ESCO) projects and attracting private investment into heat supply modernization.

Amendments to the Budget Code have also been adopted, allowing local budgets to conclude long-term ESCO contracts.

•In 2023, specific legislation was introduced to promote high-efficiency cogeneration, including the adoption of European qualification criteria for cogeneration units and the introduction of a system of guarantees of origin for electricity produced through cogeneration.

This step transposes Article 14 of Directive 2012/27/EU and creates incentives for the development of cogeneration in Ukraine.

An analysis of the aforementioned legislative acts and other relevant sources reveals several shortcomings in the current legal and regulatory framework for district heating and energy efficiency:

1. Lack of strategic long-term planning – Despite recognized challenges in the sector, Ukraine still lacks national or regional strategic documents for the systematic modernization of district heating.

2. Excessive state dominance and low competition – State-owned enterprises dominate the sector, and the tariff-setting and network access systems do not encourage competition, limiting the participation of private players and investment.

3. Insufficient incentives for renewable heat sources and heat pumps – While general frameworks exist (e.g., energy efficiency, cogeneration), there is no legally mandated support mechanism for scaling up low-temperature and alternative heating systems.

4. Incomplete implementation of energy management and monitoring mechanisms – The Law on Energy Efficiency introduces energy audits and monitoring, but their implementation is not mandatory.

5. Limited consumer transparency and awareness – Although a 2023 amendment introduced requirements for publishing connection terms and GIS data, enforcement mechanisms and actual implementation remain weak.

6. Financial gaps – Tariff policies fail to fully cover actual costs and do not provide sufficient incentives for modernization.

7. Risks to the ESCO legal institution – Despite legislative efforts to simplify ESCO and investment projects, clear and predictable financial models that account for tariff regulation are still lacking.

8. Absence of integrated policy linking energy development and climate targets – Despite the NECP and decarbonization objectives, district heating remains disconnected from climate policy frameworks and EU Green Deal mechanisms.

A consolidated legal and regulatory matrix for the Ukrainian district heating (DH) sector can be presented as follows:

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
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

Gap Description	De Facto Situation	Possible Legislative Amendments
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 MinRegion, NEURC, SAEE, and local authorities	Sectoral policies exist, but are not integrated into a unified reform strategy

III. Market Conditions and Institutional Structure of the DH Sector in Ukraine

Market Structure and Competition.

Ukraine's district heating (DH) market is historically monopolized: in most cities, a single dominant provider operates—typically a municipal district heating utility or a combined heat and power plant (CHP). According to the Ministry for Restoration, there are currently around 240–250 heat supply enterprises, serving over 70% of the urban population.

Each municipality generally operates a single DH system, which eliminates internal market competition—consumers cannot choose an alternative provider unless they fully disconnect and switch to individual heating. While such monopolistic structures exist in many countries, in Ukraine, this lack of competition leads to inefficiencies and deters investment. District heating utilities remain natural monopolies, and attempts by new market entrants—such as those wishing to build independent biomass boilers—often face technical and administrative barriers. Experts consider the DH sector to be one of the least reformed areas in Ukraine's energy system.

However, from 2019 to 2023, initial steps were taken to enable competition "for the market", particularly through mechanisms for competitive access to heat networks. Independent heat producers (IHPs), especially those based on renewable energy sources (RES), are to be granted access to feed into DH networks under competitive terms. European legislation, as reflected in RED II, establishes "green corridors" for connecting RES to DH networks, particularly where existing systems do not meet efficiency criteria.

Ukraine has made initial progress in this direction through amendments to the Law on Heat Supply, which introduced requirements for publishing connection conditions and developing geographic information system (GIS) maps of heat networks. This enhances transparency and reduces information barriers for potential investors. Additional provisions allow municipalities to purchase heat from independent cogeneration facilities at preferential tariffs, incentivizing their development.

Despite these developments, real competition is still emerging only through isolated pilot projects. In cities such as Zhytomyr and Kamianets-Podilskyi, private investors—with donor support—have begun constructing biomass boilers to supply heat to municipal networks. However, the scale remains very limited.

Individual heating systems also pose competitive pressure. When centralized heat becomes less cost-effective or less reliable, consumers opt to disconnect and install individual boilers. Given the same gas pricing for households, DH systems often have higher end-user tariffs due to transmission losses and overheads. Without fuel diversification or improved efficiency, centralized systems risk losing solvent consumers, further exacerbating financial strain.

As a result, market competition remains weak: the national landscape is oligopolistic, divided among several dozen regional DH providers, while local markets remain monopolized. Continued reforms are essential to foster a more open, transparent, and investment-friendly DH sector.

Tariff Regulation.

Tariffs for thermal energy and centralized heating services in Ukraine are state-regulated, by local governments, using the "cost-plus" methodology—tariffs are meant to cover the economically justified costs of production, transmission, and supply, plus a regulated profit margin.

In practice, however, tariffs are often a compromise between cost recovery and consumer affordability. Years of politically motivated tariff suppression have led to chronic financial distress in the sector: many DH companies accumulated significant debts to Naftogaz of Ukraine for natural gas. The shortfall between actual costs and approved tariffs has been subsidized by local budgets. By 2020, total DH utility debt for gas exceeded UAH 50 billion, underscoring the sector's liquidity crisis.

Local governments often subsidize DH services at the expense of other municipal priorities. NEURC regulates tariffs for approximately 26 of the largest licensed DH producers (primarily CHPs and large municipal heat utilities in regional capitals). For most other companies—mainly municipal enterprises—tariffs are set by city executive committees using state-approved methodologies.

This dual approach leads to disparities: in some cities, tariffs fully cover costs, while in others they are artificially suppressed for political reasons.

Since 2022, the government has imposed a moratorium on tariff increases for households during martial law, with state budget compensation provided to gas suppliers. While this helps alleviate social tension, it entrenches the loss-making status of DH providers. Although investment programs are formally approved by the regulator, they remain negligible in size due to lack of funding.

In early 2025, NEURC adopted new rules for investment program development, aiming to improve transparency and ensure targeted use of modernization funds. However, without a transition to cost-reflective tariffs paired with targeted subsidies for vulnerable consumers, attracting substantial investment will remain challenging.

Overall, the tariff model requires reform. A shift is needed toward incentive-based regulation, which promotes loss reduction and the adoption of modern technologies, and toward gradual market liberalization, introducing competition wherever feasible.

Key Challenges and Risks

Despite gradual improvements, Ukraine's district heating (DH) sector continues to face a number of systemic challenges and risks that hinder its development:

Monopolization and Weak Competition

As previously noted, the DH market remains highly monopolized—consumers have no choice of alternative heat suppliers, which undermines incentives for efficiency. The absence of competition leads to technological stagnation and low levels of innovation among utilities. Monopoly status also creates the potential for abuse, where inefficient expenditures may be passed on to consumers through tariffs, leaving them with no recourse or alternatives.

The key challenge is to introduce market-based elements without compromising reliability. This includes:

- Facilitating access for independent heat producers (market competition),
- Promoting competition from individual heating systems, and
- Implementing benchmarking tools to compare performance across DH utilities.

Financial Instability and Investment Deficit

Most DH companies are financially weak. Revenue from tariffs often fails to cover costs for fuel, electricity, and wages, let alone capital investments. Infrastructure—boilers, pipelines—is heavily worn, with depreciation levels of 60–70%, and heat losses exceeding 20% in some networks.

Substantial capital investment is needed to replace critical assets. However, a lack of internal funds, coupled with a tariff policy that fails to guarantee investment return, deters private investors. Municipal and state budgets are also constrained. As a result, investment volumes are far below the sector's actual needs, jeopardizing the future reliability of DH services.

Without modernization, equipment failure and maintenance costs will rise, further worsening the debt burden. The challenge is to establish financing mechanisms for modernization—through concessional loans from IFIs, public-private partnerships, and dedicated energy efficiency funds for DH utilities.

Fuel Mix: Dependence on Natural Gas and the Need for RES Development

Currently, approximately 90% of thermal energy in Ukraine's DH sector is produced from natural gas. This one-sided dependence presents several risks:

- Energy security risks (import reliance, price volatility),
- Environmental risks (CO_2 emissions), and
- Technical risks (gas infrastructure may be damaged during wartime).

The shift toward renewable and alternative heat sources has been slow. Biomass's share in the DH fuel mix has increased from ~2% to ~8% over the last decade—insufficient to ensure resilience.

The challenge is to scale up the use of local fuels (wood chips, agro-residues, pellets), utilize municipal solid waste through waste-to-energy facilities, and deploy high-efficiency electric heat pumps, especially in areas with surplus electricity or geothermal potential.

Although these projects require significant capital outlays, they are crucial for the sector's survival. Without fuel diversification, DH will remain uncompetitive and vulnerable. Experts warn that continuing to rely on gas—under equal pricing conditions with individual gas boilers—will cause large DH systems to collapse. Therefore, the integration of RES and cogeneration is a strategic necessity, not a policy option.

Lack of Incentives for Efficiency (Non-Price Criteria)

The traditional "cost-plus" regulatory system does not fully account for quality of service, reliability, or environmental impact. Tariffs do not incentivize fuel savings or loss reduction, as all costs are simply embedded into the rate base.

There are no performance metrics in management contracts of DH utility directors, and oversight of service quality (e.g., indoor temperature compliance) is weak.

Non-price criteria must be integrated into regulatory policy, including:

- Introduction of quality indicators,
- Public efficiency ratings for DH providers, and
- State financing conditions that prioritize environmental performance.

Currently, such mechanisms are largely absent. Furthermore, procurement of equipment or fuel is often based on lowest price rather than long-term value, with cheaper but inefficient boilers chosen over more expensive, efficient alternatives. This hampers modernization.

The sector must shift to a "value over price" approach—considering lifecycle cost, environmental impact, and system resilience in investment decisions.

Wartime Risks and Technological Safety

The full-scale war has exposed the vulnerability of centralized heating infrastructure to targeted attacks. Large CHPs, boilers, and heat networks have been damaged or destroyed, disrupting heating for entire cities. In 2022–23, missile strikes disabled facilities in Kyiv, Kharkiv, and Chernihiv, leading to prolonged service interruptions.

The sector's technological dependence on centralized nodes (e.g., heat sources, electric pumping stations) means that if one node is disabled, there is no backup. Some boilers still operate on Soviet-era equipment for which spare parts are no longer available—further increasing technogenic dependence.

The risk of emergencies (fires, system failures) rises with aging infrastructure.

Thus, the sector must prioritize resilience enhancement, including:

- Redundancy for critical elements (backup boilers, generators),
- Emergency stockpiling of spare parts,
- Decentralization of heat production across cities.

Some municipalities are already planning the deployment of mobile modular boilers that can be rapidly installed if a main CHP is destroyed. Physical protection of infrastructure (e.g., boiler shelters, pipe insulation) is also increasingly critical.

Reducing technological and wartime risks is a new and urgent challenge for the DH sector—one that is specific to Ukraine's wartime and post-war reconstruction context.

Institutional Structure. The development and regulation of district heating (DH) in Ukraine is coordinated by several key institutions, each playing distinct roles in policymaking, regulation, and implementation:

1. Ministry for Communities, Territories and Infrastructure Development of Ukraine (formerly MinRegion)

This ministry is the principal executive body responsible for formulating and implementing national policy in the housing and utilities sector, including heat supply.

Its functions include:

Developing strategic documents, legislation, and state programs for infrastructure modernization;

Supervising implementation at the local level;

Acting as the key political counterpart for international technical assistance projects (e.g., the ReWarm initiative is implemented in close cooperation with the ministry).

2. National Energy and Utilities Regulatory Commission (NEURC)

NEURC is an independent regulatory authority that:

Licenses the production of thermal energy for combined heat and electricity production;

Sets tariffs for licensed companies;

Approves standard tariff-setting methodologies for other providers;

Monitors service quality across the sector.

Strengthening NEURC's institutional capacity is a formal requirement of the Energy Community Treaty to ensure transparent and depoliticized regulation.

3. State Agency on Energy Efficiency and Energy Saving of Ukraine (SAEE)

SAEE is the central government agency tasked with implementing national policy on energy efficiency.

In the context of DH, SAEE:

Initiates legislative reforms (e.g., the Law on Cogeneration);

Implements support programs for renewable heat sources (e.g., the former "Warm Loans" program for biomass boilers);

Conducts public information campaigns on energy efficiency;

Acts as a leading institution in the implementation of EU directives such as the EED and EPBD.

4. Local Governments (Municipalities)

Municipal authorities own most DH enterprises and are directly responsible for ensuring heating services in their jurisdictions.

They are empowered to:

Set tariffs for non-licensed providers (not regulated by NEURC);

Allocate local budget funds for maintenance and repairs;

Provide financial support to DH enterprises (e.g., debt coverage, loan guarantees).

Local governments are also expected to develop local heat supply schemes, but in practice, many of these are outdated or not utilized effectively for decision-making.

Only a limited number of municipalities have begun developing heat decentralization plans or transitioning to alternative fuels, largely due to the absence of a national strategy and constrained resources.

5. International Partners and Technical Assistance Projects

International stakeholders play a critical role in modernizing and reforming Ukraine's DH sector. Key initiatives include:

ReWarm Initiative (2023-2027)

Funded by the German Ministry for Economic Affairs and Climate Action (BMWK) and implemented by GIZ, this project supports post-war reconstruction and DH reform.

European Investment Bank (EIB)

In 2023, the EIB approved the "District Heating of Ukraine" project in cooperation with Ukreximbank, offering вВђ100 million in loans for DH modernization and building energy efficiency.

This builds on earlier programs such as UDHEEP and the Eastern Europe Energy Efficiency and Environment Partnership (E5P).

European Bank for Reconstruction and Development (EBRD)

Has provided investment and technical support to major DH systems (Kyiv, Dnipro, Lviv), including financing for new boilers, individual heat substations (IHS), and network upgrades.

The EBRD also supports project preparation through E5P.

UDEPP (Ukraine Denmark Energy Partnership Program)

A bilateral program with Denmark, under which Danish experts (from the Danish Energy Agency) provided technical recommendations for reforming Ukraine's DH sector.

A detailed roadmap for DH development was developed, emphasizing the need for a national strategy, better investment conditions, transparent network access, and consumer protection.

Danish experience-in centralized planning, DH zoning, and a high biomass share-offers valuable insights for Ukraine.

Other international partners such as the World Bank (funding IHS and boiler modernization projects in multiple cities) and NEFCO (supporting biomass boiler conversion projects) continue to contribute significantly.

These initiatives demonstrate that Ukraine's DH institutional ecosystem is increasingly shaped by collaboration between domestic authorities and international financial and technical partners. Without such cooperation, the sector's modernization would be nearly impossible, given the lack of internal financial capacity in most DH companies.

However, donor projects require Ukraine to implement structural reforms-that is, to create the legal and institutional frameworks necessary to ensure the long-term impact of investments.

Thus, the conducted analysis enables the development of a structured risk matrix reflecting the key challenges currently facing Ukraine’s district heating 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	No motivation to reduce losses or improve service quality.	Integrate quality indicators, establish public DH utility ratings, and include green

Risk Category	Risk Description	Consequences	Potential Mitigation Measures
	efficiency; no non-price performance criteria.		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 robust heating systems.	Service interruptions during winter, heightened social tensions.	Emergency planning, building insulation, and demand-side reduction through energy efficiency measures.

Conclusions and Recommendations

Ukraine's district heating (DH) market is undergoing a slow transition from an outdated model to a more energy-efficient, consumer-oriented system. Over the past decade, important foundations for reform have been laid:

- Key laws aligned with EU directives (on energy efficiency, building energy performance, commercial metering, etc.) have been adopted;
- New mechanisms such as energy audits and building certification have been introduced;
- Numerous demonstration projects for network modernization have been implemented with the support of international partners.

Early results are already visible: gas consumption has decreased in some cities due to biomass conversion, hundreds of individual heat substations (IHS) have been installed (reducing heat consumption), and consumer awareness of energy efficiency has improved.

During the winter of 2022/23—amid the war—the sector withstood critical challenges by deploying emergency measures (mobile boilers, generators), proving its resilience and strategic importance.

However, most structural issues remain unaddressed. Key barriers to the development of Ukraine's district heating sector include:

- **Persistent financial deficits** in municipal utilities, which severely restrict investment in modernization and infrastructure upgrades;
- **Heavy reliance on imported natural gas**, exposing the sector to volatile prices and geopolitical shocks;
- **Institutional inertia at local levels**, with limited capacity and political will to adopt innovative approaches or reforms;
- **Technological obsolescence** and high infrastructure wear, resulting in frequent failures and inefficient energy delivery;
- **Insufficient consumer protection and service quality**, with delivery standards still well below European benchmarks."

The war has revealed an additional vulnerability: the insufficient resilience of centralized systems to physical destruction and energy supply interruptions. Therefore, while a solid regulatory framework has been established, real changes are progressing slowly, and substantial work lies ahead to implement reforms on the ground.

Recommended Actions for Accelerating Reforms in the DH Sector

1. Full and Effective Implementation of EU Directives.

To ensure practical enforcement of existing legislation, Ukraine needs to take immediate steps:

- **Rapid development and adoption of implementing regulations** under the Law on Energy Efficiency (e.g., methodologies for energy audits, public-sector energy management systems) and the Law on High-Efficiency Cogeneration (also aligned with EU Directive 2012/27/EU).
- **Establish an energy efficiency monitoring system** within SAEE to track national targets, including annual public reporting and certificate tracking.
- **Strengthen enforcement of the Energy Performance of Buildings Directive**, mandating certification during construction or renovation and incentivizing municipal residential building modernization.

Additionally, Ukraine should integrate the latest EU frameworks—particularly **RED III (2023)**—by setting binding targets for increasing the share of renewables in heating, and establishing support mechanisms (e.g. green tariffs, RES auctions) for biomass, biogas, and heat pump systems. Alignment with these standards will bring Ukraine closer to the EU framework and unlock critical funding from European institutions

2. Reform of Tariff Setting and the Market.

Proposed Recommendations

A gradual shift from administratively-suppressed tariffs toward **cost-reflective pricing** is essential. Key recommendations:

- **Adopt incentive-based regulation for district heating**, modeled on RAB-style mechanisms or other performance-based regulation. Investor returns should be tied to demonstrable improvements in efficiency and service quality
- **Expand targeted subsidy schemes** to protect vulnerable households during tariff reforms—this approach is less market-distorting than across-the-board low tariffs.
- **Phase out the tariff freeze** promptly after system stabilization. Accompany increases with enhanced targeted support, enabling market alignment while cushioning social impacts

Legislative Agenda

A dedicated **Law on the Heat Energy Market** should be drafted and enacted to enshrine clear legal frameworks, including:

- **Market competition rules**, such as competitive selection of alternative heat suppliers and transparent tendering processes.
- **Consumer rights protection**, including rights to switch providers or lodge complaints and gracefully disconnect if needed.
- **Non-discriminatory access principles**, ensuring equal network access for new and incumbent heat producers.

This will create a legal basis for private sector participation (e.g., concession models).

The Antimonopoly Committee must also play a more active role in monitoring monopoly abuse, especially blocking new entrants or inflating costs. Tariff and market reforms should be implemented in parallel to ensure both financial stability and protection against monopoly dominance.

3. Investment Incentives and RES Integration.

Closing the investment gap will require a multi-pronged strategy:

- **District Heating Modernization Fund**: Create a dedicated fund (possibly under the Energy Efficiency Fund or as a stand-alone structure) to mobilize international donor grants, EIB/EBRD loans, and CO_2 tax revenues. Priority should be given to projects that reduce heat network losses, support RES adoption, and install industrial heat scavenging systems with high gas- and emissions-saving potential.
- **Tax incentives and green tariffs**: Offer temporary VAT or profit tax exemptions for RES-based heating systems (e.g., biomass boilers, heat pumps), and consider tariff premiums or import duty reductions on bioenergy and cogeneration equipment to enhance project viability.
- **Investment guarantees and risk insurance**: In cooperation with International Financial Institutions, introduce project-level guarantees or credit risk insurance for municipalities with low creditworthiness, and compensation mechanisms for wartime asset damage.
- **Biomass market development**: Support the creation of local biomass supply chains, agricultural waste valorization, and a transparent trading platform. Projections suggest biomass could replace more than 2.6 billion m^3 of natural gas annually in Ukrainian heating systems.

4. Improvement of Regulatory and Governance Framework

Institutional reforms are needed at both local and national levels:

- **Municipal energy and DH planning**: Require municipalities to prepare and approve local energy and district heating plans—including expert and community input—with mandatory updates every five years. MinRegion and SAEE should provide methodological support and oversee compliance.

- **Performance-based utility contracts**: Introduce KPIs (such as network loss reduction, fuel savings, service quality improvements) in DH utility contracts, with clear accountability and managerial incentives.
- **National coordination task force**: Form a permanent reform coordination body—including MinDev, Minenergy, NKREKP, SAEE, donors, «teplokomunenergo»—to monitor implementation, resolve regulatory or funding bottlenecks, and align stakeholder objectives.

5. Resilience and Security Measures

Given ongoing conflict, improving system resilience is essential:

- **Backup heating configurations**: Deploy modular district boilers capable of taking over during main facility failures; prioritize emergency electrical generators for large boiler sites (already supported in 2022–23).
- **Emergency preparedness protocols**: Develop rapid-repair teams, pipeline material stockpiles, and remote leak detection systems.
- **Post-conflict infrastructure audits**: Conduct comprehensive resilience and safety reviews of DH infrastructure and integrate robust reconstruction design features—such as fortified or buried boiler houses—to ensure future operational security.

These resilience-focused measures are vital for sustainable operations in wartime and post-war contexts and go beyond market mechanisms to support long-term reliability and recovery.