PUBLIC ADMINISTRATION

DOI: https://doi.org/10.64076/ap261109.15

Boris Karpinskyi
Ivan Franko National University of Lviv, Lviv, Ukraine
ORCID iD: 0000-0001-5996-7724

THE ENERGY COMPONENT IN THE REALIZATION OF UKRAINE'S NATION-BUILDING POTENTIAL: FROM DEPENDENCE TO SUSTAINABILITY

Abstract. This study examines the energy component as a cross-cutting moderating factor in the realization of a state's nation-building potential, using three periods of Ukrainian statehood as examples: 1917–1921 (unrealized potential), 1991–2013 (structural vulnerability), and 2022–2026 (building resilience through decentralization). For the first time, a system of indicators for the quantitative assessment of the energy component (energy independence, decentralization of generation, speed of recovery from attacks, international support) is proposed, and the coefficients of its moderating influence are determined.
Keywords: energy component, nation-building potential, energy independence, decentralization of generation, energy resilience.

Борис Карпінський
Львівський національний університет імені Івана Франка, Львів, Україна
ORCID iD: 0000-0001-5996-7724

ЕНЕРГЕТИЧНА СКЛАДОВА У РЕАЛІЗАЦІЇ НАЦІЄТВОРЧОГО ПОТЕНЦІАЛУ УКРАЇНИ: ВІД ЗАЛЕЖНОСТІ ДО СТІЙКОСТІ

Анотація. Досліджено енергетичну складову як наскрізний модераційний чинник реалізації націєтворчого потенціалу держави на прикладі трьох періодів української державності: 1917–1921 рр. (нереалізований потенціал), 1991–2013 рр. (структурна вразливість) та 2022–2026 рр. (формування стійкості через децентралізацію). Вперше запропоновано систему показників кількісної оцінки енергетичної складової (енергонезалежність, децентралізація генерації, швидкість відновлення після атак, міжнародна підтримка) та визначено коефіцієнти її модераційного впливу.
Ключові слова: енергетична складова, націєтворчий потенціал, енергонезалежність, децентралізація генерації, енергетична стійкість.

Within the structure of a state's nation-building potential, the energy component occupies a special place that cannot be reduced to a purely economic or infrastructural dimension. Energy is a material prerequisite for the functioning of all other

components: without a stable electricity supply, neither the educational process nor cultural broadcasting, nor institutional capacity for civic mobilization, is possible. At the same time, as the Ukrainian experience shows, the energy sector also serves as a symbolic resource; that is, the ability to keep the lights on during wartime effectively becomes an act of national agency.

In the five-component model of nation-building potential (ethnolinguistic, institutional, identity-based, mobilization-based, and spiritual), the energy component was not identified as a separate component [1]. However, an analysis of specific periods in Ukrainian statehood demonstrates that energy does indeed perform a cross-cutting integrative function, permeating each of these five components. Its role should be viewed as a modernization factor analogous to the spiritual meta-component: it is not simply added to the other components but determines the possibility of their realization. Mathematically, this can be expressed as:

$$I_{NTP} = \left(\sum W_j \cdot I_j\right) \cdot (1 + \alpha \cdot I_s \cdot M_S) \cdot (1 + \beta I_{En} \cdot M_{En}), \quad (1)$$

where I_{NTP} is the nation-building potential index, I_{En} is the energy component index, M_{En} is the coefficient of its moderating influence, and β is the strength of this influence. Unlike the spiritual component, which reinforces the meaningful motivation for nation-building, the energy component reinforces functional capacity: without electricity, there are no schools, no media, no public gatherings, and no communications.

Let us consider three periods in Ukraine's history as a nation-state during which the energy factor played a decisive role in nation-building processes:

– the period of the liberation struggle, 1917–1921;

– the period of independence, 1991–2013;

– the period of full-scale war from 2022 to 2026.

1. The period of the liberation struggle (1917–1921): energy as a resource of sovereignty. During this period, the energy issue arose primarily as a problem of energy independence from external centers. Although Ukraine possessed significant coal reserves (the Donbas) and hydropower potential (the Dnieper River), its industry was controlled by foreign capital, and its energy infrastructure had been destroyed by World War I and the civil war.

The governments of the Ukrainian People's Republic and the Hetmanate recognized that political independence without energy independence is unsustainable. At the same time, attempts to establish their own energy balance were hampered by a lack of specialists, funding, and foreign intervention. The energy component of nation-building potential remained unrealized during this period: the state had not yet managed to create institutional mechanisms for energy management, and society had not yet developed a culture of energy consumption as a form of civic responsibility.

This period illustrates an important lesson: nation-building potential cannot be realized without a material energy base. In practice, political declarations of independence proved insufficient to overcome energy dependence and build a sustainable state.

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2. The Period of Independence (1991–2013): Energy as a Tool of Hybrid Influence. After regaining independence, Ukraine inherited a powerful but energy-intensive and centralized energy system. The Soviet model, in fact, involved concentrating power generation at large plants and a single grid controlled from Moscow. Throughout the 1990s and 2000s, the energy sector remained one of the main channels of external political influence.

Gas negotiations, tariff wars, and intermediary schemes (in particular, the notorious intermediaries in the gas sector) have turned energy into a tool for political pressure. As researchers note, energy dependence created a structural vulnerability in the very process of nation-building: the state could not fully implement its institutional framework, since basic economic and political decisions depended on external energy suppliers.

However, positive developments were also taking place during this same period. The development of nuclear energy (which later became the foundation of the energy balance) and gradual integration into European energy structures laid the groundwork for future stability. The energy component of the nation-building potential was in a state of dynamic equilibrium: external threats were offset by internal institutional development, although this balance was fragile.

3. The Period of Full-Scale War (2022–2026): Energy as a Battlefield and a Resource for Resilience. The current period is the most revealing for understanding the role of the energy sector in nation-building. Russian aggression has turned energy infrastructure into a primary target alongside military facilities. In particular, according to data from the European Institute for Security Studies, as of 2024, Ukraine had lost 80% of its thermal power generation capacity, and the transmission capacity of its power grids had plummeted from 56 GW to 9 GW. Over 60% of energy facilities were put out of commission.

This destruction had a direct nation-building dimension, affecting citizens' livelihoods through severe restrictions on access to electricity and heat in their homes. In fact, these are not merely everyday hardships – they are a test of national agency: a society's ability to remain functional under conditions of energy terror becomes a measure of its resilience.

Ukraine's response to this challenge nevertheless demonstrates a qualitative transformation of the energy component of its nation-building potential:

First, decentralization as a strategy for resilience. Researchers emphasize that the war has convincingly demonstrated that the concentration of energy assets leads to the concentration of risks. Based on this, Ukraine is building a new energy system based on the principle of "energy honeycombs" – distributed generation at the community and business levels. This is not only a technical solution but also a nation-building one: it transfers responsibility for energy supply to the local level, strengthening civic agency. Indeed, while more than half of Ukraine's centralized generating capacity was damaged or destroyed, losses in distributed generation amounted to only 7% [2].

Second, renewable energy as a factor in national security. In fact, renewable energy is not merely a matter of climate policy or long-term development; it is a matter of resilience, reliability, and national security. Since 2022, nearly 1.3 GW of new renewable energy capacity has been commissioned. Solar panels on the roofs of hospitals, schools, and public buildings are becoming a tangible embodiment of national resilience.

Third, energy diplomacy as a component of nation-building. Ukraine positions itself as a future regional energy hub at the crossroads of European corridors. This transforms the energy sector from a passive target of external influence into an active instrument of geopolitical agency.

Fourth, the symbolic dimension of energy resilience. Working amid turmoil, restoring destroyed equipment, and joint efforts to repair power grids – all of this takes on ritual significance, becoming a symbol of indomitability. The energy dimension merges with the spiritual, meaning that the ability to keep the lights on becomes an act of faith in victory.

Fifth, international solidarity as a resource. The Ukraine Energy Support Fund has raised over 1.15 billion euros from 33 donor countries; the Emergency Energy Assistance Hub has received 1,870 shipments from 38 countries. This demonstrates that Ukraine's energy resilience is recognized as a shared European value, which strengthens the international legitimacy of Ukrainian nation-building.

4. The Energy Component in the Structure of Nation-Building Potential: A Synthesis

Based on an analysis of the three periods, a conceptual framework can be formulated regarding the role of the energy component in the model of nation-building potential; specifically, the energy component is not on par with the other five components mentioned [1–3]. It serves a dual function:

1. Material and infrastructural: it ensures the physical capacity for the functioning of education, culture, institutions, the media, and civic communications.

2. Symbolic and mobilizing: the ability to maintain energy supply in the face of terror serves as proof of national resilience and unites society around a common goal.

In this sense, the energy component functions similarly to the spiritual meta-component – that is, it does not simply add to the other components but moderates and

amplifies their effects. In today's world, neither language policy (media, education), nor institutional trust (the functioning of government bodies), nor identity formation (cultural events), nor mobilization (volunteering, communication) is possible without energy. At the same time, the very fact of overcoming energy challenges becomes a source of national pride and a confirmation of agency.

It is worth emphasizing that distributed generation in a wartime system is significantly more resilient to attacks, since distributed assets are, by their very nature, harder to target and easier to restore in the event of damage. In practice, this means that indicators of the energy component should reflect not only the "amount of energy" but also the architecture of the power system – the degree of its decentralization and its capacity for rapid recovery.

In fact, the system under consideration encompasses four groups of indicators (energy independence, decentralization of power generation, speed of recovery from attacks, and level of international support), each of which reflects a distinct dimension of the energy component as a moderator of nation-building potential.

Specifically, with regard to energy independence, this indicator measures the ability of the state and its regions to meet energy needs without critical dependence on external suppliers or hostile infrastructure nodes. In the context of nation-building, energy independence is the material equivalent of political sovereignty. Indicators of energy dependence:

– the share of domestic sources in the energy balance (generation from national resources);

– the level of diversification of energy suppliers (Herfindahl-Hirschman Index by supplier country);

– the share of energy supplied via infrastructure controlled by or accessible to hostile actors;

– the existence and volume of strategic reserves (fuel, equipment).

At the regional level, it is advisable to use the energy autonomy coefficient – the share of demand that a local community can meet without a centralized supply. This indicator directly links the energy sector to the nation-building agency of communities.

In fact, the historical dynamics of the energy sector demonstrate a transition from dependence (1917–1921: unrealized potential; 1991–2013: structural vulnerability) to resilience (2022–2026: decentralization, renewable energy, international support). This transition reflects the general logic of the development of Ukraine's nation-building potential: from declarative independence to materially secured agency.

Incorporating the energy component into the model of nation-building potential helps explain a number of empirical anomalies. In particular, it explains why regions with a high level of national consciousness (the identification component) may

demonstrate lower resilience in crisis conditions if their energy infrastructure is centralized and vulnerable. Conversely, why are decentralized communities with a moderate level of the identification index able to maintain the functioning of schools, hospitals, and volunteer centers even during power outages?

The moderating effect of the energy component is asymmetrical: a low level of energy sustainability can significantly weaken nation-building potential even when other components are strong, whereas a high level does not guarantee an automatic increase in potential but creates the conditions for its realization. This distinguishes the energy component from the spiritual component, which acts more as a motivator, whereas the energy component acts as a enabling condition.

Conclusions. The energy component is a cross-cutting factor in the realization of nation-building potential, providing the material basis for the functioning of all other components while simultaneously fulfilling a symbolic and mobilizing function. This component should be considered an independent modernization factor in models of nation-building potential, alongside the spiritual component, but with a different mechanism of action, since spirituality reinforces meaningful motivation, while energy ensures functional capacity.

Ukraine's historical experience demonstrates three distinct models of the interplay between the energy sector and nation-building: unrealized potential (1917–1921), structural vulnerability (1991–2013), and the development of resilience through decentralization (2022–2026).

Ukraine's current model of energy resilience – decentralization, renewable energy, and international cooperation – is not only a technical solution but also a nation-building project that strengthens civic agency and European integration. The proposed system of indicators encompasses four groups: energy independence (sovereignty), decentralization of generation (structural resilience), speed of recovery (dynamic capacity), and international support (external legitimization). Statistical data from Ukraine's wartime experience confirm that decentralization and distributed generation are not only technical solutions but also factors of national resilience that directly influence society's ability to maintain functionality and trust in institutions.

REFERENCES

1. Karpinskyi, B. A. (2026). The Nation-Building Potential of the State: Assessment Tools. *Scientific Perspectives.* No. 4(70). 316–341. DOI: https://doi.org/10.52058/2708-7530-2026-4(70)-316-341.

2. Karpinskyi, B. A., Prokhorenko, S. V. & Prokhorenko, M. V. (2026). Decentralized Protection of Ukraine's Energy System / *Modern Aspects of Science: LXXI.* Volume of an International Collective Monograph / International Economic Institute s.r.o.. Czech Republic: International Economic Institute s.r.o. 23–52. DOI: https://doi.org/10.52058/71-2026.

3. Karpinskyi, B. A. & Karpinska, O. B. (2023). Motivational Foundations for the Formation and Strengthening of Nation-Building Patriotism Based on the Strategic Theory of State Development. *Problems of Economics.* No. 1. 138–150. DOI: https://doi.org/10.32983/2222-0712-2023-1-138-150.