GREEN SCORING FOR ENERGY-EFFICIENCY PROJECT FINANCING IN UZBEKISTAN

Oripov Ilkhom Abdullaevich
PhD Applicant in Economics
Tashkent Branch of Plekhanov Russian University of Economics
Tashkent, Republic of Uzbekistan
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Annotatsiya. Maqolada O‘zbekistonda energiya samaradorligi va qayta tiklanuvchi energetika loyihalarini banklar tomonidan moliyalashtirish uchun yashil skoring metodikasi taklif etiladi. Metodika moliyaviy, energetik, ekologik, institutsional hamda ijtimoiy-hududiy ko‘rsatkichlarni yagona integral bahoga birlashtiradi. Loyihalarni 80–100, 65–79, 50–64 va 50 balldan past toifalarga ajratish kredit shartlari, kafolatlar va davlat ko‘magini erishilgan natija bilan bog‘lash imkonini beradi. Taklif etilgan yondashuv tijorat banklari kredit tavakkalchiligini kamaytirish, xususiy kapitalni jalb etish va energiya tejamkorligining o‘lchanadigan natijalarini ta’minlashga qaratilgan.
Kalit so‘zlar: yashil moliya, yashil skoring, energiya samaradorligi, qayta tiklanuvchi energetika, bank krediti, aralash moliyalashtirish, energiya auditi.
Аннотация. В статье предложена методика зелёного скоринга для банковского финансирования проектов энергоэффективности и возобновляемой энергетики в Узбекистане. Методика объединяет финансовые, энергетические, экологические, институциональные и социально-региональные показатели в единую интегральную оценку. Классификация проектов по диапазонам 80–100, 65–79, 50–64 и ниже 50 баллов позволяет увязать условия кредита, гарантии и государственную поддержку с подтверждённым результатом. Предлагаемый подход направлен на снижение кредитных рисков коммерческих банков, расширение участия частного капитала и обеспечение измеримого энергосберегающего эффекта.
Ключевые слова: зелёное финансирование, зелёный скоринг, энергоэффективность, возобновляемая энергетика, банковский кредит, смешанное финансирование, энергоаудит.
Abstract. The paper proposes a green scoring methodology for bank financing of energy-efficiency and renewable energy projects in Uzbekistan. The methodology combines financial, energy, environmental, institutional, and socio-regional indicators into a single composite assessment. Classification into the 80–100, 65–79, 50–64, and below-50 score ranges makes it possible to link loan terms, guarantees, and public support to verified project outcomes. The proposed approach is intended to reduce commercial-bank credit risks, mobilise private capital, and ensure measurable energy-saving results.
Keywords: green finance, green scoring, energy efficiency, renewable energy, bank lending, blended finance, energy audit.

Introduction

The transition to a green economy is increasingly determined not only by the availability of renewable energy technologies, but also by the capacity of financial institutions to identify, structure, and monitor projects that generate verifiable economic and environmental effects. Global energy investment was expected to reach approximately USD 3.3 trillion in 2025, with more than USD 2.2 trillion directed to clean-energy technologies, grids, storage, and energy efficiency [International Energy Agency, 2025]. At the same time, the financing gap remains substantial, especially in emerging economies where the cost of capital, currency risk, insufficient project preparation, and weak risk-sharing mechanisms limit private investment [Polzin, 2017: P. 529].

For Uzbekistan, the financing problem has a strategic character. Presidential Resolution No. PP-436 establishes targets to increase renewable-energy capacity to 15.0 GW by 2030, raise the share of renewable sources in electricity generation to more than 30.0%, improve industrial energy efficiency by at least 20.0%, and reduce the energy intensity of gross domestic product by 30.0% [President of the Republic of Uzbekistan, 2022]. Achieving these targets requires a shift from fragmented project support to a financial

architecture that combines bank lending, private investment, international financial resources, public guarantees, subsidies, leasing, energy-service contracts, and project monitoring.

The central research problem is that conventional bank credit analysis primarily assesses the borrower’s cash flow, credit history, debt burden, and collateral. These criteria remain necessary, but they are insufficient for green projects. An energy-efficiency project may repay a loan through lower electricity, natural-gas, heating, and operating costs rather than through additional sales revenue. A renewable-energy project also produces measurable public effects through lower fossil-fuel use, reduced emissions, and a more resilient energy balance. Therefore, the bank must assess both the borrower and the project’s capacity to generate an energy-related cash flow, meaning the monetary savings created by reduced resource consumption.

Research Methodology and Analytical Basis

The research applies systemic and comparative analysis, statistical generalisation, modelling, expert assessment, and investment-project evaluation. The proposed methodology is based on the principle that a green investment project differs from a conventional project because it must simultaneously provide a financial return, energy savings or clean generation, emission reduction, technological modernisation, and a socio-regional effect. This multidimensional nature requires a composite bank assessment rather than a single profitability or collateral indicator.

The analytical results reveal a contradiction in Uzbekistan’s investment structure. Investment in fixed capital increased from UZS 124.2 trillion in 2018 to UZS 507.5 trillion in 2024 and UZS 591.1 trillion in 2025. Investment in electricity, gas, steam supply, and air conditioning reached UZS 78.3 trillion in 2025, equal to 13.3% of total fixed-capital investment. However, the share of foreign investment and loans rose from 24.3% in 2018 to 69.4% in 2024, while the share of commercial-bank credit and other borrowed funds fell from 17.8% to 2.0% and amounted to only 1.9% in 2025 [National Statistics Committee, 2025]. This indicates that domestic banks have not yet become a mass channel for financing green modernisation.

At the same time, green projects already produce measurable outcomes. In 2025, solar and wind power plants generated 10.5 billion kWh of electricity, 2.1 times the 2024 level. Renewable-energy development saved approximately 3.2 billion cubic metres of natural gas and reduced harmful emissions by 4.7 million tonnes. These results demonstrate that energy and environmental effects can be quantified and incorporated into credit decisions rather than treated as non-financial declarations. This is consistent with the international view that the structure of finance influences technological trajectories and the scale of renewable-energy deployment [Mazzucato and Semieniuk, 2018: P. 12].

Proposed Green Scoring Methodology

Green scoring is defined as a composite banking methodology for assessing whether an energy-efficiency or renewable-energy project is financially viable, technically substantiated, environmentally credible, institutionally prepared, and socially relevant. The proposed model assigns a weighted score to five blocks. The financial block has a weight of 30.0%; the energy block, 25.0%; and the environmental, institutional, and socio-regional blocks, 15.0% each.

$$GS = 0.30F + 0.25E + 0.15ENV + 0.15I + 0.15SR$$

In this formula, GS is the integral green score; F is the financial block; E is the energy block; ENV is the environmental block; I is the institutional block; and SR is the socio-regional block. Each block is assessed on a normalised scale from 0 to 100, after which the weighted total is calculated.

The financial block evaluates the borrower’s cash flow, debt burden, payback period, share of own funds, availability of co-financing, and capacity to service debt from both operating income and energy-related savings. The energy block measures expected electricity and natural-gas savings, reduced heat losses, lower energy intensity, renewable electricity generation, and the presence of metering equipment. The environmental block assesses emission reduction, compliance with a green taxonomy, the absence of significant negative effects, and the possibility of external verification.

The institutional block verifies whether the project has an energy audit, a documented baseline, technical and design documentation, necessary permits, equipment-supply contracts, technical expertise, and a monitoring mechanism. The socio-regional block measures reductions in household or public-sector expenditure, job creation, benefits for small business, territorial significance, the modernisation of schools

and hospitals, and lower pressure on local grids and budgets. Thus, the model prevents the classification of a project as green solely because of its title or technology.

The resulting score is connected directly to the financing decision. Projects scoring 80–100 points are classified as priority green projects and may receive preferential interest rates, partial guarantees, faster credit assessment, or access to international credit lines. Projects scoring 65–79 points may be financed under standard green conditions with regular monitoring. Projects scoring 50–64 points require technical revision, an additional energy audit, stronger co-financing, or additional collateral. Projects scoring below 50 points should not obtain green-finance status, even when they formally belong to the energy-efficiency or renewable-energy sector.

Implementation Mechanism

Practical application of green scoring should cover the entire project cycle. First, the applicant prepares a green project passport containing the project type, region, investment volume, financing sources, baseline energy consumption, expected savings, payback period, emission effect, and number of beneficiaries. Second, an energy audit confirms the baseline and determines the technical measures required. Third, the bank calculates the five scoring blocks and the integral score. Fourth, financing is structured by combining the borrower’s funds, bank credit, international resources, subsidies, guarantees, leasing, or an energy-service contract. Finally, post-project monitoring compares expected and actual energy savings.

This sequence converts green financing from the logic of “funds disbursed” to the logic of “verified effect achieved.” The transition is important for public buildings because energy savings must reduce current budget expenditure. It is equally important for banks because future savings can be recognised as a source of loan repayment. Presidential Decree No. UP-63 provides an institutional basis for energy audits, energy-service companies, specialised support funds, and bank financing of energy-service projects [President of the Republic of Uzbekistan, 2025].

The scoring system should also be linked to a differentiated guarantee mechanism. For small enterprises, farms, housing and communal-service projects, and households with strong green scores but insufficient collateral, a partial guarantee of 30.0–50.0% of the loan amount is economically justified. The guarantee must not replace credit analysis; it should compensate only the part of risk that arises from limited collateral or the innovative nature of the technology. Projects with weak scores should not receive a public guarantee because this would create moral hazard and shift responsibility from the borrower and bank to the state.

A practical foundation for specialised products already exists. Uzbekistan’s mortgage refinancing institution reported a UZS 50.0 billion green bond issue used to refinance green-renovation loans. By 2025, payments under the green-renovation product reached UZS 71.2 billion, while total financing under the green-repair product amounted to UZS 247.6 billion [Uzbekistan Mortgage Refinancing Company, 2025]. Integrating such products into a standardised scoring framework would make their eligibility criteria, risk pricing, and monitoring more transparent.

Policy and Banking Recommendations

For commercial banks, the green score should become part of the credit memorandum and the automated loan-decision process. Interest rates, loan maturity, collateral requirements, and guarantee coverage should be differentiated according to the score. A high score should not automatically mean a low financial risk; rather, it should provide additional evidence that the project creates stable savings, has verified technology, and can generate a predictable energy-related cash flow. Traditional creditworthiness analysis and green scoring should therefore operate jointly.

For public authorities, the methodology should support a unified national register of green projects. The register should classify projects by region, sector, beneficiary, investment volume, payback period, financing structure, expected energy savings, and actual results. Subsidies and guarantees should be conditional on initial verification and subsequent monitoring. A portion of public support may be retained or adjusted when the project fails to achieve the agreed savings, except where the deviation is caused by objectively verified external factors.

Regional differentiation is also necessary. Industrial regions require priority financing for efficient machinery, waste-heat recovery, gas-saving technologies, and production modernisation. Agricultural regions require efficient pumps, solar systems, small hydropower, and lower energy consumption in

irrigation. Urban areas require building renovation, heating-system modernisation, efficient lighting, and digital metering. Areas with high solar and wind potential require distributed generation, storage, and grid infrastructure. The socio-regional block allows these differences to be incorporated into financing decisions.

The methodology has broader market implications. Transparent project classification can support the development of green credit lines, green leasing, energy-service finance, green bonds, and blended-finance facilities. It can also improve investor confidence by reducing the risk of greenwashing, which means presenting a project as environmentally beneficial without sufficient evidence. Green bonds, in particular, require transparent project selection and reporting to maintain investor trust [Flammer, 2021: P. 506].

Conclusion

The development of green finance in Uzbekistan requires more than an increase in available funding. It requires a banking technology that connects creditworthiness, energy savings, environmental credibility, institutional preparedness, and regional development. The proposed green scoring methodology provides such a technology by combining five assessment blocks and linking the composite score to specific financing decisions.

The practical effect of the methodology is expected to arise through better project selection, lower information asymmetry, more targeted public guarantees, wider participation of domestic banks, and stronger mobilisation of private capital. Most importantly, it links financial resources to measurable results: electricity and gas savings, lower operating and budget expenditure, reduced emissions, modernised infrastructure, and improved regional welfare. This result-oriented approach can become an operational element of Uzbekistan’s transition to a sustainable green economy.

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