Article

Green Cost Accounting and ESG Reporting for Small Business in Uzbekistan: Evidence From 2023-2025 Policy and Energy Data

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Abstract: This article examines how Uzbekistan's recent green-economy reforms change the accounting tasks of small business entities. The selected topic is not limited to environmental policy; it is also a question of whether costs, certificates, energy savings, emission obligations and green loans can be recognized, documented and audited with sufficient reliability. The study uses a qualitative document-analysis method based on national legislation, official government information and green-economy reports published in 2023-2025. The results show a rapid strengthening of the institutional framework: green energy certificates, the national green taxonomy, climate-finance instruments and the 2025 law on greenhouse gas emission limitation together create a new accounting field. At the same time, the practical readiness of small enterprises remains uneven. The most vulnerable points are the absence of internal green-cost registers, weak evidence for energy-saving claims, limited staff skills in ESG reporting and the risk that green finance becomes a reporting formality rather than a managerial tool. The article proposes a compact model of green cost accounting suitable for small business practice in Uzbekistan.

Keywords: green economy; small business; green cost accounting; ESG reporting; green energy certificates; Uzbekistan; audit; climate finance.

1. Introduction

The transition to a green economy in Uzbekistan has moved from a strategic slogan to a set of concrete regulatory and financial instruments. Presidential Resolution No. PP-436 fixed the target of reducing greenhouse-gas emissions per unit of GDP by 35 percent from the 2010 level and linked this target with renewable energy and resource saving in all sectors [2]. In 2025, the state program for the Year of Environmental Protection and Green Economy again placed renewable energy, sustainable finance and carbon-footprint reduction at the centre of economic policy [7]. These

changes inevitably affect accounting. If a small enterprise installs solar panels, buys a green energy certificate, receives a green loan, modernizes equipment or claims lower emissions, the issue is not only ecological. It becomes a matter of recognition, measurement, documentation and audit evidence.

The research problem is that the institutional framework is developing faster than enterprise-level accounting practice. Many small businesses still record energy, water, waste and environmental payments only as ordinary current expenses. This approach is formally convenient, but analytically poor. It hides whether a cost is caused by pollution, resource inefficiency, compliance, modernization, certification or real saving. Consequently, managers may declare a green transition while their accounting system cannot prove its economic effect.

The article therefore asks a narrower and more practical question: how should small business entities in Uzbekistan organize green cost accounting and ESG-related reporting under the policy environment of 2023-2025? The author argues that green accounting should not be treated as a separate decorative report. It should be embedded into cost classification, primary documentation, management accounting and internal audit procedures. Otherwise, green finance and green certificates risk becoming disconnected from the everyday decisions of entrepreneurs.

The purpose of the study is to identify the main practical barriers to green cost accounting for small business entities in Uzbekistan and to propose an applicable accounting model. The object of the study is the accounting organization of small business entities. The subject is the recognition, grouping and verification of costs and results related to the green economy.

2. Literature and policy review

2.1. Uzbekistan sources

The Uzbek regulatory base is now sufficiently dense to justify a separate green-accounting discussion. The 2019 Green Economy Strategy first formulated the need for a resource-saving and environmentally safe economic model under conditions of climate change [1]. Its analytical value is that it recognized the connection between industrialization, population growth and pressure on resources. However, the document was still strategic and did not yet explain how the accounting system of small firms should capture environmental costs.

Resolution No. PP-436 of 2022 advanced the framework by approving the program for transition to a green economy until 2030 and by defining measurable climate and resource-efficiency targets [2]. For accounting research, this document is important because it transforms the green agenda into performance indicators. Yet a gap remains: state targets do not automatically become enterprise-level accounts, registers and audit procedures.

Resolution No. PP-156 of 2023 on green energy certificates is especially relevant for accountants. One certificate confirms the production of 1,000 kWh of electricity from renewable sources, while certificate purchase costs are recognized as deductible expenses for profit-tax purposes and income from certificate sales by renewable generation facilities is exempt from profit tax [3]. This is a direct bridge between green policy and tax accounting. The weakness is practical: small enterprises need clear internal procedures for proving why a certificate was acquired and how it relates to their production, export or ESG claims.

Cabinet Resolution No. 514 of 2023 created the management system for the transition to a green economy [4]. Cabinet Resolution No. 561 of 2023 approved the National Green Taxonomy [5]. Together, they provide institutional classification. In my view, the taxonomy is more than a banking document. It can become an accounting classification tool, because it helps distinguish truly green

activities from ordinary capital expenditures with a green label.

The 2025 Law on Limitation of Greenhouse Gas Emissions marks a new stage. It regulates relations connected with the limitation of greenhouse-gas emissions arising from economic and other activities in Uzbekistan [6]. The law will increase the need for measurable emission data. This will not immediately turn every small enterprise into a carbon accountant, but it will gradually raise the evidence threshold for larger suppliers, exporters and firms financed by green credit lines.

Official government information from 2025 shows that the green transition is not confined to energy. During the first half of 2025, 18 draft legal acts on environmental protection were prepared, 137 million saplings were planted, 130,000 hectares of forest were created or restored, and pollution-control units were modernized at industrial enterprises [8]. These figures are impressive, but they also show a methodological risk: macro-level ecological activity is visible, while micro-level accounting effects in small firms remain poorly standardized.

The Ministry of Ecology also connects ESG principles with the national transition to a green economy and notes that ESG reporting is not only for large corporations [10]. This is a useful policy signal. Still, it should be read critically. Small businesses cannot simply copy corporate ESG reports; they need simplified indicators tied to primary documents and actual cost behaviour.

2.2. Russian and foreign academic context

Russian-language accounting literature generally discusses environmental accounting through ecological costs, environmental liabilities, natural-resource payments and management accounting. Its strength is attention to cost classification and control. Its limitation for Uzbekistan is that it often reflects a different institutional setting and cannot be mechanically transferred without considering national tax rules, green certificates and the Uzbek taxonomy.

Foreign literature on ESG reporting and environmental management accounting is more developed in relation to carbon disclosure, assurance, green finance and supply-chain transparency. Its strong side is methodological: it treats environmental data as part of risk management and investment credibility. The weak side is that many models are designed for large companies with specialized sustainability departments. For Uzbek small business, a more modest but verifiable system is needed: energy, water, waste, certificates, green-loan use and measurable savings.

3. Methods

The study applies an IMRAD-oriented qualitative design. The empirical base consists of official Uzbek legal acts, government portal materials and annual green-economy reports published mainly in 2023-2025. The analysis was limited to sources that could support accounting, cost, audit and reporting conclusions. No survey of entrepreneurs was conducted; therefore, the article does not claim to measure the actual percentage of small businesses using green accounting. This is a deliberate limitation rather than a hidden assumption.

The method included three steps. First, regulatory documents were coded by their accounting relevance: cost recognition, tax treatment, financing, certification, reporting and verification. Second, official indicators were grouped into energy, finance, forestry and institutional indicators. Third, these findings were converted into a practical model of green cost accounting for small business entities.

Table 1. Regulatory instruments and their accounting implications for small business

Instrument	Main content	Accounting implication	Risk for small business
PP-436, 2022	Green economy program and emission-intensity target	Need to link resource saving with measurable costs and results	Targets may remain outside enterprise accounts
PP-156, 2023	Green energy certificates and tax treatment	Certificate purchase and sale require documentary proof and tax classification	Certificates may be recorded without management analysis
Cabinet Resolution 561, 2023	National Green Taxonomy	Classification of green activities and eligible projects	Mislabeling ordinary investment as green
GHG Limitation Law, 2025	Legal framework for limiting emissions	Higher need for emission data and audit evidence	Small firms may lack measurement capacity
State Program 2025	Green transformation, renewable energy, sustainable financing	Green spending should be separated in accounting registers	Reporting burden without useful internal control

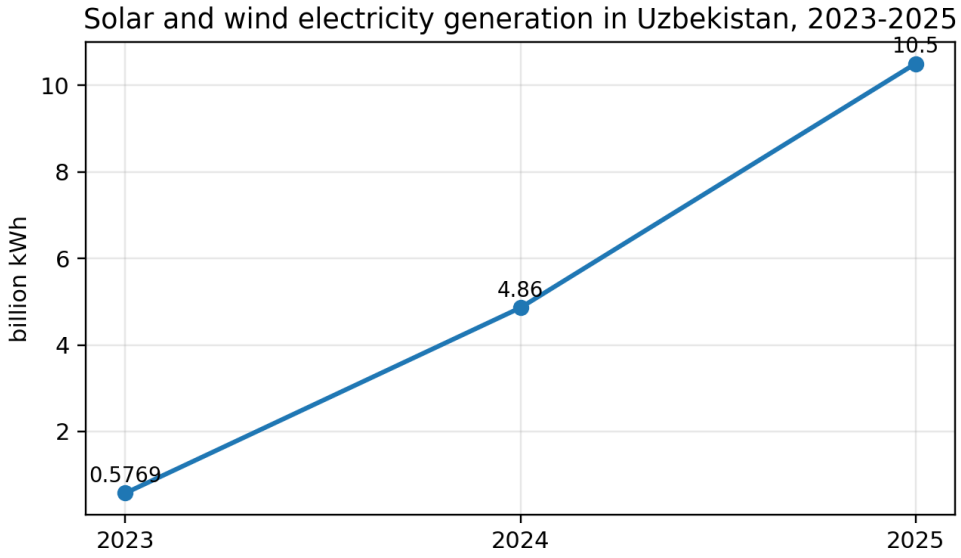
4. Results

4.1. Energy transition and the emergence of measurable green costs

The expansion of renewable energy changes the nature of ordinary operating costs. Energy is no longer only a utility bill. It can be self-generated, purchased with a green attribute, certified, financed by a green loan or reported as part of ESG performance. According to sector information citing the Ministry of Energy, solar and wind generation rose from 0.5769 billion kWh in 2023 to 4.86 billion kWh in 2024 and 10.5 billion kWh in 2025 [15]. The growth is not merely technical. It creates new accounting objects: certificate costs, savings from reduced grid consumption, depreciation of solar equipment, maintenance costs, and evidence for emission-reduction claims.

The first practical result is therefore the need to separate green costs from general overheads. If electricity-saving equipment is recorded only as a fixed asset without an analytical account, the enterprise loses the ability to compare investment, saving and environmental effect.

Figure 1. Solar and wind electricity generation in Uzbekistan, 2023-2025



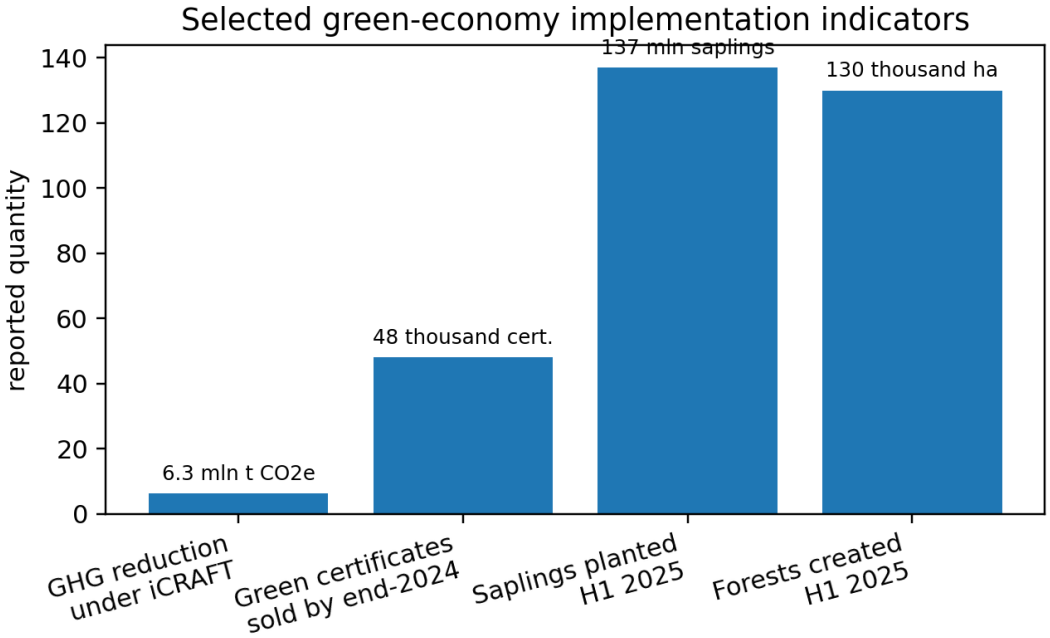
4.2. Green finance and certificate accounting

Green finance has already entered the policy field. The Ministry of Economy and Finance reported

that the Green Economy Policy Loan Program attracts EUR 200 million of budget support for 2025-2026, while iCRAFT-related tariff reforms reduced 6.3 million tons of CO2 equivalent in 2023 and generated USD 7.5 million through the sale of part of the reduced emissions [12]. These figures demonstrate that climate results can be monetized. For small business, the lesson is clear: the accounting system must be able to follow the chain from green investment to measurable result and, where applicable, to financial benefit.

The green energy certificate mechanism is the most concrete example. By the end of 2024, more than 48,000 certificates had been sold in exchange trading, and one certificate confirmed 1,000 kWh of renewable electricity [13]. In accounting terms, this is not just an administrative paper. It is an economic document that may support export credibility, bank financing, tax deduction and ESG disclosure. However, the certificate does not prove that the enterprise has become resource-efficient. It proves an energy attribute. This distinction should be maintained in audit practice.

Figure 2. Selected implementation indicators relevant to green accounting

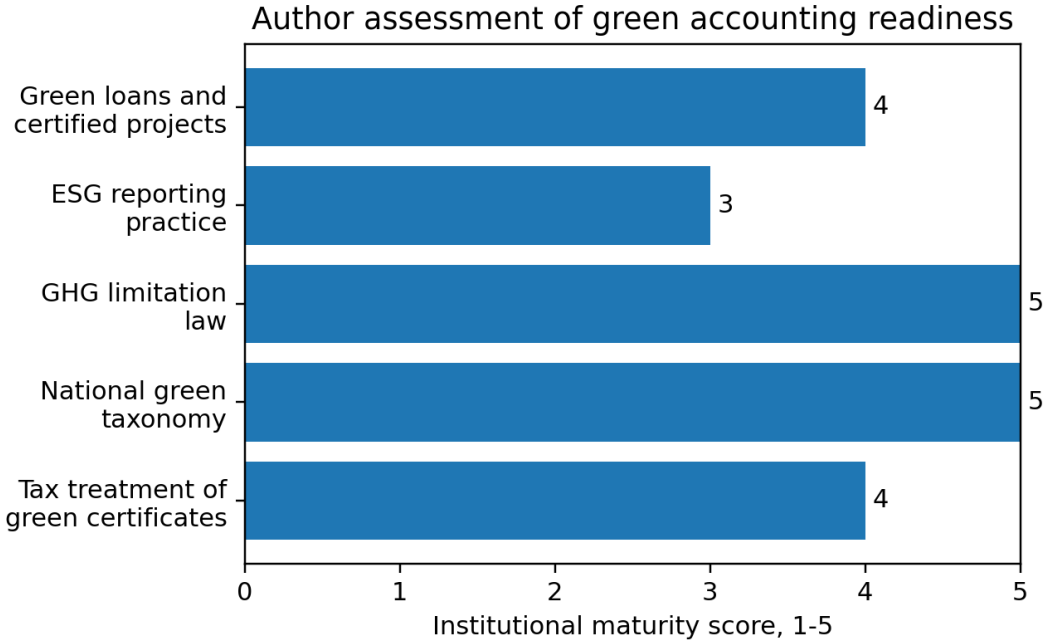


4.3. Practical barriers in small business accounting

Barrier	Manifestation in practice	Audit response
Cost invisibility	Energy, waste, water and compliance costs are usually hidden inside general administrative or production expenses.	Require analytical accounts, primary documents and management explanation.
Weak primary evidence	Savings are declared, but meter data, invoices, technical passports and before-after calculations are not always kept as one audit file.	Require analytical accounts, primary documents and management explanation.
Tax-accounting uncertainty	Green certificates and green loans require correct classification, but many small firms depend on external	Require analytical accounts, primary documents and management explanation.

	accountants who focus mainly on tax deadlines.	
Limited ESG competence	Small firms often understand ESG as a public-image document rather than a management and evidence system.	Require analytical accounts, primary documents and management explanation.
Greenwashing risk	A project may be called green without being checked against taxonomy, measurable saving or independent verification.	Require analytical accounts, primary documents and management explanation.

Figure 3. Author assessment of green accounting readiness in Uzbekistan, 2023-2025



5. Discussion

The findings suggest that Uzbekistan has moved faster in building green-economy institutions than in adapting small-business accounting practice. This is not unusual. Policy normally creates the framework first; enterprise routines follow slowly. But the delay should not be underestimated. If accounting does not classify green costs, the entrepreneur cannot know whether the green measure reduces costs, only changes their structure, or simply adds a compliance burden.

A useful accounting model for small business should be simple enough to operate and strict enough to be audited. I propose four analytical groups: (1) resource-consumption costs, including electricity, gas, water and materials; (2) environmental compliance costs, including payments, permits, environmental services and waste handling; (3) green investment costs, including renewable-energy equipment, energy-efficient machinery and certified modernization; and (4) green evidence costs, including certificates, verification, audits, training and ESG reporting. This classification is not perfect, but it forces the enterprise to distinguish between spending that reduces impact and spending that only documents or compensates for it.

The most sensitive issue is evidence. A small firm may buy a green certificate, but this does not automatically prove lower production emissions. It may install solar panels, but without meter readings and maintenance records the saving will remain a claim. It may receive a green loan, but

without a project file the bank and auditor cannot see whether the loan financed a taxonomy-compliant activity. Therefore, internal documentation is the real centre of green accounting.

Audit procedures should also change. Traditional audit checks whether expenses are legal, supported and correctly recorded. Green audit must additionally ask whether environmental claims are consistent with documents. This does not mean overloading small enterprises with corporate-level sustainability reports. It means introducing a compact evidence file: invoices, technical documents, meter data, certificate registry extracts, loan-purpose documents, photos of installed equipment, and a short management calculation of expected and actual savings.

Table 3. Proposed compact green cost accounting model for small business

Analytical group	Examples of costs	Primary evidence	Management indicator
Resource-consumption costs	Electricity, gas, water, raw materials	Utility invoices, meter readings, production reports	Cost per unit of output
Environmental compliance costs	Waste removal, permits, environmental services	Contracts, acts, payment documents	Compliance cost per month
Green investment costs	Solar panels, efficient motors, insulation, cleaner technology	Asset documents, technical passports, loan files	Payback period and energy saving
Green evidence costs	Green certificates, verification, ESG training, audit	Certificate records, verification reports, training acts	Certified kWh or verified saving
Environmental risk provisions	Probable penalties, restoration obligations, insurance	Legal notices, risk assessment, insurance policy	Expected environmental liability

6. Conclusion

The green economy in Uzbekistan is now supported by a visible legal and institutional structure. For small business accounting, the decisive point is not whether the green transition exists, but whether it can be measured at the enterprise level. The article shows that green certificates, taxonomy, climate finance and emission regulation create new accounting objects. These objects require analytical accounts, evidence files and audit procedures.

My conclusion is deliberately cautious. It would be premature to claim that small business accounting in Uzbekistan is fully ready for ESG reporting. The policy framework is moving in that direction, but enterprise practice still needs methodological discipline. The strongest immediate solution is not a large sustainability report. It is a compact green cost register connected with primary documents and management indicators. Such a register would make green finance less formal, reduce greenwashing risk and give entrepreneurs a practical basis for decisions.

The main unresolved issue is standardization. Uzbekistan has strategic goals and a national taxonomy, but small firms still need sector-specific methodological recommendations: how to record green certificates, how to calculate energy savings, how to classify environmental compliance costs and how auditors should verify these claims. Without this next step, the green economy may remain better documented at the state level than inside the accounting systems of the enterprises expected to implement it.

7. Logical gaps and unsupported areas requiring further research

• There is still no open statistical evidence showing what proportion of small businesses in Uzbekistan maintain separate green-cost accounts.

• The economic effect of green certificates for small exporters is not yet sufficiently measured in

publicly available local studies.

• The connection between the National Green Taxonomy and everyday bookkeeping practice remains methodologically underdeveloped.

• Official macro indicators are strong, but micro-level case studies of small firms are still limited.

• Further empirical research should include interviews with accountants, auditors, banks and small-business managers.

References

[1] President of the Republic of Uzbekistan. Resolution No. PP-4477 of 04.10.2019, On approval of the Strategy for the transition of the Republic of Uzbekistan to a green economy for 2019-2030. Lex.uz.

[2] President of the Republic of Uzbekistan. Resolution No. PP-436 of 02.12.2022, On measures to improve the efficiency of reforms aimed at the transition of the Republic of Uzbekistan to a green economy by 2030. Lex.uz.

[3] President of the Republic of Uzbekistan. Resolution No. PP-156 of 12.05.2023, On measures to introduce the system of green energy certificates. Lex.uz.

[4] Cabinet of Ministers of the Republic of Uzbekistan. Resolution No. 514 of 29.09.2023, On measures to organize a system for managing the transition to a green economy. Lex.uz.

[5] Cabinet of Ministers of the Republic of Uzbekistan. Resolution No. 561 of 25.10.2023, On approval of the National Green Taxonomy. Lex.uz.

[6] Republic of Uzbekistan. Law No. LRU-1073 of 07.07.2025, On the limitation of greenhouse gas emissions. Lex.uz.

[7] National Committee on Ecology and Climate Change. Priority areas of development in the Year of Environmental Protection and Green Economy were identified. Gov.uz, 08.02.2025.

[8] National Committee on Ecology and Climate Change. First Half of 2025: Uzbekistan Accelerates Environmental Reforms. Gov.uz, 06.08.2025.

[9] National Committee on Ecology and Climate Change. The need for a serious approach to environmental protection was noted. Gov.uz, 14.12.2024.

[10] National Committee on Ecology and Climate Change. What is ESG and why does it matter for the ecology? Gov.uz, 19.05.2025.

[11] Ministry of Economy and Finance of the Republic of Uzbekistan. Green Economy annual reports section. Gov.uz, updated 17.03.2026.

[12] Ministry of Economy and Finance of the Republic of Uzbekistan. Information on activities implemented in 2025 in the field of transition to a green economy. 2025.

[13] Ministry of Economy and Finance of the Republic of Uzbekistan. Annual report on the development of the green economy, 2024.

[14] Government of Uzbekistan. Energy sector activity page: planned energy projects for 2025. Gov.uz.

[15] Power Uzbekistan. Green energy generation in Uzbekistan since the beginning of the year amounted to 1 billion kWh, citing the Ministry of Energy. 2026.