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“MOLIYAVIY TEXNOLOGIYALAR” ILMIY ELEKTRON JURNALI TAHRIRIYAT KENGASHI RAISI

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WAYS TO IMPROVE SUSTAINABLE FINANCING MECHANISMS IN UZBEKISTAN: CAPITAL NEEDS, PILOT INSTRUMENTS AND SCENARIO-BASED PROJECTIONS TO 2030

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Abstract. This article proposes quantified measures to strengthen sustainable financing mechanisms in Uzbekistan through financing instruments, pilot projects and phased reforms. It estimates renewable-energy and grid-modernization investment needs at USD 10.1 billion for 2026–2030 and argues that stronger domestic financing mechanisms are essential to reduce currency risk and dependence on external capital. Two pilot instruments are developed: regional green bonds and sustainability-linked bonds for state-owned enterprises, supported by sector-specific performance indicators. A three-scenario forecast projects cumulative green, social, sustainability and sustainability-linked bond issuance of USD 3.25–13.3 billion, with the domestic market's share increasing from approximately 14 to 37 percent. Sensitivity analysis identifies domestic-market development and banks' international issuance growth as the principal drivers. Under the baseline scenario, subsidizing coupons on half of domestic issuance would cost approximately USD 54 million, alongside USD 4.7 billion in additional issuance relative to the inertial scenario. The article also proposes transition finance, sustainable sukuk, carbon-market mechanisms, digital instruments and blended finance, sequenced over 2026–2035 and supported by a formal risk assessment.

Key words: sustainable financing mechanisms, capital needs, municipal green bonds, sustainability-linked bonds, scenario forecasting, sensitivity analysis, coupon subsidy, transition finance, Uzbekistan.

O'ZBEKISTONDA BARQAROR MOLIYALASHTIRISH MEKANIZMLARINI TAKOMILLASHTIRISH YO'LLARI: KAPITALGA EHTIYOJ, PILOT MOLIYAVIY VOSITALAR VA 2030-YILGACHA SSENARIY ASOSIDAGI PROGNOZLAR

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Annotatsiya. Ushbu maqolada moliyaviy vositalar, pilot loyihalar va bosqichma-bosqich islohotlar asosida O'zbekistonda barqaror moliyalashtirish mexanizmlarini mustahkamlashga qaratilgan miqdoriy asoslangan chora-tadbirlar taklif etilgan. Tadqiqotda 2026–2030-yillarda qayta tiklanuvchi energetika va elektr tarmoqlarini modernizatsiya qilish uchun zarur investitsiyalar hajmi 10,1 mlrd AQSh dollari miqdorida baholangan hamda valyuta xatarlarini va tashqi kapitalga qaramlikni kamaytirish uchun ichki moliyalashtirish mexanizmlarini rivojlantirish zarurligi asoslab berilgan. Ikki turdagi pilot moliyaviy vosita — hududiy yashil obligatsiyalar hamda davlat korxonalari uchun barqarorlik ko'rsatkichlariga bog'langan obligatsiyalar ishlab chiqilgan bo'lib, ular tarmoq xususiyatlariga mos samaradorlik ko'rsatkichlari bilan qo'llab-quvvatlanadi. Uchta ssenariy asosidagi prognozga ko'ra, yashil, ijtimoiy, barqarorlik va barqarorlik ko'rsatkichlariga bog'langan obligatsiyalarning jami emissiyasi 3,25 mlrd AQSh dollaridan 13,3 mlrd AQSh dollarigacha yetishi, ichki bozor ulushi esa taxminan 14 foizdan 37 foizgacha oshishi mumkin. Sezgirlik tahlili ichki bozorning rivojlanishi





va banklarning xalqaro obligatsiyalar emissiyasi o‘shini asosiy ta’sir etuvchi omillar sifatida aniqlaydi. Bazaviy ssenariy bo‘yicha ichki emissiyaning yarmi uchun kupon to‘lovlarini subsidiyalash xarajatlari taxminan 54 mln AQSh dollarini tashkil etishi, shu bilan birga inertsia ssenariysiga nisbatan qo‘shimcha emissiya hajmi 4,7 mlrd AQSh dollariga yetishi mumkin. Maqolada, shuningdek, o‘tish davri moliyasi, barqaror sukuk, uglerod bozori mexanizmlari, raqamli moliyaviy vositalar va aralash moliyalashtirish mexanizmlarini 2026–2035-yillarda bosqichma-bosqich joriy etish hamda ularni rasmiy risklarni baholash tizimi bilan qo‘llab-quvvatlash taklif etilgan.

Kalit so‘zlar: barqaror moliyalashtirish mexanizmlari, kapitalga ehtiyoj, munitsipal yashil obligatsiyalar, barqarorlik ko‘rsatkichlariga bog‘langan obligatsiyalar, ssenariy asosida prognozlash, sezgirlik tahlili, kupon subsidiyasi, o‘tish davri moliyasi, O‘zbekiston.

ПУТИ СОВЕРШЕНСТВОВАНИЯ МЕХАНИЗМОВ УСТОЙЧИВОГО ФИНАНСИРОВАНИЯ В УЗБЕКИСТАНЕ: ПОТРЕБНОСТИ В КАПИТАЛЕ, ПИЛОТНЫЕ ИНСТРУМЕНТЫ И СЦЕНАРНЫЕ ПРОГНОЗЫ ДО 2030 ГОДА

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Аннотация. В статье предлагаются количественно обоснованные меры по укреплению механизмов устойчивого финансирования в Узбекистане посредством внедрения финансовых инструментов, пилотных проектов и поэтапных реформ. Потребность в инвестициях в возобновляемую энергетику и модернизацию электрических сетей на 2026–2030 годы оценивается в 10,1 млрд долларов США. Обосновывается необходимость развития внутренних механизмов финансирования для снижения валютных рисков и зависимости от внешнего капитала. Разработаны два пилотных инструмента: региональные зелёные облигации и облигации, привязанные к показателям устойчивого развития, для государственных предприятий, подкреплённые отраслевыми показателями эффективности. Прогнозирование по трём сценариям показывает, что совокупный объём выпуска зелёных, социальных, устойчивых и связанных с показателями устойчивого развития облигаций может составить от 3,25 до 13,3 млрд долларов США, при этом доля внутреннего рынка может увеличиться примерно с 14 до 37 процентов. Анализ чувствительности определяет развитие внутреннего рынка и рост международных выпусков облигаций банками в качестве основных факторов динамики. Согласно базовому сценарию, субсидирование купонных выплат по половине объёма внутренних выпусков потребует около 54 млн долларов США, одновременно обеспечивая дополнительный объём эмиссии в размере 4,7 млрд долларов США по сравнению с инерционным сценарием. В статье также предлагается поэтапное внедрение в 2026–2035 годах переходного финансирования, устойчивых сукуков, механизмов углеродного рынка, цифровых финансовых инструментов и смешанного финансирования при их сопровождении формализованной системой оценки рисков.

Ключевые слова: механизмы устойчивого финансирования, потребность в капитале, муниципальные зелёные облигации, облигации, связанные с показателями устойчивого развития, сценарное прогнозирование, анализ чувствительности, субсидирование купонных выплат, переходное финансирование, Узбекистан.

Introduction.

Strengthening sustainable financing mechanisms in Uzbekistan requires coordinated reforms that connect investment needs with suitable financial instruments, broaden the issuer base and





improve market credibility. This article examines three questions: what investment requirements arise from the country's renewable-energy objectives; how regional green bonds and sustainability-linked bonds can expand financing opportunities; and how sustainable bond issuance might develop under alternative policy scenarios through 2030.

The updated Uzbekistan–2030 Strategy, approved by Presidential Decree PF-21 of 16 February 2026, establishes targets of 25 GW of renewable-energy capacity, a 54 percent renewable share in generation or consumption, and a 35 percent reduction in greenhouse-gas emissions per unit of GDP relative to 2010. These objectives provide the policy basis for assessing investment requirements and financing options. Gross investment requirements must, however, be distinguished from the financing gap, which can be measured only after committed funding is identified.

Domestic capital-market development can complement foreign investment and international financial institution financing while reducing currency mismatches where project revenues are denominated in Uzbek sums. Building on the author's companion research, this article combines transparent investment calculations, proposed pilot instruments, conditional issuance scenarios and fiscal-cost estimates. It distinguishes official targets and observed transactions from analytical assumptions and policy proposals.

Literature review.

The literature relevant to sustainable financing reform addresses investment requirements, instrument design, market credibility and conceptual consistency. The OECD's assessment of Uzbekistan's green transition identifies capital-market development and green bond issuance as potential financing channels [3]. Technology-specific investment estimates help connect these financing opportunities with project requirements, although international cost benchmarks require adjustment for local conditions.

Schoenmaker and Schramade provide a theoretical framework for integrating sustainability into financial decision-making [6]. For practical instrument design, ICMA's Sustainability-Linked Bond Principles emphasize material key performance indicators, ambitious sustainability performance targets, reporting and independent verification [7]. These requirements inform the proposed instruments for state-owned enterprises. Regional green bonds additionally require explicit borrowing authority, identifiable repayment sources and transparent fiscal safeguards.

Empirical studies highlight the importance of credible environmental commitments. Zerbib identifies a small average green-bond yield discount in the studied sample [8]. Flammer finds a positive investor response to corporate green-bond announcements, with stronger responses for first-time issuers and externally certified bonds [9]. These findings support investment in verification and disclosure, but do not establish a universal financing-cost advantage or demonstrate that coupon subsidies will generate additional issuance in Uzbekistan.

Migliorelli examines inconsistencies in sustainable-finance definitions and the policy risks associated with fragmented frameworks [10]. This supports clear classification of instruments and consistent measurement of market development. The present article extends this discussion through an explicitly defined scenario model that separates issuer categories, discloses assumptions and tests selected sensitivities. Its contribution is to connect investment assessment, pilot design and conditional financing projections within a reproducible policy framework.

Methodology.

The analysis proceeds in four steps. First, the capital-investment gap associated with Uzbekistan's 2030 renewable-energy target is quantified using a bottom-up capacity-addition method: starting from installed renewable capacity as of 2025 (solar 3.93 GW, wind 1.65 GW, hydro 2.44 GW, totaling 8.0 GW), the additional capacity required to reach the 15 GW target (4.5 GW solar, 2.0 GW wind, 0.5 GW hydro, plus 2 GW/4 GWh of battery storage) is costed using IRENA's global benchmark specific capital costs (USD 758/kW solar, USD 1,160/kW wind, USD





2,500/kW hydro, USD 200/kWh storage) [12], with grid-modernization costs estimated at 30 percent of combined generation and storage investment. Second, two pilot instruments – regional green bonds and state-owned-enterprise sustainability-linked bonds – are designed with reference to comparative international practice, specifically Kazakhstan's 2016 Budget Code reform authorizing subnational bond issuance under central-government oversight [5], and the Sustainability-Linked Bond Principles' guidance on key-performance-indicator selection and target calibration [7], with sector KPIs proposed for the six industries in which state-owned enterprises account for the largest share of national carbon-intensive output.

Third, three forecast scenarios – inertial, baseline and accelerated – are constructed for 2026–2030, each disaggregated into four issuer categories (sovereign international issuance, bank international issuance, domestic bank and quasi-state issuance, and domestic non-bank corporate issuance) with category-specific growth-rate and starting-value assumptions calibrated to reflect, respectively, the absence of reform, the phased implementation of core strategic measures by 2028, and full implementation of all strategic measures by 2027. Fourth, a one-factor sensitivity analysis re-computes the five-year cumulative total under two counterfactual conditions relative to the baseline scenario – domestic-market issuance growing at half its assumed baseline rate, and sovereign international issuance held flat rather than growing – in order to identify which underlying assumption the forecast is most sensitive to, and a qualitative risk assessment scores six categories of risk to the projected outcomes by probability and impact and proposes corresponding mitigation measures.

Analysis and results.

Reaching Uzbekistan's 2030 target of 15 GW of installed renewable-energy capacity and a renewable share above 30 percent of electricity generation requires, on top of the 8.0 GW already installed as of 2025 (3.93 GW solar, 1.65 GW wind, 2.44 GW hydro), an additional 4.5 GW of solar photovoltaic capacity, 2.0 GW of onshore wind, 0.5 GW of hydropower, and 2 GW/4 GWh of battery energy storage [13].

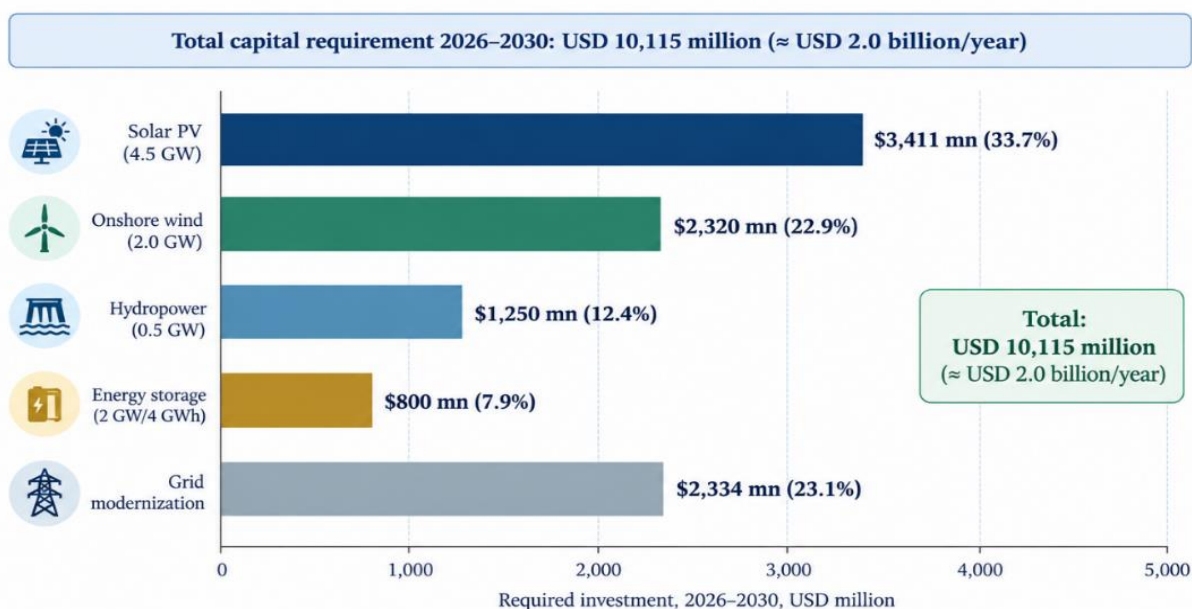


Figure 1. Breakdown of the estimated 2026–2030 capital-investment requirement for Uzbekistan's renewable-energy target, by technology

Source: author's calculation based on Ministry of Energy capacity data and IRENA (2024) benchmark specific-cost data [13][12].

Applying IRENA's global benchmark specific capital costs [12] to this capacity addition, and estimating grid-modernization costs at 30 percent of combined generation-and-storage investment, yields a total capital requirement of USD 10,115 million over 2026–2030, or





approximately USD 2.0 billion per year (Figure 1).

Solar photovoltaic capacity accounts for the largest share of the requirement at 33.7 percent (USD 3,411 million), followed by grid modernization at 23.1 percent (USD 2,334 million) and onshore wind at 22.9 percent (USD 2,320 million); hydropower and storage together account for the remaining 20.3 percent. When water-supply, transport, waste-management, building energy-efficiency and climate-adaptation needs beyond the electricity sector are added, the OECD estimates the total annual sustainable-investment gap at no less than USD 6 billion per year [3] – a figure that dwarfs what foreign direct investment and international financial institution credit alone could prudently finance without materially increasing currency risk and external-debt exposure. If the electricity-sector renewable targets are achieved, the resulting generation mix would supply approximately 35.2 billion kWh from renewable sources in 2030 (31.8 percent of total generation of 110.7 billion kWh), avoiding approximately 12.3 million tonnes of CO₂ emissions annually relative to continued reliance on natural-gas generation. The central implication for financing-mechanism design is that the improvement agenda's priority must be to raise the domestic share of this financing, rather than to seek a larger external envelope, because external financing at this scale is neither fiscally nor macro-financially sustainable on its own.

Target indicators for domestic market development. To translate the capital-needs estimate and the five-pillar strategy into measurable milestones, the following target indicators are proposed for 2027 and 2030, benchmarked against the pace of market development observed internationally – for example, the Republic of Korea's ESG-bond market roughly doubling within two years of the introduction of a dedicated exchange segment governed by K-Taxonomy classification [14], India's Reserve Bank green-deposit framework mobilizing bank-level green funding within its first year of operation [15], and China's green-lending stock more than doubling within three years of the People's Bank of China's introduction of its targeted refinancing facility [16]. The starting point for these indicators is itself modest: the country's only domestic GSS issuance to date is the Mortgage Refinancing Company's UZS 50 billion green bond, placed in September 2024 with external review provided by the AIFC Green Finance Centre [17][18], and the Central Bank's policy rate of 14 percent as of mid-2026 continues to make sum-denominated financing markedly more expensive than the concessional dollar-denominated terms available through international financial institutions [19].

Table 1

Target indicators for the development of Uzbekistan's sustainable financial instruments market

<i>Indicator</i>	<i>Current status (2025)</i>	<i>2027 target</i>	<i>2030 target</i>
<i>Number of GSS bond issuers in the domestic market</i>	1	5	no fewer than 20
<i>Annual domestic GSS bond issuance, USD million equivalent</i>	4 (2024)	150	600
<i>GSS share of sovereign international bond issuance, %</i>	35.3	40	50
<i>Green loans as a share of total bank credit, %</i>	not currently tracked	3	8
<i>Banks and large companies publishing sustainability reports</i>	none required	15	60
<i>External verifiers registered (of which, national)</i>	0	5 (1)	10 (3)
<i>GSS bonds as a share of pension-fund assets, %</i>	0	3	10

Source: author's construction, based on the target-indicator system developed in companion strategic research.





The proposed 2030 target of USD 600 million in annual domestic GSS bond issuance is ambitious relative to Uzbekistan's current base of USD 4 million but is calibrated to the pace of comparable markets once a dedicated regulatory and incentive framework is introduced, and is consistent, as the scenario analysis below confirms, with the domestic-market issuance levels the baseline forecast scenario projects for 2030.

Two pilot instruments to broaden the issuer base. Within the five-pillar strategy, two pilot instruments merit separate attention because each would qualitatively broaden the issuer base beyond the sovereign and large state-bank issuers that have so far dominated Uzbekistan's sustainable-bond activity.

The first pilot instrument is a regional (municipal) green bond. Uzbekistan's Budget Code currently prohibits local government authorities from issuing debt securities, even though regional budgets account for 56 percent of total government expenditure and much of the country's green infrastructure – water supply and wastewater treatment, public transport, waste management – is delivered at the regional level. Drawing on Kazakhstan's 2016 Budget Code reform, under which fourteen regional administrations gained the right to issue bonds under strict Ministry of Finance oversight [5], this article proposes a pilot amendment authorizing the Tashkent city administration specifically to issue municipal green bonds under Ministry of Economy and Finance oversight, with proceeds restricted to taxonomy-aligned regional projects and repayment sourced from project revenues and regional budget receipts (Figure 2).

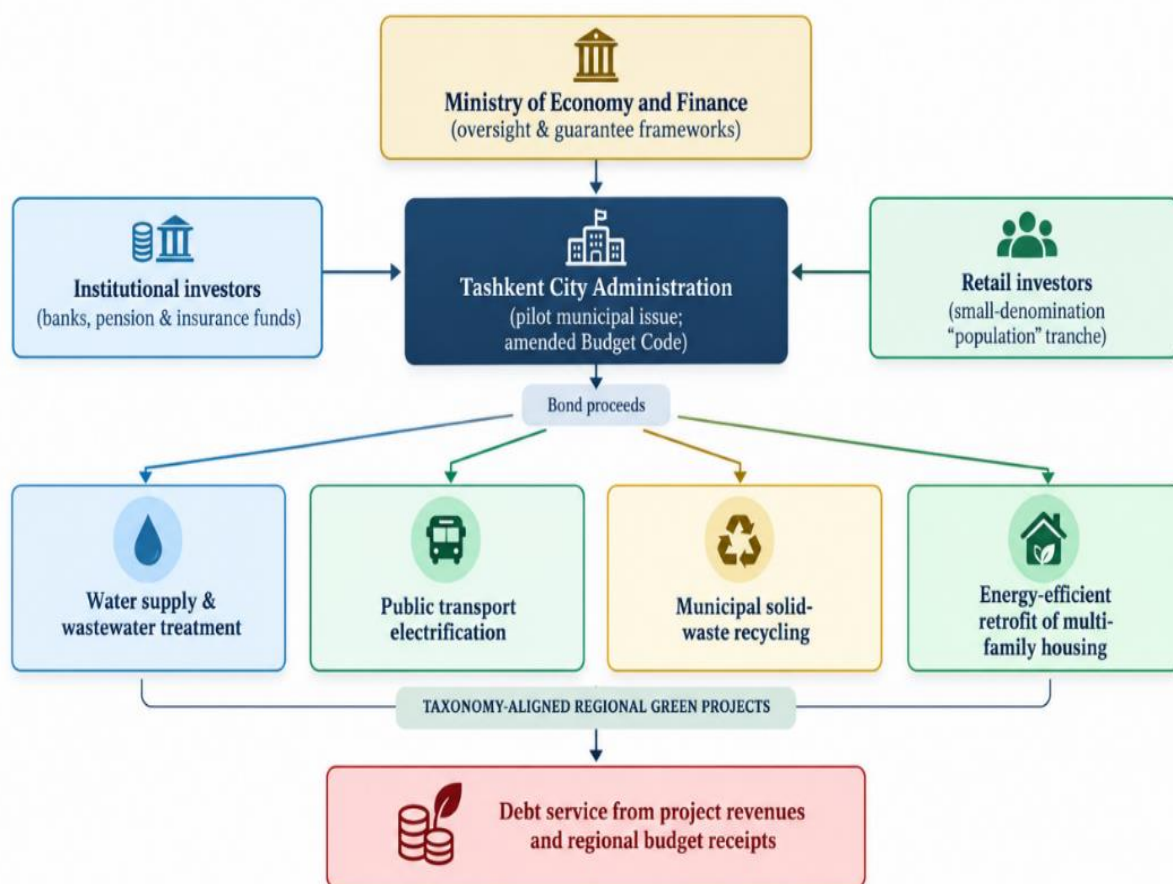


Figure 2. Proposed pilot model for regional (municipal) green bond issuance

Source: author's construction, based on OECD recommendations and Kazakhstan's comparative experience [5].

Placing a small-denomination retail tranche of the municipal bond alongside the institutional tranche would allow city residents to participate directly in financing their own city's development, an approach consistent with the “population green bond” concept explored elsewhere in this





improvement agenda, while also increasing the transparency and public accountability of municipal government activity.

The second pilot instrument is a sustainability-linked bond program for state-owned enterprises. Companion diagnostic research established that state-owned enterprises undertake approximately 80 percent of state investment in the renewable-energy, energy-efficiency and water-management sectors central to the green transition, yet the international bonds they have so far issued have been directed toward purposes unrelated to green transformation, consistent with the broader international finding that state-owned-enterprise governance reform is generally a precondition for such enterprises to adopt market-based sustainability instruments [20]. Because a sustainability-linked bond ties financing terms to enterprise-wide performance rather than to a specific eligible project, it is a more suitable instrument than a use-of-proceeds green bond of the kind defined under ICMA's Green, Social and Sustainability Bond Principles [21][22][23] for large, multi-sector state-owned enterprises; consistent with the Sustainability-Linked Bond Principles' requirement that key performance indicators be material, measurable and externally verifiable, and that sustainability performance targets be genuinely more ambitious than business as usual [7], sector-specific KPIs are proposed for the six carbon-intensive industries in which state-owned enterprises play the largest role (Table 2).

Table 2
Proposed sector key performance indicators for state-owned-enterprise sustainability-linked bonds

Sector	Proposed key performance indicator	Target basis	Verification
Electric power	Renewable share of generation; CO ₂ emissions per MWh generated	PQ-436 targets, sector road map	National MRV system, independent auditor
Oil and gas	Methane emission intensity; volume of gas flared	International methane commitments, sector road map	Satellite monitoring, independent verifier
Chemicals and fertilizers	Energy consumption and CO ₂ emissions per tonne of product	EU CBAM requirements, best available technology	Independent verifier
Metallurgy and cement	CO ₂ emissions per unit of product; share of secondary raw material	EU CBAM requirements, sector road map	Independent verifier
Water management	Share of water losses; area under water-saving technologies	PQ-436 target (1 million hectares)	Water-authority reporting, satellite data
Automotive	Share of electric and hybrid vehicles produced; production-process energy use	Electric-transport development programs	Independent auditor

Source: author's construction, based on ICMA's Sustainability-Linked Bond Principles and national strategic documents [7].

Because most of these sector KPIs are directly linked to the European Union's carbon border adjustment mechanism, which applies in full from 2026 [24], state-owned-enterprise sustainability-linked bonds serve a dual purpose: they are a financing instrument, and they are a strategic tool for preserving the export competitiveness of Uzbekistan's energy-intensive industries. Coupon step-ups triggered by missed sustainability performance targets additionally create financial discipline for enterprise management to deliver on decarbonization commitments.

Scenario-based projections of domestic and international GSS bond issuance, 2026–2030. Building on the four-issuer-category forecasting framework developed in companion strategic





research, three scenarios were constructed reflecting different degrees of reform implementation: an inertial scenario in which no new measures are adopted and current practice continues; a baseline scenario in which the core measures of the five-pillar strategy are implemented by 2028; and an accelerated scenario in which all strategic measures are implemented in full by 2027 (Table 3).

Table 3
Key assumptions underlying the 2026–2030 GSS bond issuance forecast scenarios

Assumption	Inertial scenario	Baseline scenario	Accelerated scenario
Level of strategy implementation	not implemented; current practice continues	core measures implemented 2026–2028	all measures fully implemented 2026–2027
Sovereign international GSS issuance	USD 400 mn/year, no growth	USD 600 mn in 2026, +5%/year	USD 800 mn in 2026, +10%/year
Bank international GSS issuance	USD 200 mn/year	USD 500 mn in 2026, +10%/year	USD 700 mn in 2026, +15%/year
Domestic bank & quasi-state issuance	USD 10–50 mn range	USD 50–400 mn range	USD 100–900 mn range
Domestic non-bank corporate issuance	from 2028, up to USD 50 mn	from 2027, up to USD 200 mn	from 2026, up to USD 500 mn
Macroeconomic conditions	high interest rates persist	inflation converges toward 5% target	inflation target achieved, sovereign rating improves

Source: author's construction, based on the scenario framework developed in companion strategic research.

Applying these assumptions across the four issuer categories for each year from 2026 to 2030 produces the year-by-year and cumulative results summarized in Table 4 and Figure 3.

Table 4
Forecast annual GSS bond issuance by national issuers, 2026–2030, USD million equivalent

Scenario and indicator	2026	2027	2028	2029	2030	2026–2030
Inertial: total	610	620	650	670	700	3,250
of which, domestic share, %	1.6	3.2	7.7	10.4	14.3	7.5
Baseline: total	1,150	1,330	1,567	1,811	2,061	7,919
of which, domestic share, %	4.3	11.3	19.1	24.8	29.1	19.6
Accelerated: total	1,650	2,085	2,594	3,130	3,795	13,254
of which, domestic share, %	9.1	19.2	27.0	31.9	36.9	28.5

Source: author's calculation, based on the assumptions in Table 3.

Under the inertial scenario, cumulative issuance over 2026–2030 reaches USD 3.25 billion,





only 12 percent above the USD 2.9 billion placed over 2021–2025, and the domestic-market share never exceeds 14 percent even by 2030. Under the baseline scenario, cumulative issuance reaches USD 7.92 billion – 2.7 times the 2021–2025 level – with the domestic share rising to 29 percent by 2030. Under the accelerated scenario, cumulative issuance reaches USD 13.25 billion, with the domestic share reaching 37 percent.



Source: based on Table 4.

Figure 3. Forecast trajectories of annual GSS bond issuance by national issuers under three scenarios, 2026–2030

The baseline scenario's projected annual issuance of USD 2.06 billion by 2030 is broadly comparable to the approximately USD 2.0 billion in annual capital investment required to achieve the renewable-energy targets of Uzbekistan's electricity sector (Figure 3). This close correspondence suggests that, if the proposed strategy is implemented consistently and supported by an enabling regulatory, institutional and market infrastructure, the sustainable bond market could evolve from a relatively supplementary source of finance into one of the principal channels for mobilizing long-term capital for the country's green transition. In particular, the expansion of green, social, sustainability and sustainability-linked bond issuance could help diversify funding sources, reduce excessive reliance on external borrowing, and attract a broader range of domestic and international institutional investors. It could also create a more predictable financing pipeline for renewable-energy generation, grid modernization, energy-efficiency improvements and other climate-related infrastructure projects. Therefore, the projected scale of issuance under the baseline scenario indicates not only the potential growth of the sustainable finance market itself, but also its possible strategic role in supporting Uzbekistan's broader energy-transition and decarbonization objectives through 2030.

A precedent for establishing a domestic sum-denominated pricing benchmark already exists: the Asian Development Bank's 2025 inaugural sum-denominated bond in Uzbekistan demonstrated that international financial institutions are prepared to help form a domestic yield curve rather than leaving that task to national issuers alone [25], a form of support the baseline and accelerated scenarios both implicitly assume continues over 2026–2030. The gap between scenarios quantifies the economic significance of reform: the baseline scenario's advantage over the inertial scenario amounts to USD 4.7 billion in additional cumulative issuance over 2026–2030. Applying the coupon-subsidy calculation developed in companion research – under which a subsidy's present value equals approximately 7 percent of bond face value – to half of the domestic issuance the baseline scenario projects for 2026–2030 (USD 1.55 billion) implies a total subsidy cost of approximately USD 54 million, a fiscal outlay that is modest relative to the USD 4.7 billion in additional financing it would help unlock.

Sensitivity analysis. To assess how sensitive these forecasts are to their underlying





assumptions, two counterfactual variations on the baseline scenario were computed. If domestic-market issuance develops at half the rate assumed in the baseline scenario, the five-year cumulative total falls by approximately USD 0.8 billion; if sovereign international issuance is held flat rather than growing at the assumed 5 percent annual rate, the cumulative total falls by approximately USD 0.3 billion. The forecast is therefore substantially more sensitive to the pace of domestic-market development than to the growth rate of sovereign international issuance, confirming that policy attention and fiscal resources devoted to forming the domestic market and mobilizing the banking sector should take priority over measures aimed solely at expanding sovereign international issuance.

Instrument diversification beyond bonds, and a phased introduction plan. The improvement agenda extends beyond the green, social, sustainability and sustainability-linked bond instruments discussed above. Five further directions merit development. First, transition finance: natural-gas-based power generation, chemicals, and metallurgy and cement production occupy an important place in Uzbekistan's economy, and the European Union's carbon border adjustment mechanism, applying in full from 2026, will impose additional costs on energy-intensive exports [24]; sector decarbonization road maps combined with transition bonds, following Japan's practice, would give enterprises in these sectors access to international capital for modernization. ICMA data indicate that global transition-bond issuance reached USD 24 billion in 2024, and this segment is expected to become an increasingly important financing source for developing countries [26].

Second, Islamic finance instruments: in the 2021 sovereign SDG bond, Asian and Middle Eastern investors accounted for only about 2 percent of the investor base; green and sustainable sukuk would allow Uzbekistan to diversify its investor base geographically by mobilizing Gulf Cooperation Council and Southeast Asian Islamic finance institutions, and the 2024 joint guidance of ICMA, the Islamic Development Bank and the London Stock Exchange Group has already established the methodological basis for aligning green sukuk structures with ICMA's principles [27]; ongoing work to establish the legal foundations of Islamic finance in Uzbekistan will determine the practical near-term feasibility of this direction.

Third, carbon markets: international carbon-unit trading mechanisms are forming under Article 6 of the Paris Agreement [28], and Uzbekistan's substantial solar and wind potential, together with reforestation and Aral Sea region protective-forest projects, could generate high-quality carbon units; this would require aligning the national MRV system with international requirements, establishing a carbon-unit registry, and developing a mechanism for using carbon-unit revenues to offset green bond and loan debt service, following Japan's practice of offsetting transition-bond debt service with carbon-levy revenue.

Fourth, digital instruments: blockchain-based digital bond issuance, real-time monitoring of projects' environmental indicators via sensors and satellite data, and automation of allocation and impact reporting represent a promising direction for increasing transparency and reducing costs in sustainable financing; internationally, the Hong Kong government issued tokenized green bonds in 2023 [29] and the European Investment Bank has issued digital bonds on a blockchain platform since 2021 [30]; Uzbekistan's ongoing digitalization of government services and modernization of the “Tashkent” Republic Stock Exchange's infrastructure would allow these technologies to be applied to placing small-denomination “population green bonds” for retail investors.

Fifth, blended finance and guarantee mechanisms: under the new collective quantified goal on climate finance adopted at COP29, developed countries have committed to mobilizing at least USD 300 billion per year for developing countries through 2035 [31]; using guarantees and first-loss tranches from international financial institutions to enhance the credit quality of national banks' sum-denominated green bonds, together with currency-risk hedging instruments, would help attract foreign investors to the domestic sustainable bond market on a durable basis [32].

These five directions, together with the core bond-market, banking-sector and Islamic-finance measures, are proposed for phased introduction over 2026–2035 (Table 5).





Table 5

Proposed phased introduction of sustainable financing instruments in Uzbekistan, 2026–2035

Direction	Phase I (2026–2027): building foundations	Phase II (2028–2030): expanding the market	Phase III (2031–2035): maturity
Bond market	Sovereign sum-denominated green bonds; GSS regulation; exchange segment	Bank, mortgage and regional green bonds; SOE SLB program	Non-bank corporate and SME securitization; sovereign transition bonds
Banking sector	Green-loan statistics; advisory climate-risk guidance	Green refinancing facility; green deposits	Climate stress tests; mandatory requirements for systemic banks
Islamic finance	Legal foundations for Islamic finance instruments	First sovereign green sukuk issuance	Corporate and bank green sukuk
Carbon market	MRV alignment with international requirements; carbon-unit registry	Bilateral Article 6 agreements	Pilot national emissions-trading regime
Digital instruments	Unified sustainable-finance information platform	Retail digital green bonds	Tokenized bonds; real-time impact monitoring
Disclosure	Core indicator set (banks, GSS issuers)	Top-tier listed companies and large SOEs	Full ISSB-aligned reporting

***Source:** author's construction, based on the phased sequencing developed in companion strategic research.*

The most consequential risks – sustained high global interest rates and a contraction in international climate finance – are both, notably, mitigated by the same underlying policy response: raising the share of financing sourced from the domestic market, which is precisely the outcome the pilot instruments and target indicators developed in this article are designed to achieve. The greenwashing risk deserves particular attention at an early stage of market development: in a 2022 European survey conducted for ICMA, 84 percent of respondent companies, investors and rating agencies assessed the broader ESG market as prone to greenwashing risk [33], underscoring why the verifier-registry and disclosure elements of the phased introduction plan, full alignment of Uzbekistan's eventual disclosure regime with ISSB climate-disclosure standards [34], the European Union's taxonomy classification system [35] and its Corporate Sustainability Reporting Directive [36], and Basel Committee principles for managing climate-related financial risk [37], is accordingly proposed only for the mature, Phase III stage of the sequencing plan, once the underlying verification infrastructure has had time to develop.

Conclusions.

This article has developed a concrete, quantified agenda for improving Uzbekistan's sustainable financing mechanisms, addressing capital-needs measurement, pilot-instrument design, and scenario-based financing projections. Several conclusions follow.

First, reaching Uzbekistan's 2030 renewable-energy target requires an estimated USD 10.1 billion in capital investment over 2026–2030, of which solar photovoltaic capacity accounts for 33.7 percent and grid modernization for 23.1 percent; financing a gap of this magnitude predominantly from external sources would materially increase currency and external-debt risk, making domestic financing-mechanism reform a macro-financial as well as a developmental priority.

Second, two specific pilot instruments – regional (municipal) green bonds, modeled on





Kazakhstan's 2016 Budget Code reform, and sustainability-linked bonds for state-owned enterprises with sector-specific key performance indicators calibrated against EU carbon border adjustment mechanism exposure – can broaden Uzbekistan's issuer base beyond sovereign and large state-bank issuance within a realistic near-term horizon.

Third, scenario-based forecasting projects that national issuers could place between USD 3.25 billion and USD 13.25 billion in GSS bonds over 2026–2030 depending on the pace of reform implementation, with the domestic market's share of total issuance ranging from 14 to 37 percent; sensitivity analysis identifies the pace of domestic-market development, rather than the growth rate of sovereign international issuance, as the factor to which this range is most sensitive, directing policy attention accordingly.

Fourth, the fiscal cost of accelerating market development is modest relative to its benefits: an estimated USD 54 million coupon-subsidy outlay is associated with USD 4.7 billion in additional cumulative issuance under the baseline relative to the inertial scenario.

Fifth, instrument diversification beyond plain bonds – transition finance, green and sustainability sukuk, Article 6 carbon-market mechanisms, digital and tokenized instruments, and blended finance with guarantee structures – together with a phased 2026–2035 introduction sequence and an explicit risk assessment covering interest-rate, climate-finance, greenwashing, project-pipeline, currency and human-capital risks, complete a comprehensive and internally consistent improvement agenda for Uzbekistan's sustainable financing system.

Future research should validate the scenario assumptions as early pilot issuances (municipal and SOE sustainability-linked bonds in particular) provide real market data, extend the capital-needs quantification to non-electricity sectors using sector-specific bottom-up methods, and assess the practical legal and institutional steps required to operationalize each of the five beyond-bonds instrument directions in the Uzbekistani context.

References and bibliography:

1. Resolution No. PQ-436 of the President of the Republic of Uzbekistan dated December 2, 2022 // National Database of Legislation, December 3, 2022.
2. United Nations. Paris Agreement. – UNFCCC, 2015.
3. OECD. Financing Uzbekistan's Green Transition: Capital Market Development and Opportunities for Green Bond Issuance. – Paris: OECD Publishing, 2023.
4. International Monetary Fund. Fiscal Policies for a Low-Carbon Economy in Emerging Markets. – Washington, DC: IMF, 2022.
5. OECD. Fiscal decentralisation and sub-national green bond issuance: comparative evidence, including the Budget Code of the Republic of Kazakhstan (2016 amendments). – Paris: OECD Publishing, 2023.
6. Schoenmaker D., Schramade W. Principles of Sustainable Finance. – Oxford: Oxford University Press, 2019.
7. International Capital Market Association (ICMA). Sustainability-Linked Bond Principles: Voluntary Process Guidelines. – Paris: ICMA, June 2024. – P. 3–6.
8. Zerbib O.D. The effect of pro-environmental preferences on bond prices: Evidence from green bonds // Journal of Banking & Finance. – 2019. – Vol. 98.
9. Flammer C. Corporate green bonds // Journal of Financial Economics. – 2021. – Vol. 142, No. 2.
10. Migliorelli M. What Do We Mean by Sustainable Finance? Assessing Existing Frameworks and Policy Risks // Sustainability. – 2021. – Vol. 13, No. 2.
11. Akhmedova Sh. Improving Mechanisms of Sustainable Financing in Uzbekistan. PhD dissertation. – Tashkent: Tashkent State University of Economics, 2026 (forthcoming).
12. IRENA. Renewable Power Generation Costs in 2023. – Abu Dhabi: International Renewable Energy Agency, 2024.
13. Ministry of Energy of the Republic of Uzbekistan. Generation-mix statistics and renewable-capacity data, 2025.





14. Ministry of Environment of the Republic of Korea. K-Taxonomy (Korean Green Taxonomy) Guidelines. – Sejong, December 2021.
15. Reserve Bank of India. Framework for acceptance of Green Deposits. – Mumbai: RBI, 11.04.2023.
16. People’s Bank of China. PBOC launches carbon emission reduction facility. – Beijing: PBOC, 08.11.2021.
17. With support from AIFC Green Finance Centre the first green bonds were issued on the Tashkent Stock Exchange // Astana International Financial Centre. – 17.09.2024.
18. Asian Development Bank. Uzbekistan Mortgage Refinancing Company – domestic green bond framework and issuance note. – Manila: ADB, 2024.
19. The Central Bank of the Republic of Uzbekistan. At the meeting on 29th of July, the Board of the Central Bank decided to keep the policy rate unchanged at 14 percent per annum. – 29.07.2026.
20. World Bank. Corporate Governance of State-Owned Enterprises: A Toolkit. – Washington, DC: World Bank, 2014 (2023 update on SOE decarbonization pathways).
21. International Capital Market Association (ICMA). Green Bond Principles: Voluntary Process Guidelines for Issuing Green Bonds. – Paris: ICMA, June 2025.
22. International Capital Market Association (ICMA). Social Bond Principles: Voluntary Process Guidelines for Issuing Social Bonds. – Paris: ICMA, June 2025.
23. International Capital Market Association (ICMA). Sustainability Bond Guidelines. – Paris: ICMA, June 2021.
24. Regulation (EU) 2023/956 of the European Parliament and of the Council of 10 May 2023 establishing a carbon border adjustment mechanism // Official Journal of the European Union. – L 130. – 16.05.2023.
25. Asian Development Bank. ADB Issues Inaugural Uzbekistan Sum-Denominated Bond and Third Mongolian Togrog Bond in 2025. – 2025.
26. ICMA. Introduction to Sustainable Bonds. Training materials. – London: ICMA, December 2025. – Day 1. – P. 42–43.
27. ICMA, IsDB, LSEG. Guidance on Green, Social and Sustainability Sukuk. – April 2024. – P. 4–12.
28. United Nations. Paris Agreement. – UNFCCC, 2015. – Article 6.
29. Hong Kong Monetary Authority. HKSAR Government’s inaugural tokenised green bond offering. Press release. – Hong Kong: HKMA, 16.02.2023.
30. European Investment Bank. EIB issues its first ever digital bond on a public blockchain. Press release. – Luxembourg: EIB, 28.04.2021.
31. UNFCCC. New collective quantified goal on climate finance. Decision 1/CMA.6. – Baku, November 2024. – Para. 7–8.
32. World Bank. Blended Finance for Climate Investment: Instruments and Country Experience. – Washington, DC: World Bank Group, 2023.
33. ICMA. Introduction to Sustainable Bonds. Training materials. – London: ICMA, December 2025. – Day 2. – P. 36.
34. IFRS Foundation. IFRS S1 General Requirements for Disclosure of Sustainability-related Financial Information; IFRS S2 Climate-related Disclosures. – London: ISSB, June 2023.
35. Regulation (EU) 2020/852 of the European Parliament and of the Council of 18 June 2020 on the establishment of a framework to facilitate sustainable investment // Official Journal of the European Union. – L 198. – 22.06.2020.
36. Directive (EU) 2022/2464 of the European Parliament and of the Council of 14 December 2022 as regards corporate sustainability reporting // Official Journal of the European Union. – L 322. – 16.12.2022.
37. Basel Committee on Banking Supervision. Principles for the effective management and supervision of climate-related financial risks. – Basel: BIS, June 2022.

