LAD CASE STUDY

May 2026

GREENING THE GRID BY OPENING UP:

Energy Sector Reforms in Uzbekistan

Michael Bennon

Stanford | Leadership Academy for Development
Center on Democracy, Development and the Rule of Law

Greening the Grid by Opening Up: Energy Sector Reforms in Uzbekistan

Michael Bennon

The Uzbekistan Solar 3 Procurement

In March 2022, Uzbekistan's Ministry of Energy formally announced a shortlist for the Uzbekistan Solar 3 procurement. The procurement would award public-private partnership (P3) contracts for 500 megawatts (MW) of solar energy across three different solar power plants. One of the projects, located in the Bukhara region, would even include the country's first utility-scale energy battery storage system. The shortlist included 11 different international investors competing to win the contracts, with firms representing the United Arab Emirates, Turkey, Egypt, China, Saudi Arabia, Qatar, India, Spain and France. This single procurement would roughly double the country's renewable energy capacity, though Uzbekistan's most recent energy plan called for growing renewables to 8,000 MW, or a quarter of its generation mix, by 2030.

Just four years earlier, Uzbekistan had no utility-scale wind or solar generation at all, nor any foreign direct investment in its energy sector. The country's grid had come a long way, as had the mindset of many key officials in Uzbekistan's government. Ilhom Umrzakov saw the transition firsthand working at a number of public offices during that period, including at the country's central bank, its public-private partnership office, and later becoming the Deputy Minister of Economy and Finance. "Just a few years ago, there was this pervasive mindset in the government that electricity generation was a strategic asset and therefore there could be no financing from the private sector," said Umrzakov. "At times, I reflect how incredible it was that we were able to affect such a shift in approach."

Yet the shift was not entirely complete. In addition to running competitive procurements for energy investments, the government was also still negotiating some projects directly with partner governments and state-owned enterprises. It increasingly faced a familiar question: should the government fully commit to its competitive tenders, or continue to pursue them alongside directly negotiated energy projects?

Introduction – Uzbekistan's Struggling Grid

In the mid-2010's, Uzbekistan's energy grid was in need of both significant investment and regulatory reforms. Much of the transmission and generation infrastructure was comprised of legacy assets built when the country was still part of the Soviet Union, and the system suffered

from chronic underinvestment. Power outages were common, and were especially prevalent in rural areas. Transmission losses were as high as 20%. Almost all energy generation came from extremely inefficient thermal power plants.

The resulting grid was a drag on industry and economic growth, making Uzbekistan's economy twice as energy intensive as that of neighboring Kazakhstan and three times that of the regional average. It was one of the most energy intensive countries in the world.[i]

Making matters worse, the country was growing, urbanizing and industrializing, with electricity demand anticipated to increase significantly from 61 TWh in 2018 for more than 100 TWh by 2030.[ii] "Even in the capital city we would have energy shortages or long power outages on occasion," said Umrzakov.

The country's energy system was also remarkably undiversified, with natural gas providing more than 80% of total energy between 2000 and 2020. A very small amount of hydroelectric generation provided the grid's only renewable energy. Oil consumption was declining somewhat while the use of coal was increasing.[iii] The country was thus heavily reliant on natural gas for energy, but also for exports. Domestic consumption of gas was heavily subsidized, with prices set around half of gas prices for exports. The need for diversification was heightened by the fact that the nation's proven natural gas reserves were declining, and projected to run out in 20 years.[iv]

Uzbekistan's energy policies and institutions were also largely a legacy of its time in the Soviet Union. A single state-owned enterprise, Uzbekenergo, managed the country's entire power system, from generation to transmission to distribution. The institution lacked financial transparency was extremely bureaucratic and slow to invest to meet the country's growing energy demand. The state-driven model also enabled the government's extremely high energy subsidies, which in turn undermined cost recovery and the sector's financial sustainability.

In that way, Uzbekistan's energy sector was not unlike many other parts of the country's state-led economy. And like much of the rest of the economy, Uzbekistan's energy sector struggled to attract investment. Strict currency controls made it difficult to convert the local currency (the soum) into foreign exchange, which increased costs and uncertainty in supply chains. Investors were also subject to significant political risks, including an opaque, even corrupt regulatory processes for foreign companies and government favoritism towards its state-owned enterprises. A sudden change in tax policy enforcement in 2010 and 2011, including allegations of foreign business confiscations, significantly increased costs on foreign businesses and lead to an exodus.

At the time, Uzbekistan's foreign-direct investment (FDI) was among the lowest of the Central Asia region, trailing neighboring Kyrgyzstan in FDI-to-GDP.

An opportunity for reform, for the energy sector and beyond, occurred when President Islam Karimov passed away in September 2016. Karimov's regime had led Uzbekistan continuously

since its independence in 1991, and its policies generally emphasized independence from foreign investment and the private sector.

Immediately following the end of the Karimov regime, the country elected Shavkat Mirziyoyev as its new president, and his administration quickly embarked on a series of policy reforms aimed at opening the country up for international investment and on reforming its energy sector.

“The energy sector in particular was one of the sectors that was really ripe for reform,” said Umrzakov. “The system wasn’t working and people were ready for a significant change.”

Shock Therapy for the Grid

President Mirziyoyev’s reform efforts would include several new policies and institutional reforms governing the energy sector, but some of the most important reforms were much broader. They simply opened up the country for international private investment, and enabled infrastructure development via Public-Private Partnerships.

Bernard Atlan was leading the energy group at the International Finance Corporation (IFC) when Uzbekistan first embarked on its sector and investment reforms. “I started going to Uzbekistan in 2016 and 2017, and even then the country’s entire energy sector, let alone renewables, was essentially closed to private investment.”

In February 2017, just a few months into his presidency, President Mirziyoyev’s published Development Strategy 2017-2021. The plan addressed five policy goals:

1. improving state and public institutions;
2. securing the rule of law and reform of the judicial system;
3. promoting economic development and liberalization;
4. creating jobs and fostering social development; and
5. ensuring personal and public security through inter-ethnic and religious tolerance and constructive foreign policy.

The plan was seen to be an ambitious attempt to stabilize the country’s broader business climate. By the end of 2017, the government had abolished many foreign exchange requirements and the official exchange rate was devaluated by 50 percent to match the black-market rate. In 2019, the country’s Central Bank liberalized foreign exchange further and transitioned into a managed float arrangement. The government also worked to significantly reduce other price controls and SOE controls of the economy. In this regard, energy sector subsidies would prove particularly difficult to reduce in their entirety, though the government did begin implementing reforms to reduce subsides of electricity, gas, and water beginning in 2018.

These initial economic reforms drew some concerns within and without the government that the country was moving too fast and inducing shock therapy. By late 2018, a year and a half after the initial development strategy, the Mirziyoyev government was prepared for a second round of

reforms, and this time it would target foreign investment and the renewable energy sector, specifically.

“The president had a visionary outlook for the economy,” said Umrzakov. “There was pushback of course as there always is with reforms, but when the president sees the potential for a new way of doing things, he sees it through.”

In November 2018, the government published a “Reform Roadmap” for the next three years. The new roadmap included five new goals:

1. maintain macroeconomic stability;
2. accelerate the market transition;
3. strengthen social protection and citizen services;
4. align the government’s role with the needs of a market economy; and
5. preserve environmental sustainability.

Enabling Legislation. One of the key elements of this next stage of economic reforms was a P3 law that authorized the government to enter into concession agreements with private investors, and which provided a regulatory and institutional framework for the process. The P3 legislation was passed in May 2019, and would be amended by additional laws presidential decrees over the next few years.

The law enabled public agencies to enter into P3 agreements with a duration up to 49 years. Many of the provisions were intended to protect private investors from future changes of law and political risk. For example, if a future government was to change laws or regulations in such a way as to impact the economics of a P3, the P3 law states that the laws in place when the P3 agreement was signed will remain in effect for the partnership for a predefined period.[v]

Uzbekistan’s P3 law also allowed for unsolicited proposals from the private sector for projects. If the relevant public authority determined that the proposal met a public need, that the private partner was qualified, and that the proposed project was economically feasible, it could elect to move forward with the proposed project by posting a notice on its official website to give other potential competitors an option to compete for the project via a tender. If no other company expressed an interest in the project within 45 days, the agency could move forward and implement the P3 with the original proposer.

“The initial motivation to pursue P3s was our strict limits on public borrowing capacity,” said Umrzakov. “Uzbekistan has strict debt limits for sovereign borrowing. P3s were an alternative source, but they needed to be structured well.”

The legislation also reformed state institutions in order to ensure P3s were actually implemented and implemented well. Rather than simply letting existing public agencies develop their own P3 programs, the Administration created a new Public-Private Partnership Development Agency

(PPPDA), which would sit under the Ministry of Finance, rather than a line ministry. Later legislation would move the centralized P3 agency into a new Ministry of Economy and Finance.

Uzbekistan would go on to amend the P3 legislation and issue executive guidance on the implementation of P3s, working closely with multilateral financial institutions such as the Asian Development Bank and the World Bank.

“When new models for infrastructure delivery was presented, President Mirziyoyev was open, but he pushed the Government to try one first before expanding,” said Umrzakov. “Get the incentives right, mitigate risk, implement one project, and then we can move forward and expand it.”

“Many of the reforms were intended to allow us to structure and procure P3s, but they had much broader benefits,” said Umrzakov. “The reforms didn’t just bring in private sector investment, because in order to attract private investors, we needed to solve many of our other policy issues and standards. These were reforms that would benefit the country anyway.”

Energy Sector Reforms. Uzbekistan also passed key reforms designed for the energy sector, and to attract private investment into renewable energy projects in particular. In May 2019, the government adopted a new Renewable Energy Law, which addressed a fundamental institutional gap for renewable energy development in Uzbekistan. The law enabled greater private sector participation in renewable energy and created investment opportunities for climate change mitigation and adaptation. The Renewable Energy Law also set out key rights for private renewable energy producers, including guaranteed access to the power grid and dispatch of generated renewable energy. Also, renewable energy producers were incentivized by being exempt from paying any taxes for a period of 5 years.

The energy sector oversight functions were consolidated under the Ministry of Energy, which was established in February 2019. Before the establishment of the new ministry, there was no clear delineation of policymaking, regulatory, and operational roles, and no regulator existed to oversee gas and electricity operations. The Ministry of Energy assumed overall responsibility for policymaking and regulatory functions in relation to gas, coal, nuclear power, and electricity, while day-to-day operations were left delegated to sector entities. The new Ministry of Energy was also tasked with designing reforms that would eventually create an independent regulator for the country’s energy grid.

The energy reforms also included a major restructuring of the country’s state-owned energy company, Uzbekenergo, which was broken up into three distinct joint-stock companies for generation, transmission and distribution. “Uzbekenegro was involved in every facet of the energy sector, so it made sense to move forward and unbundle these different functions into separate institutions and introduce competition in certain parts of the sector,” said Umrzakov.

Scaling Solar and Multilateral Support

Uzbekistan's energy sector and broader reforms were significant, but the Mirziyoyev administration still believed that additional support from multilateral or bilateral institutions would be necessary for its initial projects to attract significant investment. This led the administration to enroll in the World Bank's Scaling Solar Program. It was the first country outside of Sub-Saharan Africa to do so.

At the International Finance Corporation, Jason Lee led the roll out of the Scaling Solar program. "The program was modeled off of a successful solar procurement initiative in South Africa. It procured round after round of solar projects, and each round successfully reduced the bid price. The idea was to create a package of standardized project documents and a template of procurement rules that the World Bank could roll out to other countries in Africa."

The World Bank described Scaling Solar as "*a unique "one-stop-shop" initiative designed to rapidly mobilize competitive, privately funded grid-connected solar projects within two years of engagement. It brings together several World Bank Group services under a single engagement, offering advice on the optimal size and location for power plants, simple and rapid tendering to ensure strong competition, standardized project documents to ensure bankability, competitive financing and insurance options, and risk management products to lower financing costs and deliver lower tariffs."*

"As an industry utility scale solar had the potential to become much more commoditized," said Lee. "But there was still a lot of variation in documentation and deal terms between countries. There was a clear opportunity to develop standardized and bankable templates for [Power Purchase Agreements] and other deal documents."

Scaling Solar's "one-stop shop" would pull together many different World Bank Group support programs to help countries build a utility scale solar industry. Through a single interface, the program gave members access to:

1. Transaction Advisory Services;
2. Rapid Tendering and procurement;
3. Template procurement and contract documents;
4. Competitive offers of finance and insurance; and
5. Risk Management and Credit Enhancement.

The program aimed to help countries get utility scale solar projects through procurement and development in just two years, including 8 months for procurement, 6 months for contracting and financing, and 10 months for construction.

"The other big barrier for the industry was the bankability of the offtakers," said Lee. "That is where incorporating credit enhancements from the World Bank or [the Multilateral Investment

Guarantee Agency] into the project structure could be applied to mitigate payment risk and make some of those early procurements bankable."

Sounding the Market

With policy reforms in place or underway, and multilateral lenders engaged, the next step for the new Ministry of Energy and PPPDA was to sort out how to best solicit for investors in solar, wind and other energy generation projects.

Some within and outside the government questioned whether a formal tender or procurement process would even be necessary. Since 2016, the government was receiving a deluge of unsolicited proposals from international investors for projects across multiple sectors, including power generation.[vi] The country's grid was in dire need of investment, and some members of the government and their advisors recommended that the administration should prioritize getting agreements in place quickly by accepting some of those unsolicited proposals or negotiating directly with those investors. If a formal tender was used instead, it could add years to the procurement timeline for proposal preparation and evaluation.

Some of the government's other advisors, and notably the World Bank, advised against accepting unsolicited proposals for the country's first foreign direct energy investments, and pursuing a public tender instead. Such an approach would prioritize competition and transparency, despite taking longer. The competitive process would also mitigate several project risks, such as the risk of unsustainable government guarantees in the concession agreement, or the perception of corruption. Without a competitive process, it would be difficult for the government to truly know that it was getting a "market rate" price for energy in a long-term power-purchase agreement. The tradeoff was that a competitive process would take longer, involve much more public administration, and increase transaction costs.

Relatedly, the government needed to decide how many generation projects the PPPDA would pursue for its first projects. It could pursue multiple projects across regions and sectors at once, or instead pursue a single "pilot" project through to development before rolling out multiple procurements simultaneously.

In the end, the government decided to start slowly and deliberately in their liberalized renewable energy procurement program. It would start a "pilot" public tender for 100 MW of solar energy. The newly restructured Uzbekenergo and the Ministry of Investments engaged the International Finance Corporation (IFC) Advisory Services group to advise them on the procurement, and the government published a Request for Qualifications (RFQ) for the procurement in February 2019.

"Our original advice in Uzbekistan was to bring in private capital to simply modernize the country's natural gas infrastructure." said Atlan. "Gas was their biggest source of energy at the time, but their generation was old soviet-era power plants, so there was big room for efficiencies there too. Eventually the conversations expanded to building solar generation and IFC was

mandated to structure the first PPP pilot, including negotiation with a competitively selected private partner, whereby the public counterpart would have been the sole off-taker of the electricity."

The Navoi Solar Pilot Project

The RFQ identified a rough location for the pilot solar powerplant, just west of the city of Navoi. The RFQ noted that the procurement documents and eventual Power Purchase Agreement (PPA) with the winning bid team would closely follow the template documents from the World Bank's Scaling Solar program. The goal was to select the winning bid team using a single, objective evaluation criteria: the price of electricity offered in U.S. dollars.

That would mean that other potential public goals, aside from the cost of energy, would need to take a backseat. For instance, the RFQ noted that subcontracting for local Uzbek suppliers of electrical equipment and cabling was strongly encouraged, but those considerations would not be a factor in the evaluation of future proposals.

The RFQ generated a significant response from the private sector, and the government received 23 prequalification applications from companies around the world. The government and IFC shortlisted 11 of the teams in April 2019.

In June, the government and its advisors issued a Request for Proposals (RFP) to each of the shortlisted bid teams, as well as a template PPA for the project. The RFP included a number of draft term sheets from the World Bank Group, for various sources of financial support and risk mitigation that the Scaling Solar program could offer to the project. Each of these would be optional financial instruments that bidders could use as part of their proposals.

Those support mechanisms included both an A-loan and a Senior blended finance loan from the IFC, political risk insurance from the Multilateral Investment Guarantee Agency (MIGA), and a credit enhancement for the government backstop of the off-taker payment from the International Bank for Reconstruction and Development (IBRD).

That payment guarantee was seen as particularly important given the circumstances of the pilot project. The off-taker for the PPA was the National Electric Grid of Uzbekistan – one of the companies created in the restructuring of Uzbekenergo. While the government had allowed energy tariffs for consumers to increase somewhat, prices were still too low for complete cost recovery by the time the Navoi solar project was in procurement. That meant that investors in the project would be taking on significant payment risk from its off-taker for the PPA.

This risk was addressed with both government and multilateral support. The National Electric Grid procured a letter of credit from an international bank to backstop its PPA payments. The Uzbekistan government provided its own guarantee to reimburse any necessary draws against the letter of credit (in the event of a missed payment by the off-taker). The IBRD, in turn, provided

its own guarantee on the letter of credit. See **Exhibit 1** for a World Bank projection of the government's debt and PPA liabilities.

"It was a remarkably smooth process in Uzbekistan," said IFC's Jason Lee. "With these engagements, even with template agreements, it is never as straightforward as simply taking these documents off the shelf. There is inevitably a need to localize the documentation to account for the country context and sector/regulatory framework. Additionally, governments may take views on certain risk allocation points that diverge from the expectations of sponsors and lenders.

"For example, issues such as whether a sovereign backstop on payment is required, which party should bear currency exchange risk, limits to the extent sovereign immunity can be applied, etc. often need to be negotiated to arrive at a position that can work for all parties. In Uzbekistan it went particularly smooth because the government was very proactive, so when issues did come up, they addressed them quickly."

The government would eventually receive five proposals that were technically and commercially compliant, and live-streamed the financial proposals on October 4, 2019. The winning proposal was from Masdar, a renewable energy developer from Saudi Arabia, with a tariff of 2.679 USc/kWhr. That tariff rate was roughly half of the rate included in the prior unsolicited proposals that the government had received, and lower still than the World Bank's estimate of the cost of generation of Uzbekistan's existing grid. See **Exhibit 2** for an organizational chart of the Navoi solar P3.

"When those bids finally came in everyone was just shocked," said Umrzakov. "The prices were just unbelievably low compared to what the government was previously spending to generate electricity. Until the bids were opened, most didn't think the private sector could cover all of those project costs without a government subsidy."

The proposal from Masdar took advantage of several, but not all, of the financial supports on offer from Scaling Solar. It utilized the IFC A-loan and senior loan of up to $20 million each, as well as an interest rate swap from the IFC. It also took advantage of the IBRD payment guarantee, but did not require the MIGA political risk insurance on offer. The project also received an $8 million concessional loan from the Asian Development Bank (ADB).

The Navoi pilot project would not be without challenges. The project would take more than a year to reach financial close in December 2020, delayed in part by the pandemic. However, the successful procurement led the government to immediately embark on a plan to roll out a series of additional energy procurements to rapidly scale renewables nationwide.

Post-Pilot Deployment

In April 2020, just months after selecting a preferred partner for the Navoi solar pilot project, the government published a new generation development plan, which called for 15 GW of new capacity, including 5 GW of solar and 3 GW of wind energy. The government also expanded its partnerships with multilateral development institutions, including a mandate for another 900 MW of solar for the IFC's advisory services, 1 GW of solar to be structured with the advice of the ADB, and 1 GW of wind energy to be structured by the European Bank for Reconstruction and Development (EBRD).

"After the pilot we continued to help the government with additional rounds of mandates to select, structure negotiated private partners for the development, financing and operations of solar parks," said Atlan.

"Our main advice to them was: don't just try to replicate the last deal. As the market improved and competition increased, there was an opportunity to increase the complexity of the deal and to include terms more favorable to the government. Instead of the government just buying power they could require it to be delivered at select times or even require storage."

Uzbekistan's energy reforms were not limited to renewables. The government was also pursuing procurements for new natural gas generation to both stabilize the grid and replace legacy generation assets. The government was planning to develop two notable projects with the capacity of 1.6GW each in the Syrdarya region. The first project was being directly negotiated with Saudi Arabia's Acwa Power. The second one was structured by the IFC and awarded to a consortium led by France's Électricité de France (EDF) under an open tender.

"Also, we had a good preparation for these reforms. Sovereign loans were attracted to put smart meters at the housing level," said Umrzakov. "That enabled the Government to measure energy usage much better than it could previously, and to better plan new investments as a result."

The Uzbekistan Solar 3 procurement was intended to deliver 500 MW in total, across three projects, as past of the IFC's advisory mandate. The government's plan to incorporate battery storage in one of the project sites was intended as a pilot project of its own. If successful, the government intended to pursue additional solar + storage or energy storage PPAs in the future. The planned PPA terms would include a typical PPA structure for the project's solar capacity plus 63 MW of storage capacity at 2-4 hours duration. The additional tariff for the storage component of the project would be a capacity payment per MW-month available.[vii]

The Uzbekistan solar 3 RFQ reflected considerable progress in the country's energy procurement capabilities. Still, Uzbekistan was still caught between the fast pace of reforms in some areas and slower reforms in others. The country had implemented historic electricity price increases in 2019, but prices were still below cost recovery. In 2020 energy subsidies were still estimated to amount to 6.6% of GDP.[viii] The government also had an ambitious plan to fully reform its energy sector with the creation of an independent regulator, but those plans had been delayed and some

questioned whether the eventual regulator would be independent enough to implement cost-recovery pricing.

And lastly, the government still wanted to both continue competitive procurements and also to negotiate other project financings directly with partners in state-to-state deals.

“They decided to proceed along two paths. One was continuing the procurements with us, and the other was doing additional directly negotiated deals with other governments,” said Atlan. “That was their old way of doing business. However, even those government-to-government deals were informed and improved because they could take advantage of the benchmark and terms being achieved from the open procurements. That way there was still a market mechanism that could inform or even discipline some of the directly negotiated deals.”

Some of these challenges could be overcome with additional multilateral financial supports for ongoing procurements like the Uzbekistan Solar 3 project. Perennial development questions remained open, such as how much and what kind of multilateral support would be needed for current and future procurements. And more importantly, the Uzbek government and its advisors considered how they could determine whether national reforms were sufficient, such that multilateral credit enhancements could be reduced or eventually removed.

“Finalization of tariff liberalization reform is the next big step,” said Umrzakov. “Uzbekistan made very good progress raising tariffs so far, and also increasing support for low-income customers. But Government understood this would be the slowest area for reforms. Authorities also tried their best to better communicate the issue with the public: if you aren’t paying it in your energy bill, then it is coming out of your taxes instead.”

Exhibit 1: Projection of Uzbekistan's Debt and Other Public Liabilities (Source: World Bank Group)

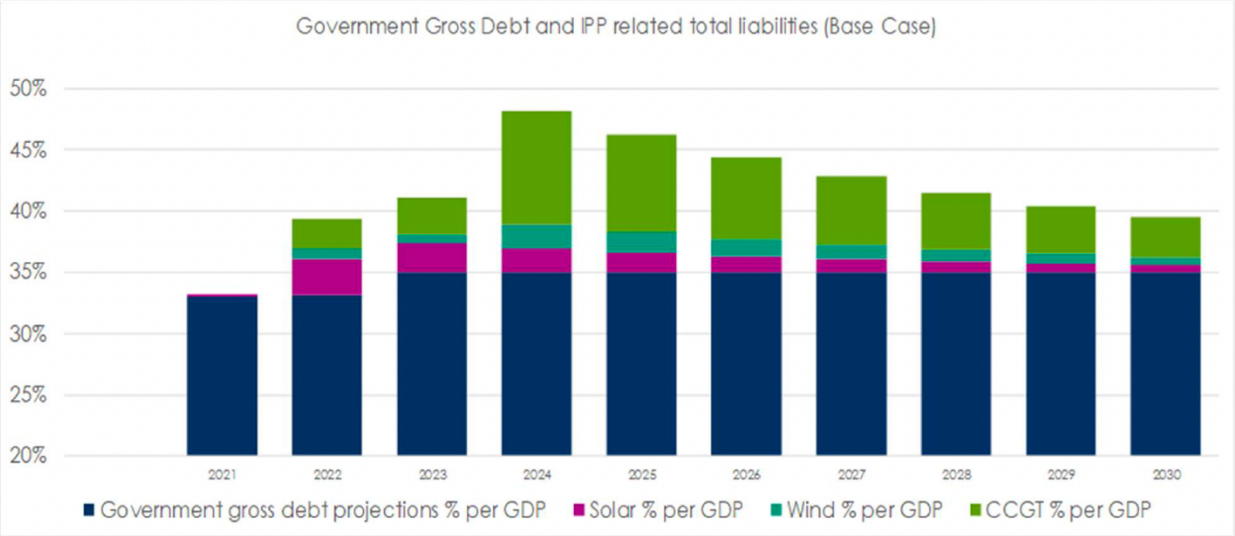
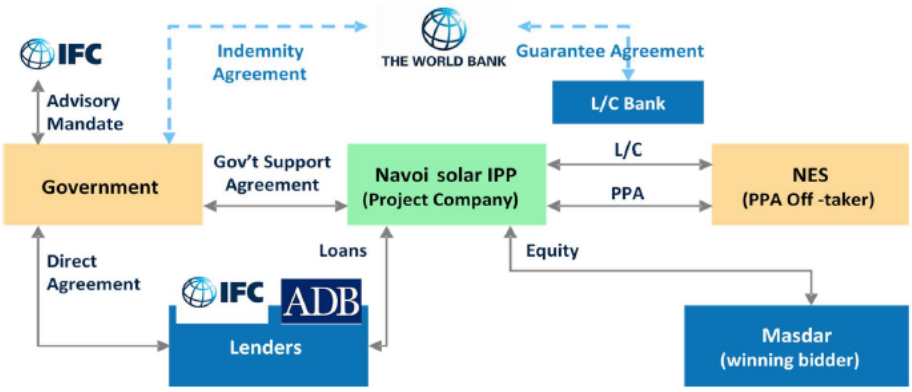


Exhibit 2: Organizational Chart of the Navoi Solar Pilot Project (Source: World Bank Group)



Endnotes

[i] Artur Kochnakyan et al., "Uzbekistan Energy/Power Sector Issues Note" (Washington D.C.: The World Bank Group, June 2013).
[ii] World Bank, "INTERNATIONAL DEVELOPMENT ASSOCIATION PROJECT APPRAISAL DOCUMENT FOR THE ELECTRICITY SECTOR TRANSFORMATION AND RESILIENT TRANSMISSION PROJECT" (Washington D.C.: The World Bank Group, June 2, 2021).
[iii] IEA, "Uzbekistan 2022 Energy Policy Review" (Paris: International Energy Agency, June 2022), https://www.iea.org/reports/uzbekistan-2022.
[iv] IEA.
[v] "Law of the Republic of Uzbekistan 'About Public-Private Partnership,'" Pub. L. No. ZRU-537 (2019), https://cis-legislation.com/document.fwx?rgn=115549.
[vi] World Bank, "PROJECT APPRAISAL DOCUMENT FOR THE NAVOI SCALING SOLAR INDEPENDENT POWER PRODUCER (IPP) PROJECT" (Washington D.C.: The World Bank Group, August 24, 2020).
[vii] International Finance Corporation, "Uzbekistan Solar 3 Public Private Partnerships for DFBOM of 3 Photovoltaic Parks Totaling 500MW Capacity and Battery Storage," Teaser (World Bank Group, December 2020).
[viii] IEA, "Uzbekistan 2022 Energy Policy Review."