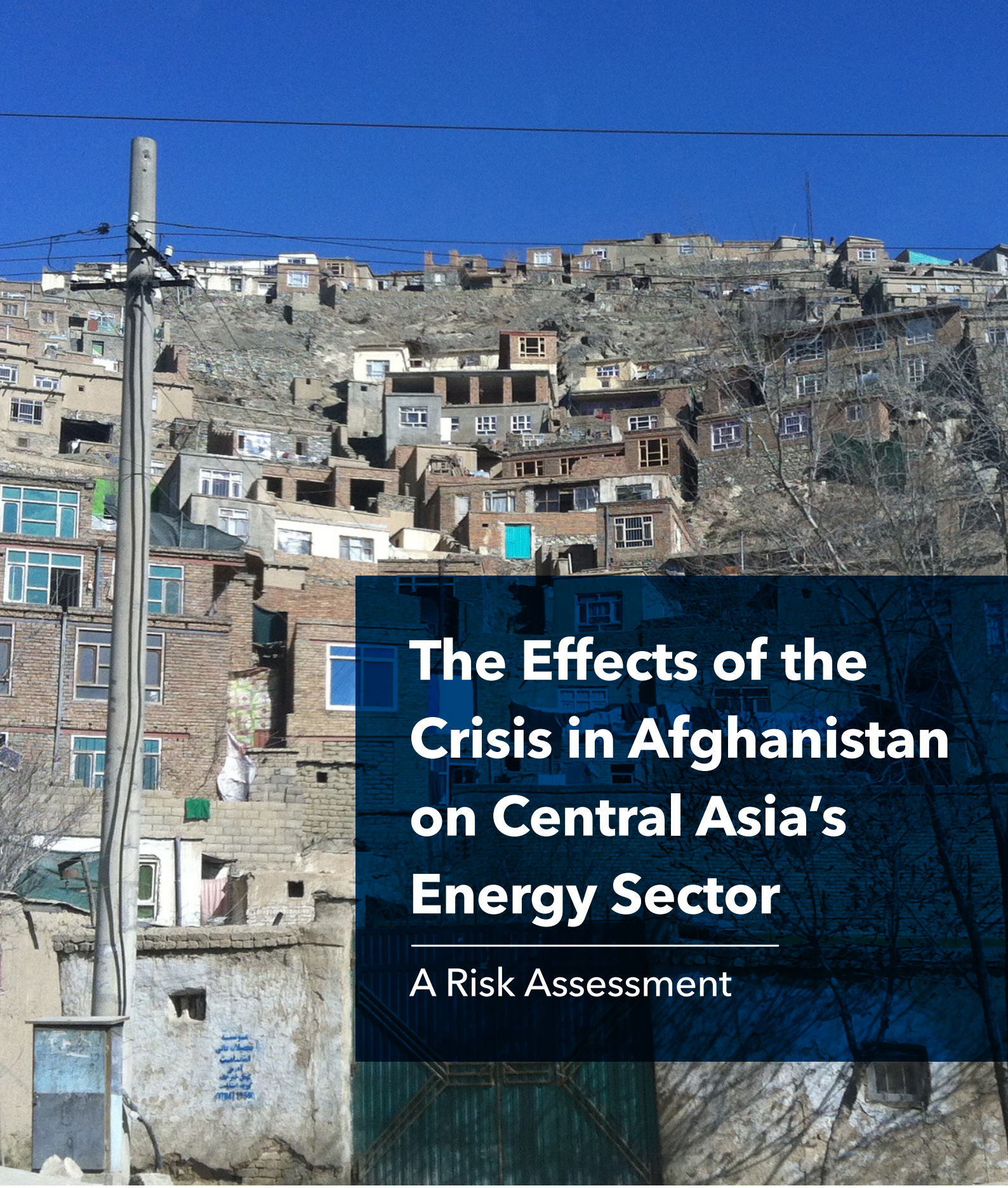

The Effects of the Crisis in Afghanistan on Central Asia's Energy Sector

A Risk Assessment

OSCE Organization for Security and Co-operation in Europe

The OSCE Secretariat is proud to present this report, "The Effects of the Crisis in Afghanistan on Central Asia's Energy Sector: A Risk Assessment," a comprehensive analysis of the implications of Afghanistan's regime change for Central Asia's energy sector and regional energy co-operation. The report is based on a study carried out within the framework of the OSCE project "Strengthening Energy Sector Co-operation and Analysis in Central Asia in the Context of Afghanistan's Energy Crisis."

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Cover page photo: Residential area with power lines, Afghanistan © Farkhod Aminjonov

01 Key Takeaways

1. In spite of trade disruptions following Afghanistan's regime change, electricity trade with Central Asia has remained stable, amounting to 4.4 billion kWh in 2022.

2. Central Asia has prioritized consistent power deliveries in the aftermath of the Taliban takeover in 2021, even with outstanding payments reaching $100 million. Most debts were settled, but pricing remains an issue due to Afghanistan's ongoing financial difficulties.

3. Energy stakeholders in Central Asia have engaged with the Taliban to stabilize power trade, resolve outstanding debt, and advance cross-border energy infrastructure projects.

4. Most infrastructure for the TUTAP, TAP, CASA-1000, and TAPI projects* has been completed on the Central Asian side. Construction on Afghan territory, however, has been largely suspended due to the withdrawal of international donors, with limited work resuming in recent months. This could have long-term repercussions for the country's economic development and the energy security of the region and the Afghan people.

5. Amid ongoing energy insecurity and energy poverty, the Taliban seek to develop thermal power production and fossil fuel extraction, and to attract investment from China, India, the Russian Federation, and Türkiye.

6. Security risks to energy infrastructure persist in Afghanistan, with instances of deliberate damage reported after 2021. Uncertainty related to risk escalation, potential impacts on energy links, and relations with Central Asian states may limit further investments.

7. Central Asian states are bolstering regional integration and enhancing energy trade through the Central Asian Power System, and by diversifying partners and power generation sources. Successful regional energy projects could integrate Afghanistan into this system and help realize Central Asia's export potential to South Asia.

8. Central Asian countries' efforts to expand trade with Afghanistan and South Asia may be hindered by domestic challenges such as climate-induced energy disruptions, outdated infrastructure, rising domestic demand, and seasonal variations in water and power availability.

* TUTAP: Turkmenistan-Uzbekistan-Tajikistan-Afghanistan-Pakistan power transmission project
TAP: Turkmenistan-Afghanistan-Pakistan power transmission project
CASA-1000: Central Asia-South Asia power transmission project
TAPI: Turkmenistan-Afghanistan-Pakistan-India gas pipeline project

02 Introduction

The Taliban takeover of Afghanistan in August 2021 has affected every dimension of society and triggered a widespread humanitarian crisis with the brunt of hardships borne by women. A series of natural disasters — including earthquakes, flash floods, and unusually severe drought conditions — has worsened the situation in the country. Afghanistan depends on its neighbours to meet most of its power needs, and in the wake of the takeover, the Organization for Security and Co-operation in Europe (OSCE) launched a project to identify key risks and developments in Central Asia's energy sector following the regime change, and to offer policy recommendations to enhance regional energy security in light of the developments in Afghanistan.

At a June 2023 regional workshop organized by the OSCE in Ashgabat on energy co-operation and natural resource management in Central Asia in the context of the Afghan crisis, energy stakeholders from Tajikistan, Turkmenistan, and Uzbekistan — the three main power exporters to Afghanistan — agreed to a roadmap for co-operation in the framework of this project. The roadmap involves the publication of an in-depth analysis of the Afghan energy crisis and its effects on Central Asia, the development of a regional strategy, and the establishment of a regional expert network. This study represents the first step.

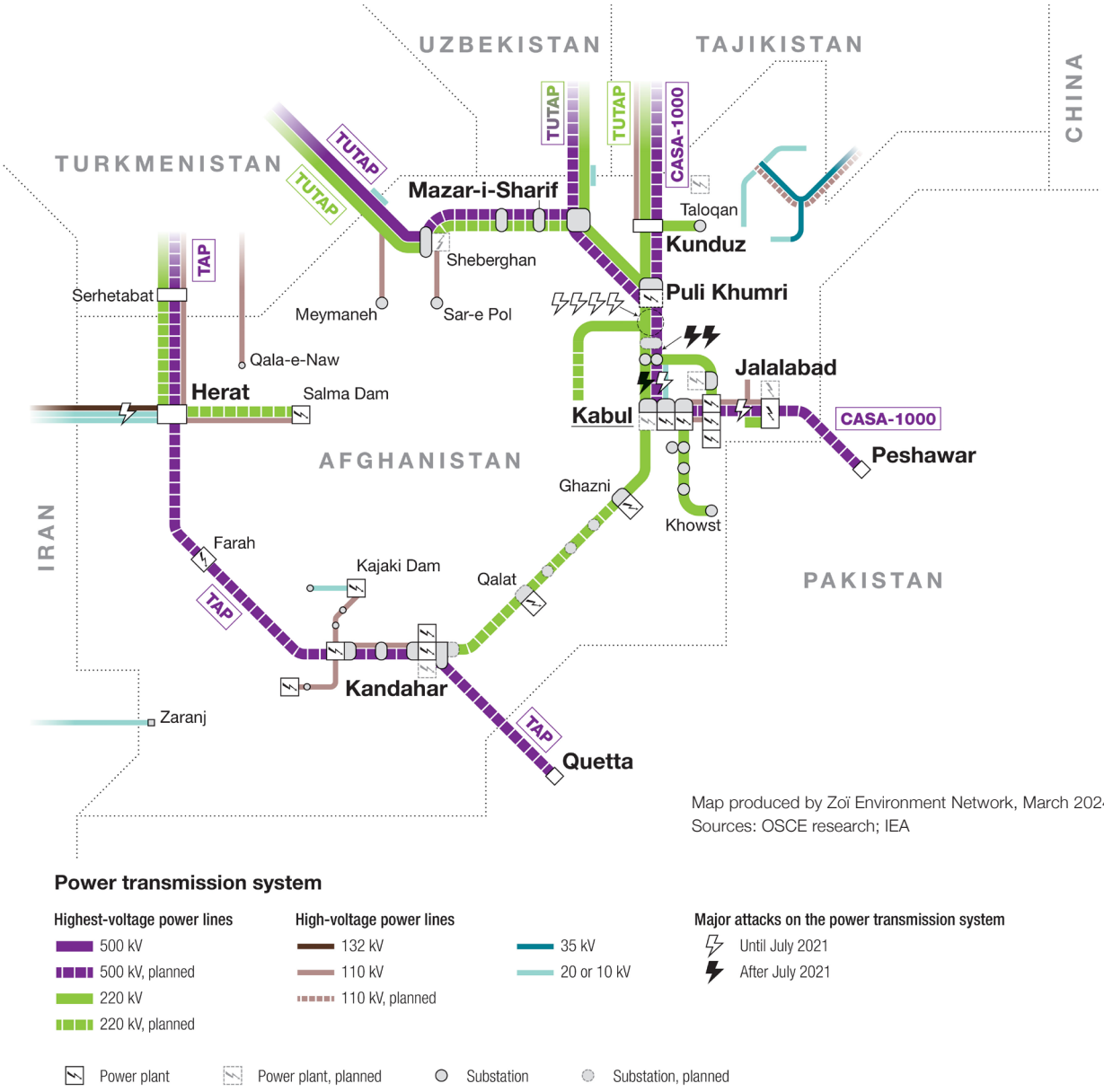
This OSCE report delves into the implications of Afghanistan's regime change for Central Asia's energy sector and regional energy co-operation. It identifies the main challenges facing Afghanistan's energy sector today and the related risks to energy trade with Central Asia. The report also examines the evolution of energy relations with Tajikistan, Turkmenistan, and Uzbekistan since the Taliban's arrival to power, and assesses the feasibility of regional energy projects in the current political context.

Central Asia's energy security is closely intertwined with Afghanistan. Afghanistan relies heavily on imported power, with 78 per cent of its electricity consumption in 2021 being foreign-sourced.[1] Central Asia contributed a remarkable 85 per cent of these imports, attesting to its significance for Afghanistan's energy needs.[2] Tajikistan, Turkmenistan, and Uzbekistan are major sources of electricity and liquid fuels for Afghanistan, and there are plans for Turkmenistan to become a natural gas supplier to its southern neighbour. This trade relationship provides the Central Asian countries with a substantial revenue stream.

Afghanistan is positioned as a potential transit hub, connecting Central Asia with South Asia, a region experiencing surging energy demand. Central Asian coal, bound for Pakistan, is already being transported via Afghanistan,[3] and there's a possibility for natural gas and electricity to follow a similar route. This transit opportunity could generate substantial income for Afghanistan, spurring much-needed investment in its domestic energy sector, where two-thirds of the population still lack access to stable power supplies.[4] Recognizing these mutual benefits, the four countries have over the years, with international support, pursued various infrastructure projects to boost regional connectivity.

Key regional initiatives include the Turkmenistan-Uzbekistan-Tajikistan-Afghanistan-Pakistan (TUTAP) and the Turkmenistan-Afghanistan-Pakistan (TAP) power interconnections, the Central Asia-South Asia power transmission line (CASA-1000), and the Turkmenistan-Afghanistan-Pakistan-India (TAPI) gas pipeline.

Figure 1.
Central Asia-Afghanistan power transmission and transit[5]



The evolving political, security, and economic landscape in Afghanistan has, however, significantly impacted the energy sector, casting doubts on the viability of domestic and regional energy initiatives. The Taliban takeover in 2021 has disrupted energy supplies, led to security accidents with infrastructure, and aggravated energy poverty. Plans to develop domestic energy resources and the country's transit potential have been halted or suspended due to the departure of foreign capital and technology. The economic and financial challenges following the transfer of power threaten Afghanistan's ability to pay for energy imports, potentially disrupting vital energy trade essential for regional stability and security.

The post-2021 exodus of international organizations has resulted in a scarcity of up-to-date analysis of Afghanistan's energy sector developments. Policymakers in Central Asia and the wider region require adequate information about trade and investment in Afghanistan to make well-informed decisions in the energy sector. This report was created in close collaboration with government officials and experts from Central Asian states to reflect their needs, priorities, and responses to the situation.

© Farkhod Aminjonov
Kabul, Afghanistan

This study offers recommendations to practitioners from OSCE participating States on enhancing regional energy security in light of the developments in Afghanistan. The burgeoning regional integration of Central Asia, exemplified by the recent reconstitution of the Central Asian Power System, paves the way for a potential regional response to energy security risks related to Afghanistan. Hence, this report pays particular attention to the regional implications of developments in Afghanistan, aiming to improve the energy security and well-being of the people in Central Asia and Afghanistan in the years to come.

03 Energy Security in Afghanistan

Even before the Taliban takeover in 2021, Afghanistan suffered from widespread energy insecurity due to decades of underinvestment in energy production, transmission, and distribution.

Energy Sector Overview

Afghanistan holds substantial untapped energy and mineral resources. The Asian Development Bank (ADB) estimates the country's natural gas deposits at around 75 billion m^3, with possibly six times more yet to be discovered.[6] The Afghan part of the Amu Darya basin, shared with Turkmenistan and Uzbekistan, holds around 80 million barrels of oil reserves.[7] Afghanistan also boasts between 100 and 400 million tonns of coal reserves,[8] currently a primary source for household heating and cooking, but with the potential to contribute more to domestic power generation in the future. Beyond conventional energy sources, Afghanistan is rich in renewable energy sources, with a technical solar power potential of 222 GW, wind potential of 67 GW, and hydropower potential of 23 GW.[9]

The country is located between Central Asia and Iran — which are rich in nearly all energy resources and have significant export capacity — and rapidly developing South Asia, where energy demand is increasing by 3 per cent annually.[10] This location could allow Afghanistan to become an interregional transit hub, develop its energy infrastructure, and earn substantial revenues from transit fees.

Despite this potential, however, Afghanistan ranks among the world's lowest in per capita electricity consumption. It fulfills only 20 per cent of its own power needs, with just a third of its 33 million population connected to the grid.[11] The rest of its electricity demand is met through imports, primarily from Central Asia — Uzbekistan (40.5%), Tajikistan (24.0%), Turkmenistan (20.5%) — as well as Iran (15.0%).[12]

Figure 2.
Technical potential of renewable energy sources in Afghanistan[8]

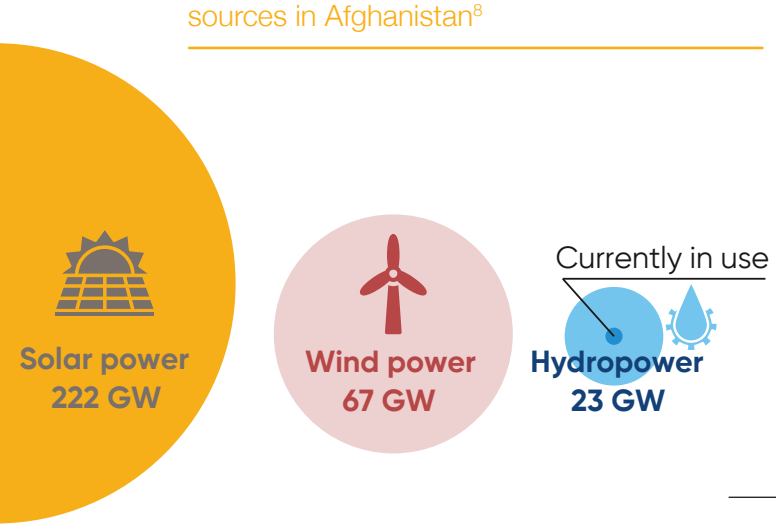


Figure 3.
Afghanistan's power imports from Central Asia[11]

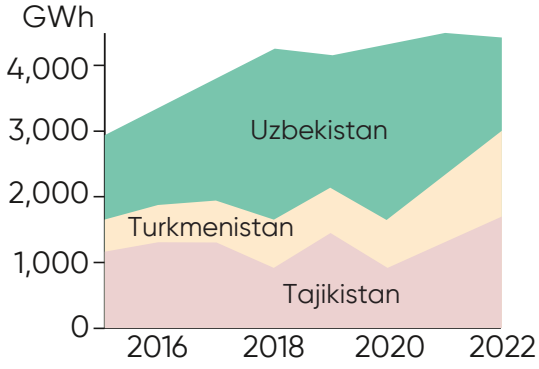
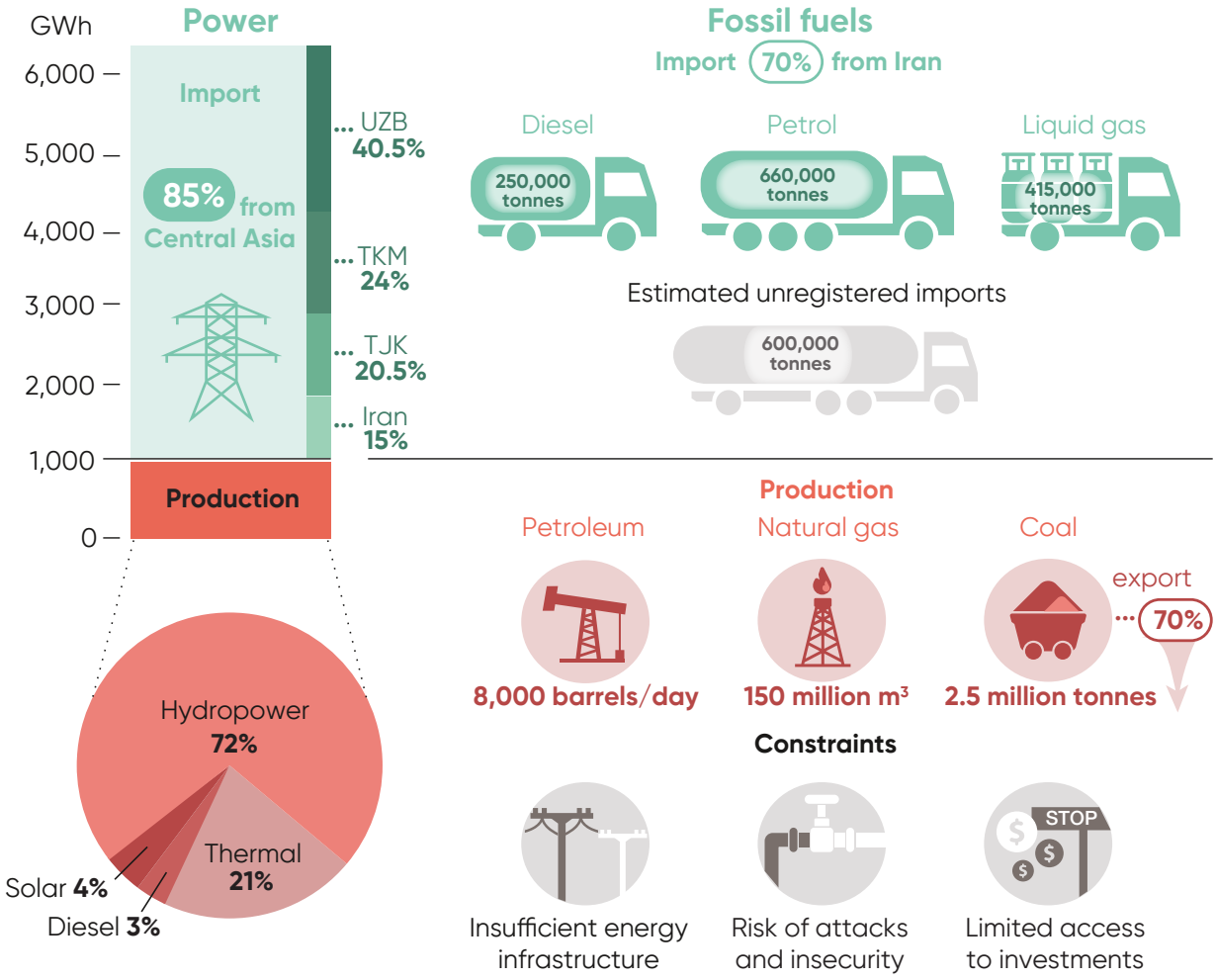


Figure 4.
Energy production and imports in Afghanistan (latest data for 2021–2022)[17]

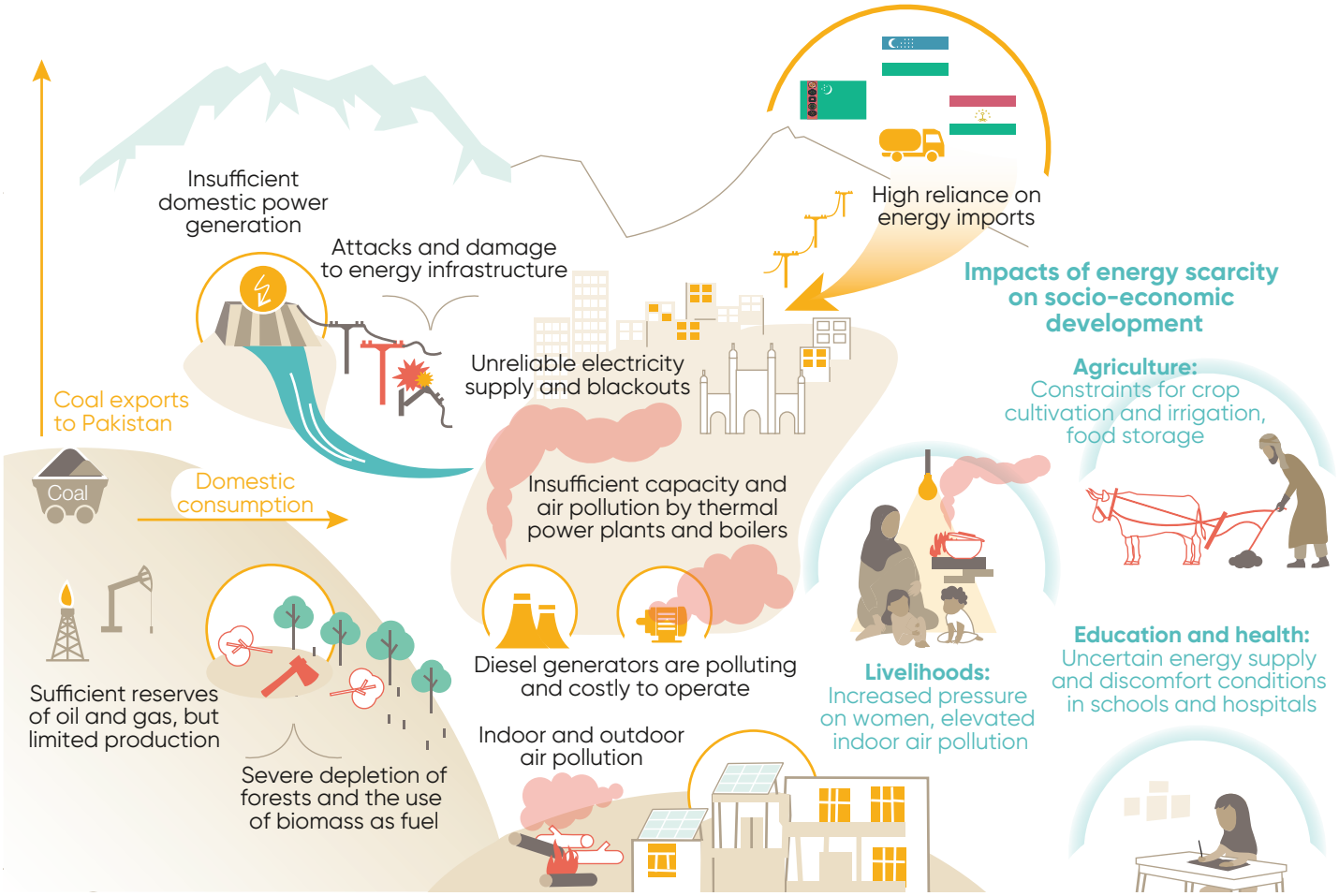


Afghanistan lacks a central heating or gas system, with only limited heating in parts of Kabul.[13] Its oil and natural gas production is minimal, and while coal production is slightly more significant, much is exported due to the lack of domestic thermal power facilities and the government's reliance on customs duties for revenue.[14]

The country's domestic power generation capacity, as of 2018, mainly consisted of hydropower plants, fuel oil and diesel-run thermal power plants, small diesel generators, a natural gas plant, and limited solar capacity.[15] Hydro plants are the backbone of Afghanistan's power system, with bigger diesel plants providing backup to the Kabul urban area and smaller generators used in regions not served by the central grid. Despite recent additions of new generation facilities, Afghan domestic capacity remains insufficient to address widespread energy insecurity.

Afghan authorities have for years sought to tackle these issues by tapping into domestic mineral resources. Before 2021, the government initiated two policy programs with the ADB — the Power Sector Master Plan 2012–2032 and the Gas Development Master Plan for 2015–2035 — to identify major obstacles in the energy sector and provide a framework for further development.[16] But despite implementing some successful infrastructure projects with international support, the authorities failed to attract the necessary investment to meet electrification and gasification targets.

Energy challenges of Afghanistan



Power Shortages and Production Capacity

Afghanistan's energy security issues include an insufficient and unstable electricity supply. Although grid connectivity has increased from a meager 5 per cent in 2002 to 34 per cent today, substantial investment is still required to ensure universal and reliable electricity access. Many households, particularly in Kabul, nominally have electricity access but still endure blackouts of up to 15 hours per day.[18]

Frequent blackouts disproportionately impact women, who cannot participate actively in public life under restrictions imposed by the Taliban.

These power shortages and a largely absent natural gas or centralized heating infrastructure mean that many Afghan families rely on biomass for heating and cooking purposes. Using biomass energy at home damages the environment and exposes families to levels of pollution that are detrimental to their health, causing an estimated 27,000 deaths annually in the country according to the World Health Organization.[19] Women and children are particularly vulnerable, as they spend most of their time at home and are directly exposed to wood- or coal-induced fumes.[20]

The country's power shortages are exacerbated by its low generation capacity — only 0.6 GW in 2020.[21] In contrast, Uzbekistan, with a similar population, has a capacity of around 17 GW.[22] Even Tajikistan, considerably smaller in geographic area and population, has ten times the capacity of Afghanistan.[23] Over the past decade, the country's electricity production has remained nearly flat.

Several energy projects have not come to fruition due to inadequate funding, resource mismanagement, and mounting security concerns. Moreover, not all implemented projects are operating at full capacity. Take, for instance, the diesel-run Tarakhil TPP. Commissioned in 2010 with a 195 MW capacity, it was designed to stabilize Kabul's power supplies. Yet due to the high cost of imported diesel, the plant has generated power only sporadically and at a fraction of its planned capacity.[24]

With limited domestic production, Afghanistan will likely continue relying on Central Asian power supplies, but the slow progress in expanding electricity access domestically could curb the growth in power trade, potentially limiting revenue for power producers from Central Asian countries.

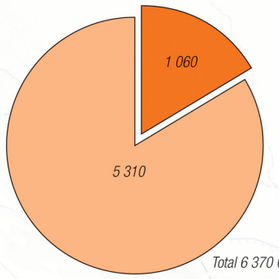
Natural Gas Infrastructure

Natural gas power plants could offer cleaner alternatives to coal and diesel, but the lack of domestic gas production and pipeline infrastructure remains a significant challenge. Afghanistan's limited gas pipeline network, a legacy from Soviet assistance in the 1970s,[25] is outdated, with many pipelines inadequate to support the pressure necessary to operate a gas power plant.

Efforts have been made to revive gas fields and modernize infrastructure. In 2020, Afghanistan began producing natural gas in Jawzjan province. A field in Sheberghan supplied the country's first gas-fired power plant with 150,000 m^3 of natural gas. The plant, opened with support from the United States Agency for International Development (USAID) and the World Bank, has a potential capacity of 40 MW.[26] Whether the Taliban can replicate this project's initial success and execute the subsequent phases of the Sheberghan gas-to-power project remains uncertain.

To establish natural gas as a reliable electricity source, Afghanistan needs to significantly increase domestic production or secure substantial import volumes from Central Asia.

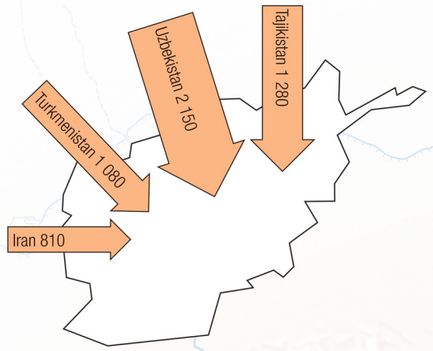
The planned TAPI gas pipeline aims to address this issue by earmarking 500 million m^3 of Turkmenistan's natural gas for Afghanistan's domestic use. This plan, however, requires a considerable expansion of Afghanistan's domestic infrastructure, with financing and security hurdles posing challenges to Turkmenistan's natural gas export plans.



Electricity generation and import in 2021, GWh

Domestic generation

Imports



Afghanistan's electricity imports by country in 2021, GWh

Afghanistan's energy system

Power plants

- Hydro
- Thermal, diesel
- Thermal, other
- Solar

More than 100 MW installed capacity

10–100 MW

Less than 10 MW

Electric power transmission lines

- Existing, electric potential in kV
- Planned, electric potential in kV

Oil and gas

- Planned gas pipeline
- Oil or gas production
- Coal mining

Solar power potential

Medium · High · Very high

Other elements

- State borders
- River
- Seasonal river and inland delta
- Canal

CASA-1000 Central Asia-South Asia power project

TAP Turkmenistan-Afghanistan-Pakistan electricity transmission line

TAPI Turkmenistan-Afghanistan-Pakistan-India gas pipeline

TUTAP Turkmenistan-Uzbekistan-Tajikistan-Afghanistan-Pakistan transmission line

Sources: OSCE; World Bank; Global Solar Atlas; Global Energy Monitor; IEA; National Statistics and Information Authority of Afghanistan

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Map produced by Zoï Environment Network, March 2024

UZBEKISTAN

TURKMENISTAN

TAJIKISTAN

IRAN

PAKISTAN

CHINA

INDIA

Darwaz

Wakhan

Badakhshan

Nuristan

Hindu Kush

Sistan basin

Registan desert

Koh-e Baba

Firoz Koh

Andkhwoy

Sheberghan

Safid

Sar-e Pol

Meymaneh

Balkh

Mazar-i-Sharif

Kholm

Kunduz

Khanabad

Taloqan

Baghlan

Puli Khumri

Puli Khumri 2

Puli Khumri 1

Jurm 1

Jurm 2

Jurm 3

Sheeshan

Feyzabad

Sheeshan 1

Sheeshan 2

Chatta 1

Sangab 1

Noshaq

7492

Kuh-e Bandaka

6812

Serhetabat

Badghis

Qala-e-Naw

Herat

Jalwarcha

Ghuriyan

Salma Dam

Chaghcharan

Shindand

Adraskan

Farah Rud

4182

Kuh-e Qaysar

Farah

Harut Rud

Musa Qala

Kajaki 1-3

Gershk

Lashkar Gah

Zaranj

Hamun Lake

Helmand

Nili

Baba-Wali

Tarin Kowt

Qalat

Kandahar

Kandahar IC2

Kandahar IC3

Kandahar IC1

Bagh-e Pul

Dahla Dam

Kandahar KTA50

Baba Kot

Kandahar Solar PV Park

Shurandam Industrial Park

Zabol

Arghandab

Arghastan

Tarnak Rud

Lora

Atgar

Gowmal Rud

Kundar

Zori

Pishin Lora

Khash

Sayghan

Bamyan Hydro

5048

Shah Fuladi

Bamiyan

Ghorband

Jabul e seraj

Charikar

Kabul

Naghlu

Samer khel

Asadabad

Darunta

Sarobi

Jalalabad

Tarakhail

Mahipar

Chaki Wardak 2-3

Puli Alam

Sikaram Sar

5064

Gardeyz

Ghazni

Gardez

Khowst

Khurram

Kabul

Panjshir

Kunar

Pech

Kokcha

Khanabad

Kunduz

Balkh

Khulm

Shirin Tagab

Amu Darya

Murghab

Qosh Tepa Canal under constr.

TUTAP

CASA-1000

TAPI

TAP

National Power Grid

The limited electricity supply and the absence of a unified national grid create considerable power and fuel access disparities among Afghanistan's 34 provinces. Except for Kabul, regions bordering Central Asia and Iran typically enjoy more stable energy supplies due to cross-border infrastructure and trade.[27] This regional discrepancy is a by-product of government policy since 2001, when authorities prioritized infrastructure development in the capital and enhanced connectivity with northern neighbours. While about 70 per cent of Kabul residents have at least partial grid access,[28] a stark 70 per cent of the country lacks essential transmission and distribution infrastructure.[29]

Kandahar, Afghanistan's second-largest city, symbolizes these regional disparities. Although the southern province is home to nearly 1.5 million people, it remains unconnected to the central grid. The authorities have tried promoting diesel generators to ensure limited electricity access, with support from USAID and the US military until 2015, but this initiative achieved very limited success. Despite 20 per cent of the local population having access to these generators, the high cost of imported fuels, coupled with the deteriorating economic situation, has rendered diesel usage prohibitively expensive for most residents.[30]

Even if diesel prices were lower, the environmental impact of generators makes them, at best, a stopgap measure to address energy insecurity. The construction of a robust, nationwide power grid is seen as the key long-term solution for the main cities and regions of Afghanistan.

The construction of a nationwide power grid would also facilitate the delivery of Central Asian power imports to underserved population centers, thereby enhancing the security of demand for Central Asian electricity producers from Central Asian countries.

Vulnerable Energy Infrastructure

Afghanistan's power grid wrestles with aging infrastructure, technical issues, and heightened vulnerability to security incidents. Prior to the Taliban takeover, international donors contributed to the restoration and maintenance of Afghanistan's power infrastructure.[31] Although their efforts decreased energy losses from 54 per cent in 2008 to 24 per cent during the 2014–2016 period, these figures remain high and necessitate further investment.[32]

The issue of grid maintenance is exacerbated by the risk of security incidents. Prior to 2021, the Taliban insurgency inflicted damage on energy production and transmission facilities, a threat persisting today from other insurgents. Historically, energy assets have not been the primary targets of insurgent groups, with attacks being more of an exception than a rule. Still, these occasional attacks and resulting blackouts can trigger a cascade of negative consequences, disrupting crucial operations in businesses, hospitals, and schools, and impeding the import of vital supplies. For instance, a 2019 Taliban attack on the electricity pylons of Herat Industrial Park resulted in a ten-day power shutdown, causing the loss of income for 25,000 employees and damaging essential machinery.[33]

Such incidents not only impede economic development and stability, but also affect energy exporters from Central Asian countries, as illustrated by attacks on transmission lines carrying electricity from Uzbekistan and Tajikistan to Afghanistan in 2018 and 2019.[34] Modernizing power transmission infrastructure and implementing security measures can mitigate the risk of supply disruptions in Afghanistan — a significant concern for Central Asian exporters.

Access to Fuels and Refined Oil Products

Afghanistan's high reliance on imported oil products such as gasoline, petrol, and diesel — largely sourced from Central Asian states, Iran, and the Russian Federation — continues to define its energy landscape. Oil accounted for 56 per cent of the country's total energy supply in 2019.[35] Previous efforts to develop domestic oil production, such as a short-lived 2013 venture with the China National Petroleum Corporation in the Amu Darya basin,[36] were stymied by Afghanistan's lack of refining capacity and transit agreements with Central Asian nations.[37] Afghanistan's oil and gas production remains very low and the Taliban have recently sought to rectify this, most notably through an oil extraction agreement with a Chinese state-owned petroleum company in January 2023.[38]

Lacking oil refining or gas processing facilities, Afghanistan has to export crude oil to Uzbek refineries and then import the processed, higher-value oil products. This reliance is further complicated by prevalent fuel smuggling from Central Asian states and Iran. The Afghan oil and gas regulatory authority recorded 2.7 million tonnes of oil imports in 2017, but duties were only collected on 1.97 million tonnes, indicating that at least a third of oil products entered the country illicitly.[39] Tackling smuggling and optimizing cross-border commercial exchanges could enhance the trade in oil products and generate additional income for Central Asian refiners and Afghan consumers.

© Zoï Environment Network / Viktor Novikov
The use of energy by a small-scale construction enterprise, Afghanistan

Obstacles to the Development of Renewable Energy

Renewable energy has long been touted as a potential solution to Afghanistan's energy insecurity, promising increased self-sufficiency and better electricity access, especially in rural areas.

Prior to 2021, the government drafted a National Renewable Energy Policy, targeting the addition of 4,500–5,000 MW of renewable generation capacity by 2032,[40] but few of these ambitious plans materialized due to challenges in creating a transparent business environment and in attracting the necessary investment.

Solar power shows promise, given the country's 300 days of sunshine annually. Prior to 2021, the government had cautiously begun implementing small-scale solar photovoltaic systems, introducing rooftop installations in rural Bamian province as early as 2005.[41] In addition, rural communities throughout Afghanistan have adopted solar power for everyday needs such as heating water and cooking. Farmers in Kandahar province, for example, have begun installing solar-powered water pumping systems to address the irregular availability of surface water for irrigation. The province is also home to the country's first 15 MW utility-scale solar plant.[42] Investment in solar energy, however, has fallen short of the levels needed to address the widespread lack of energy access. By 2020, installed solar capacity at the national level was estimated at 40 MW.[43]

Hydropower remains the most substantial and well-developed renewable resource in Afghanistan, dating back to the 1920s.[44] Today, hydropower accounts for over 80 per cent of domestic power production, with most significant plants constructed between the 1950s and 1970s. Despite the need to modernize older infrastructure, the government also saw merit in constructing new hydroelectric power plants (HPPs) for increased capacity and energy storage. Afghanistan's hydro potential is estimated at 23,000 MW, or 35 times the country's current total capacity.[45]

Challenges nevertheless persist, and include the need for significant investment in modernizing infrastructure and ensuring dam safety. Importantly, four of Afghanistan's five major river basins are transboundary, accounting for about 90 per cent of national water resources.[46] The lack of robust water-sharing and water management treaties with neighbouring countries[47] means the construction of large HPPs could lead to trans-boundary disputes or tensions due to the impact on downstream countries. Balancing these considerations with the need to fully utilize Afghanistan's water resources will be a critical factor moving forward.

A reported major concern to Afghanistan's neighbours downstream on the Amu Darya River is the construction of the Kosh-Teppa (Qosh-Tepa) irrigation canal in northern Afghanistan.[48] While the conceptual planning for this canal was done before the takeover, the Taliban have made this a flagship infrastructure project for the country. When and if fully completed, it will be able to irrigate hundreds of thousands of hectares of arid land, using 15–20 per cent water from the already stressed Amu Darya.[49] While the Taliban claim the canal will boost the local economy and alleviate the growing impact of droughts on agricultural production, the combination of climate effects on the Amu Darya's water flow, and additional water withdrawals and losses[50] from this canal may pose water security risks for Uzbekistan and Turkmenistan. The potential negative impacts of this situation could also affect energy trade and exports.

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Solar kitchen, Bamyan Province, Afghanistan

© Zoï Environment Network / Nickolai Denisov, Fatima Akbari
Basic infrastructure for power transmission, Bamyan Province, Afghanistan

Afghanistan's vast energy potential is marred by the lack of domestic production and transmission capacity, insufficient investment, and vulnerable infrastructure. The results include severe energy insecurity and high dependence on imported electricity and refined products. Central Asia, as the country's main energy supplier, has a key interest in ensuring reliable cross-border supplies, expanding regional energy infrastructure, and enhancing energy security in Afghanistan.

© Zoï Environment Network / Nickolai Denisov, Fatima Akbari
Afghan women wash clothes in cold water, Bamyan Province, Afghanistan

© Zoï Environment Network / Nickolai Denisov, Fatima Akbari
Wood and biomass are widely used as fuel, Bamyan Province, Afghanistan

04 Energy Trade with Central Asia under the Taliban

The Taliban's takeover in August 2021 represented a watershed moment for Afghanistan and its relations with the world. As Afghanistan's neighbours and key commercial partners, Tajikistan, Turkmenistan, and Uzbekistan are directly affected by this change, with the energy sector no exception.

Power Trade

While the Taliban's takeover led to an exodus of international capital and expertise from the Afghan energy sector, the country's energy trade with its neighbours has remained largely stable. Despite initial concerns and disruptions, power trade was swiftly resumed and has even seen an upward trend in the case of Tajikistan and Turkmenistan in the past two years.[51] This resilience can be attributed to the crucial role of Central Asian electricity for Afghanistan's economic and political stability, accounting for 85 per cent of electricity imports in 2021.[52]

But challenges persist. Non-payment for power deliveries emerged as a key issue early on. In the initial months of their rule, amidst the turmoil of their takeover, the Taliban replaced the leadership of the national grid (DABS) and refused to make payments for power imports.[53] Consequently, DABS faced a staggering $90 million debt within a month of the Taliban's takeover.[54] By May 2022, this debt ballooned to $100 million, largely owed to the main suppliers, Uzbekistan and Tajikistan.[55]

Despite non-payments, Central Asian countries continued supplying electricity, even though they were contractually entitled to cut off supplies.[56] This is noteworthy in light of the politically diverse relationships between the Taliban and the authorities in Ashgabat, Dushanbe, and Tashkent. The perseverance of power supplies may reflect Central Asian countries' preference to maintain regional stability rather than to reduce supplies.[57] Uzbekistan's continued energy trade with Afghanistan, for example, represents not only a commercial decision but also a diplomatic gesture of goodwill.[58]

Throughout 2022 and 2023, the Taliban engaged in energy diplomacy to settle outstanding debts and secure future supplies.[59] Turkmen officials indicate that payment delays were a temporary factor after the 2021 crisis and that all outstanding bills are now settled.[60] Similarly, Uzbekistan confirmed in August 2022 that the Taliban had cleared their debts.[61] In 2022, Afghanistan reduced its debt to Tajikistan[62] which stood at $28 million according to the latest available figures.[63] In early 2023, DABS and its Tajik counterpart Barqi Tojik extended their power supply agreement,[64] hinting at robust trade relations unaffected by any possible remaining debts. Tajik exports to Afghanistan soared by one-third in 2022.[65]

Another key risk to power trade is the ability of Central Asian producers to meet the Afghan power demand, especially if domestic production on either side stagnates or declines.

© Zoï Environment Network / Christina Stuhlberger
Nurek hydropower station and infrastructure, Tajikistan

Central Asian countries are grappling with their own energy disruptions due to climate impacts, aging infrastructure, and seasonal fluctuations in water availability and energy demand.[66] Tajikistan, for example, faces difficulties in supplying electricity to Afghanistan during winter due to high domestic power consumption and low water levels in reservoirs. Uzbekistan's economy and population are growing, and thus increasing domestic energy demand. The country is already at limits of its ability to meet export obligations as Afghanistan's largest power supplier.[67] During energy shortages in the winter of 2022–2023, Uzbekistan halted power exports to Afghanistan to meet to its domestic demand, leaving large parts of Afghanistan without power.[68] While the crisis has since been resolved, it exposed vulnerabilities likely to influence the Central Asia–Afghanistan energy trade dynamics in the coming years.

Pricing of Imported Power

Central Asian governments have historically capitalized on price differentials to grow their power trade with Kabul. Tajikistan, Turkmenistan, and Uzbekistan sell power at higher rates to Afghanistan than on their domestic markets, where consumer prices are low or subsidized. While official contract prices are rarely made publicly available, import data suggests that Afghanistan pays on average between $.035–$.045 per kWh for Central Asian power, whereas Iranian imports tend to be more expensive, hovering in the $.055–$.062 range.[69]

Even before the Taliban takeover, however, Afghanistan grappled with affordability issues. In 2018, DABS officials negotiated a price reduction with Uzbekistan because its electricity was almost twice as expensive as Turkmen or Tajik supplies, and Uzbekistan agreed to lower the price to around $.05 per kWh.[70] With the Taliban lacking international support and struggling to meet their financial obligations, pricing will likely continue to be a contentious issue.

The Taliban have renewed and renegotiated some of the long-term contracts signed before the takeover, notably a $69 million contract with Tajikistan and a $100 million contract with Uzbekistan.[71]

The humanitarian situation in Afghanistan further complicates power pricing. Most Afghan households cannot afford their energy bills, and government subsidies for specific consumer categories have failed to make energy affordable for the majority. Declining incomes and rising prices have resulted in deteriorating living standards. A World Bank survey revealed that since the Taliban's rise to power, the percentage of Afghans who could not meet their basic needs, including their needs for energy, reached 70 per cent — double what it was before the Taliban took over.[72] The economic crisis has disproportionately affected women and girls, leading to reduced employment and income, as well as lower food intake compared to other household members.[73]

Although official electricity tariffs appear to have remained the same since 2016, Kabul residents report significant price increases under the Taliban.[74] While subsidies have traditionally been a key tool in alleviating economic hardship, the worsening socio-economic situation means that most Afghans cannot afford even subsidized electricity. Moreover, these subsidies have become a financial burden for a country reliant on imported electricity.

Table 1.
Average wholesale prices for imported power, based on trade data, USD cents/kWh[75]

Country	2018	2019	2020	2021
Iran	6.2	5.6	5.5	5.9
Tajikistan	3.4	3.7	3.7	4.4
Uzbekistan	5.2	4.4	4.4	5.0
Turkmenistan	3.3	3.5	3.5	3.7

Table 2.
Value of Central Asia's power trade with Afghanistan[76]

Country	Value of Power Trade in 2021	Value of Power Trade in 2022	Value of Power Trade in 2023
Tajikistan	56 million USD	96 million USD	110 million USD
Uzbekistan	108 million USD	94 million USD	100 million USD (agreement signed)
Turkmenistan	40 million USD	N/A	N/A

Security Threats to Infrastructure

Prior to 2021, the Taliban insurgency put Afghanistan's electricity infrastructure — critical to its energy trade with Central Asia — at risk. Sporadic fighting and attacks affected power networks, and damage inflicted on the transmission lines importing electricity from Central Asia caused supply disruptions for Central Asian imports. Some Afghan experts, however, contend that insufficient funding and substandard maintenance pose more significant threats to energy security and stable power trade than insurgent attacks.[77]

Despite the Taliban's rise to power, the threat to infrastructure persists, with emerging insurgent groups like the Islamic State Khorasan Province group posing risks to the physical security of energy infrastructure.[78]

Central Asian policymakers and experts disagree about whether the security risk to energy trade has amplified or diminished. Energy officials in Tajikistan and Turkmenistan report no significant trade interruptions due to security incidents under the Taliban.[79] Conversely, some experts emphasize that the US previously provided security to critical infrastructure sites prior to 2021, leaving the Taliban inadequately resourced and equipped to singlehandedly ensure security following the US withdrawal,[80] in which case, without regional support, the threat of security incidents remains high.

Figure 5.
Major attacks on power infrastructure in Afghanistan, 2016-2022[81]

Map produced by Zoï Environment Network, March 2024
Sources: OSCE; IEA

Fuel and coal trade

The Taliban have sought to secure continued imports of oil products from Central Asia and Iran to meet domestic needs. In July 2022, they signed a deal with Iran for the supply of 350,000 tonnes of fuel, projected to last a year.[82] That same year, they also reached an agreement to import fuel from Turkmenistan, though details on volumes and pricing remain undisclosed.[83]

Recently, the Russian Federation has emerged as a potential fuel supplier due to geopolitical tensions and falling exports to the West. In September 2022, Kabul and Moscow signed an agreement under which the Russian Federation is to supply one million tonnes of gasoline, one million tonnes of diesel, and 500,000 tonnes of liquified petroleum gas annually.[84] Should these volumes reach Afghanistan, the Russian Federation would become the country's largest fuel supplier, sharing the market with Central Asian producers.

The Taliban have increased domestic coal production to alleviate energy shortages. Even before assuming power, they had established a presence in coal extraction, offering security to companies and aiding smuggling to neighbouring Pakistan.[85] After their takeover, they transformed this practice into a state-run business. Although exact production volumes are difficult to determine, increased exports to Pakistan suggest a surge in domestic production.[86] In 2022, export prices have tripled to $280 per ton, making customs duties a significant revenue source,[87] but the rush to ramp up coal production has led to grave human rights concerns, including child labour and violations of safety, environmental, and labour standards.[88]

The repercussions of this coal production and export increase on Afghanistan's energy ties with Central Asia remain unclear. While the primary trade focus has been on exporting Afghan coal, the country has also resumed the transit of Tajik coal destined for Pakistan,[89] hinting at potential new avenues for energy co-operation.

Power trade between Central Asia and Afghanistan has stabilized and even increased, particularly with Tajikistan and Turkmenistan. Despite Afghanistan's outstanding payments, Central Asian countries have maintained supply, and most debts are now settled. Amid financial struggles, however, pricing remains contentious as Kabul seeks to extend and renegotiate supply agreements. While security threats to Afghanistan's energy infrastructure persist, the extent of the threats and the impact on Central Asia remain uncertain.

05 Regional Energy Projects

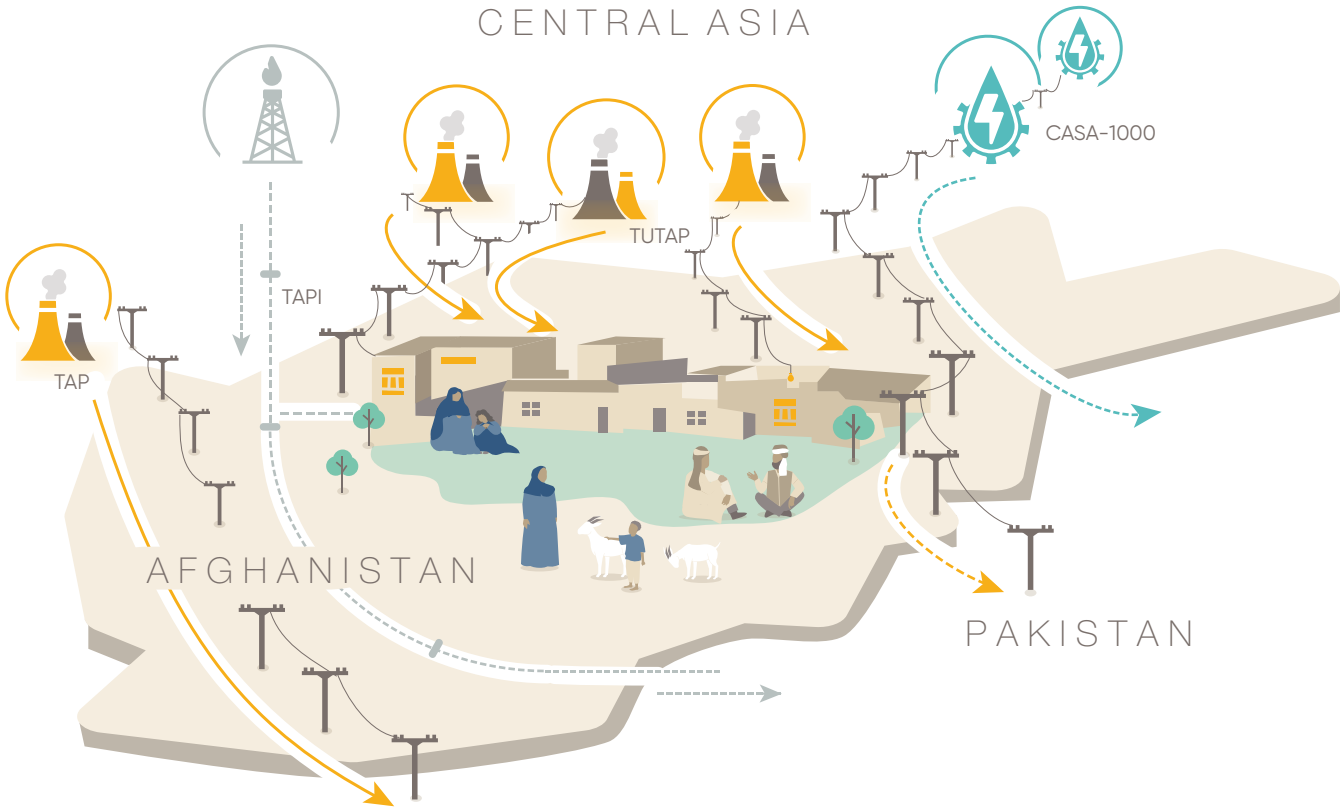
In addition to maintaining cross-border energy trade, the Taliban have shown interest in completing regional energy projects developed before their takeover. Following the departure of international donors in 2021, however, progress on key connectivity projects in the region came to a standstill. Without substantial technical, administrative, and foreign financial assistance, the implementation of these projects will likely face significant difficulties and delays.[90]

Infrastructure Development

Before the Taliban takeover, Afghan authorities relied on external financial support to run their economy and develop critical infrastructure. Recognizing that the status quo was unsustainable, the Afghan government had drawn up plans to attract private investment in infrastructure development and to make the energy sector self-sufficient. According to the Power Sector Master Plan, the country would need around $7.5 billion to make its energy sector self-sustaining and led by the private sector by 2032.[91] Achieving this level of investment was challenging before 2021 and now looks impossible under the Taliban due to sanctions and investment constraints.

The events in 2021 caused investors to halt almost all major infrastructure projects, both domestic and regional. Notable projects including TAP, CASA-1000, and TAPI were frozen after the Taliban takeover.[92] Major foreign investors and donors, including multilateral banks and development agencies, have ceased their co-operation and refused to work with the Taliban. While some entities like the EU, World Bank, and UN are maintaining some humanitarian projects, renewing support for energy projects remains contentious.

The Taliban have, however, made efforts to stabilize the power sector, seeking alternative donors and investors to bridge the funding gap for facility modernization and new capacity development. Since the Taliban's arrival to power, DABS has managed to install a third turbine at the Salma HPP with Indian support and to inaugurate the second phase of Kajaki HPP in collaboration with a Turkish company, boosting generation capacity.[93] China and the Russian Federation have also shown willingness to collaborate on projects with the Taliban, including oil extraction and coal power development.[94] In addition, there are reports of ongoing discussions with representatives of Chinese companies regarding a $10 billion investment plan to develop lithium ore processing in the country.[95] These engagements, however, have been largely project-specific, and do not fully meet Afghanistan's significant investment needs.



TUTAP and TAP Power Interconnections

The Turkmenistan-Uzbekistan-Tajikistan-Afghanistan-Pakistan (TUTAP) and the Turkmenistan-Afghanistan-Pakistan (TAP) projects are ADB-supported transmission lines aimed at enhancing regional energy connectivity and allowing surplus electricity from Central Asia to reach energy-deficient Afghanistan and Pakistan.[96] TUTAP's goal is to establish a unified electricity grid in Afghanistan, linking it with its Central Asian neighbours and Pakistan. TAP, in turn, seeks to expand on the infrastructure provided by TUTAP and build an additional high-voltage transmission line capable of transferring 4 GW of power over 500 km from Turkmenistan through Afghanistan to Pakistan.[97] Both projects are set to eventually integrate with CASA-1000, establishing one integrated energy market across Central and South Asia.

Parts of the TUTAP project are already operational: a 220 kV interconnection with Uzbekistan was established in 2009 at a total cost of $95 million, and a similar 220 kV link with Tajikistan came on stream in 2011 at a cost of $57 million.[98] The 500 kV Turkmen interconnection, tracing the eastern route from Kerki to Shibergan, opened in 2021, shortly before the regime change in Afghanistan, but the line currently operates at 220 kV until further construction is completed on a 305-km section between Shiberghan and Pul-e-Khumri in Afghanistan.[99] Future phases include developing transmission infrastructure between major Afghan cities, constructing an additional 500 kV interconnector with Uzbekistan, and connecting it to the TAP interconnection to Pakistan.[100]

© Sergiy Illarionov
A view of the city of Kabul and a power station

Progress on the TAP project was well underway prior to the Taliban takeover. In November 2018, the Afghan Ministry of Energy and Water and Türkiye's Çalık Holding A.Ş. agreed to invest $1.6 billion in constructing the TAP line.[101] By August 2021, the project's first phase saw the completion of a 260-km, 220 kV transmission line from the Mary TPP in Turkmenistan to the Turkmen–Afghan frontier, reaching to the Serhetabat–Herat interconnection.[102] Concurrently, Çalık Holding A.Ş. upgraded the existing 110 kV line between Serhetabad and Herat on a grant basis in early 2021.

Since the Taliban came to power, the ADB has suspended all funding to Afghanistan with the exception of humanitarian assistance, a condition that remains in effect.[103] Before the Taliban takeover, the ADB had granted Uzbekistan $120 million in October 2020 to construct the 500 kV Surkhan–Pule–Khumri power interconnection. Uzbekistan and Afghanistan had also reached a power purchase agreement for the first ten years at a price of $.05 per kWh.[104] Uzbekistan has completed construction on its territory, but the 200 km of the transmission line on Afghan territory remains unfinished.[105] Although this funding is currently frozen, in December 2021, the Uzbek national grid resumed discussions with their Afghan counterparts on this topic.[106]

The Turkmenistan government has actively advanced both the eastern TUTAP and southern TAP interconnection projects, both before and after Afghanistan's regime change.[107] In recent years, the country has devoted significant effort to developing its internal infrastructure for the eastern interconnection, linking the Mary substation with Kerki, from where a 153-km high voltage line crosses the border towards the Afghan city of Sheberghan.[108]

With regard to the southern TAP route, construction on the Turkmen side has been completed. At present, DABS is funding the construction of a single-circuit power transmission line from Herat to the Turkmen–Afghan border as part of the project's first phase.[109] At the same time, work has recently started on expanding the Noor-ul-Jihad Substation, located in the northeastern part of Herat, which will allow to upgrade power supplies to Herat to the planned 220 kV capacity in the future. A Turkmen energy company and the Ministry of Energy of Turkmenistan are overseeing this project, with an anticipated completion in February 2024.[110]

Finally, Turkmenistan is nearing the completion of its unified domestic power grid with ADB support along with a new 1.5 GW gas-powered station near the Caspian Sea.[111]

By expanding its generation capacity and upgrading its infrastructure, Turkmenistan can increase its electricity exports to Afghanistan and potentially Pakistan in the future.

The prospects for the completion of these power lines under the Taliban face numerous challenges. According to a former head of DABS, Afghanistan and Pakistan have not formalized an agreement for the completion of the TAP project. In addition, DABS and Çalık Holding A.Ş. have disagreements about the electricity tariff in their power purchasing agreement and the power line's ownership.[112] Nonetheless, experts in Turkmenistan suggest that the future outlook for the two regional power lines is more promising than for TAPI, given that 60–70 per cent of the lines are already in place, and the fact that power lines require less investment than gas pipelines.[113]

© Zoï Environment Network
Power infrastructure in northern Afghanistan

CASA-1000 Power Transmission

The Central Asia–South Asia power transmission line (CASA-1000), another regional transmission project that has been discussed since 2007, aims to transport hydroelectric power from Kyrgyzstan and Tajikistan to consumers in Afghanistan and Pakistan. Construction of this 1,380 km-long, $1.2 billion project commenced in 2018, supported by the World Bank, the European Investment Bank, the European Bank for Reconstruction and Development, the Islamic Development Bank, the UK Foreign and Commonwealth Development Office, and USAID.[114]

This project aims to enable Kyrgyzstan and Tajikistan to export their surplus hydroelectricity to their South Asian neighbours during the summer — a capability currently absent due to insufficient transmission line capacity. Tajikistan's summer electricity surplus, estimated at 3–5 billion kWh, could be rerouted to Afghanistan and Pakistan.[115] The project encompasses constructing a 500 kV alternating current power line between Kyrgyzstan and Tajikistan, a similar line within Tajikistan, and a 500 kV direct current line linking Sangtuda in Tajikistan with Nowshera in Pakistan.[116] Collectively, these lines would form a unified southbound network to cater to the increasing power demand in Peshawar, Pakistan.

The project's planned capacity was 1,000 MW, later upgraded to 1,300 MW with 300 MW for Pakistan.[117] Tajikistan and Pakistan have formalized a fifteen-year power purchase agreement with tariffs set at $.094 per kWh (or $94/MWh) for contracted supplies between May and October and $.064 per kWh (or $64/MWh) for excess supplies.[118] These prices, reflecting Pakistan's higher electricity costs, present a lucrative commercial opportunity for both Tajikistan and Kyrgyzstan. Additionally, the agreement includes significant transit fees for Afghanistan at around $.0125 per kWh.[119]

The project's completion was slated for 2023, but construction in Afghanistan halted following the Taliban takeover in 2021.[120] Construction activities in Afghanistan began ahead of the other countries and had progressed significantly at the time of the regime change. Work focusing on the installation of transmission towers continues in the other three countries. By October 2022, 53 per cent of all transmission towers were installed, with a vast majority completed in both Tajikistan and Kyrgyzstan.[121] The installation of the transmission cables awaits completion of the towers.

Tajik policymakers affirm that the transmission line work in Tajikistan is proceeding as planned, with completion expected by 2024–2025.[122] The stalled construction on the Afghan side, however, raises questions about the feasibility of this timeline, given that only 18 per cent of transmission towers have been erected in Afghanistan.[123] Since February 2022, the World Bank has been exploring ways to resuscitate the project through consultations with high-level officials and envoys of the countries involved.[124] In February 2024, the organization announced that construction on Afghan territory would be resumed at the request of the three other participating countries and "in a ring-fenced manner," so that financing and possible revenues are managed outside of Afghanistan and without Taliban involvement.[125] It remains to be seen whether and how the project can be completed.

TAPI Gas Pipeline

The Turkmenistan-Afghanistan-Pakistan-India gas pipeline (TAPI) is a proposed project to bring Turkmen natural gas to Afghanistan, Pakistan, and India. The 1,800-km pipeline with a capacity of 33 billion m^3 has been on the agenda since the 1990s and is estimated to cost $10 billion.[126] The project would allow Turkmenistan to diversify its exports away from China and the Russian Federation, which bought respectively 40 and 10 billion m^3 of Turkmen gas in 2021.[127] For Afghanistan, this project could provide transit revenues of up to $470 million per year and natural gas supplies for domestic consumption of around 500 million m^3.[128]

Despite the apparent mutual benefits, the pipeline project has confronted myriad financial, political, and security obstacles. Funding has been a significant challenge, with only $1 billion raised to date from the ADB and the Islamic Development Bank.[129] Furthermore, political tensions between India and Pakistan and security issues in Afghanistan persist as potential risks.[130]

Discussions between Turkmenistan and Afghanistan on TAPI have continued, however, despite the political upheavals of 2021. The Taliban, recognizing the considerable revenues that gas transit could generate, have endeavoured to resurrect the project. To this end, the Afghan Ministry of Mines and Petroleum has established a committee to relaunch TAPI.[131]

The project's timeline remains uncertain, compounded by the ADB's waning interest and other financial hurdles. Despite these challenges, energy stakeholders in Turkmenistan, Afghanistan, and Pakistan actively discuss the project's resumption.[132] Turkmenistan has almost completed construction on its territory, and has announced that practical steps would be undertaken to restart construction on the Afghan side.[133] The Taliban announced in March 2023 that work on the pipeline would resume, and reaffirmed their readiness to commence construction in February 2024.[134] The Russian Federation has also expressed interest in participating, potentially through investment, technical expertise, or by linking TAPI to its planned Pakistan Stream pipeline project.[135] Even if security issues can be addressed, other challenges may obstruct and postpone the project's implementation.[136]

Infrastructure development in Afghanistan remains challenging due to the exodus of most international investors and multilateral donors since 2021. Despite efforts by the Taliban to attract investment in production and transmission facilities, such investments fall short of addressing the country's energy insecurity. Central Asian countries maintain their interest in regional infrastructure development, making strides with projects within their borders, but the limited scale of Afghan funding casts a shadow over the prospects of these projects.

06 Conclusions and Recommendations

Afghanistan's reliance on energy imports from Tajikistan, Turkmenistan, and Uzbekistan, along with its geographic location and growing population, provide important opportunities for export revenues for Central Asian countries. These factors also position Afghanistan for a potential energy transit role that could generate substantial income for all four countries, stimulate investments in domestic energy infrastructure, address energy insecurity, and energize the region's economic development.

The Taliban takeover in 2021 significantly affected energy co-operation between Central Asian countries and Afghanistan. The ensuing political and humanitarian crisis has magnified pre-existing vulnerabilities in the Afghan energy sector — inadequate domestic production and transmission capacity, insufficient investment, and vulnerable infrastructure. Energy poverty is widespread, with over two-thirds of the population lacking grid access and many struggling to pay their electricity bills. Frequent blackouts disproportionately affect women, who, under Taliban restrictions, cannot actively participate in public life and face declining incomes, increased exposure to heating and cooking-related pollution, and reduced access to food, energy, and basic amenities at home. These challenges amplify the risk of energy supply disruptions, and constrain the export potential and energy market diversification prospects of Central Asian countries.

Despite temporary supply disruptions in 2021, the power trade between Central Asian countries and Afghanistan remained stable and even expanded, notably with Tajikistan and Turkmenistan. Debts from 2021 and 2022 have largely been resolved, though Afghanistan's persistent financial troubles signify that pricing issues could endure. Existing power contracts signed by the government before the takeover form the basis of most cross-border power trade, with the Taliban seeking to extend such agreements and negotiate new ones. Security risks to energy infrastructure persist in Afghanistan, with some episodes of attacks reported after 2021.

Central Asian energy stakeholders have established and maintained links with the Taliban to stabilize power trade, resolve outstanding debt, and promote cross-border energy infrastructure projects. Still, the future of such infrastructure projects remains uncertain, primarily due to the withdrawal of international donors and investors from Afghanistan.

Central Asian states have a strong interest in advancing these projects, with most of the necessary domestic infrastructure already in place (Turkmenistan, Uzbekistan) or under finalization (Tajikistan). Construction in Afghanistan, however, remains limited, though recent signs suggest that this might change. The World Bank has announced the resumption of construction of the CASA-1000 line in Afghanistan, albeit with restrictions on access to financing and revenues for the Taliban. The country's national power utility is funding construction on parts of the TAP power line at its own expense, but lacks the necessary financing to fully advance the four large projects. Afghanistan is also seeking investment from China, India, the Russian Federation, and Türkiye for production and transmission facilities, yet these investments fall short of what is required to complete cross-border infrastructure projects and to address energy insecurity.

Compelling incentives exist for both sides to stabilize and expand their energy relationships. Following the exit of international expertise and funding, Afghanistan faces a domestic energy crisis with no immediate substitutes for Turkmen and Uzbek power

imports during winter and Tajik imports during summer. Afghanistan requires Central Asian support to complete regional infrastructure projects, which would enhance domestic power and gas supplies, stimulate the development of much-needed infrastructure, and generate critical transit revenues.

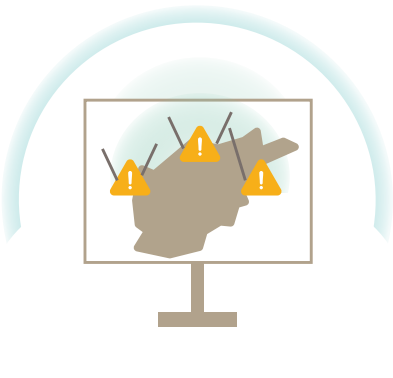
For Central Asian states, power exports to Afghanistan remain financially beneficial due to the higher prices. Moreover, Afghanistan represents the sole conduit for Central Asian exporters to tap into larger and more profitable South Asian energy markets. Central Asia's prospects for boosting export revenues and diversifying its energy trade depend on the development of regional energy projects. A stable Afghanistan aligns with Central Asian governments' security interests, as significant disruptions in energy trade could trigger a humanitarian catastrophe with regional spillover effects.

Central Asia's drive for regional energy integration lends further significance to this relationship. In recent years, Kazakhstan, Kyrgyzstan, and Uzbekistan have revitalized the Central Asian Power System (CAPS), which enables the intraregional power trade suspended in the mid-2000s. Tajikistan, having restored trade with Uzbekistan in 2018, is currently being reintegrated into CAPS, and Turkmenistan may eventually rejoin the system.[137] Such integration not only capitalizes on each country's energy strengths and enables supply diversification, but also presents an opportunity to support Afghanistan in addressing its energy needs.

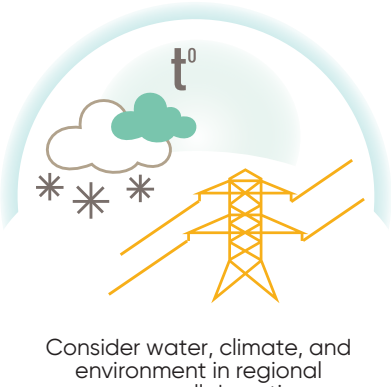
In the long run, the aspirations of Central Asian countries to expand trade with Afghanistan and South Asia can boost income, promote cross-border infrastructure, and contribute to economic ties. The potential for renewable energy development — both small and large scale — could further increase energy security. But in the long term, Central Asia may face climate-driven energy disruptions due to extreme weather, aging infrastructure, rising demand, and seasonal water and power fluctuations, all of which could impact energy trade.

Foster Afghan and Central Asian energy expertise and information exchange

Develop a community of regional energy specialists

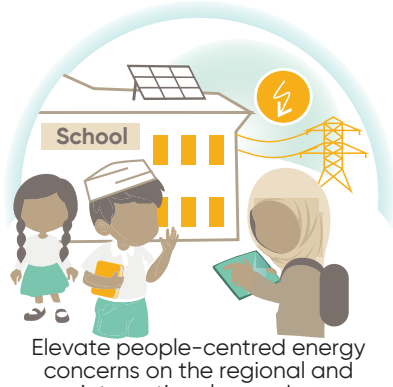


Mitigate risks and address vulnerabilities in energy infrastructure



Consider water, climate, and environment in regional energy collaboration

Promote energy connectivity, particularly in border areas



Elevate people-centred energy concerns on the regional and international agendas

Recommendations

Based on discussions with regional stakeholders, this report proposes the following recommendations:

1. **Foster Afghan and Central Asian energy expertise and information exchange.** The events of 2021 triggered an exodus of international and national specialists with a deep understanding of Afghanistan's energy sector. Fostering knowledge exchange among Afghan, Central Asian and international energy experts together with establishing information exchange platforms can lead to a deeper understanding of the evolving regional energy landscape.

2. **Develop a community of regional energy specialists.** Encouraging dialogue among policymakers and energy industry professionals in the face of the evolving energy trends in Afghanistan could include establishing networks of experts to support decision-making, strategic planning, and preparedness for cross-border disruptions. Regional energy experts engaged with Afghanistan could explore specific mechanisms to address energy insecurity in the country, in particular for women and girls. Targeted training and capacity-building could strengthen technical competencies and policy-making skills.

3. **Mitigate risks and address vulnerabilities in energy infrastructure.** Comprehensive risk mitigation strategies — including the mapping of vital energy infrastructure — can help safeguard against potential security threats. Early warning systems for energy security and sustainability could help Central Asian states identify vulnerabilities in cross-border energy trade with Afghanistan. This proactive approach can help assure the stability of energy supplies and prevent the potential economic and humanitarian fallout arising from infrastructure failures.

4. **Consider water, climate, and environment in regional energy collaboration.** Reliable seasonal weather and water flow forecasts can contribute to hydropower and irrigation planning, improve energy demand projections, and help prepare for crisis situations. The development of long-term and downscaled climate projections, applicable to the energy sector, would help Central Asia mitigate climate change threats to critical energy infrastructure, increase energy systems' resilience, and plan strategic energy investments. Integrating water, energy and ecosystem-based conservation planning is key for stable inter-state relations in Central Asia, while promoting environmental considerations in the energy sector can enable local and regional sustainable development.

5. **Promote energy connectivity, particularly in border areas.** Promoting regional connectivity can reduce trade risks with Afghanistan by offering Tajikistan, Turkmenistan, and Uzbekistan more diverse supply options. Central Asian countries can further capitalize on increased energy trade among themselves. This expanded regional trade can also bring tangible benefits to border communities, including remote areas, and support their economic development and integration into the regional economy. Regional stakeholders can support the development of connectivity, enhancing energy access infrastructure on both sides of the border.

6. **Elevate people-centred energy concerns on the regional and international agendas.** Strengthening regional energy security requires long-term commitment and significant investment in the well-being of people in Central Asia and Afghanistan. Energy access, particularly for women, is a crucial part of well-being, and policymakers need to focus on addressing energy poverty, infrastructure vulnerability, power supply disruptions, and the ripple effects of widespread blackouts.

The role of the OSCE

The OSCE could play a leading role in helping participating States in the region to implement the proposed recommendations. Leveraging its position and presence in Central Asia, the OSCE could facilitate the creation of co-ordination mechanisms for energy decision-makers, and could foster innovative approaches to risk mitigation and vulnerability reduction — exploring the feasibility of early warning systems for cross-border energy disruptions, for example.

The OSCE can spearhead the formation of a platform that brings together regional energy experts and enhances their knowledge on Afghanistan, using the 2023 Ashgabat roadmap agreed to by the three Central Asian countries in the context of this project as a guide. The organization is well-positioned to support participating States in implementing the roadmap through training and capacity-building, and by tapping into its regional network of energy sector experts and water, environment, and climate stakeholders.

This study and associated project activities can serve as the cornerstone for future regional efforts to enhance energy security, providing the tools to establish a regional strategy to address the identified risks and vulnerabilities linked to the situation in Afghanistan. The OSCE could play a crucial role in driving these initiatives forward.

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Kabul, Afghanistan

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