DOCUMENT OF THE EUROPEAN BANK FOR RECONSTRUCTION AND DEVELOPMENT

Approved by the Board of Directors on 15 November 2022[1]

KAZAKHSTAN

GRCF2 W2 E2 – ALMATY CHP COAL PHASE OUT

[Redacted in line with the EBRD's Access to Information Policy]

[Information considered confidential has been removed from this document in accordance with the EBRD's Access to Information Policy (AIP). Such removed information is considered confidential because it falls under one of the provisions of Section III, paragraph 2 of the AIP]

[1] As per section 1.4.8 of EBRD's Directive on Access to Information (2019), the Bank shall disclose Board reports for State Sector Projects within 30 calendar days of approval of the relevant Project by the Board of Directors. Confidential information has been removed from the Board report.

For the avoidance of any doubt, the information set out here was accurate as at the date of preparation of this document, prior to consideration and approval of the project.

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ABBREVIATIONS / CURRENCY CONVERSIONS

APP	Almaty Power Plants JSC
BAT-AEL	Best Available Technique- Associated Emission Levels
Capex	Capital Expenditures
CCGT	Combined Cycle Gas Turbine
CHP	Combined Heat and Power
CP	Condition Precedent
DH	District Heating
EPC	Engineering, procurement and construction
ESAP	Environmental and Social Action Plan
ESDD	Environmental and Social Due Diligence
ESIA	Environmental Social Impact Assessment
ETI	Expected Transition Impact
EUR	Euro
FY	Financial Year
GCAP	Green City Action Plan
GDP	Gross Domestic Product
GET	Green Economy Transition
GHG	Greenhouse Gases
GrCF2 W2 E2	Green Cities Framework 2 – Window II Extension 2
IEA	International Energy Agency
IFRS	International Financial Reporting Standards
JSC	Joint Stock Company
KZT	Kazakh tenge
LTA	Lender's Technical Advisor
MoU	Memorandum of Understanding
OCGT	Open-Cycle Gas Turbine
P/A	Per annum
PPA	Power Purchase Agreement
PRs	Performance Requirements
PSD	Project Summary Document
RAROC	Risk Adjusted Return On Capital
SE	Samruk-Energy JSC
SHL	Shareholder loan
SEP	Stakeholder Engagement Plan
SK	Samruk-Kazyna Sovereign Wealth Fund JSC
TC	Technical Cooperation
TPP	Thermal Power Plant
URP	Unfunded Risk Participation
USD	US Dollar
WB	World Bank
YE	Year End

CURRENCY EQUIVALENTS

Country's Currency Unit	=	Kazakh tenge or KZT
EUR 1.00	=	KZT 500[2]

MEASURES

1 Megawatt (MW)	=	1,000 kilowatts (10^3 kW)
1 Gigawatt (GW)	=	1 million kilowatts (10^6 kW)
1 Megawatt-hour (MWh)	=	1,000 kilowatt-hours (10^3 kWh)
1 Gigawatt-hour (GWh)	=	1 million kilowatt-hours (10^6 kWh)
1 kilovolt (kV)	=	1,000 volts

[2] In light of FX rate volatility over the last 12 months, KZT500/EUR exchange rate used for CAPEX estimations is applied in the document for consistency of EUR equivalent presentation, which is provided for reference only.

PRESIDENT'S RECOMMENDATION

This recommendation and the attached Report concerning an operation in favour of Almaty Power Plants (the "Company"), a joint stock company incorporated in Kazakhstan, are submitted for consideration by the Board of Directors.

The facility will consist of a corporate loan to the Company in the amount of up to KZT 130 billion (EUR 260 million). The loan will be guaranteed by Samruk-Kazyna Sovereign Wealth Fund of Kazakhstan. The operation will enable Almaty Power Plants to conduct modernisation of the existing Almaty Combined Heat and Power Plant 2, with full replacement of coal by natural gas as a primary fuel in order to improve air quality and reduce GHG and air pollutant emissions in the city of Almaty, Kazakhstan.

The Project is presented as a follow-on investment as part of Almaty's engagement under EBRD Green Cities. The Project aims to address the priority environmental challenges of air quality and GHG emissions, identified in the Almaty Green City Action Plan ("GCAP"). The expected transition impact of the project is based on "Green" and "Inclusive" transition qualities, justified by significant reduction in CO2 emissions and air quality improvement, as well as promotion of higher institutional-level capacity and standards of gender inclusion and promoting equality of opportunities. The operation is 100% GET. [REDACTED].

I am satisfied that the operation is consistent with the Bank's Strategy for Kazakhstan, the Bank's Energy Sector Strategy, Equality of Opportunity Strategy, Strategy for the Promotion of Gender Equality, Green Economy Transition approach 2.1, Green Cities Framework 2 Window II Extension 2 and with the Agreement Establishing the Bank.

I recommend that the Board approve the proposed loan substantially on the terms of the attached Report.

Odile Renaud-Basso

BOARD DECISION SHEET

KAZAKHSTAN – GRCF2 WII E2 – ALMATY CHP COAL PHASE OUT - DTM 52821 Framework: REGIONAL - EBRD GREEN CITIES 2 (GRCF2) WINDOW II Extension 2 - DTM 50674	
Transaction / Board Decision	Board approval[3] is sought for a senior loan of up to KZT 130 billion (EUR 260 million) in favour of Almaty Power Plants (the "Company", "APP"), a joint stock company incorporated in Kazakhstan and key producer of heat and electricity in the city of Almaty. The loan will be backed by a guarantee from Samruk-Kazyna Sovereign Wealth Fund of Kazakhstan (the "Guarantor", "SK"). The purpose of transaction is a modernisation of the existing Almaty Combined Heat and Power Plant 2 (the "CHP-2"), with full replacement of coal by natural gas as a primary fuel in order to improve air quality and reduce CO2 emissions in the city (the "Project").
Client	Almaty Power Plants JSC is 100% owned by Samruk-Energy JSC (the "Sponsor", "SE"), state-owned energy company, the largest power producer in Kazakhstan and an existing client of the Bank. The SK, the Guarantor of the Project, is the largest state-owned corporate entity in the country with a diversified asset base. The Guarantor's revenue in FY2021 amounted to an equivalent of EUR 23.3 billion with EBITDA of 5.9 billion, while total assets reached EUR 61.3 billion, which corresponds roughly to 30% of Kazakhstan's GDP in 2021. Samruk-Kazyna is rated BBB/stable by Fitch, Baa2/stable by Moody's and BBB-/negative by S&P.
Main Elements of the Proposal	Business purpose: The transaction will enable the Company to conduct the long-awaited modernisation and conversion of Almaty CHP-2 to gas, which has been postponed [REDACTED] due to the absence of applicable payback mechanism. The Project will be supplemented by the commitment of the Borrower to decommission 510 MWe and 1,641 MWth of old coal-fired generation capacity at the existing CHP-2. Transition impact: *Primary Quality – Green:* The Project will serve as a follow-on investment under EBRD Green Cities and address priority environmental challenges of air quality and GHG emissions identified in the Almaty GCAP, by aiming to reduce GHG emissions by at least 2,839kt CO2e p/a and to improve local air quality by fully eliminating SOx (ca. 20.7kt p/a) and fly ash (ca. 5.5kt p/a) from the plant's footprint. *Secondary quality – Inclusive:* Building on previous activities with SE, the Project will support APP and SE in adapting to new decarbonisation priorities, via design and implementation of a new, accredited and market-relevant training programme on green/digital skills in partnership with local institutions, also promoting women's participation in the sector. Additionality: *Financing structure:* EBRD offers financing terms and conditions currently not available in the market from commercial sources, in local currency and with a tenor [REDACTED] required for the Project. *Risk Mitigation:* EBRD's existing relationship with Samruk-Energy JSC provides comfort to the Company to undertake the project, enabling significant environmental outcomes. *Policy, sector, institutional, or regulatory change:* EBRD's involvement in the Project is designed to trigger a change in the policy, regulatory framework and enhance practices at all levels – country, sector, city and corporate, such as adaption of the Long-Term Decarbonisation Strategy for net zero by 2060, endorsement of the Low Carbon Pathway for the energy sector, introduction of payback mechanism for projects with coal phase out, approval of Almaty Green City Action Plan and Energy Transition Strategy of Samruk-Energy JSC (the latter approved in October 2022), etc. *Standard-setting: helping projects and clients achieve higher standards:* The Company seeks use of EBRD expertise on higher environmental standards, above 'business as usual' (e.g. adoption of emissions standards and climate-related ISO standards in line with EU Decision 2021/232, use of turbines that can work on gas/hydrogen blends, implementation of TCFD reporting, decommissioning of the coal capacity, etc.). APP uses EBRD expertise on the best international procurement standards, as well as higher gender and inclusion standards, by developing a new gender action plan in line with the recently developed SE's corporate Energy Transition Strategy and associated human resources policies. Sound banking – Project-specific risks are mitigated by the full corporate guarantee from the SK, robust contractual structure (including a turnkey EPC contract) and the presence of investment agreement with the Kazakhstan's Ministry of Energy to ensure repayment of the Bank's loan.
Key Risks	Implementation risk: The Project requires extensive experience and planning and, despite relying on advanced procurement in line with EBRD rules for public sector, the Project may face delays and cost overruns [REDACTED]. The risk is mitigated through a turnkey EPC contract, capacity payment mechanism, and investment agreement with the Ministry of Energy on tariffs sufficient to repay debt, and ultimately the corporate guarantee from the SK. Regulatory risk: [REDACTED]. This risk is mitigated by the support of the Project by local authorities and the Bank's engagement with the city of Almaty, as well as the presence of SK's corporate guarantee.
Strategic Fit Summary	The Project is in line with the priorities set in the Bank's Energy Sector Strategy, the Kazakhstan Country Strategy, the Green Economy Transition approach 2.1, the Strategy for the Promotion of Gender Equality, Equality of Opportunity Strategy and the Green Cities Framework 2 Window II Extension 2.

[3] Article 27 of the AEB provides the basis for this decision.

ADDITIONAL SUMMARY TERMS FACTSHEET

EBRD Transaction	A senior 15-year loan of up to KZT 130 billion (EUR 260 million) to Almaty Power Plants JSC. The loan will be backed by a guarantee from Samruk-Kazyna Sovereign Wealth Fund of Kazakhstan (the "Guarantor", "SK"). The transaction is part of a larger debt financing package which includes parallel senior loans from ADB and Development Bank of Kazakhstan (the "DBK"). The project will be a follow-on investment under the Green Cities Framework 2 – Window II Extension 2 ("GrCF2 W2 E2"). Total project cost is estimated at EUR 817 million [REDACTED] which will finance the brownfield modernisation of Almaty CHP-2 with conversion from coal to gas, including replacement of core equipment and upgrade of associated infrastructure.
Existing Exposure	*For the Borrower: None;* [REDACTED]
Maturity / Exit / Repayment	Up to 15 year tenor [REDACTED]
Potential AMI eligible financing	[REDACTED]
Use of Proceeds	The proceeds of the EBRD loan will be used to finance modernisation of the 510 MWe Almaty CHP-2, with replacement of coal by natural gas. Use of proceeds will be monitored by the LTA [REDACTED].
Investment Plan	[REDACTED]
Financing Plan	[REDACTED]
Key Parties Involved	Almaty Power Plants JSC – the Borrower; Samruk-Energy JSC – the Sponsor; Samruk-Kazyna Sovereign Wealth Fund – the Guarantor; Financial Settlement Centre (under direct ownership of the Ministry of Finance) [REDACTED]; The Ministry of Energy [REDACTED]; QazaqGaz JSC – ultimate gas supplier; EBRD, ADB, DBK – the lenders.
Conditions to subscription / disbursement	In addition to standard CPs for corporate loans, CPs include provision of SK corporate guarantee, selection of acceptable EPC Contractor following EBRD PP&R and other conditions.
Key Covenants	• [REDACTED] Implementation of the agreed ESAP [REDACTED] • Audited IFRS financial statements; [REDACTED]
Security / Guarantees	Unsecured loan, full recourse corporate guarantee from Samruk-Kazyna Sovereign Wealth Fund.
Other material agreements	• Loan Agreement between the EBRD and Almaty Power Plants JSC; • [REDACTED]
Associated Donor Funded TC and co-investment grants/concessional finance	• TC for the TCFD reporting implementation for Samruk-Energy JSC [REDACTED] • TC for the economic inclusion program implementation [REDACTED]

[REDACTED]

INVESTMENT PROPOSAL SUMMARY

1. STRATEGIC FIT AND KEY ISSUES

1.1 STRATEGIC CONTEXT

The Project will improve air quality in Kazakhstan's biggest city

Kazakhstan is one of the most carbon-intensive economies in the world, with the heat & power sector, dominated by coal-fired generation (c.70% of total), being the major CO2 emitter. Kazakhstan has long and cold winters, with high demand for heat in colder seasons being met primarily by old and inefficient coal-fired generation. In large urban areas like the city of Almaty, with a population of above 2 million people, heat demand from ageing coal-fired assets creates an alarming air pollution situation, which is worsening from year to year as the population increases.

Almaty is the largest city in the country and a major commercial and cultural centre with many small and medium-sized businesses. The level of air pollution in the city is very high. Located in a valley surrounded by mountains, Almaty is naturally trapped under a layer of pollution, suffering from a lack of wind which prevents dispersal of pollution. In winter, when the city consumes peak volumes of heat, the PM 2.5 concentration in Almaty reaches 17 times the WHO norm. Such extreme levels come at a public health cost – 24% of adults and 57% of children in Almaty suffer from chronic pulmonary diseases such as asthma and bronchitis, with high risks of more severe and deadly diseases like lung cancer[4]. This is two to three times the level in similar urban areas in the region, and six times EU levels. Almost 29% of emissions in Almaty come from coal combustion at the Almaty CHPs, owned by the state-owned Almaty Power Plants JSC ("APP") – the city's largest stationary source of CO2 emissions (currently 5,119kt p/a). The CHP-2 is fired by coal with a high ash content resulting in thousands of tonnes of sulphur oxides and dust emitted (20.7kt and 5.5kt p/a, respectively).

Almaty joined EBRD Green Cities in 2019 and has started developing a Green City Action Plan ("GCAP") in order to address its urban environmental challenges with specifically tailored actions. Please see ***Annex 3*** for details of the framework implementation. The Almaty GCAP identifies air pollution and GHG emissions as City's two critical environmental challenges with the energy sector identified as a major contributor.

The proposed transaction targets deep modernisation of the largest heat provider in the city, Almaty CHP-2. CHP-2 is one of the three CHPs[5] providing electricity and heat to the city of Almaty, which is to be fully converted from coal to gas based on the CCGT/OCGT technology (the "Project"). The new units are to be compliant with the EU BAT and designed as able to work on gas/hydrogen blends. The Project is presented as a follow-on investment under EBRD

[4] According to studies conducted by Kazakh National Medical University named after Asfendiyarov in 2013-2017, these figures are significantly above country averages and 2-3 times higher than in comparable urban areas of CIS. In the period between 2010 and 2015,fatalities from pulmonary diseases in the city increased 2.7 times and reached 1,327 cases in 2015, being the third highest after diseases of circulatory systems (2,374 cases) and cancer (1,615 cases), which also could be facilitated by substantial emissions. In a research paper published by several leading universities in Kazakhstan, it was estimated that in 2015-2017 mortality in Almaty directly attributable to emissions was estimated to be at 1,831 cases per annum (Kerimray, 2020).

[5] The coal-fired capacity to work in parallel during the construction period scheduled to finish by end of 2026 with the new turbines for the Project to be commissioned in stages while the coal-fired capacity to be taken out of service in stages, with full decommissioning once the new turbines are fully operational.

Green Cities, constituting an integral part of the Almaty GCAP and addressing identified priority environmental challenges of air quality and GHG emissions.

The Project will supply the same amount of heat as the current coal-fired CHP 2 does, but will increase electricity production by approximately 2,137,000 MWh, displacing more carbon-intensive electricity from the coal-dominated grid. The Project will result in an immediate impact on local pollution and air quality, with complete elimination of dust, containing particulate matter (currently 5.5kt p/a) and SOx (c.20.7kt p/a) emissions from the plant's footprint, more than 86 per cent reduction of NOx emissions (7kt p/a), and above 55 per cent in carbon emission reduction saving c. 2,839kt of CO2e p/a.

EBRD holistic approach

The Project will provide a critical milestone for Kazakhstan's decarbonisation strategy in line with the commitments under the Paris Agreement. EBRD has a multi-layer approach to Kazakhstan's energy sector transition, from the national level to the corporate level, targeting net zero by 2060.

In parallel, the Bank has been actively supporting development of renewable energy projects engaging in policy dialogue starting from 2008, with the first mention of renewable energy in sector regulations, supporting approval and amendments to the renewable energy law and by-laws. Building on this work, the Bank is currently the largest investor in renewable energy projects in Kazakhstan, supporting development of 40% of all installed capacity in the country with a strong pipeline of projects. Separately, the Bank is supporting the Ministry of Energy in new auctions with 150 MWe of new wind projects, scheduled to take place in November 2022.

At the national level, the Bank is supporting the *Long-Term Decarbonisation Strategy* ("LTS") for net zero 2060. The LTS has been developed with support from Germany and endorsed by the Kazakhstan's Supreme Counsel for Reforms in September 2022, with the aim to present at COP27 in Sharm-El Sheikh and signing by the President Tokayev by end of 2022.
At the sector level, an energy sector-specific *Low Carbon Pathway*, a joint work of EBRD and USAID, was developed and endorsed by the Ministry of Energy. This Low Carbon Pathway includes phase out of coal in 2040s and is focused on the long-term shift to low carbon technologies for electricity and heat generation. The Low Carbon Pathway shows an important transition role of gas to ensure early peaking of emissions and sufficient balancing capacity to integrate and scale up renewables. Almaty CHP-2 will be an important contributor, as the replacement of inflexible coal-fired capacity will help smooth out the load on the regional power grid.
At the city level, there are coordinated efforts to promote low carbon transition in the heating sector.

i) as part of the Almaty GCAP under EBRD Green Cities, the city will work on modernisation of the district heating system. EBRD has developed a District Heating Low Carbon Pathway (DH Low Carbon Pathway) for the Almaty system in the APP supply zone. The DH Low Carbon Pathway has a focus on the heating supply-side and will help Almaty to shift to a cleaner district heating system.
ii) an ADB-led policy engagement on the new district heating law will set an enabling framework for higher energy efficiency requirements, integration of renewable sources and supporting investments to achieve net zero by 2060. The draft law is planned for submission to the Parliament in H12023.
iii) through approval of the GCAP, the Project will also facilitate a number of campaigns as part of the demand-side response measures – including, improvement of energy efficiency of buildings, implementation of the residential buildings retrofit pilot programme (for

5,000 apartments), launch of the heat pump and solar heating pilot programme (for 1,500 residential buildings), and development of Almaty Smart Grid Programme.

At the corporate level, Samruk-Energy's Board of Directors approved the corporate Energy Transition strategy in October 2022. This strategy aims for net zero by 2060 with 30 per cent CO2 emissions reduction by 2031 and full exit from coal by the mid-2040s. It will be further supported by implementation of TCFD reporting and disclosure at Samruk-Energy group level [REDACTED].

Gas supply to the Project

Natural gas for the Project will be supplied domestically by the Bank's long standing client QazaqGaz JSC, a state-owned gas transportation company and SK subsidiary, from Western Kazakhstan (Atyrau and West-Kazakhstan regions). Annual production of natural gas in Kazakhstan is c.54 billion cubic meters, which is sufficient to satisfy internal demand (c.13% of gas is exported, mainly to China). QazaqGaz is aiming for cooperation with oil producers via construction of new gas processing facilities to produce more gas for domestic consumption via reduction of methane reinjection. Gas is supplied to Almaty via the existing network of pipelines (Beineu-Shymkent gas pipeline, Asian gas pipeline, Almaty-Baiserke-Talgar gas pipeline). The Government appreciates the necessity of an adequate gas infrastructure for the transition from coal to gas. The Almaty Akimat in coordination with the Ministry of Energy, Akimat of Almaty region and QazaqGaz will ensure the construction of the gas infrastructure before the completion of the first phase (2023) to connect the CHP-2 with the gas pipelines in the Almaty city agglomeration. EBRD is supporting QazaqGaz on development of the modernisation program aiming to reduce fugitive methane emissions in the gas transportation system of Kazakhstan. [REDACTED].

The Bank is conducting a policy engagement to encourage Kazakhstan to join the Global Methane Pledge. On 15 September 2022, EBRD signed an MOU with the Ministry of Ecology aiming at providing support to the Government of Kazakhstan to reduce GHG's emissions, including methane, and join the Global Methane Pledge. Kazakhstan joining the Global Methane Pledge will send a strong signal to the international investors' community on the level of ambition of the country and relevant key stakeholders.

The Project is Paris Aligned and consistent with the Fossil Fuels Approach of the Bank

EBRD has undertaken specific assessment of this project aligned with the EBRD Paris Alignment Approach (and the EBRD Fossil Fuels approach 2021). Assessments undertaken include i) NDC review, ii) Low carbon pathway; iii) Economic Viability; iv) Carbon lock-in assessment, v) Best Available Techniques and vi) Carbon transition risk assessment. The Project is also aligned with climate adaptation goals. Please see ***Annex 2*** for details.

i. **Low Carbon Pathway for district heating:** A bespoke Low Carbon Pathway was developed for the Almaty district heating system in the APP zone using advanced energy modelling software. It shows that the Project is consistent with and actively contributes to a net zero heat system by 2060. It also demonstrates that the investment accelerates decarbonisation within the sector, as the likely alternatives delay the phase out of more emissions-intensive heat-generating assets in the next 10 years.
ii. **Economic assessment** compares the Project to alternatives on a Levelised Cost of Heat Basis , including externality pricing. It compares this investment to two alternatives – (i) rehabilitation of the existing coal based CHP-2, and (ii) a scenario with no new investments in fossil fuels. The assessment shows the lowest LCOHeat of these options. When compared with the alternative no new fossil fuels investment, the Project accelerates emissions reduction in the coming decade and reduces costs.
iii. **Carbon lock-in risk** assessment shows that the Project is unlikely to displace low carbon alternatives or to prevent or delay the introduction of renewables in the long term. The Low Carbon Pathway modelling shows that gas is consistent with the net zero transition

by 2060 and there are no identified non-financial barriers, which would prevent a future shift to low carbon sources when those become feasible. The new district heating law is to set an enabling framework for the entry of new players and technologies.

iv. **Carbon Transition ("CT") Risk** looks at the financial risks of the Sponsor, Samruk-Energy, through scenario analysis to carbon pricing. [REDACTED] [T]his risk is substantially mitigated:

a. Due to the nature of the sector and high pass-through of costs. [REDACTED].
b. Early planning by SE and consideration of climate risks. SE is to adopt a net zero strategy and aims at installation of large renewable capacities and coal phase out by mid-2040s. Samruk Energy assets also play a key role in balancing system requirements.
c. SE will adopt the TCFD recommendation [REDACTED]The Bank will support this initiative through TC on the TCFD reporting to build capacity of SE and to ensure the best practice is in place.

This high carbon transition risk is significantly mitigated by the fact that the company is 100 per cent state owned and is of major importance (particularly for heat supply).

GET: The project qualifies for 100 per cent GET finance and leads to substantial environmental benefits, based on the reduction of GHG air pollutant emissions. 74 per cent is counted towards climate change mitigation finance based on the Joint MDB methodology. The Project leads to approximately 55 per cent reduction of GHG emissions and hence eligible for inclusion under the GrCF2 W2 E2 exceeding the facility threshold of 20 per cent. The Project serves as a follow-on investment under the Almaty GCAP.

Gender and Inclusion: Today, women are still under-represented in the country's energy sector (ca. 24 per cent of total industry employment) and are particularly absent from the higher paying jobs, with an approximate 20 per cent gender pay gap across all salary levels – the third largest gap by economic sector in Kazakhstan. SE was the first client in Kazakhstan, which introduced with the support of the Bank, two National Occupational Skills Standards to answer to employers' needs in skills for 14 technical occupations in the energy sector. SE also engaged with the Bank's support to promote gender equality, and signed the Women Empowerment Principles in 2019. Therefore, under the Samruk-Energy Transformation Loan signed in 2016, SE and its subsidiary APP, as one of the largest employers in Kazakhstan, achieved unprecedented visibility on their support towards promoting gender equality and economic inclusion in the country. To support the SE's new Energy Transition Strategy approved in October 2022, the Project will support the design and implementation of a new, accredited and market-relevant training programme on green and digital skills in partnership with local training institutions. An initial assessment, fully in line with the development of the SE's Energy Transition Strategy will identify the new skills needs across the Company and will enable to develop a new training program (focusing on new curricula or a dual learning program). The training program is expected to have broader impact, since it will provide local youth with market-relevant skills in Almaty city and the region. The Project will also promote gender equality. In addition of ensuring that 30% of the trainees are women, it will also ensure that the transition SE is engaging on promotes equal opportunities for both men and women. SE's new Energy Transition Strategy, based on the targets of the national Long-Term Decarbonisation Strategy, will include new HR policies, and the Project will ensure that these reforms promote gender equality. A new Gender Action Plan will be developed, and will set targets and actions to promote women's participation in technical and leadership roles in the company and all its subsidiaries.

The investment is consistent with the objectives stated in (i) the Bank's Energy Sector Strategy, which targets decarbonisation and electrification of the economies, while the proposed facility will bring a sustainable solution which will increase the electricity production

while displacing more carbon-intensive electricity from the grid, to provide sufficient balancing capacity with a view to integrate and scale up renewables in a longer term, (ii) Strategy for Kazakhstan, supporting decarbonisation of the economy, with the proposed facility to play a critical role in bringing a multi-pronged approach across the country, sector, city and corporate transition strategies towards implementation of the green agenda in Kazakhstan, and its targets towards 2060-net zero, with an immediate impact on the air quality of the country's largest agglomeration, (iii) Equality of Opportunity Strategy and the Strategy for the Promotion of Gender Equality which promote economic inclusion by focusing on equal opportunities in the power sector and by promoting green skills through the introduction of a new, replicable and accredited training programme in Kazakhstan and Central Asia, (iv) Green Economy Transition approach 2.1, with the Project leading to substantial environmental benefits, based on the reduction of local air pollutants, with 100 per cent of the investment qualifies for GET environmental benefits, and 74 per cent counted towards climate finance, and (v) Green Cities Framework 2 Window II Extension 2 as the Project qualifies with Green Cities impact threshold of reducing GHG emissions by at least 20 per cent as well as addressing GCAP environmental challenges and actions.

The Project also contributes to a host of UN Sustainable Development Goals (SDGs), namely: SDG 3. Good Health and Well-being, SDG 4. Quality Education, SDG 5. Gender Equality, SDG 7. Clean and Affordable Energy, SDG 8. Decent Work and Economic Growth, SDG 9. Industry, Innovation and Infrastructure, SDG 10: Reduced Inequalities, SDG 11. Sustainable Cities and Communities, and SDG 17. Partnerships for the SDGs.

1.2 TRANSITION IMPACT

The GrCF2 represents a strategic and multi-project approach seeking to help identify and address environmental challenges in selected large cities in our countries of operation. The primary goal is to achieve significant environmental improvements and to promote the **Green** transition quality within the relevant cities. In addition to the environmental objective, the GrCF2 also promotes sustainable cities through inclusive, resilient, well-governed and smart urban development. [REDACTED]. These transition objectives are supported by the development and implementation of a city-specific Green City Action Plan (GCAP) aiming to identify environmental challenges, facilitate better coordination and buy-in among stakeholders and help to prioritise and develop the best ways to address the environmental challenges through targeted investments, services and policy instruments.

The Project will *primarily* help to promote the **Green** transition quality by addressing priority environmental challenges identified in the Almaty GCAP of air pollution and GHG emissions by reducing GHG emissions from power & heat operations in the city by at least 2,839kt p/a (down c.55 per cent) and improving local air quality by fully eliminating SOx (c. 20.7kt p/a) and dust footprint of the plant (c 5.5t p/a). The Public consultations were held for Almaty GCAP in October 2022 and the GCAP is expected to be approved by the city's administration by the end of 2022.

The Project will also support the **Inclusive** transition quality by developing and introducing new accredited and market-relevant trainings on green/digital skills in partnership with local training institutions. At least 60 individuals, will be trained, of which 30% will be female.

This sub-project is presented under the Green Cities Framework 2 Window II Extension 2 and its transition impact is rated in line with the Framework. The project receives an uplift as it meets the relevant predefined green impact threshold and addresses priority environmental challenges identified in the Almaty GCAP for an ETI score of 75 in line with the Framework.

1.3 ADDITIONALITY

Identified triggers	Description
A subsequent/consecutive transaction (issuance) with the same client/group either with the same use of proceeds or in the same destination country (repeat transaction).	This is the first transaction with Almaty Power Plants JSC, but the third transaction with Samruk-Energy group. The first engagement was related to financing the rehabilitation of Shardara HPP in 2012 [REDACTED]. The second engagement was in 2016, when the Bank financed balance sheet restructuring of SE. [REDACTED]. Familiarity with the EBRD's terms and procedures provides comfort for all parties of the transaction.

Additionality sources	Description of additionality sources
Financing structure EBRD offers financing that is not available in the market from commercial sources on reasonable **terms and conditions** [REDACTED]. Such financing is necessary to structure a major infrastructure project. EBRD offers a **tenor**, which is longer than available to the client in the market on reasonable terms and conditions. EBRD offers **local currency financing** on terms not readily available in the market.	The Bank is highly additional in providing long-term (tenor) financing [REDACTED] not available in the local market from commercial sources on reasonable terms and conditions for this major infrastructure project. Only few development institutions are able to provide long-term financing in local currency at necessary scale [REDACTED] (All these are critical to structure the Project, smooth out the financial load on the Borrower, translating into an affordable and manageable electricity and heat tariff growth for the population.
Risk Mitigation EBRD's **long-term relationship** with a client provides comfort to the client to be **willing to take on more risk and/or finance**, enabling outcomes such as innovation or expansion into new markets.	The Sponsor has been the Bank's longstanding client (since 2012) and is interested in the EBRD's participation in the Project, in view of the Bank's active policy engagement in the Kazakh power sector as well as experience and track record with similar projects. Bank's participation in the Project provides critical comfort and support to the Borrower.
Policy, sector, institutional, or regulatory change EBRD's involvement in a project is considered additional when it is designed **to trigger a change in the policy**, sector, institutional or regulatory framework, or enhance practices at the sector or country level (e.g., an introduction of cost-reflective pricing of energy, water etc.).	The Project will contribute to the country's 2060 net zero via facilitation of LTS adoption, which was endorsed by the Kazakhstan's Supreme Counsel for Reforms in September 2022. The Bank's involvement in the Project also triggered endorsement of the Low Carbon Pathway for the energy sector with the aim of achieving net zero footprint from electricity and heat generation by 2060. The implementation of district heating Low Carbon Pathway recommendations (developed as part of the Project in the course of due diligence) and demand-side energy efficiency improvements will be conducted under the GCAP. In June 2022, the President of Kazakhstan approved amendments in electricity law, which introduce a payback mechanism for coal phase out projects – this change has been triggered by the Project.
Standard-setting: helping projects and clients achieve higher standards Client seeks use of EBRD expertise on **higher environmental standards**, above 'business as usual' (e.g. adoption of emissions standards and climate-related ISO standards). Client seeks use of EBRD expertise on **best international procurement standards**.	The Bank coordinated and cooperated with the Sponsor on the development of company-specific decarbonisation roadmap called "Energy Transition Strategy". After discussion with the Bank and taking on board the Bank's recommendations, the Sponsor's Board of Directors approved the corporate Energy Transition Strategy in October 2022. It includes CO2 emissions reduction by 30% by 2031 (vs. 2021 level), phase out of coal by the mid-2040s and net zero by 2060. The Project will be compliant with EU Decision 2021/2326 (BAT) and will be able to operate on gas/hydrogen blends, as explicitly stated in the Project's tender documentation for EPC Contractor, which was prepared by the Owner's engineer in coordination with PIA, the LTA and in line with the Bank's PP&R for public sector. These standards are above those common for similar projects in Kazakhstan. Please see ***Annex 5*** for the full information on the Project's implementation. The Project would also need to meet requirements as per the ESAP developed by an external consultant.
Client seeks/makes use of EBRD expertise on **higher gender standards and/or equal opportunities** action plans.	Samruk Energy will promote gender equality across its operations and in the energy sector of Kazakhstan in the context of the Low Carbon Pathway and the corporate Energy Transition Strategy. The Bank will support SE via implementation of the TC targeting (i) the needs

Additionality sources	Description of additionality sources
	assessment for the APP/SE with a focus on gender mainstreaming [REDACTED]; (ii) introduction of the Gender Action Plan (GAP) [REDACTED]; and (iii) development of recommendations and disseminating of good practice across the sector [REDACTED].

1.4 SOUND BANKING - KEY RISKS

Key risks associated with the Project are presented below.

Risks	Effect / Probability	Comments
Project-specific risks		
Regulatory Risk	High/Med	The Kazakh power sector is largely regulated and may be subject to political interference. [REDACTED]. *Mitigation:* Assuming the critical importance of the Project for the most populated conglomeration in the country acknowledged by top officials, as well as the 2060 net zero announced by the President of Kazakhstan, a high level of commitment and support is provided by the GoK. In June 2022, President of Kazakhstan approved amendments to the legislation, which ensure payback mechanism for projects that include coal phase out, with Almaty CHP-2 being a trigger project. In September 2022, the Ministry of Energy endorsed the Low Carbon Pathway for the energy sector prepared jointly by EBRD and USAID, acknowledging the target to exit unabated coal for power generating purposes in the 2040s to reach a net zero energy sector by 2060. In October 2022, Samruk-Energy approved the corporate Energy Transition Strategy to achieve net zero targets, supporting LCP implementation. Since December 2021, FSC is ultimately owned by the Ministry of Finance, which provides the off-taker an access to state support mechanisms, reducing risks of falling into financial distress. Ultimately, Samruk-Kazyna will provide a corporate guarantee with a full recourse.
Completion risk and cost overruns	High/Med	The Project could be adversely affected by construction delays and cost overruns. *Mitigation:* The competitive tender for EPC was launched in October 2022 and is expected to be completed in Q2 2023 in line with EBRD PP&R. The contractor will be properly assessed and will have a proven track-record of similar projects [REDACTED] and be financially sound. The EPC Contract will contain standard liquidated damages and other provisions to incentivise timely Project completion. The LTA has confirmed that three years shall be sufficient for modernisation of the considered scope. The LTA will monitor the status of construction works and report to the Lenders on a regular basis, along with the Owner's Engineer reporting separately to the Borrower. [REDACTED] Relevant construction-stage insurances in line with the best industry standards will be concluded (including construction all risks, third party liability, etc.). [REDACTED]The loan will be fully guaranteed by Samruk-Kazyna [REDACTED]. Please see ***Annex 5*** for the full information on the Project's implementation.
Operation risk	High/Low	Mismanagement of the Project during the operations phase could lead to low energy yield or damage to the equipment. *Mitigation:* SE and its subsidiary APP have the necessary industry experience to diligently operate the gas-fired power plant (Almaty energy complex operated by APP includes gas-fired CHP-1 and West heating complex). The reputable EPC contractor will train APP staff and provide support during the initial stage of operations. [REDACTED].
Credit Risk	Med/Low	SE historically had high leverage, which has been gradually decreasing since 2016. [REDACTED]. *Mitigation*: Despite the COVID-19 crisis and subsequent macroeconomic turbulence, SE and APP continue to exhibit satisfactory operational and financial performance; with SE further strengthening its credit position with a record low D/EBITDA ratio below 3.0x reached in 2021 (at 2.70x as of YE). SE targets further optimization of its debt portfolio. According to the new framework approved for the coal phase out, principal repayments for the Project will be covered by capacity tariff paid by the FSC. Samruk-Kazyna (rated BBB/stable by Fitch, Baa2/stable by Moody's and BBB-/negative by S&P) will provide a guarantee with full recourse. As of 2021, SK reported assets in excess of EUR 60bn, with 2021 revenue and EBITDA being at EUR 23.3 bn and EUR 5.9 bn, respectively. The Guarantor maintains reasonable leverage ratios, with Debt/EBITDA of 2.83x as of YE21. Please see full audited financial statements of the Guarantor in ***Annex 4***.
External risks		
Macro/FX risk	Med/Low	The Project will be implemented in phases to ensure uninterrupted supply of heat to the city of Almaty, which implies a long construction period. Part of the EPC contract will be denominated in hard currency, with payments distributed over the construction period, so there is a risk that currency devaluation may create funding gap for the Project, as the Bank's financing will be in

Risks	Effect / Probability	Comments
		local currency. The EPC contract also implies indexation for inflation in case there is significant increase in the cost of construction and/or materials. *Mitigation:* [REDACTED]. Potential funding gaps will be covered by Samruk-Kazyna corporate guarantee. Post-construction, there will be no exposure to FX risk, as the loans of all Lenders will be denominated in local currency.
Interest rate risk	Med/Med	An increase in interest rates might affect the debt servicing capacity of the Project. *Mitigating factors:* [REDACTED]. The [REDACTED] corporate guarantee from Samruk-Kazyna gives further comfort.

2. MEASURING / MONITORING SUCCESS

Overall objectives of project	*Monitoring benchmarks*	*Implementation timing*
- Good financial and operational performance - On-time project implementation	- Growth in revenues, profitability and cash flows - Completion according to the timeline and within the budget	[REDACTED]

Primary Quality: Green

Obj. No.	FW Monitoring Indicator	Corresponding Sub-Project Monitoring Indicator	Details (FW)	Details for Specific Sub-Project	Baseline (Sub-Project)	Target (Sub-Project)	Due date (FW)	TC-related
1.1	Number of recommended policy or strategy agreed by relevant stakeholder(s)	Recommended policy or strategy agreed by relevant stakeholder(s)	**New Green City Action Plans:** [REDACTED] new GCAPs finalised and submitted for approval by relevant authorities, and includes priority actions and a monitoring strategy in each participating City. Baseline target of the GrCF and GrCF2 combined is [REDACTED] GCAPs.	Almaty's GCAP sent to the City Administration for approval including an implementation and monitoring strategy.	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
1.2	Performance or action plan implemented by the client	Performance or action plan implemented by the client	**Strong follow-on support:** 50% of transactions (under GrCF2 and future extensions) are follow-on investments addressing priority environmental challenges identified in the GCAPs.	The Project is the City's first follow-on investment from the GCAP, which addresses the priority challenge of air pollution and climate mitigation.	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
1.3	Performance or action plan implemented by the client	Performance or action plan implemented by the client	**Multiple green investments:** Each participating city makes [REDACTED] investments (with or without EBRD financing) that address priority environmental challenges identified by the GCAP, where all EBRD financed projects will meet the extended Framework's eligibility criteria for investments.	The project will be signed and meets the eligibility criteria for investments under GrCF2. Once fully implemented, the project will result in a decrease of annual GHG emissions by at least 2.8 million tonnes of CO2e as well as the local air pollutants (NOx -7 kt/pa, SOx - 20.7 kt/pa, fly ash/dust - 5.5kt/pa)	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
1.4	Performance or action plan implemented by the client	Performance or action plan implemented by the client	**Effective GCAP implementation:** The Framework achieves at least 50 per cent of all verifiable targets, set in the GCAP [REDACTED] (including both investments and well-defined policy measures).	Follow on – the Project promotes implementation of the GCAP Action 6 (Almaty CHP-2 modernisation).	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
1.5	Improved environmental standards	Improved environmental standards	**Environmental impact:** The Framework achieves significant environmental improvements for at least one priority environmental challenge,	While the Project will improve air quality and reduce GHG	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

Obj. No.	FW Monitoring Indicator	Corresponding Sub-Project Monitoring Indicator	Details (FW)	Details for Specific Sub-Project	Baseline (Sub-Project)	Target (Sub-Project)	Due date (FW)	TC-related
			i.e. the promotion or protection of certain performance levels (colour codes) for priority environmental challenges as specified in the GCAPs, for more than 50 per cent of the Green Cities.	emissions, once completed, the relevant environmental improvements within the respective cities will not be monitored at project level.				

Secondary Quality: Inclusive

Obj. No.	FW Monitoring Indicator	Corresponding Sub-Project Monitoring Indicator	Further Details Sub-Project level	Details for Specific Sub-Project	Baseline (Sub-Project)	Target (Sub-Project)	Due date (Sub-Project)	TC-related
2.1	Number of training programs developed and implemented	Tailored training programme developed and implemented	The sub-Project will introduce a new, replicable and accredited training programme in partnership with local training institutions. Training numbers will be set in line with client's workforce size and training needs.	The Project will promote access to market-relevant skills and employment opportunities in Almaty city and region. APP will achieve this by introducing a new (re-)training programme on green/digital skills in partnership with local technical and vocational institutes. The programme will be developed based on an initial skills needs assessment, and in line with new SE's Energy Transition Strategy, based on the LCP targets.	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
2.2	Number of training programs developed and implemented	Number of individuals enhancing skills as a result of training	Typically, this will be no less than 60 individuals from the relevant target group. Gender-disaggregated data will be reported and, where relevant, specific targets for female participants will be set.	Training will reach at least 60 individuals, of which 30% will be female, over the course of EBRD's investment. [REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

Additional Indicators

Objective	FW level aggregate indicator	Indicator (sub-Project)	Details (sub project)	Baseline (Sub-Project)	Target (Sub-Project)	Due date (Sub-Project)	TC-related
Core client indicators	Total Population benefitting (individuals)	Total Population benefitting from improved air quality (individuals)	The Project will improve air quality in Almaty, benefiting 2 million population of the city	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
	Annual reduction in tonnes of CO_2 equivalent savings (tonnes CO_2 eq / yr)	Annual reduction in tonnes of CO_2 equivalent savings (tonnes CO_2 eq / yr)	Annual reduction of 2.8 million tonnes of CO_2 emissions (or 55% compared to baseline).	[REDACTED]	2.8 million tonnes of CO2 equivalent p/a	[REDACTED]	[REDACTED]

	Annual energy savings (GWh/yr)	Annual increase in electricity generation due to higher efficiency	The Project will result in additional 2,137 GWh of electricity produced per annum	[REDACTED]	2,137 GWh of electricity p/a	[REDACTED]	[REDACTED]
Gender SMART	Number of stakeholders with practices improved (e.g. equal opportunities)	Practices of the relevant stakeholder improved (e.g. equal opportunities)	Gender Action Plan developed and approved by SE	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Gender SMART	Number of stakeholders with practices improved (e.g. equal opportunities)	Share of women enhancing their skills as a result of (re)training	At least 30% of the (60) individuals benefiting from the new (re-)training programme on green/digital skills which will be developed as part of the project will be women	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

3. KEY PARTIES

3.1 BORROWER / INVESTEE COMPANY

The Borrower is Almaty Power Plants, power-generating company operating three CHPs and two HPPs in Almaty and Almaty region (the most populated region in Kazakhstan) with total installed capacity of 1,236 MWe. Almaty CHP-2 of 510 MWe is the largest asset of the Borrower. APP is 100% owned by SE, the Bank's existing client and the Sponsor of the Project. Please see ***Annex 1*** for the shareholding structure.

APP's fianncial highlights:

Almaty Power Plants JSC	**EUR million**				**KZT billion**			
	2018	**2019**	**2020**	**2021**	**2018**	**2019**	**2020**	**2021**
Revenue	161.2	149.4	157.9	155.8	65.542	64.047	74.481	78.654
EBITDA	22.5	34.6	36.7	33.4	9.149	14.824	17.339	16.856
EBITDA margin	*14%*	*23%*	*23%*	*21%*	*14%*	*23%*	*23%*	*21%*
Debt / EBITDA	**3.59x**	**1.59x**	**1.21x**	**0.98x**	**3.59x**	**1.59x**	**1.21x**	**0.98x**
Debt/Assets	**0.34x**	**0.24x**	**0.20x**	**0.19x**	**0.34x**	**0.24x**	**0.20x**	**0.19x**

[REDACTED]

Owner's Engineer: The Borrower has contracted Hill International, the US firm with extensive experience in CHP/CCGT projects overseas (the US, Brazil, Greece, Romania, Turkey, etc.), to support the Borrower during tender and evaluation, Project design and construction processes. Hill International is currently working as project manager on construction of 877MW gas fired power plant in Komotini, Greece and has worked on commissioning of 300MW gas fired power plant in Armenia. In Kazakhstan, Hill International has recently completed, as project manager, 100MW Nura Solar project getting first-hand local sector experience. Tender documentation has been developed by the Owner's Engineer and was reviewed and commented by the Bank's PIA and the LTA, with recommendations reflected in the final version of the Project's tender documentation.

3.2 SPONSOR

The Sponsor is Samruk-Energy, a vertically integrated electricity and heat producer in Kazakhstan that accounts for around a third of installed power capacity in the country and about a quarter of production, serving amongst others the most populated Almaty region, and is a vital infrastructure provider of strategic importance. The total installed capacity of Samruk-Energy is over 6,000 MWe, with annual net electricity generation of around 35,600 million kWh. The Company is 100% owned by Samruk-Kazyna Sovereign Welfare

Fund, the Project's Guarantor. Samruk-Energy is rated BB/Positive by Fitch (December 2021).

SE's fianncial highlights:

Samruk-Energy	EUR million				KZT billion			
	2018A	**2019A**	**2020A**	**2021A**	**2018A**	**2019A**	**2020A**	**2021A**
Revenue	640	569	600	658.9	260	244	283	332.5
EBITDA	241	192	191	217.9	98	82	90	110.0
EBITDA margin	*38%*	*34%*	*32%*	*33%*	*38%*	*34%*	*32%*	*33%*
Debt / EBITDA	**3.17x**	**3.66x**	**2.96x**	**2.70x**	**3.17x**	**3.66x**	**2.96x**	**2.70x**
EBITDA / Interest	**3.77x**	**3.39x**	**3.76x**	**5.00x**	**3.77x**	**3.39x**	**3.76x**	**5.00x**

[REDACTED]

3.3 GUARANTOR

The Guarantor is Samruk-Kazyna, the sovereign wealth fund of Kazakhstan with reported assets of over EUR 60bn (c. 30% of the country's GDP in 2021) as of YE21, which owns, either in whole or in part and manages a diversified portfolio of leading companies in Kazakhstan. Samruk-Kazyna is rated BBB/stable by Fitch (November 2021), Baa2/stable by Moody's (September 2021) and BBB-/negative by S&P (September 2022).

Samruk-Kazyna's fianncial highlights:

Samruk-Kazyna	EUR million				KZT billion			
	2018A	**2019A**	**2020A**	**2021A**	**2018A**	**2019A**	**2020A**	**2021A**
Revenue	24,954	24,972	18,209	23,310	10,148	10,704	8,591	11,764
EBITDA	7,047	7,165	4,778	5,920	2,866	3,071	2,254	2,988
EBITDA margin	*28%*	*29%*	*26%*	*25%*	*28%*	*29%*	*26%*	*25%*
Debt / EBITDA	**2.71x**	**2.49x**	**3.66x**	**2.83x**	**2,71x**	**2,49x**	**3,66x**	**2.83x**
EBITDA / Interest	**4,30x**	**4,61x**	**3,61x**	**5.36x**	**4,30x**	**4,61x**	**3,61x**	**5.36x**

[REDACTED]

4. MARKET CONTEXT

Kazakhstan's power sector is dominated by coal-fired generation dating back to Soviet times and accounting for c.70% of the energy balance - with c.19% of electricity generated by gas-fired power plants, c.7% coming from non-thermal generation (through HPPs), and c.4% generated by renewable energy sources. Power sector operates 190 power stations with installed electric capacity of c.24 GW and available capacity of 20.2 GW. The sector is relatively concentrated with five largest power companies (out of 47 in total) accounting for 58% of total generation, while ten largest – for 70%. Power plants operate in a competitive environment with most of the sales made under bilateral contracts with large consumers or retail power supply companies, however electricity tariffs are capped by the Ministry of Energy for each plant depending on the cost base.

Almaty region is one of the largest electricity consumers in the country, with electricity consumption growing by 10% y/y in 2021 to c. 12.5 TW*h. The region is a net importer of electricity – only 54% of consumption is covered by internal generation (6.8 TW*h in 2021), the rest is supplied from North Kazakhstan, mainly Ekibastuz energy cluster (coal-fired).

In 2019, the capacity market was introduced in Kazakhstan as a measure to stimulate investments in the energy sector, compensate producers for expensive modernization and capacity-installation projects and hence ensure stability of electricity network via increasing availability of generating capacities. Any investor in the power sector of Kazakhstan, therefore, has two different sources of income and compensation for expenses: (i) proceeds from the sale of electric power in the free market under the power purchase agreements (PPAs) within price caps approved by the Ministry of Energy, and (ii) proceeds from the sale of capacity of a power plant to a designated-by-law single off-taker under the capacity purchase agreements (CPAs), within price caps established by the Ministry of Energy. Payments under the PPAs cover the operating expenses of power plants, whereas payments under the CPAs cover the capital expenses of investments in new projects and in the modernization of existing power facilities.

In June 2022, President of Kazakhstan signed into law an amendment to the electricity law which sets a procedure for conclusion of investment agreements with power companies that conduct modernisation with conversion of primary fuel from coal to gas. New rules imply a minimum length of 10 years for the investment agreement, with individual capacity tariff sufficient for the full debt principal repayment for generating companies switching to gas, while interest part of the debt service is covered by electricity and heat tariffs, in line with prevailing cost plus methodology.

District heating

Kazakhstan, as a successor of Soviet energy system and a country with harsh climate conditions (temperatures going down to as low as -40°C in some regions during winter), relies heavily on district heating. The heat for DH purposes is produced on Combined Heat and Power plants and heat boilers, mainly coal and gas-fired. The DH sector is a regulated industry where tariffs are set by the local branches of the Committee for Regulation of Natural Monopolies (“KREM”) an independent state anti-monopoly body, through a 5-6 year revision of tariffs based on the cost-plus methodology.

Gas market

Natural gas for this Project will be supplied by QazaqGaz JSC, state-owned gas transportation company (subsidiary of the Guarantor). Gas will be supplied domestically from the Western Kazakhstan (Atyrau and West-Kazakhstan regions). The annual production of natural gas in Kazakhstan is c.54 billion cubic meters, which is sufficient to satisfy internal demand

(c.13% of gas is exported, mainly to China). Gas is supplied to Almaty via the existing network of pipelines (Beineu-Shymkent gas pipeline, Asian gas pipeline, Almaty-Baiserke-Talgar gas pipeline). Connection of Almaty CHP-2 to the gas pipelines is expected by the end of 2023. [REDACTED].

Under the law, there is a priority of domestic gas supply (local companies cannot export unless internal demand is fully satisfied). QazaqGaz JSC has already included Almaty CHP-2 in the official list of wholesale gas consumers and included the forecasted gas supply to Almaty CHP-2 in the multi-year gas supply plan.

5. FINANCIAL / ECONOMIC ANALYSIS

5.1 FINANCIAL PROJECTIONS

[REDACTED]

5.2 SENSITIVITY ANALYSIS

[REDACTED]

5.3 PROJECTED PROFITABILITY FOR THE BANK

[REDACTED]

6. OTHER KEY CONSIDERATIONS

6.1 ENVIRONMENT

Category A (ESP 2019). The Project is the replacement of a coal-fired CHP with gas-fired state of the art CCGT/OCGT and gas boilers to be constructed on the same site. This is a key action under GCAP to improve the air quality in the city of Almaty, which is one of the most polluted cities in the world. The Project will also result in substantial reduction of GHG emission and part of the transition to net zero emissions in Kazakhstan. The Project is an important transitional step in attaining net zero by Kazakhstan in the longer term. The Project is also 100 per cent GET eligible.

An Environmental and Social Impact Assessment ("ESIA") disclosure package has been prepared for the Project by the Almaty Power Plant JSC. This has utilised the local Environmental Impact Assessment (EIA) undertaken by APP as part of feasibility studies for the new CCGT and modernization programme undertaken in line with National requirements. Additional more detailed ESIA will be undertaken in the future as part of the detailed design by the chosen EPC contractor.

The Bank's Environmental and Social Due Diligence (ESDD) was undertaken by an independent consultant and the ESDD included a review of current operations at the existing facility, as well as the feasibility studies and plans for coal to gas change and proposed CCGT options.

The existing CHP-2 is located in the Alatau District of Almaty city, Kazakhstan, within an industrial setting and is by far the largest CHP in the city with 8 coal-fired power boilers, 7 steam turbines and related infrastructure and with total installed capacities of 510 MWe and 1,641 MWth. Currently, Ekibastuz coal is used as the main fuel at CHP-2, and fuel oil is used as a starting oil. Annual coal consumption is about 2.5 million tonnes. This equates to 5.1 million tonnes of CO2r/per annum. The plant has also based air abatement system, which results in high NOx, SOx and dust emission, at the level of 650 mg/Nm3 NOC, 1500- 2000 SOx and 400 mg/Nm3 of dust. These are a magnitude higher than current EU

BAT standards, which is one of the key factors of poor air quality in the Almaty region. The Project will result in substantial air quality improvements as dust and SOx emissions will be fully eliminated from the plant's footprint, while NOx emissions will be significantly reduced. This in turn will be in line with EU requirement at the level of 50 mg/NM3 as the new CCGT plant will include DeNOx and be complaint with EU BAT. The new plant will also be substantially more efficient, which results in a substantial reduction of GHG emissions, currently estimated at 2.8 million tonnes CO2e saving per annum.

The Project will be developed in phases with the first phase a 200 MWe unit. The construction is planned to be carried out in three stages. The total duration of modernisation of Almaty CHP-2 will be 65.5 months during 2022-2026. The estimated average number of construction workers will be 629 people. The maximum number of employees at a time will be 726 people in the peak year 2025.

"Almaty Power Plants" JSC and Samruk-Energy group have committed to comply with best international techniques and practices, as well as with EBRD requirements, which include the EU Large Combustion Plan Best Available Techniques (BAT) Conclusions. Therefore, any further Project developments (including engineering and construction works, environmental and social management during the construction and operation phases) will be aligned with relevant EBRD's PRs. The said requirements will also be cascaded to EPC contractor and sub-contractors' net and supply chain. The Bank will set the requirements on emission KPIs in the ESAP, which will be part of the EPC Contract. The Bank will also require the full phase out, mothballing and ultimate decommissioning.

The current planned configuration of the main equipment of gas turbine units for the new CHP as per the feasibility study prepared by APP is as follows:

- one combined-cycle gas power unit (CCGT);
- two gas turbine power units with cogeneration.

CHP-2 will be modernised within the existing site; additional land acquisition is not envisaged. Modernisation will be performed so that existing equipment could be operated in parallel and be mothballed afterwards. The power plant will provide electricity, heat for heating, hot water supply during the heating period, and heat for hot water supply during the summer period.
The modelling demonstrated that, even under the worst-case scenario, all options would meet national and EU air quality standards for sulphur dioxide and dust, which will be fully eliminated on the new plant.

The existing CHP-2 is associated with a sanitary protection zone (SPZ), which extended by law for over 1km radius around the plant and currently includes around 230 land plots including semi-formal residential houses and structures. The new plant is going to require renewing SPZ, but this will have to be calculated once the Project is built based and new measurements and studies required to establish SPZ are carried out. The ESAP will require any resettlement or/and livelihood impacts resulting from the Project construction and establishment and enforcement of SPZ is addressed in compliance with ESP Performance Requirement 5: Land Acquisition, Involuntary Resettlement, and Economic Displacement.

A Resettlement Framework has been developed to manage any land acquisition and resettlement impacts that may be potentially caused by the establishment and enforcement of the revised SPZ. Further details of land acquisition and resettlement process, if impacts take place, are provided in the Resettlement Framework disclosed below.

As part of the Stakeholder Engagement Plan, the Company will continue engaging with various stakeholders and local communities as part of national EIA and ESDD disclosure.

Specifically, during the disclosure period the Company will conduct a series of meaningful consultation meetings that will focus on discussion of key impacts and risks, proposed mitigations, and seeking other feedback from the stakeholders.

An ESAP has been agreed for the Project, which will be revised during the public consultation. The ESAP provides organizational and design measures to ensure the Project compliance with EBRD PRs, including the following:

- Conducting a detailed Environmental and Social Impact Assessment (ESIA) of the Project by the EPC contractor in line with EBRD requirements inclusive of pubic consultations;
- Adhering compliance with Best Available Techniques (BAT) for thermal plants;
- Provide for strong management of environmental and social aspects of the Project implementation during both construction and operation phases, including management of contractors of all levels and supply chain;
- Engaging stakeholders pro-actively throughout all Project phases following the requirements of the Stakeholder Engagement Plan, considering feedback and regular SEP update and adoption for the Project needs;
- Embedding Grievance Redress Mechanism in the Company's Environmental and Social Management System (ESMS) as a major priority. The GRM will be functioning for both external (communities, NGOs, etc.) stakeholders and internal (workers, contractors, subcontractors and their workforce, both permanent and short term) stakeholders.

The Bank will be monitoring the implementation of the Project through site visits. The full ESIA disclosure package is available on the Bank's, Borrower's and Sponsor's website.

6.2 INTEGRITY

In conjunction with OCCO integrity due diligence was undertaken on Almaty Power Plants (the Borrower), Samruk-Energy (the Sponsor) and Samruk-Kazyna (the Guarantor), their senior management and other relevant parties, including the envisaged gas supplier to the plant, QazaqGaz (the Supplier). [REDACTED][T]his project does not pose an unacceptable integrity or reputational risk to the Bank. [REDACTED].

All actions required by applicable EBRD procedures relevant to the prevention of money laundering, terrorist financing and other integrity issues have been taken with respect to the Project, and the Project files contain the integrity checklists and other required documentation which have been properly and accurately completed to proceed with the Project.

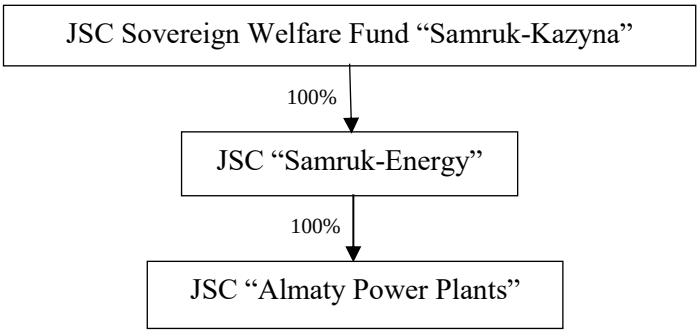
ANNEXES TO OPERATION REPORT

ANNEX 1	Shareholding Structure
ANNEX 2	Green Assessment
ANNEX 3	Implementation Progress of GrCF / GrCF2
ANNEX 4	Financial Information
ANNEX 5	Project Implementation

ANNEX 1 – SHAREHOLDING STRUCTURE

Both JSC “Almaty Power Plants” and JSC “Samruk-Energy” are sub-sovereign companies based in Kazakhstan, ultimately fully owned by JSC Sovereign Welfare Fund “Samruk-Kazyna” (Kazakhstan).

No domiciliation annex is required as the jurisdiction of the full chain of shareholding structure up to beneficial is Kazakhstan.



ANNEX 2 – GREEN ASSESSMENT

Introduction

EBRD has undertaken specific assessment of this project aligned with the EBRD Paris Alignment Approach (and the EBRD Fossil Fuels approach 2021). Assessment undertaken include: (1) NDC review (2) Low carbon pathway (3) Economic Viability test (4) Carbon lock in assessment (5) Best Available Techniques (6) Carbon transition risk assessment. The project also qualifies for 100% GET finance.

Paris alignment assessment

General screening of alignment with the mitigation goals of Paris Agreement

The project/economic activity is not included in the 'aligned list'. It meets some but not all of the EU taxonomy criteria for climate mitigation (see table 3 below).

Specific assessments undertaken (following sector guidance for District Heating)

(1) NDC (Nationally Determined Contributions) review:

Kazakhstan signed and ratified the Paris Agreement 2016. In its NDC, Kazakhstan set an economy-wide unconditional target aiming to reduce GHG emissions by 15% below 1990 levels (including LULUCF) by 2030. Kazakhstan also has a conditional target to reduce emissions (including LULUCF) by 25% below 1990 levels by 2030. This target is subject to "additional international investments, access to low carbon technologies transfer mechanism, green climate funds and flexible mechanism for country with economy in transition"[6]. Kazakhstan has a Long Term Strategy (LTS) of net zero target by 2060. A country level LTS setting out a net zero pathway by 2060 has been endorsed by Supreme Council of Reforms chaired by the President of Kazakhstan that was held on the 28th September 2022. High efficiency gas to displace coal for district heating is consistent with the NDC and Long Term Strategy and energy sector Low Carbon Pathway.

(2) Low-carbon pathways and acceleration of decarbonisation:

A bespoke District Heating Low Carbon Pathway (DH Low Carbon Pathway) was developed for the Almaty (APP zone) using advanced energy modelling software. This tool supports the determination of a least cost pathway for the heating system in Almaty to meet a 2060 net zero emissions target[7]. The following cases were developed:

Case1: Baseline of continued coal operation, with major overhaul of CHP-2;
Case2: Net zero 2060 with gasification of CHP-2 and decommissioning of coal units (the Project Case);
Case3: Net zero 2060 with no investment in new fossil fuel capacity.

This shows that the Project is consistent with (and actively contributes to) a net zero heat system by 2060. It also demonstrates that the investment accelerates decarbonisation within the sector, as alternatives (outlined in Case 1 and Case 3, see Figure 3) delay the phase out of more emissions intensive assets in the next decade.

Case 2 (the Project Case) – (Figure 1) shows the least cost pathway for heat system to meet net zero by 2060 with CHP-2 gasification. This shows i) displacement of coal as a heat source due to the commissioning of CHP-2, with coal fully displaced before 2027, ii) that CHP-2 operates fully until 2040 then gradually phases down until 2050s, and iii) low-carbon

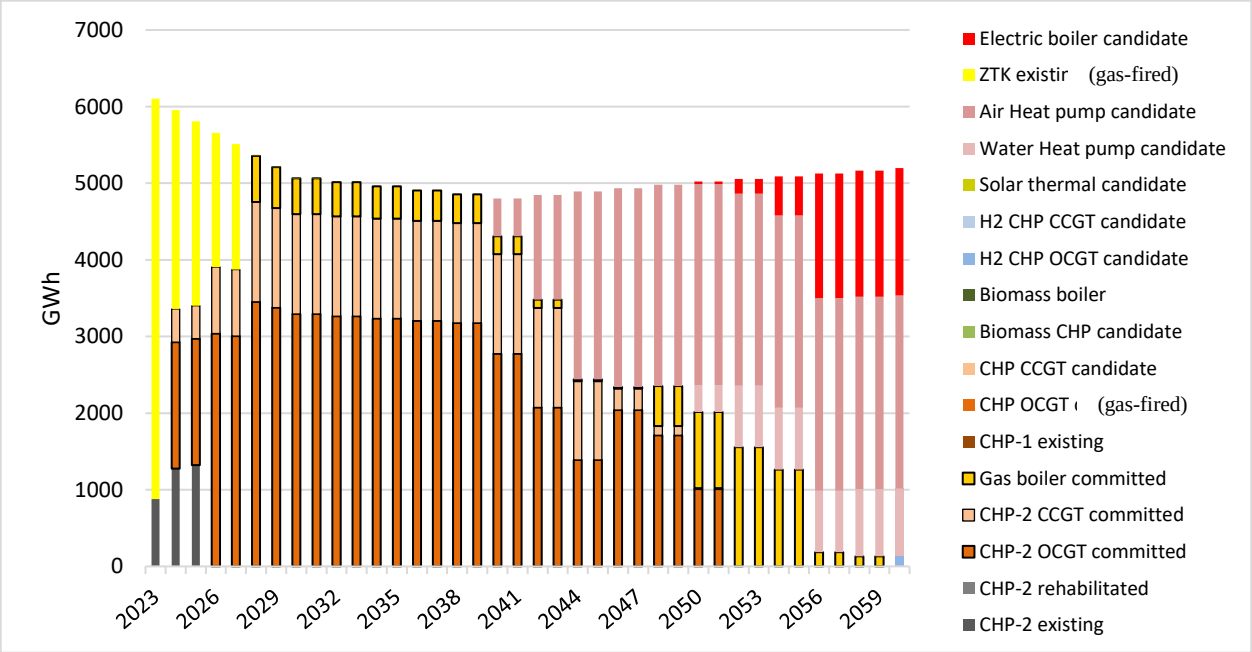
[6] Republic of Kazakhstan. (2016a). Intended Nationally Determined Contribution -Submission of the Republic of Kazakhstan. https://unfccc.int/sites/default/files/NDC/2022-06/INDC%20Kz_eng.pdf

[7] This allows a) Identification of optimal future investment and dispatch for JSC APP district heating (DH) network for varying framework conditions b) Assessment of the economic and emissions implications of planned investment (CHP-2)

technologies (including heat pumps, thermal storage and electric boilers) replace existing assets longer term.

Case 3 (Figure 2) shows the least cost pathway for heat system to meet net zero by 2060 without CHP-2 gasification and with no investment in new fossil fuel assets. This shows emissions reductions are delayed and costs are higher because alternatives will take many years to build out. The system relies on existing forms of emission intensive heat generation, including a partial rehabilitation of a coal based CHP-2, in order to meet the forecast heat demand until replacements can be built. Note that this model represents a technical possibility for the system based on framework assumptions but would face significant challenges to implementation in practice. In the 2030s the models selects significant levels of capacity based on heat pumps and large scale electric boilers. These technologies, at this scale are only now being demonstrated in Western Europe, with no examples in Central Asia. Uptake locally would also rely on electricity as an input in a region facing electricity deficits requiring further transmission network reinforcement investments[8].

Figure 1 - Net zero 2060, including gasification of CHP-2 (Case 2 – the Project Case). Generated heat by technology (GWh)



[8] Accurate regional data on condition and capacity of network is not available, and therefore these potential costs have not been included in the LCOHeat. An approximate calculation suggests that this could add 192 MUSD to total costs (600km form Balkhash to Almaty and 500KV HV Transmission line at 320 kUSD/km)

Figure 2 – Generation of heat by technology–Case 3: No new fossil fuel investment. GWh of heat

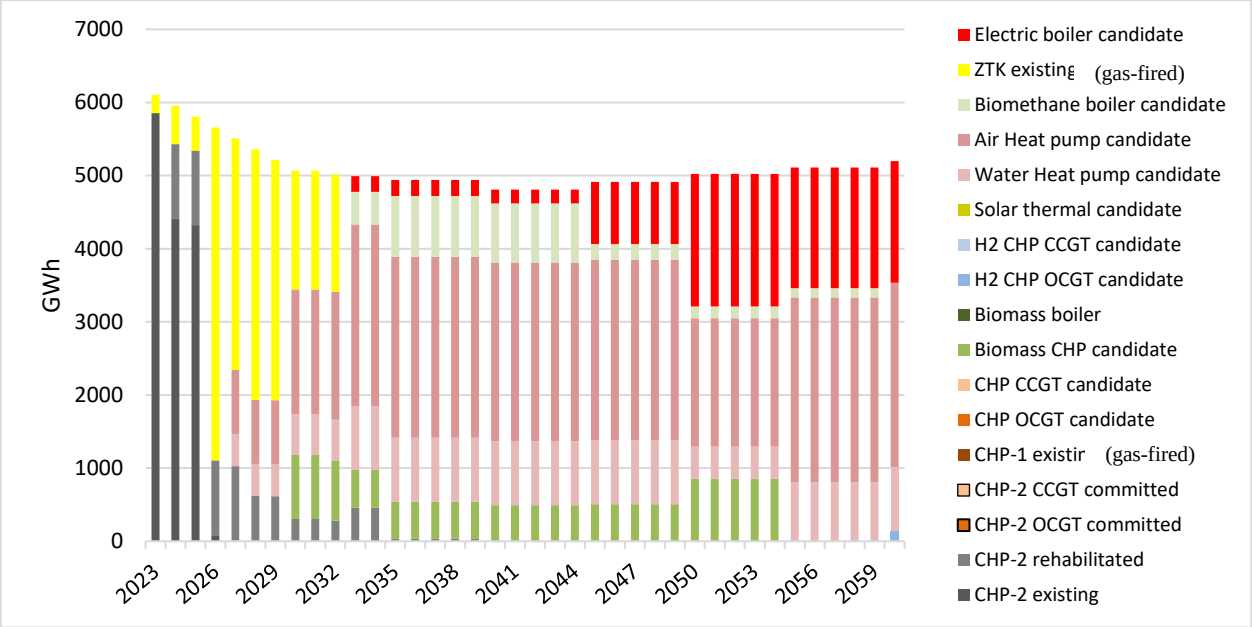
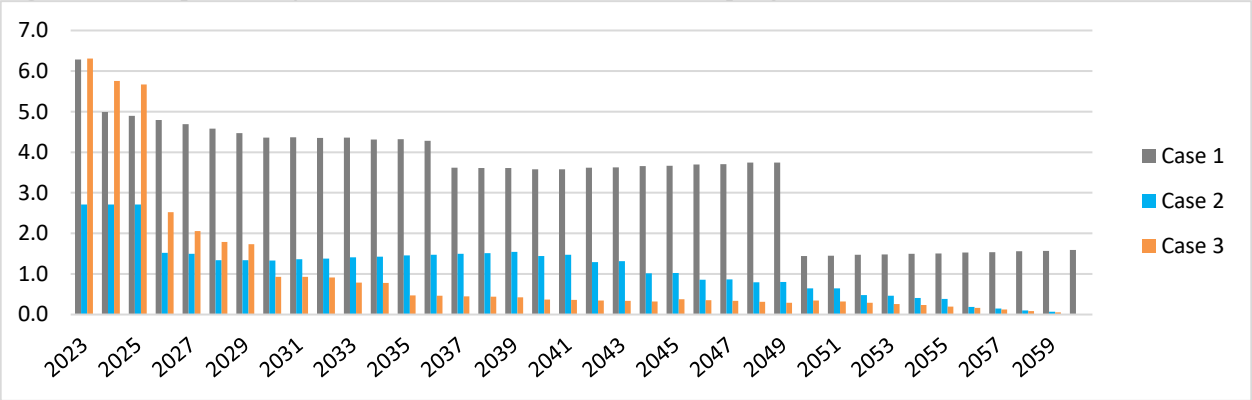


Figure 3 - Comparison of emissions between Cases M tCO2e per year



The Project is consistent with the city's environmental and low carbon vision/approach as articulated in the Almaty GCAP, which is expected to be approved by the City's administration by the end of 2022, following public consultations in October 2022.

(3) Carbon lock-in tests:

The project has low risk of carbon lock in risk. Overall, this investment is unlikely to displace low carbon or renewable alternatives when they become viable. The DH Low Carbon Pathway shows that gasification of CHP-2 is consistent with a least costs pathway to net zero transition by 2060. Moreover, there are no identified non-financial barriers which would prevent future shift to low carbon sources as and when they become feasible (in the 2030 and 2040's). A new district heating law prioritising renewable heat supply, [REDACTED], is expected to be adopted in 2023.

EBRD has specific Paris Alignment sector guidance for District Heating projects. For natural gas generation projects, low-risk of carbon lock-in is demonstrated by:

i. The plant demonstrates technical and economic low carbon readiness;

CHP-2 plays a key role in the district heating system. A gas fired CHP-2 is aligned with a net zero 2060 District Heating system in Almaty (see DH Low Carbon Pathway Case2); it enables short term emissions reduction and reduces reliance on less efficient assets. [REDACTED]. However, it is uncertain if hydrogen and bio-methane will be available and competitive for utilisation. Even so, the DH Low Carbon Pathway (Case 2) shows that this is not required until after 2058 and that there are likely to be competitive alternative low carbon technologies that can replace it during this time.

ii. Contracts with suppliers and consumers, legislation and market structure do not prevent the entry of new low carbon sources;

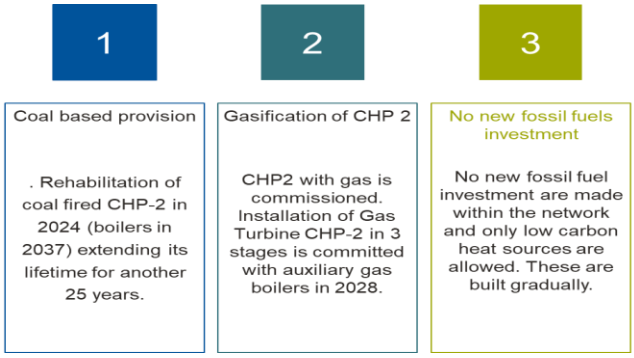
District heating is a regulated sector. [REDACTED] Even so, individuals can switch to alternative heat sources and the regulatory framework is developing quickly. [REDACTED] a new district heating law with expected adoption in 2023; it will set an enabling framework for entry of new players/technologies, in particular renewable heat supply. The law explicitly acknowledges the priority role of renewable energy heat producers - stating that "*in public and local district heating systems, the introduction of heat sources using renewable energy sources should be considered as a priority alternative when economically and technically feasible, for modernisation, replacement or additional construction of the base capacity*". The draft law is supplemented by the Catalogue of renewable heat supply technologies, which provides an overview of available technologies and comments on applicability of each in the context of Kazakhstan. Gas supply contract is under negotiation and expected to be short-term, with annual renewal clause allowing for flexibility. There are no commercial arrangements known that would oblige the company to dispatch CHP-2 in full or partial capacity when lower carbon options become feasible.

iii. There is a client commitment to future decarbonisation.

The national LTS targeting net zero 2060 was endorsed by the Supreme Council of Kazakhstan on the 28th September 2022. Samruk Energy, has also developed a net zero strategy (2060), targeting net zero emissions and a 14x increase in renewables compared to 2021 (with renewables accounting for 82% of total power production)**.** [REDACTED].

(4) Economic viability test:

An economic assessment of the project was undertaken. The project is compared on a Levelised Cost of Heat basis ($LCOH_{eat}$) to alternative options for heat generation. $LCOH_{eat}$ estimates the economic net present value of cost of producing a unit of heat, including externality and fuel costs, over the lifetime of the asset (25 years). It is the preferred comparative metric as the facility is heat-led i.e. its primary function is provision of heat to the Almaty District Heating network. Three (3) scenarios are considered:



Results: The results show that the project case is the least cost option available. The project has $LCOH_{eat}$ of 61 €/MWh, compared to 178 €/MWh in the baseline and 100 €/MWh in a case with no new fossil fuels (see Table 1 for details). Sensitivity analysis shows that the results

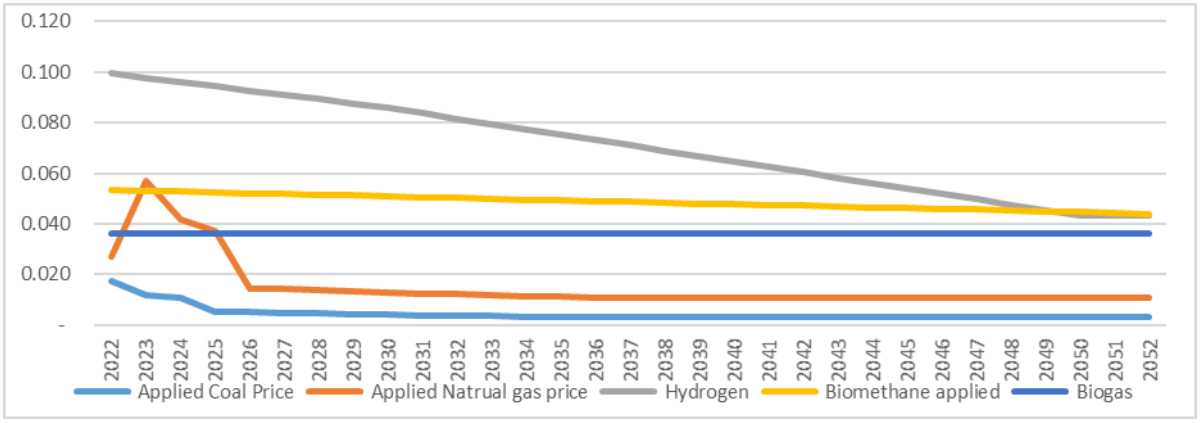
are not sensitive to major changes in input or costs assumptions. Higher carbon prices, including those suggested by the NGFS net zero 2050, would not alter the conclusion of the analysis.

Table 1 – Economic Assessment LCOH results for considered options, Euro M.

Present Value of Costs- EURm*				
		Project	**Baseline – coal based provision**	**No new fossil fuels**
Electricity	EURm	2,911	1,735	772
CAPEX	EURm	[RED]	(707)	(321)
OPEX	EURm	[RED]	(475)	(220)
Fuel		(2,221)	(974)	(1,406)
Coal	EURm	(338)	(974)	(370)
Gas	EURm	(1,883)	-	(468)
Biomass	EURm			(268)
Electricity consumption	EURm			(300)
Emissions	EURm	(4,272)	(11,702)	(5,631)
CO2 Emissions	EURm	(2,934)	(5,468)	(3,154)
NOx Emission	EURm	(418)	(1,385)	*(593)*
SOx Emission[9]	EURm	(919)	(4,849)	*(1,884)*
Economic NPV of costs	EURm	[RED]	[RED]	[RED]
Emissions costs/total costs	%	[RED]	[RED]	[RED]
Levelised Cost of Heat (excluding emissions)	EUR/MWh	[RED]	[RED]	[RED]
Levelised Cost of Heat (including emissions)	EUR/MWh	61	178	100

**costs are in Euro Millions.*

Figure 4 - Fuel commodity price assumptions for Economic Assessment ($/KWh)



[9] Further benefits are expected from PM2.5 and PM10 local air pollutant savings due to coal phase out.

Table 2 - Primary assumptions for Economic Assessment

	Baseline	Project case	No new fossil fuels
Capex TEUR	Rehabilitation CAPEX (refurb.) [$/kWth] 300 (2024) + 750 (2037)	[RED]	446,734 (based on the mix of technologies for DH LCP case 3)
Other opex TEUR	[RED]	[RED]	[RED]
Shadow carbon price	High Level Commission on Carbon Prices: central value, with sensitivity up to NGFS net zero 2050		
Shadow air pollutant costs	*Costs of air pollution from European industrial facilities 2008–2017* *values derived from EBRD CoOs for available countries and per capita GDP correction		
Fuel cost	Natural Gas. Base gas price is local China export price escalated at World Bank commodity market outlook natural gas forecast rate with a 1-year delay, to 2035, held constant thereafter. Coal. No export to China price available, base price calculated by the ratio of natural gas to coal. This ratio is applied to export to China natural gas to get base China export price, escalated at WB coal price forecast to 2035, held constant thereafter. Hydrogen. World Bank, 2021, Potential of hydrogen development in Uzbekistan		

(5) Best Available Techniques:

Hydrogen blending readiness and use of BAT compliant technologies are explicit conditions in the tender documentation for this Project.

(6) Climate-related financial risk

Climate-related financial risk	
Final physical climate risk score for the key counterparty of risk	1
Evaluation of the physical climate risk for the key counterparty of risk	*n/a.* As the counterparty operates at several geographical locations, its overall exposure to physical climate risks are considered to be low.
Final carbon transition risk score for the key counterparty of risk	4
Evaluation of carbon transition risks for the key counterparty of risk	Carbon Transition ("CT") Risk and Stranded Asset risk assessment look at the financial risks of the Bank's counterparty, Samruk-Energy (SE), through scenario analysis with carbon pricing. 4 carbon price scenarios are used to assess the possible financial impact of climate policies (NDC soft/hard, Net zero soft/hard) on key metrics (COGS, gross margin, EBITDA, DSCR, cash conversion, interest coverage). [REDACTED] **CT risk:** With high level of carbon pricing (net zero soft/hard scenarios) carbon transition risk on the counterparty is high if these costs cannot be fully passed through to consumers through tariffs. These risk are substantially mitigated: a) Due to the nature of the sector and high pass-through of costs. Tariffs are low and will likely increase, but may be limited by government and/or affordability constraints. [REDACTED]. b) Early planning by SE and consideration of climate risks. SE is to adopt a net zero strategy (in October 2022) and aims at installation of large renewable capacities and coal phase out by mid-2040s. Samruk Energy assets also plays a key role in balancing system requirements and decarbonisation. c) [REDACTED] d) SE will adopt the TCFD recommendation and report emissions–to include climate impact assessment as part of their annual reporting, starting FY2023. The Bank will support this initiative through TC on the TCFD reporting to build capacity of SE and to ensure the best practice is in place. [REDACTED]. **Stranded asset risk at Project level** after conversion to gas is materially lower: CHP-2 will be among the most efficient assets operated by SE and lead to substantial CO2 emissions reduction. This is further mitigated by the heating needs in Almaty city during the term of the loan. The repayment risk is mitigated via the guaranteed structure of the loan.. . . . .

Paris Agreement determination for adaptation (BB2)

A screening of the project locations was undertaken to check whether there are any potential material physical climate risks. *Screening for physical risks (Step 1):* indicates that the project does not face any potentially material physical climate risks. [REDACTED]

GET attribution

The project has a 100% GET share on the basis of environmental benefits, with 74% also being counted towards climate finance for mitigation.

Climate finance for Mitigation: The project will supply the same amount of heat as the current gas-fired CHP 2 and will increase electricity production displacing more carbon-intensive electricity from the grid, which is dominated by coal in Kazakhstan. It will result in 2.8 million tonnes CO2 emissions savings per annum. The project is brownfield, as i) the installation of new equipment will be conducted on the site of existing CHP, ii) existing coal-related equipment, including boilers and turbines, will be taken out of service and iii) the new gas-fired equipment will rely on the existing critical infrastructure of the plant. The brownfield

portion of the project qualifies for climate finance[10]. Allocation is done on the basis of installed heat capacity resulting in 74 % of investment being climate finance.

EU Taxonomy for substantial contribution to climate change mitigation: The project meets most, but not all, of the criteria. See below summary.

Table 3 - Requirements for EU taxonomy: High-efficiency co-generation of heat and power from fossil gaseous fuels[11].

direct GHG emissions lower than 270 gCO2e/kWh of the output energy	✓
primary energy savings of at least 10% compared with the references to separate production of heat and electricity (Directive 2012/27/EU)	✓
Power/heat/cool to be replaced cannot be generated from renewable energy sources, based on a comparative assessment with the most cost-effective and technically feasible renewable alternative for the same capacity identified; the result of this comparative assessment is published and is subject to a stakeholder consultation	✓
replaces an existing high emitting electricity/heat/cool generation activity that uses solid or liquid fossil fuels	✓
the newly installed production capacity does not exceed the capacity of the replaced facility	×[1]
the facility is designed and constructed to use renewable and/or low-carbon gaseous fuels and the switch to full use of renewable and/or low-carbon gaseous fuels takes place by 31 December 2035, with a commitment and verifiable plan approved by the management body of the undertaking	×[2]
the replacement leads to a reduction in emissions of at least 55% GHG over the lifetime of the newly installed production capacity	✓
where the activity takes place on the territory of a Member State in which coal is used for energy generation, that Member State has committed to phase-out the use of energy generation from coal and has reported this in relevant law/policy	n.a.
measurement equipment for monitoring of physical emissions (incl. methane leaks) and repair during operation	✓
where biomass/biofuels are used, compliance with criteria laid down in Directive (EU) 2018/2001	n.a.

Notes:

1) The total heat and power capacity of the Project exceeds the original CHP capacity by 5%
2) While the facility is designed to use renewable and/or low-carbon gaseous fuels, there is no commitment to fully switch by 31/12/2035

Environmental Benefits: The project also leads to substantial environmental benefits, based on the reduction of local air pollutants. This includes: 7,025 tonnes of NOx and 20,730 tonnes of SO2 per annum, and additional reduction of -5,460 tonnes of fly ash and 114 tonnes of carbon monoxide emissions per annum. 100% of the investment qualifies for GET environmental benefits.

Green Project Monitoring Plan

Objective	FW level aggregate indicator	Indicator (sub-Project)	Details (sub project)	Baseline (Sub-Project)	Target (Sub-Project)	Due date (Sub-Project)	TC-related?
Core client indicators	Total Population benefitting (individuals)	Total Population benefitting from improved air quality (individuals)	The Project will improve air quality in Almaty, benefiting 2 million population of the city	0	2 million people[12]	12/27	N
	Annual reduction in tonnes of CO_2 equivalent savings (tonnes CO_2 eq / yr)	Annual reduction in tonnes of CO_2 equivalent savings (tonnes CO_2 eq / yr)	Annual reduction of 2.8 million tonnes of CO_2 emissions[13] (or 55% compared to baseline).	0	2.8 million tonnes of CO2 equivalent p/a	12/27	N
	Annual energy savings (GWh/yr)	Annual increase in electricity generation due to higher efficiency	The Project will result in additional 2,137 GWh[14] of electricity produced per annum	0	2,137 GWh of electricity p/a	12/27	N

[10] EBRD GET handbook: Energy, Category 4

[12] Total population of Almaty city

[13] TDD confirms expected reduction in CO2e from 5.1 to 2.3 million tonnes p/a, resulting in savings of 2.8 million tonnes of CO2e p/a

ANNEX 3 – IMPLEMENTATION PROGRESS OF GrCF/ GrCF2

Since 2016, the GrCF and GrCF2 have mobilised nearly EUR 5 billion in EBRD and donor funding. The Green Cities Framework (GrCF), approved by the Board in November 2016, set an ambitious agenda for the Bank's municipal business, with the over-arching aim being 'to serve as a sector-wide catalyst for addressing environmental challenges at the City level'. [REDACTED] [I]n October 2018 a new Framework was approved by the Board, Green Cities Framework 2 (GrCF2) [REDACTED].

[13] TDD confirms expected reduction in CO2e from 5.1 to 2.3 million tonnes p/a, resulting in savings of 2.8 million tonnes of CO2e p/a

[14] TDD confirms expected increase in annual electricity generation from 2,283 to 4,421 GWh, which implies savings from the grid of 2,137 GWh

ANNEX 4 – FINANCIAL INFORMATION

Full financials of the parties

Financial statement of **Almaty Power Stations JSC** (based on audited statements for 2018-2021).

Income Statement	KZT million				EUR million			
IFRS	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual
KZT, mln	2018	2019	2020	2021	2018	2019	2020	2021
Revenue	**65,542**	**64,047**	**74,481**	**78,654**	**161**	**149**	**158**	**156**
Cost of Sales (w/o D&A)	-52,614	-47,863	-55,182	-59,231	-129	-112	-117	-117
SG&A	-1,781	-1,853	-1,836	-2,759	-4	-4	-4	-5
Other operating costs, net	-1,997	492	-124	193	-5	1	0	0
EBITDA	**9,149**	**14,824**	**17,339**	**16,856**	**22**	**35**	**37**	**33**
PPE impairment				**-20,737**				**-41**
Depreciation	-7,661	-6,589	-7,142	-7,995	-19	-15	-15	-16
EBIT	**1,488**	**8,234**	**10,197**	**-11,876**	**4**	**19**	**22**	**-24**
Finance Cost, net	-3,657	-3,207	-2,948	-2,154	-9	-7	-6	-4
Profit before tax	**-2,169**	**5,027**	**7,250**	**-14,030**	**-5**	**12**	**15**	**-28**
Tax incurred	549	-954	-1565	2,375	1	-2	-3	5
Net Profit	**-1,620**	**4,073**	**5,685**	**-11,656**	**-4**	**10**	**12**	**-23**
Balance Sheet	**KZT million**				**EUR million**			
IFRS	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual
KZT, mln	2018	2019	2020	2021	2018	2019	2020	2021
Cash	2,044	1,558	1,214	1,773	5	4	2	4
Trade Receivables	9,866	12,872	17,869	19,025	22	30	35	38
Inventories	3,910	4,507	4,615	4,708	9	11	9	10
Other current assets	1,331	189	13	201	3	4	0	0
Disposal group	2	1	-	191	0	0	-	0
Total Current Assets	**17,152**	**19,126**	**23,712**	**25,899**	**39**	**45**	**46**	**52**
Fixed Assets	79,791	80,855	80,393	60,979	182	189	156	123
Intangible assets	184	128	204	265	4	3	4	1
Other non-current assets	47	56	196	1	1	1	4	0
Total Assets	**97,174**	**100,165**	**104,505**	**87,144**	**221**	**235**	**202**	**176**
ST Debt (incl CPLT)	12,251	8,210	8,837	8,165	28	19	17	17
Trade and other payables	4,750	9,922	9,264	12,111	11	23	18	24
Other current liabilities	3,084	1,228	1,984	1,631	7	3	4	3
Total Current Liab	**20,085**	**19,360**	**20,086**	**21,907**	**46**	**45**	**39**	**44**
Long Term Debt	20,571	15,353	12,116	8,077	47	36	23	16
Deferred tax	3,542	4,500	6,066	3,691	8	11	12	7
Other LT liabilities	2,091	2,378	2,937	2,674	5	6	6	5
Total Liabilities	**46,288**	**41,592**	**41,204**	**36,350**	**105**	**97**	**80**	**73**
Equity	50,886	58,573	63,301	50,794	116	137	123	103
Total Liab & Equity	**97,174**	**100,165**	**104,505**	**87,144**	**221**	**235**	**202**	**176**
Cash-Flow Statement	**KZT million**				**EUR million**			
IFRS	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual
KZT, mln	2018	2019	2020	2021	2018	2019	2020	2021
Operating cash flow before WC changes	9,149	14,893	17,404	17,450	22	35	37	35
WC changes	121	-4,279	-5,800	-395	3	-10	-12	-1
Net interest	-3,623	-3,300	-2,648	-1,686	-9	-8	-6	-3
Operating cash flow	**5,647**	**7,314**	**8,956**	**15,369**	**14**	**17**	**19**	**30**
CAPEX	-4,336	-2,203	-5,681	-8,752	-11	-5	-12	-17
Other items	203	5	-	3	1	0	-	0
Investing cash flow	**-4,133**	**-2,198**	**-5,681**	**-8,749**	**-10**	**-5**	**-12**	**-17**
New debt	20,173	18,944	33,380	21,567	50	44	71	43
Debt redemption	-21,074	-27,935	-36,101	-26,511	-52	-65	-77	-53
Dividend paid	-228	-	-611	-853	-1	-	-1	-2
Dividend received	-	3,675	-		-	9	-	0
Other items	-	-286	-288	-264	-	-1	-1	-1
Financing cash flows	**-1,130**	**-5,602**	**-3,619**	**-6,061**	**-3**	**-13**	**-8**	**-12**
Net change in cash	384	-486	-344	559	1	-1	-1	1
FX correction					0	0	-	0
Cash, BoP	1,660	2,044	1,558	1,214	4	5	3	2
Cash, EoP	2,044	1,558	1,214	1,773	5	4	2	4

Financial statement of **Samruk-Energy JSC** (based on audited statements for 2018-2021).

Income Statement	KZT million				EUR million			
IFRS	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual
KZT, mln	2018	2019	2020	2021	2018	2019	2020	2021
Revenue	**260,400**	**243,722**	**283,010**	**332,537**	**640**	**569**	**600**	**659**
Cost of Sales (w/o D&A)	-135,993	-141,664	-166,727	-199,680	-334	-331	-353	-396
SG&A	-26,583	-19,568	-26,028	-22,865	-65	-46	-55	-45
EBITDA	**97,825**	**82,490**	**90,255**	109,993	**241**	**192**	**191**	218
Depreciation	-53,139	-55,367	-58,457	-56,125	-131	-129	-124	-111
EBIT	**44,686**	**27,123**	**31,798**	**53,868**	**110**	**63**	**67**	**107**
Finance Cost, net	-41,086	-29,507	-28,687	-27,523	-101	-69	-61	-55
Other operating income	9,127	14,212	10,628	-2,621	22	33	23	-5
Profit before tax	**12,727**	**11,829**	**13,739**	**23,723**	**31**	**28**	**29**	**47**
Tax incurred	-7,718	-4,717	-5,655	-8,377	-19	-11	-12	-17
Net Profit	**3,425**	**7,111**	**8,083**	**15,347**	**8**	**17**	**17**	**30**
Balance Sheet	**KZT million**				**EUR million**			
IFRS	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual
KZT, mln	2018	2019	2020	2021	2018	2019	2020	2021
Cash	13,604	12,007	9,894	12,138	31	28	19	25
Trade Receivables	23,913	28,923	37,660	32,437	54	68	73	66
Inventories	9,374	10,573	11,674	13,587	21	25	23	27
Other current assets	94,941	19,091	13,603	19,837	216	45	26	40
Disposal group	16,131	-	-		37	-	-	0
Total Current Assets	**157,964**	**70,594**	**72,831**	**78,000**	**360**	**165**	**141**	**158**
Fixed Assets	756,454	752,989	731,640	702,709	1,722	1,764	1,418	1,420
Investment in JV	55,861	54,144	60,611	73,993	127	127	117	150
Other non-current assets	19,479	11,490	20,622	85,118	44	27	40	172
Total Assets	**989,757**	**889,217**	**885,705**	**939,820**	**2,253**	**2,083**	**1,716**	**1,900**
ST Debt (incl CPLT)	43,404	57,356	55,308	85,046	99	134	107	172
Trade and other payables	99,901	38,738	35,772	50,157	227	91	69	101
Other current liabilities	5,907	7,914	6,276	11,677	13	19	12	24
Disposal group	2,019	-	-	0	5	-	-	0
Total Current Liab	**151,230**	**104,008**	**97,357**	**146,880**	**344**	**244**	**189**	**297**
Long Term Debt	266,959	212,584	208,645	209,848	608	498	404	424
Other LT liabilities	91,556	87,609	89,128	80,451	208	205	173	163
Total Liabilities	**509,745**	**404,201**	**395,130**	**437,180**	**1,160**	**947**	**766**	**884**
Equity	480,012	485,016	490,576	502,640	1,093	1,136	950	1,016
Total Liab & Equity	**989,757**	**889,217**	**885,705**	**939,820**	**2,253**	**2,083**	**1,716**	**1,900**
Cash-Flow Statement	**KZT million**				**EUR million**			
IFRS	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual
KZT, mln	2018	2019	2020	2021	2018	2019	2020	2021
Operating cash flow before WC changes	97,787	84,820	94,072	116,468	240	198	199	231
WC changes	4,401	-9,146	-6,886	-1,731	11	-21	-15	-3
Interest, tax and dividends	-25,183	-16,986	-28,197	-35,651	-62	-40	-60	-71
Operating cash flow	**77,006**	**58,689**	**58,989**	**79,086**	**189**	**137**	**125**	**157**
CAPEX	-28,577	-27,316	-49,448	-92,724	-70	-64	-105	-184
Privatization and M&A	1,860	2,085	2,259		5	5	5	0
Other items	-5,269	14,258	3,892	-4,297	-13	33	8	-9
Investing cash flow	**-31,986**	**-10,973**	**-43,297**	**-97,021**	**-79**	**-26**	**-92**	**-192**
New debt	66,596	167,983	83,996	159,999	164	392	178	317
Debt redemption	-127,991	-212,412	-97,143	-136,394	-315	-496	-206	-270
Dividend paid	-2,266	-2,241	-3,066	-3,242	-6	-5	-6	-6
Other items	-201	-2,350	-1,593	-101	0	-5	-3	0
Financing cash flows	**-63,862**	**-49,021**	**-17,806**	**20,263**	**-157**	**-114**	**-38**	**40**
Net change in cash	-18,843	-1,304	-2,113	2,328	-46	-3	-4	5
FX correction	-272	-313	592	-83	3	-1	-	0
Cash, BoP	32,719	13,624	12,007	9,894	74	32	23	20
Cash, EoP	13,604	12,007	9,894	12,138	31	28	19	24

Financial statement of **Sovereign Wealth Fund Samruk-Kazyna JSC** (based on audited statements for 2018-2021).

Income Statement	KZT million				EUR million			
IFRS	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual
KZT, mln	2018	2019	2020	2021	2018	2019	2020	2021
Revenue	**10,147,644**	**10,703,701**	**8,591,417**	**11,764,272**	**24,954**	**24,972**	**18,209**	**23,310**
Cost of Sales (w/o D&A)	-7,100,258	-7,138,893	-5,678,554	-7,793,188	-17,460	-16,655	-12,036	-15,442
SG&A	-1,167,192	-1,198,697	-1,042,896	-1,115,245	-2,870	-2,797	-2,210	-2,210
Other income	985,338	704,946	384,297	131,986	2,423	1,645	815	262
EBITDA	**2,865,532**	**3,071,057**	**2,254,264**	**2,987,825**	**7,047**	**7,165**	**4,778**	**5,920**
Depreciation	-741,340	-900,082	-993,695	-1,063,447	-1,823	-2,100	-2,106	-2,107
EBIT	**2,124,192**	**2,170,975**	**1,260,569**	**2,850,032**	**5,224**	**5,065**	**2,672**	**5,647**
Finance Cost, net	-423,266	-368,060	-431,412	-380,639	-1,041	-859	-914	-754
Profit before tax	**1,700,926**	**1,802,915**	**829,157**	**2,469,393**	**4,183**	**4,206**	**1,757**	**4,893**
Tax incurred	-403,816	-382,434	-246,615	-561,036	-993	-892	-523	-1,112
Net Profit	**1,297,110**	**1,420,481**	**582,542**	**1,908,357**	**3,190**	**3,314**	**1,235**	**3,781**
Balance Sheet	**KZT million**				**EUR million**			
IFRS	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual
KZT, mln	2018	2019	2020	2021	2018	2019	2020	2021
Cash	2,487,553	1,993,962	2,227,669	2,810,730	5,662	4,671	4,316	5,681
Financial assets	939,635	836,698	516,739	1,178,754	2,139	1,960	1,001	2,383
Income tax asset	68,858	84,086	97,503	55,513	157	197	189	112
Trade Receivables	871,598	704,609	748,458	1,024,892	1,984	1,651	1,450	2,072
Inventories	611,863	654,452	626,363	728,897	1,393	1,533	1,214	1,473
Other current assets	384,012	485,423	441,088	425,578	874	11,372.00	8,546.00	860
Disposal group	166,279	130,487	61,787	42,721	3784	3057	1197	86
Total Current Assets	**5,529,798**	**4,889,717**	**4,719,607**	**6,267,085**	**12,586**	**11,455**	**9,144**	**12,667**
Fixed Assets	12,564,028	12,731,797	13,201,983	14,264,058	28,596	29,827	25,579	28,831
Intangible assets	1,688,235	2,001,908	2,022,024	2,004,032	38,424	4,690	39,177	4,051
Investments in JV	3,701,451	4,242,871	4,985,676	5,681,234	84,245	9,940	96,597	11,483
Long-term financial assets	860,173	906,854	1,048,437	1,025,245	19,577	21,245	20,313	2,072
Other non-current assets	1,401,240	1,643,863	1,505,119	1,068,104	31,892	38,511	29,162	2,159
Total Assets	**25,744,925**	**26,417,010**	**27,482,846**	**30,309,758**	**58,595**	**61,888**	**53,248**	**61,264**
ST Debt (inlc CPLT)	1,034,641	840,723	1,012,218	964,473	2,355	1,970	1,961	1,949
Trade and other payables	995,322	1,045,282	828,258	1,118,055	2,265	2,449	1,605	2,260
Other current liabilities	1,297,280	1,034,514	943,154	1,107,256	2,953	2,424	1,827	2,238
Disposal group	93,057	85,786	4,836	0	212	201	9	0
Total Current Liab	**3,420,300**	**3,006,305**	**2,788,466**	**3,189,784**	**7,785**	**7,043**	**5,403**	**6,447**
Long Term Debt	6,721,132	6,791,257	7,247,916	7,477,588	15,297	15,910	14,043	15,114
Deferred tax	937,119	1,065,288	1,143,256	1,333,617	2,133	2,496	2,215	2,696
Long-term payables	1,161,155	365,576	192,617	0	2,643	856	373	0
Other LT liabilities	551,944	845,631	958,976	1,135,677	1,256	1,981	1,858	2,295
Total Liabilities	**12,791,650**	**12,074,057**	**12,331,231**	**13,136,666**	**29,114**	**28,286**	**23,892**	**26,552**
Equity	12,953,275	14,342,953	15,151,615	17,173,092	29,481	33,602	29,356	34,711
Total Liab & Equity	**25,744,925**	**26,417,010**	**27,482,846**	**30,309,758**	**58,595**	**61,888**	**53,248**	**61,264**
Cash-Flow Statement	**KZT million**				**EUR million**			
IFRS	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual
KZT, mln	2018	2019	2020	2021	2018	2019	2020	2021
Operating cash inflow	11,690,028	11,042,611	9,631,441	12,776,605	28,746	25,763	20,414	25,316
Operating cash outflow	-8,496,474	-8,208,892	-6,823,694	-10,260,341	-20,893	-19,151	-14,463	-20,330
Net interest	-354,562	-303,626	-373,627	-442,801	-872	-708	-792	-877
Tax paid	-1,758,398	-1,858,944	-1,522,735	-347,423	-4,324	-4,337	-3,227	-688
Net operating cash flow	**1,080,594**	**671,149**	**911,385**	**1,726,040**	**2,657**	**1,566**	**1,932**	**3,420**
CAPEX	-870,772	-992,634	-1,084,727	-1,295,235	-2,141	-2,316	-2,299	-2,566
Net financial investments	-303,984	-328,639	-267,955	-6,136	-748	-767	-568	-12
Movements on cash accounts	1,468,343	10,055	297,967	-328,434	3,611	23	632	-651
Dividends and interest received	250,499	235,983	246,164	547,447	616	551	522	1,085
Other items	304,900	325,440	214,010	11,172	750	7593	454	22
Net investing cash flow	**848,986**	**-749,795**	**-594,541**	**-1,071,186**	**2,088**	**-1,749**	**-1,260**	**-2,122**
New debt	1,870,800	1,406,455	1,859,611	1,462,347	4,600	3,281	3,941	2,898
Debt redemption	-2,981,551	-1,538,093	-1,811,258	-1,171,065	-7,332	-3,588	-3,839	-2,320
Dividend paid	-37,364	-116,990	-192,054	-247,981	-92	-273	-407	-491
Equity issued	-	95,196	26,000	9,923	-	222	55	20
Other items	-801,550	-237,686	-124,291	-167,426	-1,971	-555	-263	-332
Net financing cash flows	**-1,949,665**	**-391,118**	**-241,992**	**-114,202**	**-4,794**	**-912**	**-513**	**-226**
Net change in cash	-20,085	-469,764	74,852	540,652	-49	-1,096	159	1,071
FX correction	243,700	-23,827	158,855	42,409	558	-60	294	84
Cash, BoP	2,263,938	2,487,553	1,993,962	2,227,669	5,153	5,828	3,863	4,414
Cash, EoP	2,487,553	1,993,962	2,227,669	2,810,730	5,662	4,671	4,316	5,681

ANNEX 5 – PROJECT IMPLEMENTATION

Procurement classification – *Public sub-sovereign*

[REDACTED]. JSC Almaty Power Plants will implement the project. The Borrower has no previous experience in implementation of IFI financed projects, but during procurement assessment demonstrated reasonable capacity and capability for procurement of the required contracts in accordance with the EBRD Procurement Policies and Rules (PPR). The Company's capacity was assessed by team's PIA.

Contracts risk assessment - High
Modernisation of the 510 MWe Almaty CHP-2 with replacement of coal by natural gas considered to be a complex and high risk contract, but the Borrower is already supported with the international reputable consultant, who will also supervise the construction works and support the Borrower.

Project implementation arrangements:
The Borrower has already engaged Hill International as their consultant for procurement and construction supervision. The Borrower uses the EBRD advance procurement procedures as defined in the Bank's PPR Section 3 Article 3 para 3.76. Tendering is carried out in ECEPP, the EBRD client's electronic procurement portal.

Procurement arrangements:
The contract for Modernization of the 510 MWe Almaty CHP-2 is procured using a two stage open tendering procedure for Works and the FIDIC Yellow Book contract terms, in accordance with the requirements of Section 3, Article 3 of the Bank's PP&R for public sector operations and using the Bank's standard tender documents.

The loan financed contract will be subject to prior review by the Bank. [REDACTED].