



Report and Recommendation of the President to the Board of Directors

PUBLIC

Project Number: 56169-001
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Proposed Loan Joint Stock Company Almaty Electric Stations ALES Energy Transition and Modernization Project (Kazakhstan)

This is a redacted version of the document approved by ADB's Board of Directors. The document excludes information that is subject to exceptions to disclosure set forth in ADB's Access to Information Policy.

Asian Development Bank

CURRENCY EQUIVALENTS

(as of 25 January 2023)

Currency unit	–	tenge (T)
T1.00	=	\$0.002166
\$1.00	=	T461.67

ABBREVIATIONS

ADB	–	Asian Development Bank
ALES	–	Joint Stock Company Almaty Electric Stations
CCGT	–	combined cycle gas turbine
CHP	–	combined heat and power plant
CHP-2	–	JSC Almaty Electric Stations Combined Heat and Power Plant 2
CO ₂	–	carbon dioxide
CWRD	–	Central and West Asia Department
E&S	–	environmental and social
ESIA	–	E&S impact assessment
EU	–	European Union
FSC	–	Financial Settlement Center of Renewable Energy Limited Liability Partnership
GHG	–	greenhouse gas
JSC	–	joint stock company
NDC	–	nationally determined contribution
NO _x	–	nitrogen oxide
PM _{2.5}	–	particulate matter less than 2.5 micrometers in diameter
PSOD	–	Private Sector Operations Department
SO _x	–	sulfur oxide
SPZ	–	sanitary protection zone
WHO	–	World Health Organization

WEIGHTS AND MEASURES

GCal	–	gigacalorie
GCal/h	–	gigacalorie per hour
MW	–	megawatt
TWh	–	terawatt-hour

NOTE

In this report, "\$" refers to United States dollars.

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^a Outposted to the Kazakhstan Resident Mission.

^b Outposted to the India Resident Mission.

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PROJECT AT A GLANCE

1. Basic Data		Project Number: 56169-001	
Project Name	ALES Energy Transition and Modernization Project	Department/Division	PSOD/PSIF1
Country	Kazakhstan		
Borrower	Joint Stock Company Almaty Electric Stations		
Portfolio at a Glance	https://www.adb.org/Documents/LinkedDocs/?id=56169-001-PortAtaGlance		
2. Sector		ADB Financing (\$ million)	
✓ Energy	Conventional energy generation		214.000
		Total	214.000
3. Operational Priorities		Climate Change Information	
✓ OP2: Accelerating progress in gender equality		GHG reductions (tons per annum)	2,800,000
✓ OP3: Tackling climate change, building climate and disaster resilience, and enhancing environmental sustainability		Climate Change impact on the Project	Low
✓ OP4: Making cities more livable		ADB Financing	
		Adaptation (\$ million)	0.000
		Mitigation (\$ million)	141.240
		Cofinancing	
		Adaptation (\$ million)	0.000
		Mitigation (\$ million)	0.000
Sustainable Development Goals		Gender Equity and Mainstreaming	
SDG 5.1		Effective gender mainstreaming (EGM)	✓
SDG 7.1, 7.3			
SDG 12.2		Poverty Targeting	
SDG 13.a		General Intervention on Poverty	✓
4. Nonsovereign Operation Risk Rating			
Obligor Name		Obligor Risk Rating	Facility Risk Rating
Joint Stock Company Almaty Electric Stations			
5. Safeguard Categorization Environment: A Involuntary Resettlement: B Indigenous Peoples: C			
6. Financing			
Modality and Sources		Amount (\$ million)	
ADB		214.000	
Nonsovereign Local Currency Loan (Regular Loan): Ordinary capital resources		214.000	
Cofinancing		0.000	
None		0.000	
Others *		652.000	
Total		866.000	
Currency of ADB Financing: Tenge			

*Derived by deducting ADB financing and Cofinancing from Total Project Cost.

I. THE PROPOSAL

1. I submit for your approval the following report and recommendation on a proposed loan of up to \$214,000,000 equivalent in tenge to Joint Stock Company (JSC) Almaty Electric Stations (ALES) for the ALES Energy Transition and Modernization Project in Kazakhstan.

2. The proposed loan will provide long-term local currency financing not readily available in the Kazakhstan market to replace an old and inefficient coal-fired combined heat and power plant (CHP) with modern state-of-the-art combined cycle gas turbine (CCGT) units. The project will deliver significant environmental benefits to Almaty, Kazakhstan's largest city, through substantial reduction in emissions of carbon dioxide (CO₂), particulate matter less than 2.5 micrometers in diameter (PM_{2.5}), sulfur oxide (SO_x), nitrogen oxide (NO_x), and other greenhouse gases (GHGs). Further, the project intends to incorporate strong gender design features, and the Asian Development Bank (ADB) will help ALES refine its operational approach to proactively promote women's equal participation and professional development in the company's operations and adopt gender-inclusive standards in the workplace.

II. THE PROJECT

A. Project Identification and Description

3. **Project identification.** In 2021, Kazakhstan was ranked 23rd among the world's most polluted economies.¹ The energy sector accounts for the largest share of GHG emissions and was consistently responsible for more than 80% of all GHG emissions during 1990–2020. As of January 2022, Kazakhstan had 24 gigawatts of total installed power generation capacity, with an available capacity of 19 gigawatts. Kazakhstan's power sector relies on coal-fired plants concentrated in northern Kazakhstan that account for 70% of generated electricity. Gas-fired power plants generate about 20% of the power used, and large hydropower plants generate about 7%. Renewable energy sources (solar, wind, biogas, and small hydro) constitute 3%.

4. Kazakh winters are long and cold, and the heating season lasts for more than half a year. CHPs, largely coal fired, are the primary source for heat and hot water in all major cities, and have been identified as a major stationary air pollutant source. In all the major cities, daily concentration of SO_x and NO_x (each affecting lung functions) significantly exceeds the maximum allowed concentrations set by the Ministry of National Economy in 2015.² The State of Global Air data on mortality related to ambient air quality shows that in 2019 in Kazakhstan, ambient PM_{2.5} pollution accounted on average for 67 deaths per 100,000.³

5. The city of Almaty has a population of more than 2 million residents and an average winter temperature of –4 degrees Celsius. District heating has crucial importance, particularly for low-income households. Almaty citizens are most severely affected by poor air quality. PM_{2.5} has been monitored in Almaty since 2018. That year, average daily concentrations of PM_{2.5} were above the Kazakh daily maximum allowed concentrations for 168 days and the World Health Organization (WHO) guideline level for 324 days.⁴ A 2013 study concluded that the highest impact on

¹ IQAir. [World's Most Polluted Countries and Regions \(Historical Data 2018–2021\)](#) (accessed 18 April 2022).

² World Bank. 2021. *Cost-Effective Air Quality Management in Kazakhstan and Its Impact on Greenhouse Gas Emissions*. Washington, DC.

³ State of Global Air. [Number of Deaths Attributable to PM2.5](#) (accessed 24 August 2022).

⁴ World Bank. 2022. *Clean Air and Cool Planet, Volume II: Integrated Air Quality Management and Greenhouse Gas Emission Reduction for Almaty and Nur-Sultan*. Washington, DC.

premature mortality attributable to PM_{2.5} pollution is in Almaty.⁵ In addition, this study also estimated the mean mortality risk attributable to air pollution to be about 16,000 cases per year. Coal combustion in CHP plants in Almaty has significant impact on PM_{2.5} exposure. JSC Almaty Electric Stations Combined Heat and Power Plant 2 (CHP-2) is the target of the proposed ADB intervention. (Confidential information redacted.)

6. Because of the growing public discontent with air quality in Almaty, the modernization of CHP-2 has become a priority for the government. In August 2020, the government approved a road map for comprehensive solutions to environmental issues in the cities of Astana and Almaty⁶ and, in October 2021, the government approved the Green Kazakhstan, 2021–2025 national project.⁷ The goal of this project is to create a favorable living environment for the population and improve the environmental conditions in the country in four priority areas: clean air, clean Kazakhstan, nature conservation, and energy efficiency. The road map and Green Kazakhstan both list modernization of CHP-2 as a top priority.

7. The 2013 Concept for Transition of the Republic of Kazakhstan to Green Economy introduced air quality emission reduction measures for GHGs, SO_x, and NO_x to meet emission standards of the European Union (EU) by 2030. The concept also requires increasing the share of alternative energy (mainly wind and solar) in total electricity generation to 30% by 2030 and 50% by 2050.⁸ Kazakhstan's intended nationally determined contribution (NDC) under the 2015 Paris Agreement also set a GHG emission reduction target of 15% (25% conditional) by 2030 compared to the 1990 baseline. Kazakhstan has developed a strategy for achieving carbon neutrality by 2060, which is pending approval.

8. A 2022 World Bank study (footnote 4) indicated that the replacement of CHP-2 with CCGT units, as proposed by the project, is the most significant priority project related to air quality for the city of Almaty. The project aims to achieve the following two primary goals: (i) attain interim target 2 of the WHO air quality guidelines, which calls for PM_{2.5} of 25 micrograms per cubic meter (coinciding with the EU PM_{2.5} limit value);⁹ and (ii) reduce by 25% CO₂ emissions in line with Kazakhstan's conditional NDC commitment by 25%. The second target translates to a cap of 11.4 million tons of CO₂ in 2030 for Almaty, including upstream emissions from electricity import.

9. Investment in modernization of heat generation infrastructure is a priority but not sufficient to achieve efficiency and emissions targets of the heating sector. The aged and poorly maintained heat distribution network has degraded, resulting in high water and heat losses. Across cities of Kazakhstan, losses in the heat distribution network range from 11% to 33%, with a weighted average of 18%. Security of heat supply is poor because of frequent interruptions, especially during the peak heating season. The government is determined to address the matter and, in 2019, asked ADB to help it develop a new renewable technology-inclusive heat supply legislation.¹⁰ The task includes preparation of fundamental laws on district heating, including

⁵ U. Kenessariyev et al. 2013. Human Health Cost of Air Pollution in Kazakhstan. *Journal of Environmental Protection* 4 (08), 869–876.

⁶ Government of Kazakhstan; Ministry of Ecology, Geology and Natural Resources; Committee for Environmental Regulation and Control. 2021. *Roadmap for Comprehensive Solutions for Environmental Issues in Nur-Sultan and Almaty Cities*. Astana.

⁷ Government of Kazakhstan. 2021. *Decree No. 731 on Approval of the National Project "Green Kazakhstan"*. Astana.

⁸ Renewable energy generation is about 3% of total power generation.

⁹ WHO European Centre for Environment and Health. 2021. [WHO Global Air Quality Guidelines: Particulate Matter \(PM_{2.5} and PM₁₀\), Ozone, Nitrogen Dioxide, Sulfur Dioxide and Carbon Monoxide](#). Bonn.

¹⁰ The law will also cover the use of renewable energy sources for heating. However, use of renewables such as geothermal is usually site specific and cannot be applied everywhere, particularly in large cities such as Almaty. ADB.

bylaws and all technical standards for efficiency, emissions, and creation of an enabling environment for public and private investments in the heating sector. After ratification of the new law (expected in the first quarter of 2023), investments in the heat distribution network are also expected to be mobilized, which should support compliance with newly set parameters.

10. **Project design.** The primary goal of CHP-2 is the provision of heat; power generation is a secondary objective. CHP-2, which consists of eight boilers and six steam turbine units, was put in operation during 1980–1989. This is the largest CHP in Almaty, with an installed electric generation capacity of 510 megawatts (MW) and 1,411 gigacalories per hour (GCal/h) of heat. By 2021, the available capacity had dropped to 326 MW and 952 GCal/h. In 2021, CHP-2 supplied to the grid 2.1 terawatt-hours (TWh) of electricity and 3.2 million gigacalories (GCal) of heat using 2.2 million tons of coal and 7,100 tons of mazut fuel for ignition.¹¹ In 2022, its net electrical efficiency was estimated at 20% and global efficiency¹² (net total fuel utilization) at 55%.

11. (Confidential information redacted.)

12. The project will contribute to the development of renewable energy in Kazakhstan. The south of Kazakhstan lacks flexible generation capacity to balance the intermittency of renewable energy generation, and hence the power system operator Joint Stock Company Kazakhstan Electricity Grid Operating Company (KEGOC) is reluctant to approve the deployment of new renewable energy projects. Because of the short start-up time, CCGT units of new CHP-2 (although primarily operating in base load regime) will provide up to 20% secondary reserves of installed capacity to back up variable renewable energy generation as well as manage the peak load. Thus, the project will provide a strong technical solution to the system operator to integrate more renewable energy generation and meet the national government's targets.¹³

13. Based on the economic assessment, the project does not have technical or economically viable low-carbon alternatives at a comparable scale to provide uninterrupted heating and hot water, particularly during the heating season. (Confidential information redacted.)

14. The project will strengthen women's participation in the energy sector. The project operates in a context of low participation of women in the energy sector as compared with men, as well as minimal gender sensitivity standards in energy projects. The project presents good prospects for enhancing women's professional involvement through gender-inclusive initiatives. Legal regulations in Kazakhstan ban women from certain types of occupations, including in the energy sector.¹⁴ Women are underrepresented in qualified jobs, as well as leadership and managerial positions across energy sector. From 2016 to 2019, women accounted for an average of 25% of the total energy workforce and were largely absent in higher-paying jobs. Furthermore, women account for only 19% of employees in technical and operational roles in the energy sector, and most female jobs in the sector are in the category of "other skilled workers"—i.e., in non-specialist roles, including production equipment operators, machinists, electricians, and mechanics—where women's share of employment is significantly lower (12% compared to 31%

2020. [Technical Assistance to the Republic of Kazakhstan for Supporting Renewable Technology-Inclusive Heat Supply Legislation](#). Manila.

¹¹ The 2.2 million tons of coal is equivalent to 1.6 million tons of oil equivalent (toe).

¹² Defined as efficiency of the plant running at full load and maximizing heat production as primary output. EU. 2021. *Commission Implementing Decision (EU) 2021/2326 Establishing Best Available Techniques Conclusions, Under Directive 2010/75/EU of the European Parliament and of the Council, for Large Combustion Plants*. Brussels.

¹³ According to the Law on Electricity, 2004, every new CHP should have up to 20% of its capacity connected to automated generation control for balancing purposes. The overall efficiency of the CHP might be suboptimal while operating under the balancing regime, which could be 2–3 hours a day.

¹⁴ World Bank. 2021. [Women, Business and the Law 2021](#). Washington, DC.

of specialist professionals).¹⁵ Women's representation in jobs at ALES is in line with industry averages, with less than 20% female staff in the overall workforce and a majority in low-skilled and administrative jobs. The company is implementing a meaningful outward-looking longer-term perspective program aimed at fostering female youth interest and participation in the energy sector.

15. **Borrower.** ALES, established in 2006, is an energy-producing company that supplies electricity and heat in Almaty city and the Almaty region. ALES owns and operates three CHPs in Almaty, hydroelectric power plants, and a boiler house (Western Heat Complex). ALES is the leading supplier of electricity and heat for Almaty city. As of 2021, the total nominal installed capacity of ALES power plants is about 1,236 MW and total heat installed capacity is 4,049 GCal/h. It is wholly owned by a Kazakhstan-based state-owned holding company, Samruk-Energy JSC (Samruk-Energy), which in turn is wholly owned by the Government of Kazakhstan via Sovereign Wealth Fund Samruk-Kazyna JSC (Samruk-Kazyna).

16. **Sponsor.** Samruk-Energy is a Kazakhstan state-owned holding company with vertically integrated subsidiaries and joint ventures engaged in electricity and heat generation, transmission and distribution, and coal mining. It is the largest power sector company in Kazakhstan and controlled 31% of electricity generation in the country as of the end of 2021. (Confidential information redacted.) The company is rated BB/Positive by Fitch Ratings.

17. (Confidential information redacted.)

18. (Confidential information redacted.)

19. (Confidential information redacted.)

20. (Confidential information redacted.)

21. (Confidential information redacted.)

B. Development Impacts, Outcome, and Outputs

22. **Impacts.** The project is aligned with the following impacts: (i) efficiency of production and supply of both electricity and heat substantially improved, significantly reducing local air pollution by switching from coal to gas fuel use and contributing to Kazakhstan's climate mitigation goals (footnote 7); (ii) reduction of 15% (25% conditional) in greenhouse gas emissions by 2030 compared to the 1990 level (consistent with Kazakhstan's economy-wide target and NDC).¹⁶

23. **Outcome.** The project will have the following outcome: air quality and heat and power supply in Almaty improved, and GHG emissions reduced.¹⁷ The project will lead to substantial improvement in global fuel efficiency of CHP-2 from 55% to 76%, lead to a significant CO₂ emission reduction from 5.1 million tons per year to 2.3 million tons, eliminate emission of SO_x and fly ash, and reduce emissions of NO_x and carbon monoxide.

¹⁵ J. Mynbayeva, S. Kelly, and L. Kazembekova. 2020. [Study on the Role of Women in Kazakhstan's Energy Sector](#). Kazenergy. 5 May.

¹⁶ United Nations Framework Convention on Climate Change. 2016. [Intended Nationally Determined Contribution: Submission of the Republic of Kazakhstan](#). Bonn.

¹⁷ The design and monitoring framework is in Appendix 1.

24. **Outputs.** The project will have the following outputs: (i) a new CCGT-based CHP power plant constructed and commissioned, with a gender-sensitive design; (ii) local employment generated; (iii) a safer work environment for women created at the CCGT power plant; and (iv) gender equality in ALES operations supported.

C. Alignment with ADB Strategy and Operations

25. **Consistency with ADB strategy and country strategy.** The project is consistent with ADB's Strategy 2030, in particular the following operational priorities: (i) accelerating progress in gender equality; (ii) tackling climate change, building climate and disaster resilience, and enhancing environmental sustainability; and (iii) making cities more livable.¹⁸ The project is in line with ADB's country partnership strategy for Kazakhstan, 2017–2021,¹⁹ focusing on nonsovereign public sector assistance to national holding companies and the reduction of emissions in the energy sector.

26. **Consistency with sector strategy and relevant ADB operations.** The project is consistent with ADB's Energy Policy, which emphasizes the need to develop sustainable and resilient energy systems, and support for a low-carbon transition in ADB's developing member countries.²⁰ The project has been confirmed by ADB to comply with the requirements of the Energy Policy with respect to projects involving natural gas.

27. **Paris Agreement alignment.** The project will be aligned with the Paris Agreement based on the Joint Multilateral Development Bank Assessment Framework for Paris Alignment for Direct Investment Operations. The project is consistent with the NDC and the long-term climate plans of Kazakhstan that target net zero emissions by 2060. It is also considered compatible with global 1.5-degree Celsius mitigation pathways that allow for some role for gas by 2050 and place importance on comprehensive emission reductions by 2030, as achieved by switching from coal to gas in this project. Compared to a new gas-fired CHP, there are no viable low-carbon alternatives for the required heat and power output at the location.²¹ The project does not prevent opportunities to transition and does not entail risk of creating stranded assets, since the government intends a gradual transition to cleaner and electric-based technologies (e.g., electric boilers and heat pumps) and it complements the planned expansion of renewable power generation in the country. The investment is happening in the context of ADB's broader engagement with Kazakhstan on its low-carbon, climate-resilient development pathway, including through policy engagement in the power and heating sectors, and the financing of renewable energy projects.²²

28. **Lessons from previous operations.** The project will mark ADB's third instance of providing nonsovereign support to a state-owned enterprise in Kazakhstan, following transactions

¹⁸ ADB. 2018. [Strategy 2030: Achieving a Prosperous, Inclusive, Resilient, and Sustainable Asia and the Pacific](#). Manila.

¹⁹ ADB. 2017. [Country Partnership Strategy: Kazakhstan, 2017–2021—Promoting Economic Diversification, Inclusive Development, and Sustainable Growth](#). Manila.

²⁰ ADB. 2021. [Energy Policy](#). Manila.

²¹ New gas fired CHP-2's expected lifetime is 25 years (2052).

²² In addition to a new renewable technology-inclusive heat supply legislation (footnote 10) ADB supported: (i) the design of a framework for auctioning of renewable energy projects; (ii) installation of a new power system planning toll to support integration of more renewable power generation; and, (iii) investments in renewable energy projects. Details are in the sector overview (accessible from the list of linked documents in Appendix 2).

with the sponsor approved in 2017²³ and QazaqGaz approved in 2021.²⁴ Key lessons from these transactions include the following: (i) work with credible entities that have the financial and managerial capacity to implement complex projects, (ii) work with projects that are prioritized by the shareholders, and (iii) promote close interaction of ADB's sovereign and nonsovereign operations through a One ADB approach to maximize knowledge sharing in enhancing project preparation and client relationships.

D. Project Cost and Financing Plan

29. (Confidential information redacted.)

30. (Confidential information redacted.)

31. **Climate change mitigation.** (Confidential information redacted.)

E. Implementation Arrangements

32. (Confidential information redacted.)

F. Projected Financial and Economic Performance

33. (Confidential information redacted.)

G. Unique Features

34. (Confidential information redacted.)

III. THE PROPOSED ADB ASSISTANCE

A. The Assistance

35. (Confidential information redacted.)

B. Value Added by ADB Assistance

36. This is the first large-scale energy transition project in Kazakhstan for ADB involving the replacement of an old, inefficient, and heavily polluting coal-fired CHP with modern CCGT units. There are no technically and economically viable alternatives to this solution because of the large amount of heat required by the city of Almaty and the need for baseload power generation capacity that cannot be procured from intermittent renewable sources. ADB adds value by providing in-house technical expertise to ALES in project design review to support compliance with best available technologies and to timely phase out of the coal-fired plant. The project will set a precedent for similar modernization efforts and contribute to decarbonization efforts.

37. (Confidential information redacted.)

²³ ADB. 2017. [Report and Recommendation of the President to the Board of Directors: Proposed Loan to Samruk-Energy for the Restructuring and Transformation Project in Kazakhstan](#). Manila.

²⁴ ADB. 2021. [Report and Recommendation of the President to the Board of Directors: Proposed Loan to Joint Stock Company KazTransGas for the Advanced Gas Metering Project in Kazakhstan](#). Manila.

38. ADB will add value by ensuring that the project adopts satisfactory environmental and social (E&S) safeguard standards by implementing ADB's Safeguard Policy Statement (2009). The project will adopt internationally recognized E&S standards, including (i) the development of a grievance redress mechanism, (ii) enhanced measures for meaningful consultation with affected stakeholders, and (iii) augmented monitoring of the contractors' E&S performance.

39. ADB will promote gender equality in the project by addressing women's low levels of participation in the energy sector and the absence of gender-equitable working standards in private energy sector projects. It will work with ALES to implement a gender action plan that supports the inclusion and career development of women in ALES' operations, while also promoting a gender-inclusive workplace for staff.

C. Risks

40. (Confidential information redacted.)

41. (Confidential information redacted.)

42. (Confidential information redacted.)

43. (Confidential information redacted.)

44. (Confidential information redacted.)

45. (Confidential information redacted.)

IV. POLICY COMPLIANCE

A. Safeguards and Social Dimensions

46. ADB has categorized the investment in compliance with ADB's Safeguard Policy Statement as follows: environment (category A), involuntary resettlement (category B), and indigenous peoples (category C).

47. ADB has undertaken due diligence and reviewed the potential E&S impacts of the project and the measures to avoid, minimize, mitigate, and compensate for the adverse impacts in the safeguard reports and plans. A qualified third-party completed an E&S compliance audit of the existing facility. A draft E&S impact assessment (ESIA) for the facility, including a nontechnical summary, has been disclosed on ADB's website. In addition, a corporate audit of the existing E&S management system was prepared. The E&S measures and the institutional capacity and commitment of ALES to manage the project's E&S impacts are deemed adequate.

48. As the facility will be constructed on an existing site, the anticipated environment and health and safety impacts identified in the ESIA for the construction phase relate to dust, noise, community and occupational health and safety, increased traffic, hazardous materials, and waste. These impacts will be managed through the implementation of the measures detailed in the site-specific E&S management plan, and health and safety plans. Once operational, the project is expected to improve air quality in Almaty. The disclosed draft E&S action plan lists the actions required to be completed by ALES to ensure compliance with ADB's and other lenders' safeguards and social requirements. (Confidential information redacted.)

49. Land acquisition for the development of the new plant is not envisaged as all main project components will be within the existing landholding of the facility. Potential involuntary impacts may result from the enforcement of a sanitary protection zone (SPZ) for the new CCGT plant and the temporary land use restrictions during construction of a gas pipeline of about 3.5 kilometers that will be developed by QazaqGaz. The final SPZ will be determined once the new CCGT plant is built; it will be based on the findings of the final ESIA and environmental and safety-related monitoring results following a minimum 12-month monitoring period. The gas pipeline alignment and any associated safety buffer have yet to be confirmed. Enforcement of the SPZ will be the decision of the local government authorities, but the project will be responsible for ensuring that all land acquisition-related impacts are managed in line with lenders' and national requirements. Given the lack of specific information available about the potential displacement impacts related to the SPZ and the gas pipeline, a resettlement framework has been developed, in accordance with the Safeguard Policy Statement and other lenders' safeguards and social requirements. No impacts are anticipated on indigenous peoples or vulnerable ethnic minorities.

50. ALES will (i) apply ADB's prohibited investment activities list, and (ii) ensure that investments using ADB funds comply with ADB's Safeguard Policy Statement and abide by national laws and regulations. ALES will comply with national labor laws and, pursuant to ADB's Social Protection Strategy (2001), take measures to comply with internationally recognized core labor standards. ALES will report regularly to ADB on (i) its and its contractors' compliance with such laws, and (ii) E&S action plan and E&S management plan implementation. Information and consultation with affected people will follow ADB and other lenders' requirements.

51. **Effective gender mainstreaming.** Following ADB's Policy on Gender and Development (1998), ALES has incorporated measures to promote gender equality and women's empowerment in its activities. Key features of the gender action plan are: (i) the provision of dedicated facilities for women employees; (ii) new CCGT power plant staff and contractors exhibit increased awareness on gender equality principles, especially on anti-sexual harassment and gender-based violence; (iii) implementation of a communication campaign encouraging women to apply for upskilling and retraining; (iv) the deployment of a mentorship program that encourages senior female staff to support junior staff in their professional development; and (v) women's earmarked participation in an internship program within ALES for students or graduates in energy fields. ALES will submit periodic reports on implementation of its gender action plan to ADB.

B. Anticorruption Policy

52. ALES was advised of ADB's policy of implementing best international practice relating to combating corruption, money laundering, and the financing of terrorism. ADB will ensure that the investment documentation includes appropriate provisions prohibiting corruption, money laundering, and the financing of terrorism; and remedies for ADB in the event of noncompliance.

C. Investment Limitations

53. (Confidential information redacted.)

54. (Confidential information redacted.)

D. Assurances

55. Consistent with the Agreement Establishing the Asian Development Bank (the Charter),²⁵ ADB will proceed with the proposed assistance upon establishing that the Government of Kazakhstan has no objection to the proposed assistance to ALES. ADB will enter into suitable finance documentation, in form and substance satisfactory to ADB, following approval of the proposed assistance by the ADB Board of Directors.

V. RECOMMENDATION

56. I am satisfied that the proposed loan would comply with the Articles of Agreement of the Asian Development Bank (ADB) and recommend that the Board approve

- (i) the loan of up to \$214,000,000 equivalent in tenge from ADB's ordinary capital resources to Joint Stock Company Almaty Electric Stations (ALES) for the ALES Energy Transition and Modernization Project in Kazakhstan, with such terms and conditions as are substantially in accordance with those set forth in this report, and as may be reported to the Board; and
- (ii) the waiver of the single-obligor exposure limit for the \$214,000,000 loan as set forth in paras. 53–54 of this report.

Masatsugu Asakawa
President

22 February 2023

²⁵ ADB. 1966. *Agreement Establishing the Asian Development Bank*. Manila.

DESIGN AND MONITORING FRAMEWORK

Impacts the Project is Aligned with			
<p>Efficiency of production and supply of both electricity and heat substantially improved, significantly reducing local air pollution by switching from coal to gas fuel use and contributing to Kazakhstan's climate mitigation goals^a</p> <p>Reduction of 15% (25% conditional) in greenhouse gas emissions by 2030 compared to 1990 level (consistent with Kazakhstan's economy-wide target and Nationally Determined Contribution)^b</p>			
Results Chain	Performance Indicators	Data Sources and Reporting Mechanisms	Risks and Critical Assumptions
<p>Outcome</p> <p>Air quality and heat and power supply in Almaty improved, and greenhouse gas emissions reduced</p>	<p>By 2028:</p> <p>a. CHP-2 annual generation increased for heat to 4 million GCal, and for electricity to 4.4 TWh (2021 baseline: Heat 3.2 million GCal; electricity 2.3 TWh)</p> <p>b. Global fuel efficiency of CHP-2 increased to 76% (2021 baseline: 55%)</p> <p>c. Annual CO₂ emissions are reduced to 2.3 million tons of CO₂ per year (2021 baseline: 5.1 million tons of CO₂)^c (OP 3.1)</p> <p>d. Annual SO_x emissions are reduced to 0 tons of SO_x per year (2021 baseline: 22,540 tons of SO_x)</p> <p>e. Annual NO_x emissions are reduced to 1,425 tons of NO_x per year (2021 baseline: 8,080 tons of NO_x)</p> <p>f. Annual CO emissions are reduced to 539 tons of CO per year (2021 baseline: 1,369 tons of CO)</p> <p>g. Annual fly ash emissions are reduced to 0 tons of fly ash per year (2021 baseline: 6,103 tons of fly ash)</p>	<p>a.–b. ALES acceptance certificate and the annual development effectiveness monitoring report</p> <p>c.–g. ALES's annual development effectiveness monitoring report</p>	<p>R: Deterioration of efficiency and emission parameters</p>

Results Chain	Performance Indicators	Data Sources and Reporting Mechanisms	Risks and Critical Assumptions
<p>Outputs</p> <p>1. A new CCGT-based CHP power plant constructed and commissioned, with a gender-sensitive design</p> <p>2. Local employment generated</p> <p>3. A safer work environment for women created at the CCGT power plant</p> <p>4. Gender equality in ALES operations supported</p>	<p>By 2028:</p> <p>1a. CHP-2 with a generation capacity of 957 GCal/h (heat) and 600 megawatts (electricity) installed (2021 baseline: 952 GCal/h and 326 megawatts) (OP 4.1.2)</p> <p>1b. At least 1 set of dedicated facilities for women provided ^d (2021 baseline: 0) (OP 2.4.1)</p> <p>2a. Total number of jobs created during construction phase is at least 629 (2021 baseline: 0)</p> <p>3a. 100% of CCGT power plant's staff and contractors have increased awareness and knowledge on gender equality principles, especially on anti-sexual harassment and gender-based violence (2021 baseline: 0) (OP 2.2.3; OP 2.3.2)</p> <p>4a. One communication campaign explicitly encouraging women to apply for upskilling and retraining implemented (2021 baseline: 0)</p> <p>4b. One mentorship program that encourages senior female staff to support junior staff in their professional development at ALES implemented (2021 baseline: 0)</p> <p>4c. At least 15% of total students or graduates in energy fields enrolled in ALES's internship program are women (2021 baseline: 0) (OP 2.1.1)</p>	<p>1.–4. ALES's annual development effectiveness monitoring report</p>	<p>R: Implementation delays because of COVID-19 pandemic outbreak</p> <p>A: Loan financing is disbursed as scheduled</p>

Key Activities with Milestones

1 and 2. A new CCGT-based CHP power plant constructed and commissioned, with a gender-sensitive design, and local employment generated

- 1.1 The Asian Development Bank executes loan agreement with ALES by Q2 2023.
- 1.2 Company carries out selection of EPC contractor by Q3 2023.
- 1.3 Contractors begin EPC works by Q1 2024.
- 1.4 Contractors build dedicated facilities for women by Q4 2026.

3. A safer work environment for women created at the ALES power plant

- 3.1 ALES develops or sources a module for training CCGT staff and contractors on gender equality principles, especially on anti-sexual harassment and gender-based violence, by Q4 2024.
- 3.2 ALES conducts gender awareness sessions with CCGT staff and contractors and deploys an at-exit quick survey to assess gained awareness of concepts by Q4 2024.

4. Gender equality in ALES operations supported

- 4.1 ALES develops a communication campaign aimed at encouraging women to apply for upskilling and retraining by Q4 2024.
- 4.2 ALES identifies employees and mentors for the deployment of a mentorship program aimed at contributing to female staff's professional development by Q4 2024.
- 4.3 ALES identifies female students or graduates to take part in the company's internship program by Q4 2024.

Inputs

(Confidential information redacted.)

A = assumption; ALES = Joint Stock Company Almaty Electric Stations; CCGT = combined cycle gas turbine; CHP = combined heat and power plant; CHP-2 = JSC Almaty Electric Stations Combined Heat and Power Plant 2; CO = carbon monoxide; CO₂ = carbon dioxide; EPC = engineering, procurement, and construction; GCal = gigacalorie; GCal/h = gigacalorie per hour; NO_x = nitrogen oxide; OP = operational priority; Q = quarter, R = risk; SO_x = sulfur oxide; TWh = terawatt-hour.

^a Government of Kazakhstan. 2021. *Decree No. 731 on Approval of the National Project "Green Kazakhstan"*. Astana.

^b United Nations Framework Convention on Climate Change. 2016. [Intended Nationally Determined Contribution: Submission of the Republic of Kazakhstan](#). Bonn.

^c The new CHP will generate 4.4 TWh of electricity operating 8,000 hours a year. The old CHP can only generate 2.3 TWh operating the same number of hours; the rest are generated elsewhere, in particular at the coal-fired thermal power plant in Ekibastuz, which will produce additional emissions. Thus, the total CO₂ emission reduction includes (i) 4 million tons of reduction of direct emissions of CO₂ from CHP-2, and (ii) 1.1 million tons of reduction of CO₂ emissions from the power system using the national grid CO₂ emission factor of 0.532 total CO₂ per megawatt-hour.

^d Dedicated facilities for women notably include toilet rooms, safe showers and changing areas with appropriate conditions relating to lighting, locks and dividing elements. In the absence of reference in the Kazakhstani buildings and construction regulation, one set of dedicated facilities for every 20 women employees is here deemed adequate leveraging the Kazakhstani national sanitary regulations applicable for the education sector, which requires at least one toilet for every 20–30 pupils.

Contribution to Strategy 2030 Operational Priorities

Expected values and methodological details for all OP indicators to which this project will contribute results are detailed in Contribution to Strategy 2030 Operational Priorities (accessible from the list of linked documents in Appendix 2).

Source: Asian Development Bank.

LIST OF LINKED DOCUMENTS

<http://www.adb.org/Documents/RRPs/?id=56169-001-4>

1. Sector Overview
2. Client Information
3. Details of Implementation Arrangements
4. Contribution to Strategy 2030 Operational Priorities
5. Financial Analysis
6. Economic Analysis
7. Country Economic Indicators
8. Summary Poverty Reduction and Social Strategy
9. Safeguards and Social Dimensions
10. Gender Action Plan

Supplementary Documents

11. Waiver of Single Exposure Limit for Nonsovereign Operations
12. Asian Development Bank's 2021 Energy Policy and Paris Agreement Alignment Assessment