



# KAZAKHSTAN

## E-mobility Country Profile

### Background

Kazakhstan is a landlocked country in Central Asia, bordered by Russia to the north, China to the east, Kyrgyzstan and Uzbekistan to the south, and Turkmenistan and the Caspian Sea to the west. It is the ninth largest country in the world by area. Kazakhstan has a population of over 19 million people, making it the most populous country in Central Asia.

The GDP per capita is projected to grow at long-term annual average rate of 3.1% (up to 2050).<sup>1</sup> This rapid urbanization and economic expansion are expected to drive growth in transportation activities. Forecasts indicate an average annual increase of 1.7% in passenger transport activity, measured in passenger-kilometres, and a 2.3 % average annual growth rate for freight transport activity.<sup>2</sup>

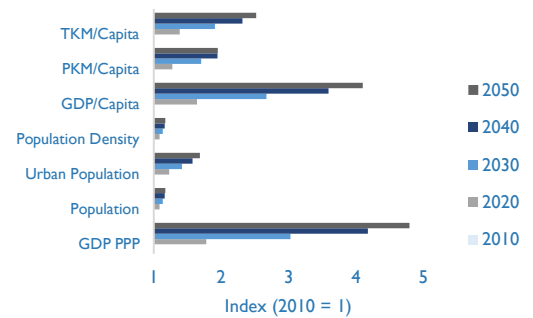
Consequently, there will be a notable rise in the number of vehicles on the road. It is estimated that between 2020 and 2050, approximately 2.84 million light-duty vehicles will be added.<sup>3</sup> By 2050, it is projected that the motorization rate will reach 404 vehicles per 1000 people.

The transportation sector is one of the major contributors to air pollution and greenhouse gas (GHG) emissions in Kazakhstan. It is estimated that the transportation sector contributes 10% of the fuel combustion GHGs in the country (total of 204 million tons in 2020). Practically, all the GHGs of the transport GHG emissions are estimated to be from the road sector.<sup>4</sup>

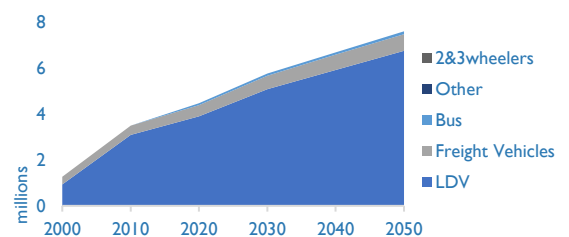
In terms of ambient air pollution, the road transport sector is estimated to contribute 5.1 % of the total burden of disease related to Particulate Matter 2.5 (PM2.5) — in the country. Road transport air pollution is also deemed to have significant contributions to the burden of disease related to ischemic heart disease (40%), and chronic obstructive pulmonary disease (12%) in the country.<sup>5</sup>

Regarding particulate matter pollution (PM2.5), the average concentration in major cities with available data stands at 21.7 µg/m<sup>3</sup> which exceeds the World Health Organization's guideline value of 5 µg/m<sup>3</sup>. In 2019, more than 25 thousand premature deaths were attributed to PM2.5 pollution in Kazakhstan.<sup>6,7</sup>

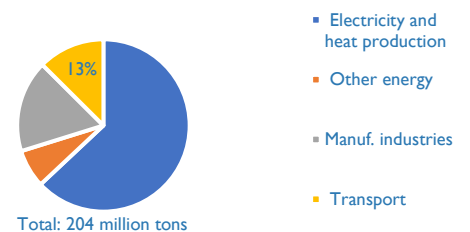
### Socio-economic & Transport Indicators



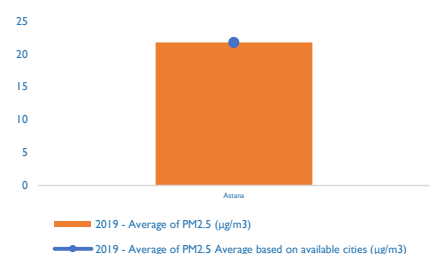
### Vehicle Stock Projections



### 2020 Fuel Combustion CO<sub>2</sub>: % By Sector



### PM<sub>2.5</sub> (µg/cubic meter)



## E-mobility at a Glance

Based on data from the Kazakh Ministry of Internal Affairs, there was a notable rise in electric vehicles in the country this year, increasing from 631 in March 2022 to 1,900 by March 2023. Kazakhstan has also begun manufacturing JAC iEV7S and Kia EV6 electric passenger cars. The domestic car production facility, Saryarka Avtoprom Kostanai, has rolled out 140 electric vehicles since its inception in 2016, as stated by the Kazakh Bureau of National Statistics.<sup>8</sup> In terms of electric buses, the ICCT estimates that in 2020, Kazakhstan had a total of 230 electric buses.

Kazakhstan has a flourishing automotive industry, which is also recognized as a priority area for industrial development and has been consistently garnering state support. The industry began in 2003, when the first NIVA cars were produced in the country. In 2014, the first batch of electric vehicles was produced, and 15 domestic-made electric buses were also delivered.<sup>9</sup>

More recently, Kazakhstan has been realizing other options towards bolstering the electric vehicle fleet in the country. In 2020, 100 Yutong electric buses were procured. The City of Nur-Sultan, has declared its intention to enhance its bus fleet by acquiring zero-emission vehicles. These buses are a collaborative effort between the Chinese manufacturer and the Kazakh manufacturing and distribution company, Saryarka AvtoProm.<sup>10</sup> The Kustanai-located company has also started the assembly of electric cars and has made the Chinese JAC iEV7S available in Kazakhstan.<sup>11</sup> In 2022, the First Vice Minister of Industry and Infrastructure Development launched the production of other EV models which are being produced in Saran, Almaty and Kustanai.<sup>12</sup>

Charging stations have been set up in several areas. As of 2023, 50 publicly-provided charging stations have been set up in the city of Astana, 57 in Almaty and 2 in the territory of the Rixos Borovoe Hotel in Schuchink. There are also charging stations that are provided by private businesses and individuals.<sup>13</sup> A depiction of the available public charging stations based on open data can be found on the upper right-hand side of the page.

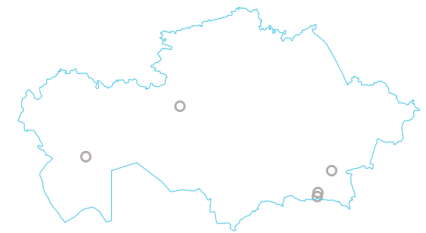
The average price of electricity in Kazakhstan (2021) was estimated to be 0.04 USD/kWh.<sup>14</sup> This ranks as the 15th cheapest average rate globally. Considering overall access to electricity, Kazakhstan had reached full electrification even in the mid-1990s. In terms of the emissions impact of the electricity grid, the national average is estimated at 656 kgCO<sub>2</sub> is emitted per MWh, which ranks at 193rd place globally.<sup>15</sup> The average grid emission factor has practically remained at the same level as it was in the year 2000. The nation's electricity grid is still dominated by fossil fuels (84%), followed by hydroelectric (12%).<sup>16</sup>

## Policy Measures: Highlights

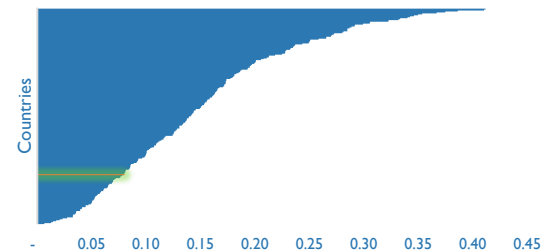
The "Concept on Transition towards Green Economy until 2050" (issued in 2013), mentions the following major thematic areas related to electric mobility:

- Developing alternative types of transport and respective infrastructure, in particular for electric cars and gas-fueled cars.
- Developing an incentive program for car disposal aimed at transport fleet renewal within shorter terms (for example, in form of trade-in schemes for more eco-friendly cars).

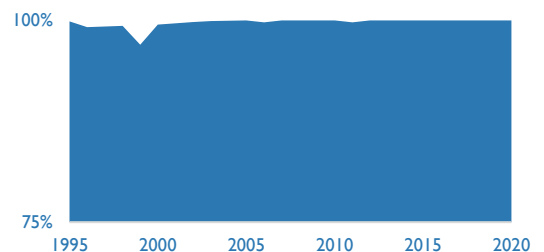
Charging Stations



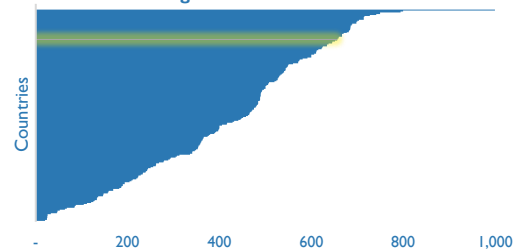
Kazakhstan: 0.04 USD/kWh



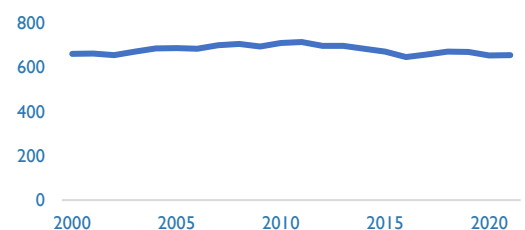
% Population with Access to Electricity



Kazakhstan: 656 kgCO<sub>2</sub>/MWh



Kazakhstan Historical Grid kgCO<sub>2</sub>/MWh



## Policy Measures: Highlights

The said concept also sets the main technical activities for energy saving and energy efficiency in the transport sector which also relate to electric mobility:

- Development of energy efficient transport infrastructure;
- Increase in railway transport efficiency;
- Increase in energy efficiency of local public transport due to its conversion to clean fuel (gas and electricity).<sup>17</sup>

In December 2015, a joint directive was issued by the Minister of Energy (No.697) and the Minister for Investment and Development (No. 1219) of the Republic of Kazakhstan. This directive endorsed the Guidelines to Boost the Production of Eco-friendly Automotive Vehicles in Kazakhstan. These vehicles correspond to an environmental class 4 and above and are equipped with electric motors. The rules also pertain to the components of these vehicles and to self-driven agricultural machinery that complies with the environmental standards set by technical regulations. The endorsed guidelines cover two primary areas:

- Provision of financial support for manufacturers in several domains: maintenance of jobs; energy resources; research and development; conduct of tests related to the products; warranty support.
- Financial aid for discounts given by manufacturers to both individuals and businesses when they purchase locally produced vehicles or self-propelled agricultural machinery within Kazakhstan.<sup>18</sup>

The rules for establishing this discount are set through the following:

- Drafting a standard contract between car manufacturers of the environmentally friendly road vehicles and the extended producers responsibility operator;
- Reporting forms for the production of the environmentally friendly motor vehicles to the EPR operator;
- Setting out requirements for manufacturers of the environmentally friendly road vehicles.<sup>19</sup>

Kazakhstan has adopted an ambitious framework for extended producer responsibility (EPR) wherein motor vehicles and their components were the initial scope. As part of the EPR framework, discount certificates for acquiring new eco-friendly vehicles for owners who return end-of-life vehicles are provided (ranging from 3145,000 KZT to 650,000 KZT or between 850 to 1800 USD). In addition, EPR operators can go into specific partnerships with local authorities. For example, in Astana, EPR operators supported the development of a network of electric vehicles charging stations, by giving financial support for procuring and installing these charging stations within the framework of a pilot project in the capital city of Astana.<sup>20</sup>

A recent joint directive of the Minister of Ecology, Geology and Natural Resources and the Minister of Industry and Infrastructure Development of Kazakhstan issued in July 2021 provides an update of the 2015 Joint Order, and lays out the rules regarding the production incentives for environmentally-friendly vehicles which corresponds to the classes established by the Eurasian Economic Union.<sup>21</sup> The said update is consistent with the recent Environmental Code (Article 388) states that the country shall stimulate the production of environmentally clean motor vehicles (corresponding to environmental class established by technical regulations of the Eurasian Economic Union; with electric motors) and their components.<sup>22</sup>

The National Development Plan of the Republic of Kazakhstan until 2025 (Decree of the President of the Republic of Kazakhstan No. 636 (15 February 2018) and the Action Plan for the implementation of the Concept for the Transition of the Republic of Kazakhstan to a "green economy" for 2021-2030 (Enactment of the Government of the Republic of Kazakhstan No. 479 dated 29 July 2020), which provides for the implementation of necessary measures to reduce greenhouse gas emissions in the energy sector, including those related to sustainable transport, and infrastructure for electric (and gas) vehicles.<sup>23</sup>

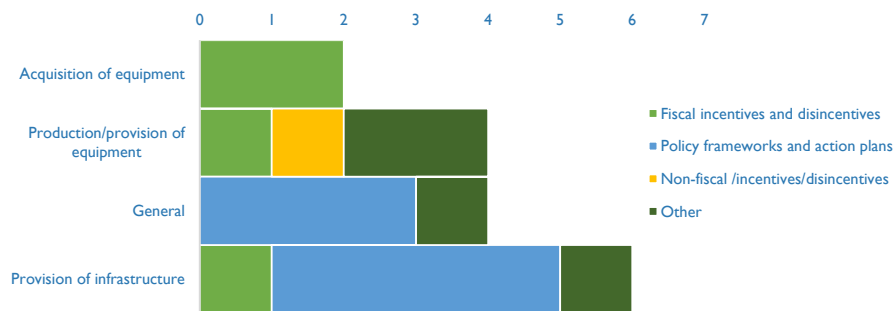
Also, in December 2020, the President announced the country's intention to reach carbon neutrality by 2060. IEA reports that the government has been crafting a Long-term Low-Carbon Development Strategy leading up to 2060.<sup>24</sup>

In 2023, Kazakhstan introduced a policy under which citizens are permitted to import one electric vehicle for personal use, tax-free.<sup>25</sup> In August 2023, the Ministry of Industry and Infrastructure Development also reported that the country plans to build more charging stations by 2029 as part of the electric vehicle infrastructure roadmap which was approved in July 2023. The said roadmap provides for the regulatory and technical requirements for the design and construction of the infrastructure, provision and installation of the charging equipment on site.<sup>26</sup>

In terms of renewable energy targets, based on the Concept for the Development of the Fuel and Energy Sector until 2030 issued in 2014, the country targets that by 2030, renewable and alternative power generation shall account for 30 per cent and by 2050, 50 per cent of total electricity generation.<sup>27</sup> These targets had also been emphasized in the Strategic Development Plan of the Republic of Kazakhstan until 2025.<sup>28</sup> Kazakhstan is also gearing towards the exploration and mining of lithium, as there are six areas of deposits in Ulan, Shemonaikha, and Ust-Kamenogorsk regions.<sup>29</sup>

## Snapshot of E-mobility Policy Measures

Distribution of Policy Measures



Charging equipment and components	Production/provision of equipment	Non-fiscal /incentives/disincentives	Research and development - charging equipment
EVs and EV components	Acquisition of equipment	Fiscal incentives and disincentives	EV-specific cash-for-clunker scheme
			Purchase incentives for EVs and components
	Production/provision of equipment	Fiscal incentives and disincentives	EV production government funding
		Other	Research and development - EV and components
	General	Other	EV Demonstration Projects
	Provision of infrastructure	Fiscal incentives and disincentives	Warranty support for manufacturers
	End-of-life	Policy frameworks and action plans	EV end-of-life management policy
General	General	Policy frameworks and action plans	Renewable energy targets
			General pronouncement of support for mobility
Infrastructure	Provision of infrastructure	Policy frameworks and action plans	General pronouncement of support for charging infrastructure
			Dedicated National Charging Infrastructure Policy/Roadmap/Strategy
		Other	Charging stations targets - total

Note: The graph and the tables above are mainly representative of the policy measures that had been collected, collated and categorized by the authors. The authors make no claims about the completeness of the list, nor the accuracy of the categorization.

## Endnotes

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