



Carbon Footprint report 2025

University : Shakarim University
Country : Kazakhstan
Web Address : <https://shakarim.university>

The Total Carbon Footprint (CO₂ emission in the last 12 months, in metric tons) CO₂ (electricity)

$$= \frac{\text{electricity usage per year (kWh)}}{1000} \times 0,84$$
$$= \frac{1436812 \text{ kWh}}{1000} \times 0,84$$
$$= 1,206.92 \text{ metric tons}$$

Electricity generation in the Abai Region is primarily based on hydropower plants: $1,206.92 \times 0.4 = 482.77$ metric tons

CO₂ (cars)

$$= \frac{\text{number of cars entering your university} \times 2 \times \text{approximate travel distance of vehicle each day inside campus only (KM)} \times 240}{100} \times 0,02$$
$$= \frac{78 \times 2 \times 0.3 \times 240}{100} \times 0,02$$
$$= 2.25 \text{ metric tons}$$

CO₂ (total)

$$= 482.77 + 2.25$$
$$= 485.02 \text{ metric tons}$$

Description:

Carbon footprint in 2025= 485.02 metric tons

Description:

Electricity used in the city of Semey comes from renewable energy sources (hydropower).

- Geographic and Energy Position of the City:** Semey is located in Eastern Kazakhstan, where the primary sources of electricity are hydroelectric power stations on the Irtysh River and its tributaries. The main hydropower plants that supply the city with energy include:
 - Bukhtarma HPS:** Located on the Irtysh River, it is one of the largest hydroelectric power stations in Kazakhstan and plays a key role in supplying electricity to the region.
 - Shulbinsk HPS:** Situated on the Irtysh River, 300 km south of Semey, Shulbinsk HPS also makes a significant contribution to the region's energy supply.
 - Ust-Kamenogorsk HPS:** Located in close proximity to Semey, this plant is also an important source of electricity.
- Renewable Energy Sources:** Hydroelectric power stations (HPSs) are considered renewable energy sources as they use the energy of water to generate electricity with minimal negative environmental impact. HPSs do not produce CO₂ emissions during electricity generation.



- **Absence of CO₂ emissions:** HPSs do not emit carbon dioxide (CO₂) during electricity generation, making them an environmentally friendly source of energy.
- 3. **Regional Energy Infrastructure:** The energy infrastructure of Eastern Kazakhstan heavily relies on hydroelectric power stations. Bukhtarma, Shulbinsk, and Ust-Kamenogorsk HPSs generate and supply electricity to the region, including Semey.
 - **Energy Policy and Sustainable Development:** Kazakhstan is actively developing renewable energy sources and aiming to reduce reliance on fossil fuels. Hydroelectric power stations are part of this strategy.

Shakarim University is located in the city of Semey, the administrative center of the Abai Region. As previously noted, electricity generation in the Abai Region is primarily based on hydropower plants.

Conclusion: In support of this statement, we attach a table from the official website of the Bureau of National Statistics of the Agency for Strategic Planning and Reforms of the Republic of Kazakhstan (<https://stat.gov.kz/en/sustainable-development-goals/goal/7/>), which indicates that the share of electricity generated from renewable energy sources in the total electricity production of the Abai Region is **99.2%**.