

# Landsvirkjun's Climate and Environmental Action Plan



Biodiversity and ecosystems



Climate change



Pollution

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Resource use and circular economy



Water resources

## ENVIRONMENTALLY SUSTAINABLE

| Objective   | Target   | Action   | Status  | Environmental overlap |
|---|--|--|---------|-----------------------|
| All of Landsvirkjun's energy generation is an environmentally sustainable economic activity | All power plants contribute significantly to climate change mitigation | Yearly demonstrating that all power plants significantly contribute to mitigating climate change in accordance with the requirements of the EU Taxonomy  | Ongoing |                       |
|   | No power plant causes significant harm to other environmental goals    | Yearly demonstrating that all power plants cause no significant harm to general environmental objectives: adaption to climate change, biodiversity, resource circularity, sustainability of water and marine resources, and pollution prevention and control, in accordance with the requirements of the EU Taxonomy | Ongoing |                       |

## RESOURCE UTILISATION

| Objective   | Target   | Action   | Status    | Environmental overlap |
|---|--|--|-----------|-----------------------|
| We maximise the utilisation of the resources that have already been harnessed | Maximise the ratio of energy sold to energy capacity   | Integration of geothermal and hydropower production to maximise utilisation  | Ongoing   |                       |
|   |  | Emphasis on ensuring that supply of products creates incentives for better utilization of the resource, such as through the sale of curtailed energy and curtailed power   | Ongoing   |                       |
|   |  | Form a framework to increase energy efficiency through multiple use of geothermal fluid from geothermal power plants   | 2025      |                       |
|   |  | Development of a product to stabilize wind that better utilizes the current energy generation system of Landsvirkjun and supports the advancements of wind energy options in Iceland   | 2025      |                       |
|   | Promote improved energy efficiency in the society  | Landsvirkjun supports energy-intensive users in participating in increasing the flexibility of supply and demand in the power system, such as through the sale of system services  | Ongoing   |                       |
|   |  | Support customers in utilising waste heat from their own production  | Ongoing   |                       |
| We support the energy transition in Iceland                                   | We integrate circular principles in the design and operation of infrastructure and equipment | Define Landsvirkjun's role in the hydrogen production value chain and engage in an active dialogue with different stakeholders with the aim of infrastructure development and the end use of hydrogen. Completed with the boards approval of a policy on e-fuels and climate related business development. | Completed |                       |
|   |  | Define Landsvirkjun's role in the methanol production value chain and engage in an active dialogue with different stakeholders with the aim of infrastructure development and the end-use of methanol  | Completed |                       |
|   |  | Production of green hydrogen for energy transition on land   | 2027      |                       |
| We promote increased circularity in operations and construction               | We integrate circular principles in the design and operation of infrastructure and equipment | Guidance to consultants in the planning phase to minimise the use of virgin construction materials and maximise the durability of infrastructures and equipment  | 2025      |                       |
|   |  | Complete the first environmentally certified construction project  | 2026      |                       |
|   |  | Regular inspections and preventive maintenance to ensure the long-term integrity of infrastructure   | Ongoing   |                       |
|   |  | Maintain the Environment and Energy Agency's Green Steps Programme in all areas of operation   | Ongoing   |                       |
|   | We reintegrate construction materials into the circular economy                              | Map material flows during demolition and identify ways to reuse incidental materials   | Ongoing   |                       |
|   |  | During demolition, ensure that construction waste is directed to the most suitable waste stream when reuse is not feasible   | Ongoing   |                       |
|   |  | Design procedures to enable the reuse of incidental materials generated by operations within the local community   | 2025      |                       |



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## CLIMATE

| Objective  | Target   | Action   | Status  | Environmental overlap   |
|--|--|--|---------|---|
| We participate in limiting global warming to 1.5°C   | Secure 1.5 TWh of additional energy supply to the national grid by the end of 2027   | Construct Hvammsvirkjun (hydro) and Vaðölduver (onshore wind) power plants, and implement capacity expansions at Sigalda (hydro) and Þeistareykir (geothermal) power stations  | 2030    |     |
|  |  | Prioritise the sale of new energy to e.g., support the energy transition, drive innovation, promote resource circularity, and enable continued development of current energy-intensive customers                                     | Ongoing |      |
|  |  | Avoided emissions are calculated annually using the International Financial Institutions' methodology and electricity benchmark emission factors   | Ongoing |    |
| Energy generation remains aligned with global targets to limit warming to 1.5°C<br><br>4 gCO <sub>2</sub> eq/kWh currently<br>3 gCO <sub>2</sub> eq/kWh in 2030<br>2 gCO <sub>2</sub> eq/kWh in 2040<br>≤1 gCO <sub>2</sub> eq/kWh in 2050 | Increase the power capacity and energy output of existing power plants by 220 GWh and 110 MW   | Optimise the use of peak reservoir pressure at the Þeistareykir power plant to improve energy efficiency, thereby reducing the carbon intensity (g/kWh). The initiative yields 200 GWh of additional generation with zero emissions. | 2030    |     |
|  |  | Expand existing power plants in the Þjórsá river area, including a 65 MW capacity upgrade at Sigalda Power Station and a 20 MW increase at Hrauneyjafoss Power Station.  | 2030    |      |
|  | By 2030, emissions intensity of geothermal power plants will be reduced by 80% compared to 2008 levels (15±3 g CO <sub>2</sub> eq/kWh) | Reinjection of geothermal fluids from at Þeistareykir power plant, upon fulfillment of legal requirements. 90% reduction in CO <sub>2</sub> emissions from Þeistareykir power plant.   | 2030    |       |
|  |  | Explore solutions for new geothermal power plants that significantly reduce atmospheric emissions of geothermal gases.   | Ongoing |       |
|  | By 2050, geothermal emissions will be virtually eliminated   | During the refurbishment or upgrade of existing geothermal power plants, we prioritise measures to minimise the release of geothermal gases.   | Ongoing |       |
|  |  | In geothermal plant operations, steam management strategies will consider gas emissions from individual wells, where feasible  | Ongoing |       |
|  | Phase out all fossil fuel purchases by 2030  | Used pickup trucks and passenger cars with internal combustion engine will only be purchased when clean energy alternatives are unavailable  | Ongoing |     |
|  | Achieve 65% reduction in emissions by 2025 compared to 2008 levels   | New fossil fuel equipment will only be purchased if the manufacturer guarantees compatibility with hydrotreated vegetable oil (HVO)  | Ongoing |      |
|  |  | Conduct an assessment of energy transition for power generators used, among other things, as reserve power generators and for measuring equipment  | 2025    |       |
| We act in line with the global goal of limiting warming to 1.5°C<br><br>60% less emissions from the construction of new power plants in 2040   | Minimize emissions from new power plants and larger construction projects  | Targets for carbon footprint and emissions during the construction phase are set in at the planning stage of new power plants and larger construction projects   | Ongoing |      |
|  |  | Interactive life cycle assessments are used at the design stage to make informed decisions about material selection and seek ways to minimize environmental impacts  | Ongoing |      |
|  |  | Internal carbon pricing is applied to fossil fuel, concrete, and steel during design and tendering of larger construction projects   | Ongoing |    |
|  | 50% lower emissions per purchased unit of concrete and steel by 2040   | A cap is placed on the emissions of reinforcing steel in project specifications  | Ongoing |     |
|  |  | Seek ways to reduce the amount of cement in concrete, including by specifying the strength of concrete instead of minimum cement content in project specifications   | Ongoing |      |
|  | Fossil fuels will not be used at our construction sites after 2035   | Our first fossil fuel-free construction site in 2030   | 2030    |      |
|  |  | Increase the use of hydrotreated vegetable oil (HVO) instead of diesel when electricity or other clean energy sources are not available  | Ongoing |       |
| All emissions always below the benchmark for net-zero emissions of energy companies  | Maintain the emission intensity below 9.1 gCO <sub>2</sub> eq/kWh at all times   | Annually demonstrate that emissions from operations (Scope 1, 2, and 3) are below 9.1 gCO <sub>2</sub> /kWh  | Ongoing |    |



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## NATURE

| Objective   | Target  | Action  | Status    | Environmental overlap   |
|---|---|---|-----------|---|
| We safeguard biodiversity guided by an ecosystem-based approach | Lead in research and information dissemination on biodiversity              | Classify the ecological status of surface water bodies (rivers, lakes, and reservoirs) in accordance with the methods defined in the Water Management Act | 2025      |      |
|   |   | Map the distribution of plants species and habitat types with high conservation value, as well as non-native plant species                                | Completed |    |
|   |   | Identify available data and knowledge gaps regarding the impact of Landsvirkjun's operations and activity on biodiversity                                 | 2025      |      |
|   | We are committed to minimizing the impact of our activities on biodiversity | Promote research on the benefits of mitigation and restoration measures for biodiversity  | 2025      |      |
|   |   | By 2026, the status of biodiversity in Landsvirkjun's operational sites will be known   | 2026      |      |
|   |   | By 2026, a plan for strengthening and restoring biodiversity at Landsvirkjun's operational sites will be in place   | 2026      |      |