

## Environmental work at Holmen Energi

Holmen Energi optimises Holmen’s response to its energy needs in Sweden and manages the Group’s hydro power plants and wind farms. Holmen has wholly and partly-owned hydro power stations on the rivers Umeälven, Faxälven, Gideälven, Iggesundån, Ljusnan and Motala Ström. Holmen Energi represents the Group’s interests in the expansion of back-pressure production and wind power, and monitors issues with regard to purchasing energy, energy taxes, energy efficiency, emission allowances, guarantees of origin, electricity certificates and gas supply.

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### Permits for hydro power operation

The production of electrical energy at Holmen’s wholly and partly-owned hydro power stations requires a permit for water operations (rules under the Environmental Code), which includes environmental conditions. Permits are held for all the power stations. New environmental legislation entered into force in Sweden on 1 January 2019, based on the Swedish energy agreement. The legislation means that hydro power operators will need to apply for a review under the Swedish Environmental Code between 2022 and 2037.

Production in the wholly and partly-owned hydro power stations amounted to 1 033 GWh in 2019 (1 050 GWh in 2018) which was somewhat lower than normal due to dry weather and low precipitation in the County of Östergötland (production in a normal year is about 1.1 TWh). Hydro power is a renewable and sustainable form of energy and consequently meets stringent environmental requirements. Holmen’s Environmental and energy policy is applied in the company’s wholly-owned hydro power stations.

#### Disruptions to production and incidents

There were no disruptions or incidents in 2019 that affected availability at Holmen’s hydro power stations.

#### Dam safety

The legislation introduced in 2014 has been implemented via self-inspection and reporting to the relevant County Administrative Boards. Holmen Energi has investigated and proposed risk classifications that the County Administrative Boards have to decide on under the new legislation. Dam safety is reported to the County Administrative Boards each year. In 2019, Holmen Energi conducted checks and inspections in line with the energy industry guidelines for dam safety (RIDAS). The company has insurance cover for any damage to third parties downstream of dams in a joint dam liability insurance policy for the whole of Sweden.

## Environmental activities in 2019

### Hydro power

The partly-owned hydro power plants apply the environmental policy of the principal shareholder. Holmen Energi joins other stakeholders in Water Regulation Associations which deal with dam safety, water regulation, fish concerns, etc.

Emissions of carbon dioxide from regulated water storage reservoirs are low. There is oil in bearings and regulating systems for the machinery, and there is some risk of discharges to water. Protection and alarm systems are installed to minimise the risk of oil leaks. Holmen employees and environmentally certified external contractors operate and supervise the plants and manage hazardous waste.

Together with technical infrastructure company Tekniska Verken in Linköping, Holmen Energi has implemented a trap and transport initiative for migrating eels ready to spawn, transferring the eels from the Glan and Roxen lakes to Motala Ström.

In 2020 work continuous concerning dam safety, structural and health & safety measures implemented at the wholly and partly-owned plants. Studies are planned in the watercourses in which Holmen's wholly-owned hydro power stations are located to obtain supplementary data for assessing ecological status.

A project to upgrade the Justerforsen power plant has begun and is planned to be completed by 2022. This includes a new oil-free turbine to reduce the amount of oil used by the plant and thus the risk of oil discharge.

New environmental legislation entered into force in Sweden on 1 January 2019, based on the Swedish energy agreement. The legislation means that hydro power operators will need to apply for a review under the Swedish Environmental Code before the end of 2039.

Holmen's power stations are all well placed to meet the necessary environmental adaptations without any major impact on production. Holmen plants were registered under the national plan for revision of hydro power plant licences in 2019.

### Wind power

Holmen is a major land owner and has the potential to develop its land holdings by establishing wind farms on its own sites with good wind conditions. Wind power has low operating costs, since it does not require the purchase of fuel. Production is carbon-free. More effective wind farms and low operating costs are driving the expansion of wind power in Sweden. In 2019, Holmen therefore conducted a survey and wind analysis of the Group's land holdings to identify favourable areas for future wind power installations. The analysis shows that about twenty sites are judged suitable for wind farms.

In 2019 Holmen sold Stavro Vind AB, comprising two wind farms (Blodrotberget and Blackfjället) which are now being built with an installed power output of 250 MW and anticipated annual production of approximately 750 GWh.

At the end of 2019 Holmen decided to build Blåbergsliden itself, with production anticipated to reach approximately 440 GWh/year. An application for a permit to build an additional approximately 500-600 GWh in Västerbotten in the Blisterliden project is under examination and a permit is likely to be granted in 2020.

Along with the Eurofideme 2 investment fund, in 2014 Holmen built a wind farm at Varsvik, a few kilometres from its paper mill in Hallstavik. Production in 2019, totalled 152 GWh, with Holmen's share being 50 per cent. The share of wind power in total electricity generation is continuing to increase in Sweden despite relatively low electricity and certificate prices. Holmen's strategy is to develop competitive projects that are profitable for the Group.

**Incident**

In February a gearbox failure occurred at Varsvik wind farm, leading to an oil leak. This may have involved about 20–50 litres of oil in total. No oil had run out into the gravel outside the base. Absorbent material was put down to deal with potential oil leaks. The overall environmental impact was judged to be very low. The matter was reported to the County Administrative Board.