

ENERGY AND EMISSIONS

Strategic Significance

As a lithium producer facilitating the global transition to a clean energy future, Orocobre appreciates the importance of mitigating climate change through energy efficient operations and low carbon energy sources.

The Company's business strategy seeks to optimize both environmental outcomes and returns for its shareholders and customers. By enhancing the energy productivity of its operations (i.e. ensuring maximum production output for every unit of energy consumed) Orocobre not only minimizes its impact on the environment, but also reduces operational expenses while maximizing production figures and associated revenues.

Orocobre recognizes that investors are seeking to reduce carbon risk in their portfolios, so the Company is committed to remaining a sustainable long-term investment option by producing a low-carbon product that promotes transition to low-carbon economy and maintaining low-carbon intensity operations.

Decreasing the emissions profile of Orocobre's product is of increasing importance to the Company's customers and its customers' customers. As such, Orocobre will continue to implement programs to enhance energy productivity and reduce emissions intensity.

Impact Boundary

This management approach disclosure refers exclusively to Sales de Jujuy S.A. and its activities.

Orocobre's commitment to energy and emissions reduction extends across the Company's entire value chain. The Company's primary focus in the initial stages of production is on reducing the energy and emissions associated with its operations, as this is where the impact is greatest.

Orocobre acknowledges the opportunities to manage and reduce indirect energy consumption and emissions (e.g. corporate activities, transport and distribution of materials, products and personnel) and the Company will expand its energy and emissions reporting boundary over time to include these additional sources.

Management Approach

Commitment

Policies that demonstrate the Company's commitment to energy and emissions reduction include:

- [Sustainable Development Policy](#)
- [Environmental Policy](#)

As part of Orocobre's commitment to advancing [SDG 9: Industry, Innovation and Infrastructure](#), the Company is constantly reviewing opportunities to i) upgrade infrastructure and processes to enhance resource-use efficiency and ii) adopt clean and environmentally sound technologies and processes.

Management Systems

Orocobre's operations have an ISO certified Environmental Management System (ISO14001) which provides a solid foundation for the management of energy and environmental performance.

The Company's continuous improvement program allows all employees and site-based operators to propose opportunities for improved performance across all aspects of its operations. This enables the Company to regularly review emission reduction opportunities.

Monitoring and Reporting

The Company evaluates the effectiveness of its management approach through regular monitoring and reporting of key data and metrics, tracking progress against its predefined objectives and targets. Internal data and reporting processes include daily operational updates, weekly operational performance reviews, and monthly reporting on progress against operational targets.

Orocobre's first full year of commercial operations at the Olaroz Lithium Facility was 2017, but the first detailed emissions inventory and specific methodology was defined in 2018, constituting the Company's baseline year for energy and emissions performance.

The Company reports on its energy and emissions performance annually, in its [Sustainability Report](#), and also in public CDP Climate Change disclosures.

Short, medium- and long-term reduction targets are defined and monitored by Orocobre's Executive team in collaboration with the relevant operational teams.

Responsibility

At an operational level, responsibility for energy and emissions performance – including the evaluation and implementation of reduction initiatives – sits with the Operations Manager.

The Environmental Manager within the compliance team, monitors energy and emissions performance and works in close collaboration with departments of greatest impact (including the process and logistics teams) to identify and evaluate opportunities for performance improvement.

Accountability

With targets now defined for energy and emissions performance, the Company is integrating KPIs into the performance evaluation process for specific managers and employees at an operational level.

Orocobre's Executive and Board performance process is also being reviewed to incorporate energy and emissions related performance targets into their short term and long-term incentive criteria.

FY19 Update

Orocobre increased its focus on operational efficiency in FY19, particularly with regard to energy consumption.

As energy is a critical component of the Company's operational costs, opportunities were sought to reduce consumption both in the short and long term.

A key challenge was in restructuring data collection and reporting processes to ensure energy and emissions information related to operation and expansion activity could be clearly delineated.

As development activities do not contribute to an increase in production (the numerator value for Orocobre's intensity metrics) increased expansion activity and emissions would inevitably increase the Olaroz Lithium Facility's site-based intensity value. It was therefore important to define a data collection process that would enable a like-for-like value to be established for intensity performance throughout the period of construction.

In some cases, such as process heat, the delineation between operation and construction consumption is clear. In others, such as electricity consumption, it is almost impossible to determine as all the facility services on site are shared. Therefore, the Company set out that they would use only those items that could be clearly delineated (process heat, heavy vehicle fuel consumption, and stationary diesel consumption in new construction zones on site) to determine the difference.

On this basis Orocobre established an operational Intensity metric for the Company’s energy and emissions consumption, which will be used to determine its progress with regards to operational efficiency.

In FY19, the Company is pleased to report a reduction in operational emissions intensity from 3.15 to 3.14.

Initiatives to reduce energy consumption, particularly in the production process, over the past year relate to heat capture technology and process improvements. New heat capture technology has also been factored into the selection of future energy contracts, so that heat produced through electricity generation can be captured and applied in the production process.

New regulation in Europe has reduced the acceptable emissions profile for vehicle manufacturers’ product portfolios which has generated a stronger focus on finding and securing low carbon technology suppliers.

Given increased demand from Orocobre’s customers’ customers for information regarding the carbon intensity of its operations, in FY20 the Company will continue to refine its efforts on energy and emissions reduction and assurance of reported data.

The table below represents the Company’s energy and emissions objectives for the years ahead.

INDICATOR	PRELIMINARY TARGETS (to be finalised in FY20)			
	FY19	FY20	FY25	FY30
Process Heat intensity (GJ/t LCE)	23.51	< 23.5	< 22	< 20
Operational Scope 1 emissions (tCO2-e)	39,507	< 39,500	< 38,000	< 35,000
Operational emissions intensity (tCO2-e / t LCE)	3.14	< 3.14	< 3	< 2
% Energy from Renewables	0	0	5%	20%

For more Energy and Emissions Data, refer to the [Environmental Performance Data](#).