

4.

The Operation





Transelec's main objective is to deliver a superior quality service with high safety standards. Transelec is a public service company, strongly committed to its customers and to the optimal management of its assets. Thus, the Company has its own personnel and highly qualified contractors, as well as technological resources and processes based on risk models

Asset management

The formal implementation of an Asset Management System based on the international standard ISO 55001 started in 2021. This is a relevant milestone and key initiative for the development and evolution of how we manage assets at Transelec. Our vision is to generate value by means of a management system based on an international standard, connecting the different processes of the asset life cycle, aligning objectives, establishing approaches and seeking a common understanding for the organization. This will all be executed under a reference framework based on effectiveness, efficiency and risk management objectives while complying with requirements established by the authority through the Regulatory Technical Specification No. 17 and its Power Facilities Integrity Management System.

The 2021 implementation focus was on the development of the Asset Management System activities at a strategic level. One of the main milestones was the definition of strategic level governance by creating the Asset Management Committee, an executive committee whose role is to lead the creation of a system implementation vision.

In addition, an extended implementation table was created with the collaboration of all Transelec Vice-presidencies, which are represented by divisions participating more directly in different asset life cycles and support activities. The Transelec Asset Management Policy was also updated, entering into force in December 2021 and replacing the policy established in 2015. Its role in the Asset Management System is essential, declaring guiding principles for all our collaborators in terms of processes and activities related to the asset life cycle.

We will continue to develop this initiative in 2021, formulating measures and specific action plans designed to ensure service quality at power transmission system points with the highest impacts, mainly comprised by facilities for which a simple outage could cause power supply loss.

In this context, the implementation of actions established in 2019 and 2020 for regulated customers and high-impact facilities at substations continued. In addition, work focused on the definition of specialized preventive plans for facilities affecting free customers, leading to prioritized investment in OPEX (Operational Expenditures) and Sustainable CAPEX (Sustainable Capital Expenditures, or Asset Replacement Plan).

As for work at our facilities, we have continued to develop strict safety protocols designed to prevent Covid-19 infection, complemented by the use of augmented reality technology to support a series of activities remotely executed on site, in order to uphold the level of service expected by our end customers. We have also put forth our best efforts to return to normal working capacity and execute activities we were unable to complete in 2020 due to Covid-19 restrictions.

The Disconnection Rate indicator is used to assess facility performance. This considers the number of outages due to internal causes at Transelec facilities in relation to the number of assets, disaggregated into transmission line and substation events. This is designed to provide a measure equivalent to the ITOMS (International Transmission Operations and Maintenance Study) benchmark, a global consortium focused on improving performance and best practices for power transmission companies around the world. This indicator evidenced results similar to those set for the year. In general terms, a breakdown for the two technical areas assessed using this indicator is provided as follows:

- Transmission line disconnection rate results came to 3.17 failures per 1,000 kms of lines. The year's results were close to the target, evidencing improvement and a reduction amounting to nearly 9% compared to last year.
- Line outages caused by trees continued along the downward trend which started in 2017, the result of a multidisciplinary monitoring and control strategy coordinated by the Vice-presidency of Operations. Action plans were also implemented in this area, in keeping with SEC requirements for winter and summer periods.
- The substation outage rate came to 89.77 failures per 1,000 circuit end. This indicator was finally positioned at a minimum range, up by approximately 23% compared to 2020.

Power transmission asset maintenance compliance categorized by risk came to 118%, similar to the goal set for the year. Similarly, for the "Sustainable CAPEX" asset replacement plan, compliance with the "physical-financial progress" indicator amounted to 92%. The result was affected by mobilization and work execution difficulties due to sanitary restrictions.

The Digital Transformation process underway at Transelec has continued and five focal points have been determined for the Operation and Maintenance stage:

- Digital asset management;
- Vegetation management;
- Contamination and corrosion management;
- Service quality;
- TotEx (CapEx + OpEx) execution,

These have been grouped into what we call Asset Management 4.0. This features a portfolio of 39 digital products, 20 of which are already in the initial production phase (roll out), implemented, or are already part of Transelec's permanent tools in use.

Asset Management 4.0 initiatives include the APM (Asset Performance Management) platform implementation process being executed with our strategic partner General Electric (GE). In addition, a tendering process designed to award the Optiplan contract is being executed to optimize all operation and maintenance (OpEx) costs and replacement plan (Capex) costs while optimizing TotEx costs. Finally, in order to provide these systems with data required from assets, the AMS platform is being continuously improved to capture data from the execution of transmission line maintenance. Finally, the development of the FSM (Field Services Manager) platform has started at a pilot level. This enables data to be captured from maintenance work executed at substations.

Innovation for intervention, maintenance and replacement activities requires the implementation of a methodology designed to replace micro-outage protection systems. This methodology proposes a procedure for replacing these assets without disconnecting facilities, making progress at projects featuring operational restrictions that require service continuity to be maintained.

Ongoing innovation and the digital transformation of our Asset Management process are fundamental drivers toward achieving world-class standards and ensuring service continuity for our customers. Technological development will enable risk situations to be anticipated, making better technical-economic decisions and ensuring service continuity.

Operation

Transelec's National Transmission Operation Center (CNOT) plays a fundamental role in ensuring service continuity. The CNOT monitors and remotely operates our assets distributed throughout the country in normal and post-contingency conditions at a single facility. The CNOT is led by a team of highly qualified operators.

Construction was completed in 2014 in keeping with the highest safety standards. Transelec thus centralized the operation of its facilities in real time. A competency management process for CNOT operators was implemented in 2016. The process included the assessment of model skills. An Operator Training System (OTS) was implemented in 2019 and this system enabled additional improvement of our operators' technical and behavioral performance in a controlled environment by simulating extreme conditions and events, replicating actual system and workplace features in 2020.

In 2020, the Covid-19 pandemic forced us to incorporate necessary health measures to protect our personnel, making operational continuity a major challenge. The National Power Transmission Operation Center (CNOT) was an important part of our action plans, in which thorough implementation has been essential for preventing community infection while maintaining operational continuity at the control center. We wish to highlight that 26 employees, including engineers and analysts, were trained to take temporary responsibility for operational functions in the event of a health contingency that could affect the CNOT team.

During 2021, we continued to train our personnel and consolidated the operation between the backup and main control center of the CNOT, allowing us to isolate the operating groups and thus avoid community infections. This initiative allows us to be better prepared in case of a health emergency without compromising operational continuity.

Occupational Health and Safety (SSO)

Context

During the most critical phase of the COVID-19 pandemic in 2020 and early 2021, organizations had to learn to manage this new risk.

The experience we developed during this phase allowed us to implement important actions to guarantee the continuity of power transmission services, and to fully comply with the legislation issued by the health authority at all our facilities. With the ongoing support from the Work-related Accident Insurance Administrative Body, The Chilean Construction Chamber Mutual Safety Association, Transelec upheld its commitment to create a healthy and protected workplace. As a result, no cases of work-related COVID-19 infection were identified.

Focal points for 2021

During 2021, the Integrated Management System focused on the 4 focal points for SSO management:



Focal Point	Initiative	Actions
Digitization	OHS (Occupational Health and Safety) and Reportability Platform	Implementation of the OHS Management and Reportability Platform.
Processes	COVID-19 Regulatory Compliance	100% compliance with health authority requirements, being awarded the COVID-19 Seal by the Mutual Safety Association.
SGI and Safety Culture	OHS Management System	ISO 45001:2018 compliance and recertification.
	Safety Culture	Fair Organization Model Strategy implementation (2021-2022).
Projects	National Fire Protection Association (NFPA) Audit 70E Action Plan	

Process digitization

Safety data generation, improved OHS management quality and indicator monitoring in real time are part of the objectives for this focal point.

Transelec has been implementing its Digitization strategy for some years now, in accordance with the natural evolution of organizations. The challenge for Occupational Health and Safety was to determine priority processes for digitization, with Incident Reportability/Informed Organization at the top of the list.

Processes

The health authority's continuous updates of COVID-19 prevention protocols required systematized processes for the implementation, verification and correction of the actions taken by Transelec to comply with these regulations. Transelec thus protected its own workers and those employed by contracting companies. The Mutual Safety Association presented its COVID-19 Seal to Transelec for all of its operational, engineering and main office facilities.

Projects

Transelec's commitment to fully comply with regulations led to joint planning of NFPA 70E standard implementation with the Mutual Safety Association and external consultants. This project, beyond any compliance requirement, proposed a challenge and cultural change in terms of how the organization looks at and manages electrical risks, which are typical of Transelec's business. The challenge for the future is maintenance of new standards that will be consolidated in the Electrical Safety Program based on NFPA 70-E from a cultural and operational perspective.

Safety Culture and Management System

Transelec has a certified Management System since 2010, which has consolidated management culture based on the OHSAS and ISO standards model. Transelec migrated to ISO 45001 in 2020 and was recertified in 2021.

Standard maintenance work, process systematization P-D-C-A (Plan – Do – Check – Act) model, capturing Opportunities for Improvement, managing new risks identified and incorporating lessons learned, all add value to the organization, strengthening a solid OHS management culture.

Transelec committed to implementing a Fair Organization Strategy in the Safety Culture area, one element of the Transelec Culture Model. This initiative features the following main objectives:

- a. Formulating and determining a clear line between acceptable and unacceptable behavior, as well as actions required for recognition, correction and/or penalties.
- b. Workers can report potentially risky situations without fear of punishment, while the organization can generate improvement actions (learn) about the factors causing errors.
- c. A policy or standard is discussed, reviewed and legitimized by members of the company as a whole.

Projects

Transelec’s commitment to fully comply with regulations led to the implementation of the NFPA 70E standard with support from the Mutual Safety Association and external consultants. This project, beyond any compliance requirement, proposed a challenge and cultural change in terms of how the organization evaluates and manages electrical risks, which are typical of Transelec’s business. The challenge for the future is the maintenance of new standards that will be consolidated in the Electrical Safety Program based on NFPA 70-E from a cultural and operational perspective.

Indicators

	Historical maximum (2008)	Historical minimum (2019)	End of 2021
Accidentability Rate ⁴	1.20	0.07	0.30
Accident Rate ⁵	48.04	2.12	3.42
Work-related illness ⁶	0	0	0
Work-related COVID-19 infection		2020 0	2021 0

⁴ Accidentability Rate: the quotient between Lost Time due to Accidents and Number of Workers (Total Lost Time due to Accidents*100/Number of Workers)

⁵ Accident Rate: the quotient between total Days Lost and Number of Workers (Total Days Lost*100/Average Number of Workers)

⁶ Work-related illness: illness directly caused by execution of a person’s work or profession leading to disability or death.



Service Quality

Service quality is one of the Transelec’s strategic pillars; we aim to provide high quality service and each action developed by Transelec points in this direction. The maintenance and modernization of our assets, together with a timely response to network incidents are the main drivers of service improvements.

We have three main indicators for assessing service quality. These provide a focused and aggregated view of our performance, allowing us to detect additional opportunities for improvement.

Indicators

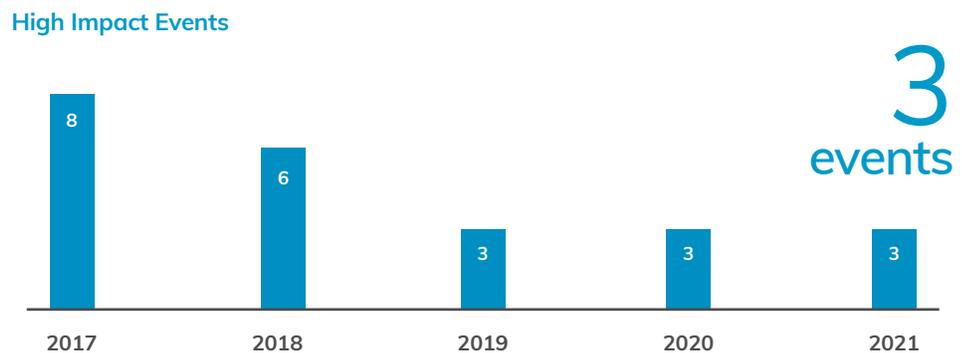
TRANSELEC SAIDI: this indicator measures time a locality has remained without power supply. This is used to measure Transelec’s impact on end customers at the 13 most critical points in the system, which were chosen due to historical performance or topology vulnerability.

RESULTS: 0.066 hours, a 92% improvement compared to 2020 and a 96% improvement compared to our average results in 2017.



HIE (High Impact Events) consider all power supply interruptions for end customers greater than 30 MWh. This value was determined as the threshold indicating that 15% of outages generate 80% of impacts on end customers over the last 5 years.

RESULT: 3 events. This means 1 fewer event compared to last year and a 54% diminution compared to the last 5 years average.



Compensations: this indicator is designed to estimate compensations to be paid by Transelec due to outages on end customers, final compensations are determined by the regulator. The authority has not made any ruling regarding value to be compensated for outages during 2021. Therefore, considering energy not supplied as a reference, this was down by 58% in 2021 compared to 2020 and by 54% compared to the average over the last 5 years, the result of the targeted improvements executed in recent years.

58% down^(*)
(*) compared to 2020