# Enaex

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2017 ANNUAL REPORT INTEGRATED REPORT



This integrated report includes consolidated information on the Company's financial, social and environmental performance for the period between January 1 and December 31, 2017.

The Integrated Report is written in accordance with International Integrated Reporting Council (IIRC) methodology. This second version once again aims to provide a broader view of its business model so that the Company's shareholders and main stakeholders may understand how it seeks to meet the challenges of sustainable growth in a competitive global environment and create value in the long term. This report discloses increasingly better data on how sustainability challenges have been transformed into opportunities for innovation and growth-for the Company, its suppliers and its customers. Our new corporate vision focuses on thinking big. We continue to make progress on the ambitious commitments that define Enaex SA's current and future roles with services that offer comprehensive solutions while developing a business that adapts to industry changes quickly and efficiently.

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## **CHAPTER 1**

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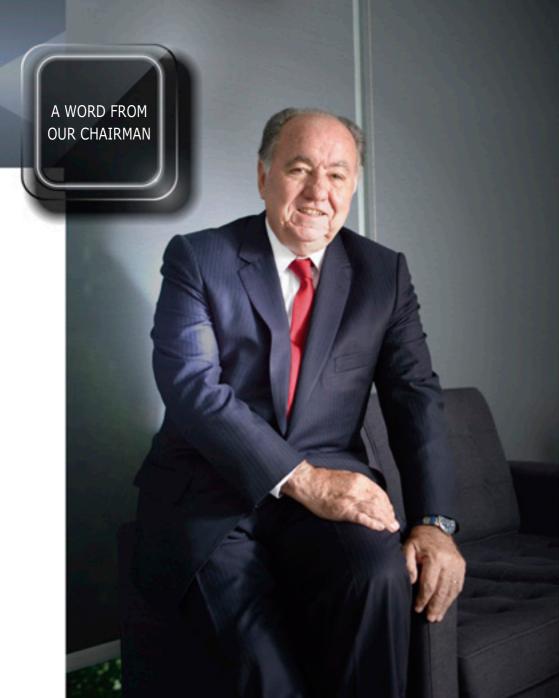
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## CORPORATE INFORMATION Enaex

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#### Dear Shareholders:

On behalf of the Board of Directors of Enaex S.A., it is my pleasure to present the 2017 Integrated Report and Financial Statements. This year brought important challenges for the Company. We continued making progress on the integration and international consolidation of our companies, focusing on our role as a leader in comprehensive mining services. This Integrated Report goes beyond last year's financial results to once again include significant facets from all areas of our operations. It was prepared in accordance with the International Integrated Reporting Council (IIRC) framework, a model which aims to provide a more thorough, precise and comprehensive vision of how our Company's resources are creating value. This is part of ongoing efforts by the Company and the Board to disclose information beyond economic performance in order to encompass all the factors that predict an innovative and sustainable future.

In 2017, the Company sought to develop innovative, cutting-edge products and solutions for the global mining industry. To do so, it focused efforts on the most important areas: human resource management, customer focus, safety, synergy between subsidiaries, robotics, emissions control and energy efficiency.

Two years after the 2015 purchases of Brazilian explosives company, Britanite (100%), and France's Davey Bickford group (91%), one of the world's leading manufacturers and distributors of detonators for the explosives industry, we have undoubtedly achieved the objective of improving our value proposal for customers, giving them access to more efficient, innovative initiation systems and technology and strengthening the Company's position as an international comprehensive supplier of rock fragmentation products and services.

Despite setbacks in Chile such as mining strikes early in the year and the end of service operations at Escondida, our international subsidiaries performed well, particularly Enaex Britanite and Davey Bickford, which managed to partially offset the slowdown in local activity. As of December 2017, the Company recorded US\$705.2 million in revenue and profit of US\$80.2 million, representing 2% and 6% growth relative to the prior year, respectively. The Company exported 171 thousand tons to international markets, primarily: Argentina, Bolivia, Mexico and Peru.

In keeping with the strategic plan to maximize international growth and capitalize on regional strengths by meeting customer needs with innovative products and improving production efficiency ratios, Enaex exported its Milodón<sup>®</sup> high tonnage loading truck—the world's largest explosives MMU with a 30-ton load capacity—to blasting operations in Brazil and Peru, bringing significant competitive advantages in production. I would also like to mention Enaex Peru's first comprehensive blasting services at Minera Constancia, a copper mine owned by Hudbay.

We believe that innovation is essential as the industry faces problems that require timely solutions and thinking outside the box. Joint innovation efforts involving mining companies and their suppliers have become fundamental to the industry's sustainability. In September 2017, Enaex launched its two new technological developments, RoboMiner<sup>®</sup> and Mine-iTruck<sup>®</sup>, teleoperated robotic solutions created to optimize customer returns by facilitating access to hard-to-reach deposits while protecting the safety of operating personnel. The Company developed these solutions in conjunction with renowned institutions like Stanford Research Institution (SRI), ASI Robots, Tersainox, Thecne and SK Godelius.

Enaex continues to work on the 2006 Clean Development Mechanism (CDM) projects to reduce nitrous oxide emissions at the Prillex complex in Mejillones. These projects now also measure the environmental impact of the

product life cycle. Between 2015 and 2017, the Company reduced its CO<sub>2</sub> equivalent emissions factor (per ton of ammonium nitrate) by 23%. Likewise, energy efficiency projects continue, translating into significant energy savings. Today, the Company has the capacity to cogenerate nearly 60% of its electricity consumption, reducing annual CO<sub>2</sub> equivalent emissions by approximately 30,000 tons. In recognition of its performance and for the second straight year, Enaex was one of 26 companies to be part of the Dow Jones Sustainability Index Chile (DJSI Chile) developed by Santiago Exchange, S&P Dow Jones Indices and RobecoSAM.

I would like to express special gratitude to our employees in all the countries where we operate: Chile, Argentina, Australia, Brazil, Canada, Colombia, the United States, France, Mexico and Peru. Their efforts and dedication are what has enabled us to become leaders in production, quality, sustainability and innovation. I would also like to thank our customers, suppliers, financial institutions, investment funds and bondholders. They have accompanied us throughout the years as we set challenges and goals for ourselves. Likewise, I am grateful to the shareholders who have placed their trust in us and to the directors who have taken part in this endeavor.

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Juan Eduardo Errázuriz O. Chairman

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### THE COMPANY AT A GLANCE

## VISION

To be the most prestigious company in our industry delivering premium blasting solutions to the world's most important mining regions.

## MISSION,

To grow along with customers, supplying high-quality ammonium nitrate, related chemicals and mining services. To provide world-class safety standards, reliability and innovative services. To establish a global presence and leadership in Latin America. To generate value for shareholders and employees. To be recognized as a company that is respectful of the community and the environment.

## The Company

Enaex S.A., a subsidiary of the Sigdo Koppers Group, has more than 97 years' experience in the explosives market. Over the years, the Company has become the world's third largest producer of ammonium nitrate.

In 2017, the Company continued to grow internationally, expanding its capacity to develop and export innovative, cutting-edge products and solutions for the global mining industry. It is currently the largest supplier of comprehensive rock fragmentation services for mining in Chile and Latin America.

Enaex owns the world's largest ammonium nitrate production complex: Prillex América. The plant has a production capacity of 850 thousand tons/year and produced a total of 683 thousand tons of ammonium nitrate in 2017.

The Company has contracts with a large portfolio of important customers including the region's main open-pit and underground mines. It provides rock fragmentation and blasting services in Chile, Argentina, Brazil, Colombia and Peru, where it also has a broad network of on-site service plants. These plants provide a variety of services, such as: shot blasting, loading blasting agents, shallow mooring, plugging blast holes, checking blasting holes, and magazine management. In Latin America, the Company stands out for its steady growth. In Colombia, through its subsidiary Enaex Colombia S.A.S., it built a high-tech packaged emulsions plant in operation since 2010. In Argentina, the Company's

BEGINNING IN 2016, ITS LATIN AMERICAN SUBSIDIARIES BEGAN OPERATING UNDER THE NAMES ENAEX COLOMBIA, ENAEX ARGENTINA, ENAEX PERU AND ENAEX BRITANITE. THE COMPANY CONTINUES TO STRENGTHEN ITS POSITION AS A REGIONAL LEADER IN MINING SERVICES. 2017 Annual Report - Integrated Report Corporate Information

subsidiary Enaex Argentina SRL has a bulk emulsions plant in operation since 2014. In Peru, Enaex acquired an 80% interest in the local company, Chemtrade. Finally, in 2015, Enaex strengthened its presence in Brazil, acquiring 100% of the country's largest manufacturer and seller of civil explosives, IBQ Industrias Químicas (Britanite).

In June 2015, Enaex S.A. began to expand beyond Latin America, acquiring a 91% stake in Davey Bickford, a world leader in manufacturing electronic detonators and initiation systems. The France-based company has subsidiaries in Australia, Canada, Chile, the United States, Mexico and Peru.

The Company's credit profile and liquidity position remain sound. This year, Feller Rate improved its risk rating for Enaex S.A. from AA- to AA with a stable outlook. Best Chile 2017 also recognized it as an outstanding company on the basis of its concern for employee wellbeing and financial health. The award was part of the Best Employee Financial Future program, developed by Principal in conjunction with PeopleFIRST and La Tercera newspaper.

The community and environment are essential to Enaex's growth plan. Highlights among the various projects in these areas include the Carbon Credit project under the Kyoto protocol and the United Nations, which seeks to reduce annual CO<sub>2</sub> equivalent emissions by nearly 1 million tons, making this the most important initiative of its kind in Chile.

It also earned several accolades and certifications in the areas of sustainability and innovation and was once again chosen for the Dow Jones Sustainability Index Chile (DJSI Chile) developed by Santiago Exchange, S&P Dow Jones Indices and RobecoSAM. Phibrand's 2017 Mining Suppliers Ranking named Enaex S.A. Best Domestic Supplier.

This year, Enaex S.A. launched two new technological developments, RoboMiner<sup>®</sup> and Mine-iTruck, teleoperated robotics solutions for mining sites that the Company developed in conjunction with renowned institutions, like the Stanford Research Institute (SRI), ASI Robots, Terainox, Thecne and SK Godelius.

The Company is known for its innovation, sustainability, exceptional quality, safety and passion for service. These values are key to satisfying customer needs and providing on-site solutions.



	2010	2011	2012	2013	2014	2015	2016	2017
Sales	409,468	575,149	641,429	648,482	645,950	761,766	692,368	705,173
Net operating income	91,980	108,192	126,211	122,505	130,341	148,629	128,478	124,928
Sales margin	22%	19%	20%	19%	20%	20%	19%	18%
EBITDA	110,153	142,341	152,348	150,476	154,170	180,657	165,259	164,373
EBITDA margin	27%	25%	24%	23%	24%	24%	24%	23%
Profit for the year	77,196	79,045	90,907	93,914	99,148	104,581	85,337	80,184
Assets	683,193	746,161	816,351	788,259	835,547	1,097,355	1,116,286	1,166,705

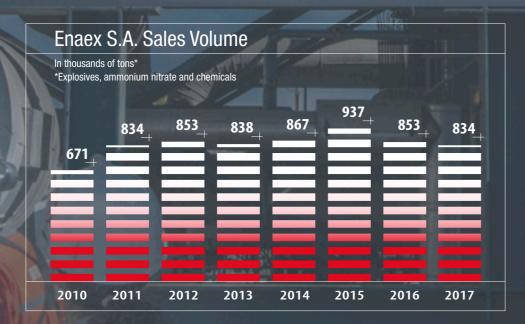
\* EBITDA calculations do not include other income (losses) for 2009, 2010 and 2011.



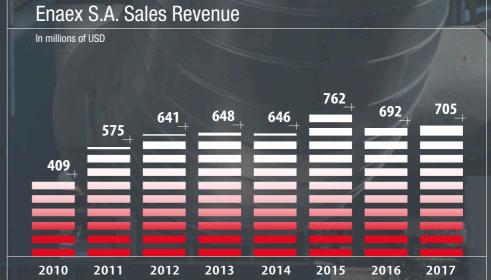
Key Figures for Enaex S.A.

	2010	2011	2012	2013	2014	2015	2016	2017
Average Price of Ammonia (US\$/ton)	406	577	605	547	549	458	278	279
Ammonium Nitrate Production (thousands of tons/year)	642	738	811	773	782	782	700	683
Number of Employees	1,311	1,392	1,558	1,703	1,970	3,533	3,309	3.436
Number of Production Plants	4	4	4	5	7	13	13	13
Number of Service Plants	22	23	25	25	25	24	24	23
Number of Mobile Manufacturing Units	70	71	86	100	106	124	121	120

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1972

1983

2017 Annual Report - Integrated Report 11 Corporate Information • The Company was privatized through acquisition by Chilean investors, FAMAE, and U.S.-based Austin Powder Company. 1989 • Sigdo Koppers acquired a Sigdo Koppers S.A. increased 33% interest in Enaex S.A. its ownership interest in Enaex to 50.1%. 199 The Ammonium Nitrate project began with 1991 an investment of 1997 approximately US\$130 million in a new plant with production capacity of 350,000 tons/year. Construction of a new This investment brought Ammonium Nitrate plant the Company's total began on the Company's capacity to 450,000 property in Mejillones. tons/year. Production of Ammonium Nitrate began at the new plant in Mejillones. 1999 Enaex earned the National Quality Award (Premio Nacional a la Calidad) in the large corporation category. 200



The Company carried out a successful capital increase of US\$68 million and secured two loans totaling US\$125 million in order to finance the new Ammonium Nitrate plant in Mejillones. The Company decided to implement a Carbon Credit project in Mejillones.

The Carbon Credit project's

initiative was launched. Subsidiary Enaex Servicios S.A.

and service divisions.

certified emissions reduction

was created and the Company

was split into manufacturing

Subsidiary Enaex Argentina SRL was created. The Carbon Credit project and construction of a new Ammonium Nitrate plant began.



The Carbon Credit project was approved under the Kvoto Protocol and the United Nations officially issued the first emissions reduction certificates, allowing Enaex to sell its Carbon Credits to Mitsubishi Corporation in Japan.



The new Ammonium Nitrate Plant (Panna 4) opened, bringing total production to 850 thousand tons and making it the world's largest explosive-grade Ammonium Nitrate production complex.



2007



Enaex

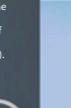
The Prillex complex reached its maximum, nominal capacity, at 850 thousand tons of Ammonium Nitrate per year. UNFCC approved the Panna 4 Carbon Credit project. Enaex solidified its position as the national leader in CO<sub>2</sub> reduction and emission of Carbon Credits (Certified Emission Reduction, CERs).

Enaex acquires a one-third stake in IBO Industrias Ouímicas (Britanite) in Brazil. In late 2012, Enaex launched a new project called "The New Enaex Cycle", updating its image and headquarters, aligning them with new growth and productivity challenges.

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Contracts were renewed with major mining customers in Chile and new contracts were signed for sites owned by Antofagasta Minerals and Anglo American. Enaex was awarded 90% of the tons put out for bid. This year was key in defining Enaex's focus on a model based on continuous innovation.









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The Company acquired 100% of IBO Industrias Ouímicas (Britanite) and 91% of the Davey Bickford Group, a French world leader in manufacturing electronic detonators. In October, Enaex conducted its first bond issuance on the local market, for a total of UF 2.5 million.

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Enaex was listed on the Dow Jones Sustainability Index Chile (DJSI Chile) and the Chilean Federation of Industry (SOFOFA) bestowed us with one of its most important national accolades, naming Enaex Outstanding Company of the Year in 2016.





CORPORATE GOVERNANCE



CHAIRMAN Juan Eduardo Errázuriz Ossa 4.108.103-1 **Civil Engineer** 



**BOARD OF DIRECTORS** 

VICE CHAIRMAN Sergio Undurraga Saavedra\*\* 4.280.259-K Business Administration



Juan Pablo Aboitiz Domínguez 7.510.347-6 **Civil Engineer** 



Norman Hansen Fernández 6.062.403-8 Sociologist



Aleiandro Gil Gómez



Alberto Salas Muñoz\*\* 6.616.223-0 Mining Engineer

\*Member of the directors' committee, related to the controlled companies, created in accordance with art 50 bis of the Corporations Law. \*\*Member of the directors' committee, independent from the controller, created in accordance with art 50 bis of the Corporations Law.

Kenneth Pickering Ewen

12.087.835-2

Mining Engineer

Horacio Pavez García 3.899.021-7 **Civil Construction** 

Naoshi Matsumoto Takahashi\* 3.805.153-9 **Business Administration** 



#### **Company Management**

**Chief Executive Officer** Juan Andrés Errázuriz Domínguez / 9.350.009-1 Civil Engineer

**Chief Financial Officer** Pablo Busquet Errázuriz / 11.472.210-3 Business Administration

Vice President West Latam Edmundo Jiménez Gallardo / 12.622.945-3 **Civil Engineer** 

Vice President Human Resources Patricia Valenzuela Urra / 8.267.412-8 Psychologist

Vice President Supply Chain Pablo Wallach Beovic / 12.585.165-7 **Civil Engineer** 

Vice President Production Claudio Yévenes Constanzo / 9.383.155-1 **Civil Engineer** 

Major Companies Operations Manager Erik Muñoz del Pino / 7.719.693-5 **Civil Engineer** 

**Country Manager Chile** Luciano López Cordero / 12.227.163-3 **Civil Engineer** 

Río Loa Plant Manager Matías Sims Soza / 13.602.163-K **Civil Engineer** 

Punta Teatinos Plant Manager Alejandro Castillo Hamati / 9.152.917-3 **Civil Engineer** 

Underground Mining Manager Renato Ramírez Iglesias / 13.549.494-1 **Civil Engineer** 

Supply Chain Manager Iván Zapata López / 13.426.256-7 **Civil Engineer** 

**Operations Manager** Marcos Zamora Gómez / 8.651.367-6 Civil Engineer

Lean and Purchasing Manager José Miguel Camelio Canales / 15.641.286-4 **Civil Engineer** 

**Commercial and Innovation Manager** Miguel Angel Peña Duarte / 10.279.473-7 Civil Engineer

Planning, Development and Control Manager Francisco Baudrand Biggs / 8.922.866-2 Civil Engineer

Accounting Manager Berta Pasten Carrasco / 10.244.703-4 Public Accountant and Auditor

**Excellence Center Manager** Jorge Rioja Ovando / 6.553.741-9 Civil Engineer

**HSEC** Manager Leonel Cataldo Morales / 8.054.812-5 **Civil Engineer** 

West Latam Human Resources Manager Soledad De Palacios Rodillo / 9.032.677-5 Psychologist

**Corporate Manager of Compensation** and Benefits Patricio Felipe Melo Grollmus / 13.963.897-2 **Business Administration** 

**Corporate Controller** Fernando Moreno Pérez / 10.742.624-8 Accountant and Auditor

## Ownership Structure

In late 1990, the Sigdo Koppers S.A. Group acquired an interest in Enaex. Later, in 1993, the group became the Company's controlling shareholder. This prominent group has investments in: the service sector, through Ingeniería y Construcción Sigdo Koppers S.A., Puerto Ventanas S.A. and its subsidiary Fepasa S.A.; the industrial sector, through Enaex and Magotteaux, in the automotive sector, through SKBergé S.A.; and importation, sales and leasing of heavy machinery, farm equipment and transportation for construction and inputs, through SK Comercial S.A.

As of December 31, 2017, Enaex S.A.'s share capital was divided into 123,000,000 shares. The Company's 12 main shareholders are:

Shareholder	No. of Shares	Ownership Interest (%)
Sigdo Koppers S.A.	74,687,564	60.72%
Inversiones Gran Araucaria Dos Limitada	7,913,125	6.43%
Moneda S.A Pionero Investment Fund	6,809,000	5.54%
Lucec Tres S.A. (1)	5,300,000	4.31%
BTG Pactual Chile S.A. C de B	5,037,235	4.10%
Inversiones Santa Filomena Limitada (1)	4,912,668	3.99%
Inversiones y Valores Harabuquen Ltda.	4,359,373	3.54%
Inversiones Auguri Ltda. (1)	2,850,000	2.32%
Agrícola Cechi Ltda. (1)	2,425,000	1.97%
Moneda Corredora de Bolsa Ltda.	747,530	0.61%
Inversiones Schwember y Cia Ltda.	738,000	0.60%
Compass Small Cap Chile Investment Fund	657,550	0.53%

Corporate Information As of December 31, 2017, Enaex S.A.'s share capitalwas distributed as follows: 10.47% Stars Investments 12.59% Grupo Karlezi Solari Enaex 16.22% **Pension Fund** Administrators (AFPs). **Investment Funds** and Other Shareholders 60.72% Sigdo Koppers S.A.

(1) Non-controlling group with more than 12% interest.

### CORPORATE GOVERNANCE PRACTICES

In 2017, an external company certified ENAEX's corporate governance standards in accordance with the practices recommended in General Standard 385 issued by the Superintendency of Securities and Insurance.

The Company has a Corporate Governance Code and formal policies on issues including: proposals for candidates for director, orientation and ongoing training of new directors, hiring independent consultants, self-assessment by the Board of Directors, board confidentiality, insider information and succession of key executives.

#### **RISK MANAGEMENT**

The Company's Corporate Risk Management Model includes a Risk Committee as well as formal risk management policies and procedures designed to provide reasonable certainty that objectives will be achieved and the Company's value will be maximized.

The Corporate Controller's Office is responsible for updating the corporate risk map, monitoring mitigation plans, auditing the main business risks and eliciting commitments to improve.



#### COMMUNICATION AND INDEPENDENT REPORTING ON CONTROL AREAS

Direct, ongoing communication is maintained through quarterly board meetings. Once a year, the Chief Executive Officer is excused from the meeting while the Board analyzes performance in conjunction with:

- Independent Auditors: Issues like the external audit program and its results, deviations and potential conflicts of interest related to the audit company or its personnel, among other issues.
- b. The Chairman of the Risk Committee: Proper functioning of the risk management process, methodology, risk map, residual risk levels, recommendations for improvement, action and contingency plans, among other issues.
- c. Internal Controller: The internal audit program and its results, process risks, noteworthy deficiencies, recommendations for improvement, follow-up on action plans, strengthening the control environment and effectiveness of the crime prevention model.
- d. Human Resources Division and Sustainable Development Unit: Effectiveness of policies on diversity and inclusion, organizational, social and cultural barriers that could inhibit natural diversity and, the usefulness and acceptance of sustainability reports distributed to relevant stakeholders.

#### ETHICAL BEHAVIOR AND SELF-REGULATION

The Enaex Code of Conduct establishes an ethical-behavioral framework for directors, employees and/or consultants, all of whom are responsible for knowing and applying the provisions of the code. The Enaex Corporate Ethics Committee is responsible for promoting values and ethical conduct within the organization, addressing and resolving complaints and conflicts of interest in a timely matter and enforcing the Code of Ethics.

#### **COMPLAINT CHANNEL**

Enaex has a formal procedure for processing reports of possible irregularities or illegal activities so that each is duly addressed. The procedure—which takes complaints from employees, shareholders, customers, suppliers or third parties—guarantees whistle blowers anonymity and freedom from retaliation.

Complaints can be made at:

- Complaint hotline (+56 2 2837 7696)
- E-mail (canaldedenuncias@enaex.com)
- Corporate website (www.enaex.com)

In 2017, a total of 18 complaints were filed, one less than the prior year. The Ethics Committee reviewed the cases in conjunction with other reports and documented the resolution of each incident along with disciplinary measures taken.

#### CRIME PREVENTION MODEL (LAW 20,393)

Law No. 20393 establishes criminal liability of legal entities for the crimes of money laundering, terrorism financing, bribery and receiving stolen goods. To uphold the law with a preventative approach and maximum diligence, Enaex has a long-standing Crime Prevention Model. The model has been certified by an external company, BH Compliance, and is periodically audited for recertification.

#### **ENAEX'S BOARD OF DIRECTORS**

Nine members without executive responsibilities serve on the Company's single-tier Board and have an average of 14.7 years in office. In 2017, board meeting attendance was 94%. The Board's duties include a self-assessment process supported by an independent consulting agency. All directors have sufficient chemical, mining and financial industry experience to direct the Company.

## **OUR PRIORITY: LIFE**

We put people's safety and integrity first.We are responsible with the environment.

• We are committed to the social development of the communities where we operate.

## **OUR VOCATION: OUR CLIENTS**

• We have a vocation for service.

- We are empathetic and cater to their needs.
- We see our relationships with customers as partnerships.
  Our passion is to provide solutions of exceptional value.

## OUR OBSESSION: EXCELLENCE

We strive for the highest technological and service quality standards.
We fulfill our commitments.
We work as a team with high accountability and honesty.

## OUR STRENGTH: INNOVATION AND ENTREPRENUERSHIP

We develop in our people the audacity to find solutions.
We take risks to solve resigned problems.
We have a long-term mindset.

CORPORATE VALUES WE ARE ONE

Our corporate values, reflected each day in our employees' attitude and commitment, are celebrated annually with the Enaex Spirit Award.

## Policy on Sustainability, Diversity and Inclusiveness

Through its policy on sustainability, diversity and inclusiveness, Enaex seeks to establish measurable, long-term commitments related to four main themes:



### CONSIDERATION AND COLLABORATION WITH STAKEHOLDERS

Promoting ethical behavior and collaboration between all the organization's members.

Promoting close, transparent dialog with the communities where the Company operates, actively generating social capital, especially through education and environmental protection.

Supporting local suppliers and socially responsible behavior, fostering collaborative relationships.

Building cordial relationships with relevant authorities through timely compliance with applicable legal standards.

Upholding and promoting fair competition based on ethical business practices.



### ENVIRONMENTAL PROTECTION

Promoting environmental responsibility in all business areas, seeking, first and foremost, to comply with all current rules and regulations.

Progressively increasing the efficiency with which the Company uses and manages natural resources.

Maintaining its leadership position in climate change management, maintaining low-carbon emissions in ammonium nitrate production and promoting energy efficiency initiatives.

Encouraging implementation of management systems that ensure ongoing process improvement as well as identification and control of environmental aspects.



### INCLUSION AND DIVERSITY

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Conscious of the value of accepting differences, the Company seeks to eliminate discrimination and exclusion based on ethnicity, gender or other aspects that could affect an individual's dignity.



### INNOVATION

The Company considers innovation a key element in creating long-term value. Consequently, process, product and service innovations in safety, sustainability and infrastructure are an important challenge for its long-term strategy.

Corporate Information

#### COMMUNITY

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To support the social, economic and environmental development of the communities in which we operate, actively helping to generate social capital.

#### SUPPLIERS

To promote open, transparent and harmonious communication, contributing to the creation of shared value.

#### AUTHORITIES

To maintain a transparent relationship and actively comply with applicable legal standards.

### COMPETITORS

To uphold fair competition based on ethical business practices.

#### EMPLOYEES

To provide opportunities for development, equality, participation and teamwork while encouraging dialog and safety.

### INVESTORS AND SHAREHOLDERS

To produce long-term profitability, while upholding high standards of quality, sustainability and transparency.

#### CUSTOMERS

To provide comprehensive solutions, focusing on customer needs and expectations, delivering excellent, innovative, competitive products and services in a timely manner.

### STAKEHOLDERS

Our business success depends on harmonious, collaborative work with

all our stakeholders. Thus, we must work to identify the challenges facing the Company and areas for improvement.

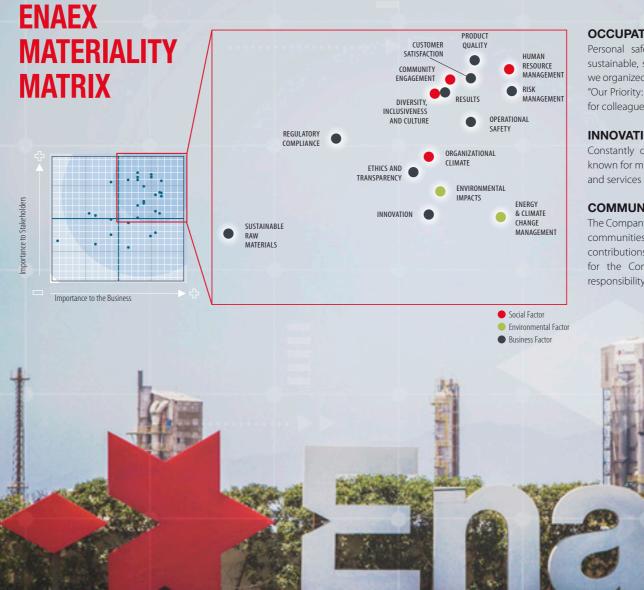
Enaex maintains a holistic, strategic relationship with each of its primary stakeholders, thereby enabling effective communication in pursuit of mutual collaboration and sustainable competition.

The Company's primary stakeholders and its engagement plan for each group is described here:



In order to contend with an increasingly competitive environment, Enaex must define which aspects of the business are key to creating economic, social and environmental value while ensuring we meet stakeholder and development needs.

The Company's materiality analysis, under Global Reporting Initiative (G4) guidelines, included evaluation of 26 material issues set forth in its strategic plan. These were issues evaluated by customers, suppliers, employees, communities and shareholders. The result is a materiality matrix that illustrates the aspects that are most important to the Company and its stakeholders.



#### **OCCUPATIONAL HEALTH AND SAFETY**

Personal safety is a priority and is directly related to sustainable, successful development. To that end, in 2017, we organized a major campaign around the corporate value "Our Priority: Life", promoting self care as well as protection for colleagues, communities and the environment.

#### INNOVATION

Constantly developing and innovating, the Company is known for meeting customer needs through new products and services and production process efficiencies.

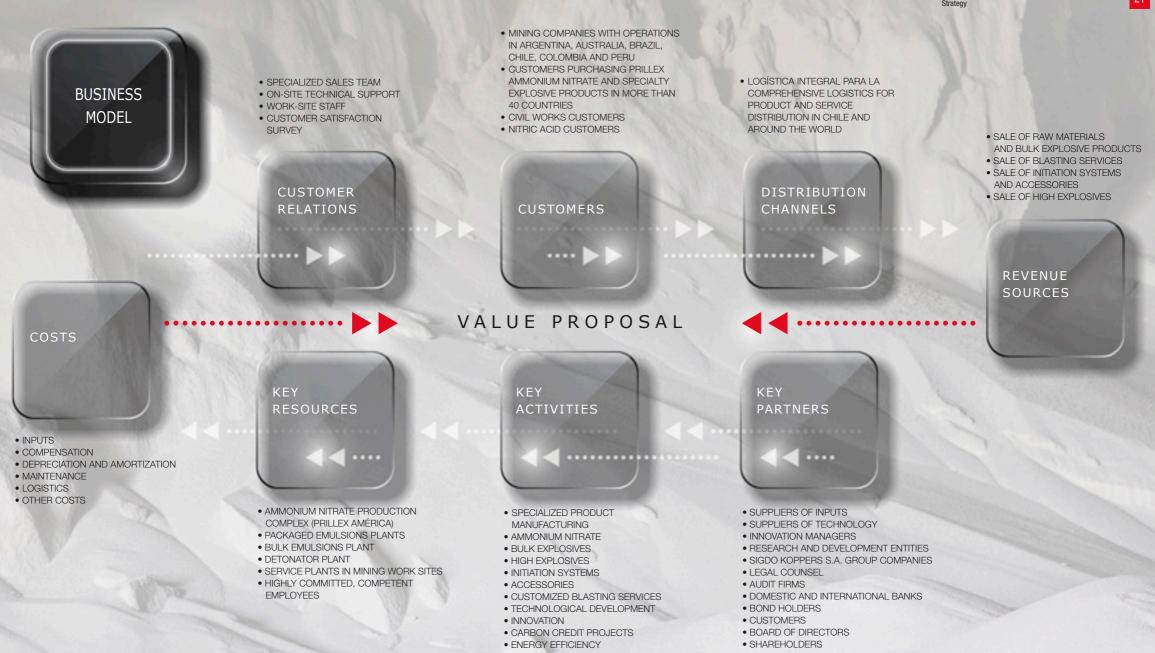
#### COMMUNITY ENGAGEMENT

The Company seeks to be an agent of positive change in the communities where it operates. Enaex makes concrete contributions that create social capital and earn recognition for the Company as a role model of environmental responsibility, safety and transparency.

## **CHAPTER 2**

## STRATEGY Enaex

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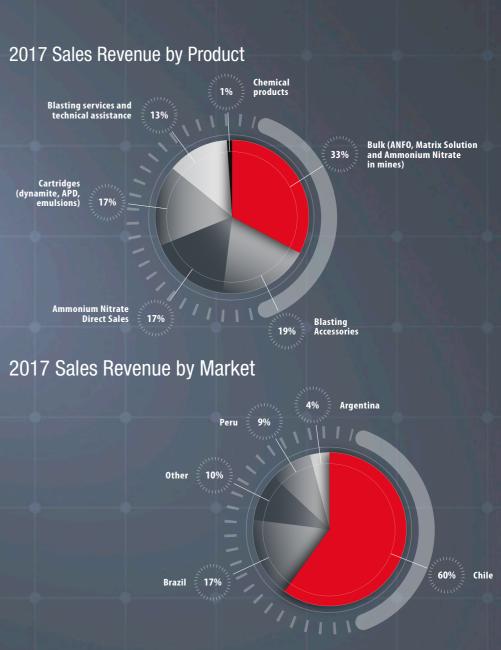
## Products and Services

Thanks to vast experience in the production of Ammonium Nitrate, Enaex has become the largest producer in Latin America and third in the world. With 97 years in the industry, it has established its leadership in the blasting services market for large-scale mining in Chile and become a major player in the region's explosives manufacturing market.

Ammonium Nitrate is also sold as a raw material used for on-site manufacturing of blasting agents at various mining sites. Enaex provides customer- and site-specific solutions using ammonium nitrate and other products. Today, the Ammonium Nitrate produced by the Company is sold directly to customers within Chile and abroad, including important destinations like Argentina, Bolivia, Mexico and Peru.

In its explosives product line, Enaex S.A. produces a large amount of high explosives—including various types of dynamite, boosters, cartridge emulsions and detonators—at the Río Loa plant in Calama. These products are used in blasting for open-pit and underground mining as well as small- and medium-scale mining operations.





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#### **RAW MATERIALS FOR EXPLOSIVES**

- LOW-DENSITY AMMONIUM NITRATE
- PRILLEX LR: LOW-DENSITY AMMONIUM NITRATE (LONG RANGE)
- PRILLEX ULD: ULTRA LOW-DENSITY AMMONIUM NITRATE
- PRILLEX HPURE: EMULSION-GRADE HIGH PURITY AMMONIUM NITRATE
- PRILLEX FR: AMMONIUM NITRATE
- FOR EMULSIONS
- AMMONIUM NITRATE SOLUTION 84%
- EMULSIONS
- WATER GELS

#### **BLASTING AGENTS**

• BULK ANFO (ALUMINIZED) • HEAVY ANFO (POURABLE AND PUMPABLE)

#### **HIGH EXPLOSIVES**

- ANFO IN SACKS
- PACKAGED EMULSIONS
- COAL MINE PERMISSIBLE DYNAMITE
- SEISMIC EXPLORATION
- BOOSTERS
- CONE BOOSTERS
- LANDSLIDE CONTROL

Strategy

#### **INITIATION SYSTEMS**

- NON-ELECTRIC DETONATORS
- ELECTRIC DETONATORS
- ELECTRONIC DETONATORS
- DETONATING CORDS

#### **OTHER PRODUCTS**

- KOOLKAP SELF-INFLATING BAGS
- POWER DECK PLUGS (TAPONEX)
- QUIKDRAW CANNONS
- FLAME RETARDANT
- EXPANSION CEMENT
- ROCK BLASTING ACCESSORIES

#### **OTHER CHEMICAL PRODUCTS**

• 60% NITRIC ACID



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## Blasting Services and Customer Technical Support

Thanks to ongoing efforts to meet our clients needs and add value, the Company has become the largest manufacturer and distributor of efficient, innovative explosives in Latin America. Enaex is also Chile's leading provider of comprehensive rock blasting services.

Enaex S.A. has an extensive network of service plants located at the main mining sites throughout Chile. Each plant provides a variety of services for the mining industry, such as: shot blasting, loading blasting agents, shallow mooring, plugging blast holes, checking blasting holes, and magazine management.

The blasting designs on which Enaex's services are based may be submitted by the customer or proposed by the Company's highly qualified, experienced engineering team. These proposals enable Enaex to add value to customer operations by training, advising and recommending the

most appropriate techniques and products for each situation.

Leveraging its vast blasting impact experience and knowledge of crushing and grinding operations, the Company has optimized the fragmentation process and is able to offer complete blasting engineering services, from blast hole design to blasting design. Today, the Company offers the entire value chain for comprehensive rock fragmentation services. The quality of its products, ongoing innovation, technological development, efficient logistics and commitment to the customer have made it a leader in the region.

### CUSTOMER / MINE / YEAR SALES BEGAN

#### CHILE

#### CODELCO 1922 CODELCO DIV. NORTE (CHUQUICAMATA,

RADOMIRO TOMIC, MINISTRO HALES) 1922 CODELCO DIV. EL TENIENTE

#### ANGLO AMERICAN

1995 LOS BRONCES 1996 SOLDADO

#### MANTOS COPPER

1986 MANTOS BLANCOS 2007 MANTOVERDE

BHP BILLITON 2015 CERRO COLORADO

#### ANTOFAGASTA MINERALS 1995 LOS PELAMBRES 2000 CENTINELA 2014 ANTUCOYA 2014 ENCUENTRO

#### KGHM

2011 SIERRA GORDA 2011 FRANKE

#### TECK 2012 QUEBRADA BLANCA

#### MINERA DOÑA INÉS **DE COLLAHUASI**

2015 COLLAHUASI

OTHER	COMPANIES
2002	ATACAMA KOZÁN
2008	SQM NITRATOS
2010	MINERA GUANACO
2010	PROYECTA S.A.
2011	MINERA FLORIDA
2012	NEWMONT
2014	STRAGBA SPA
	ORICA
	EXSA
	MAXAM
	MOLIBDENOS Y METALES S.A.
	INDUSTRIAS QUÍMICAS CLORAMON

March 1 March 100

#### AUSTRALIA

**RÍO TINTO** 2009 MINES IN AUSTRALIA

#### BRAZIL

GRUPO VALE 1995 MINES IN BRAZIL

#### YAMANA GOLD 2017 MINES IN BRAZIL

PERU

#### **BHP BILLITON** 2014 ANTAMINA

Enaex

HUDBAY MINERALS 2017 MINERA CONSTANCIA 25

### PRODUCTION PLANTS

#### CHILE

**AMMONIUM NITRATE PLANT (PRILLEX AMÉRICA)** Located in Mejillones. Production of Ammonium Nitrate. Current production capacity: 850 thousand tons/year.

**MULTIMATRIX PLANT (PRILLEX AMÉRICA)** Located in Mejillones. Production of bulk emulsions. Current production capacity: 250 thousand tons/year.

**DYNAMITE AND EXPLOSIVES PLANT (RÍO LOA)** Located in Calama. Production of cartridge explosives (dynamite, pentolite, PETN), ANFO in sacks and bulk emulsions.

#### INITIATION SYSTEMS PLANT (RÍO LOA)

Located in Calama. Production of non-electric detonators, non-electric dual detonators, non-electric trunk line detonator.

ANFO AND EMULSIONS PLANT (PUNTA TEATINOS) Located in La Serena. Production of emulsions and distribution center for Ammonium Nitrate and cartridge products. Current production capacity: 60 thousand tons/year.

#### ARGENTINA

EMULSIONS PLANT AND DISTRIBUTION CENTER (CAMPANARIO) Located in the Province of San Juan. Production of bulk emulsions.

#### BRAZIL

**EMULSIONS AND BOOSTERS PLANT** Located in Quatro Barras. Production of matrices, packaged emulsions, boosters and others.

#### FRANCE

**ELECTRONIC DETONATORS AND OTHER ACCESSORIES PLANT** Located in the city of Héry. Production of electronic detonators and other accessories.

### SERVICE PLANTS

Strategy

Our service plants, which are located near customers' mineral deposits and mining sites, feature all the equipment necessary for safe, high-quality, productive operations. The most noteworthy include: storage silos for ammonium nitrate and emulsions, magazines for storing high explosives and initiation systems, equipment for transporting raw materials, support offices and mobile manufacturing units. The latter are specially designed to transport raw materials (ammonium nitrate and oil) to be mixed on-site where they will be used. Mobile manufacturing units are custom designed and equipped for each mine, according to the most stringent safety standards. As of December 2017, the Company had a fleet of 120 factory trucks for open-pit mining operations and 24 trucks for underground mining operations.

### MOBILE MANUFACTURING UNITS OPERATIONAL SUPPORT CHILE

#### TYPE OF MOBILE EQUIPMENT AND/OR VEHICLE

- 120 MOBILE MANUFACTURING UNITS\*
- 24 MOBILE LOADING EQUIPMENT FOR UNDERGROUND MINING
- 43 PLUGS
- 12 CRANES
- 4 GRINDERS
- 41 MOBILE MAGAZINES
- 140 PICK-UP TRUCKS
- 75 MATRIX SOLUTION (EMULSIONS) TRANSPORT TRUCKS
- 49 BULK AMMONIUM NITRATE TRANSPORT TRUCKS
- 5 NASOL TRANSPORT TRUCKS
- 14 NITRIC ACID TRANSPORTATION TRUCKS

#### 527 TOTAL

\*27 are high tonnage Milodón trucks.





#### LEGAL COUNSEL

Villaroel y Compañía Limitada.

#### AUDITORS

Deloitte Auditores y Consultores Ltda.

#### MAIN INSURANCE POLICIES

Physical damage, which covers physical assets under company ownership or responsibility, including loss due to business interruption resulting from an accident.
Corporate third-party civil liability (third-party damages and operations in Mejillones port terminal).
International transport for import/export goods.

Vehicles and mobile equipment.
Transportation and cabotage for all goods transported between plants or distribution centers within Chilean territory.
Personal accident coverage for all executives.
Insurance policies on local sales credit and export loans.

### M A I N B A N K S

#### DOMESTIC

#### BBVA

Banco Crédito e Inversiones Banco de Chile Banco Estado Banco Itaú Banco Santander Banco Security HSBC Scotiabank

#### INTERNATIONAL

Bank of Tokyo-Mitsubishi Bank of America Merrill Lynch BNP Paribas Corpbanca Colombia Corpbanca New York Citibank N.A. HSBC New York EDC J.P. Morgan Scotiabank Société Générale



### $\neg$ SUPPLIERS

For supply of Ammonia, the main raw material in the production of ammonium nitrate, Enaex holds a long-term supply contract with Trammo, a major player on the international ammonia market.

Enaex is constantly developing supplier relationships in order to obtain the best supply conditions. It establishes strategic supply relationships, especially for the raw materials, packaging and products that constitute approximately 80% of its purchases.

By reinforcing corporate management structures, the Company has achieved interesting synergies, which are further enhanced by our ongoing search for global supply opportunities.

To ensure sustainability, the Company also balances its suppliers to include both Chilean and international suppliers capable of making and faithfully fulfilling commitments.

The Company's main suppliers of raw materials and services include: Trammo, Nelson Brothers, Compañía de Petróleos de Chile, Pst Industries, Transporte Bello and Transporte Gil, among others.

## INNOVATION IS ALSO THINKING BIG

INNOVATION

## Nearly 20 projects in the innovation portfolio

Global innovation meetings

The Company has been working on systematizing the innovation management process in order to make innovation continuous and sustainable over time. A significant part of these efforts has focused on developing specialized products and services to meet our clients specific and significant everyday needs. Innovation focal points were established in order to harness factors affecting competitiveness and their respective solutions as guides on our search for new, positive, high-impact projects.

The Company also created an Innovation Synergy Group that brings together representatives from the Company's subsidiaries at global work meetings. One objective of these meetings is to create a road map that provides a thorough understanding of the problems facing customers around the world in order to provide technological solutions and add value.

In 2017, Enaex launched two new developments for open pit and underground mines featuring robotization and teleoperation. These innovations were specially created to optimize profitability for mining customers by facilitating access while protecting the safety of mine operating personnel.

Furthermore, the Company has increased its capacity to develop and export innovative products and solutions. The Milodon<sup>®</sup> mobile manufacturing unit is currently operating in some service operations in Brazil and Peru while products like Vertex<sup>®</sup> and Prillex<sup>®</sup> ULD are being used at Enaex Britanite.

## **Competitiveness Factors** and Enaex Solutions

The first explosives company in Chile to measure its Carbon Footprint by product unit, Enaex's carbon emissions are up to 40% lower than other industry suppliers.



Solutions that seek mine stability by controlling the energy used during material removal. These solutions aim to ensure sustainable operations with appropriate slope and wall controls.

HIDREX® AND PANFEX®: Explosives specially designed to control slopes and blasts.



Solutions that seek to maximize costs by replacing electric energy with chemical energy in the crushing and grinding processes. Optimized fragmenting processes generate considerable savings in the mining process.

#### **High Fragmentation**

**ENERGEX®:** A high-energy, high-power explosive product that improves rock fragmentation.

#### Mesh Optimization

**VERTEX®:** This blasting agent is characterized by its versatility, enabling cost reductions through mesh enlargement.



Solutions that seek to mitigate significant operating risks in mines where rocks react spontaneously when the rocky massif reaches high temperatures.

**PIREX®:** This blasting agent is specially designed to retard the reaction of Ammonium Nitrate and the pyrite in the rock.



**UBT TRUCK:** Designed to manufacture and load emulsions in underground mines, this autonomously powered truck can operate for more than 12 hours

HIGH-PERFORMANCE TRUCK®: Mobile manufacturing unit featuring greater unloading speed, which makes the blasting process more productive.

**SAFELOCK®:** A safety accessory that secures the detonator to the booster in order to prevent decoupling and making priming safer.

PREBLAST<sup>®</sup> SYSTEM: A method in underground mining for reconditioning rock with subsidence blocks. Accelerates production in the deepest mines with low-grade minerals.

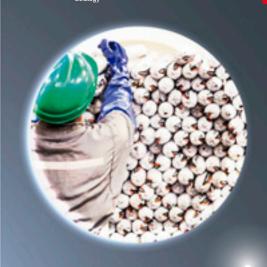


Solutions that seek to innovate in the social aspects of the blasting process in order to achieve sustainable development and community protection.

#### **PRODUCT LIFE CYCLE** AND CARBON FOOTPRINT ANALYSIS

Seeks to quantify the environmental impact of products during each of the individual processes involved in manufacturing, distribution, use and final disposal. Four environmental impacts were quantified in 2017: Climate change (carbon footprint of products) and consumption of water, non-renewable raw materials and purchased energy.

BLAST SITE WATCH®: A system that measures and controls the vibrations from blasts located near communities.



Strateg

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### TRADEMARKS, PATENTS AND LICENSES

The Company's assets include several trademarks. Given their track record and use, some of the brands, including Amongelatina<sup>®</sup>, Iniciador APD<sup>®</sup>, Softrón<sup>®</sup> and Enaline<sup>®</sup>, have become market bellwethers. Milodón<sup>®</sup>, High-Performance Truck<sup>®</sup>, EVS<sup>®</sup> and Safelock<sup>®</sup> are some of the Company's other noteworthy trademarks. In terms of products, the following stood out in 2016 and 2017: Pirex<sup>®</sup>, Hidrex<sup>®</sup>, Energex<sup>®</sup>, Vertex<sup>®</sup>, Panfex<sup>®</sup> and Duolex<sup>®</sup> and now robotics development brands like RoboMiner® and Mine-iTruck<sup>®</sup>.

The Company recently began registering trademarks like Enaex® and Prillex® for use in some of the countries where it plans to conduct business, including but not limited to: Australia, New Zealand, Indonesia and Japan. Furthermore, it owns the rights to emulsions manufacturing technology as well as QED Plus—Austin Powder Co.'s design, evaluation and blasting simulation software.

### TECHNOLOGICAL DEVELOPMENT

MACK

## Mine-iTruck<sup>®</sup>

Mine-iTruck<sup>®</sup> is a mobile manufacturing unit that is entirely teleoperated. With a 20-ton capacity, it is specially designed to manufacture ANFO and Heavy ANFO (pourable and pumpable) and gasifiable products for blasting in open pit mining. Its teleoperation capacity includes raw material transportation and manufacturing blasting agents. The trucks enable operations to be performed 100% remotely. People, therefore, are removed from the blasting area and operate the trucks at a safe and comfortable distance from control stations.

This solution increases mine productivity with a more flexible, interconnected operation and the potential to operate at night.

#### **Main Features**

**TELEOPERATED CONTROL** enables remote operation.

CONTROL ASSISTANCE limits maximum control speed.

**TELEOPERATED MANUFACTURING** makes it possible to remove people from the mining site.

FLEET CONTROL SYSTEM establishes routes for movement.

#### World-class design and engineering by Enaex S.A. offers a unique teleoperated solution featuring the highest standards in robotics and autonomous vehicle development.

### **RoboMiner**<sup>®</sup>

RoboMiner<sup>®</sup>, a teleoperated robot that has manipulation and manual skills, is specially designed for priming and mooring tasks in the blasting process for open pit and underground mining applications.

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Its features enable it to conduct exploration operations in risky areas and participate in blasting processes.

#### **Main Features**

TELEOPERATED CONTROL enables remote operation.

**MANUAL CAPABILITIES** enable priming and mooring tasks.

**3D VISION** lends depth perception.

LASER MAPPING provides detailed topographical structures.

AUTONOMOUS generation of energy and light.

**GAS MEASUREMENT** enables air quality assessment. OPPORTUNITIES AND RISK FACTORS

THE COMPANY'S MULTIPLE INTEGRATION PROCESSES ENABLE GREATER INTERNATIONAL COMPETITIVENESS.

#### OPPORTUNITIES

#### **DEVELOPING SYNERGIES**

More than two years after the acquisition of new subsidiaries Britanite and Davey Bickford in 2015, Enaex continues developing important synergies to be leveraged in the short and medium-term. Britanite expanded the Company's expertise in civil works and provided direct access to iron and aluminum markets in Brazil. Now operating under the name Enaex Britanite, both brands' characteristics and commercial relationships with the regional mining and civil works sectors will optimize the Company's image in Brazil. On the other hand, the addition of Davey Bickford—with its leadership in initiation systems and presence on almost all continents—grants the Company access to an international distribution network. The Company continues to reinforce its regional leadership through subsidiaries Enaex Argentina, Enaex Peru and Enaex Colombia, which provide complete, comprehensive rock fragmentation services.

#### **INTERNATIONAL GROWTH**

As the mining industry recovered, the Company developed new capabilities and investments by building plants in different markets where it operates and exporting innovative products and solutions.

#### EMPLOYEE EXCHANGE PROGRAM

The Company offers an inter-subsidiary fixed-term employee exchange program in order to spread best practices and identify potential synergies within the group.

### INNOVATION AND TECHNOLOGICAL DEVELOPMENT

The Company has developed a technology portfolio including products and processes through in-house development, licensing agreements and technology exchange with industry leaders. This culture of innovation has enabled Enaex to win several bidding processes with new customers and report increasingly better results. Furthermore, the Company's subsidiary Davey Bickford has helped solidify its international leadership in mining innovation.

#### TRAINING TO IMPROVE PRODUCTIVITY

All employees have access to training and development programs that aim to help the Company meet high quality standards and maintain long-term relationships with all customers and suppliers. Furthermore, with the acquisition of Britanite, the Company managed to improve the efficiency of its logistics and supply processes.

### RISK FACTORS

#### MARKET RISK

The Company is highly exposed to the region's copper mining industry, from which approximately 80% of revenue originates, directly or indirectly. Following the 2015 acquisitions, the Company benefited from diversification and vertical integration of its operations with greater presence in other mining markets within the region and technological markets for initiation systems around the world.

Furthermore, it is exposed to international price competition for ammonium nitrate, which depends on fluctuations in installed capacity, which affects both local and export sales.

#### **CREDIT RISK**

Revenue is tied to long-term relationships with regional customers renowned for their experience and solvency. According to corporate policy, credit insurance policies are purchased to cover the majority of customers in Chile and abroad with different risk. Even so, there are customers without coverage on certain markets where the Company operates, which implies possible credit risk.

THE COMPANY HAS A SOUND FINANCIAL POSITION. FELLER RATE RECENTLY UPGRADED ITS RATING (AA, STABLE OUTLOOK) WHILE FITCH RATING MAINTAINED ITS RATING (AA-, STABLE OUTLOOK) IN 2017.

#### ACCIDENT RISK

The Company holds insurance policies to cover physical loss to its property, losses due to resulting business interruptions, as well as civil liability.

#### **INPUT AND PRODUCTION FACTOR RISK**

The Company is impacted by variations in international ammonia prices, which are sensitive to oil and natural gas prices. To mitigate the risk of fluctuation in this input, customer contracts stipulate periodic rate adjustments based on indexation formulas that account for this product. Risks in fluctuations in the cost of other relevant production inputs, like oil or electricity, are also covered using indexation formulas.

#### **FINANCIAL RISK**

The Company manages currency, interest rate and working capital financing risk. In exchange rate risk, in 2009 the Company established the US dollar as its functional currency because the majority of its commercial operations and investments are in that currency.

Likewise, its financial obligations (both short and long-term) are primarily secured in that currency in order to reduce the exchange rate risk on cash flows and earnings. Since the local currency remains the functional currency of some subsidiaries, Enaex has some exposure to exchange rate fluctuations, primarily the euro and the Brazilian real. Thus, the Company maintains currency and interest rate swaps.

Instrument	Fitch Ratings	Feller Rate
Shares	Level 3	First class level 3
Bond line	AA- (Stable)	AA (Stable)

## Financial Policy

The Company's conservative financial policy has resulted in a sound financial position.

For major investment projects, Enaex policy allows a mixed financing structure, including external sources (local and international banks), publicly tendered bonds, company-generated funds and capital contributions. The Company aims to maintain a conservative medium-term debt structure and comfortable covenant cushion.

The Company's smaller investments aim to sustain growth and ensure normal replacement of operating assets, upgrades and new equipment to expand and improve production capacity, which were generally funded with the Company's operating cash flows.

Short-term bank debt is generally used to cover working capital needs, which are primarily related to the purchase of ammonia. It is worth noting that levels of short-term bank debt can vary throughout the year as a result of fluctuations in the international price of ammonia and production process efficiency.

Given the importance Enaex places on efficiently managing financial resources and implementing strategies to face exchange market volatility, the Company maintains strict control of its investments, cash flows and working capital while focusing on maintaining its share and credit ratings.

#### Enaex S.A.'s Main Consolidated Financial Ratios

	2010	2011	2012	2013	2014	2015	2016	2017
Financial Debt* / EBITDA	1.8x	1.5x	1.3x	1.1x	1.2x	2.0x	1.89x	1.7x
Liabilities / Equity	0.7x	0.7x	0.7x	0.54x	0.57x	0.98x	0.84x	0.81x
EBITDA / Financial Expenses	31.3x	31.0x	31.6x	32.9x	37.5x	18.8x	11.4x	11.5x

\* Financial Debt: (Total Financial Liabilities - Hedge Assets)



## **CHAPTER 3**

## BUSINESS AREAS Enaex

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In 2017, Enaex S.A. expanded its capacity to develop and export innovative products and solutions for the global mining industry.

It is currently the largest supplier of comprehensive rock fragmentation services in Chile and Latin America.

The Company's acquisitions in 2015 helped it successfully achieve some of the first goals in the 2015-2020 strategic plan, like regional leadership and increased global presence. This year, Enaex launched two new products resulting from important innovation and development projects, RoboMiner<sup>®</sup> and Mine-iTruck. The robotized, teleoperated developments provide mining solutions for complex operating situations. Innovation continuously improves productivity while emphasizing customer needs and personal safety.

Thanks to this effort, the Company continues to win bids with new customers and is able to offer unique products. Enaex's strong performance was also thanks to our employees, who have kept the highest quality standards and embraced a global culture.



## **Enaex** Colombia

The Company has been operating in Colombia since 2010, when it built and opened a high-tech packaged emulsions plant through a partnership contract with the defense industry. The mining energy sector is the main driver of the Colombian national economy. Colombia is home to large-scale, open-pit coal mining operations as well as gold, nickel, copper, limestone and iron ore operations, which are becoming important alternatives for the country's mining development. Likewise, Colombian roadway and port infrastructure development is in full swing. Consequently, there will be significant growth in the demand for explosives in coming years and important opportunities for blasting services and technical support.

## Enaex Argentina

Enaex Argentina has been servicing open-pit and underground mines since 2007. It owns the High Explosives plant in Olavarría and, as of 2014, the Campanario Emulsions Plant (PEC), which has an annual production capacity of approximately 65,000 tons. This project secures supply for local customers, minimizing risks associated with import substitution policies, and increasing the probability of being awarded future contracts. The Company also performs underground loading operations with the Underground Bulk System—the first of its kind in Argentina—using UBS equipment and emulsions produced at the Campanario Emulsions Plant. In 2017, the Company won a new bid in the provinces of Buenos Aires, San Juan and Santa Cruz.

## **Enaex** Peru

In 2014, the Company re-entered the Peruvian market, acquiring an 80% interest in Chemtrade, an explosives manufacturing and blasting accessories company that now operates under the name Enaex Peru. They also manufacture pyrotechnic detonators and ANFO in sacks, which are distributed primarily to the local market. Products like ammonium nitrate, boosters, dynamite and cartridge emulsions are also imported, primarily from Chile. In 2015, the four-year ammonium nitrate supply contract with Peru's largest copper mine, Antamina (BHP) became effective.

In April 2017, Enaex Peru began its first comprehensive blasting services at Minera Constancia, a Hudbay copper mine.

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## **Enaex** Britanite

IBQ Industrias Químicas (Britanite), now Enaex Britanite, is an explosives and rock fragmentation services company founded in 1961. With more than 50 years of experience, it has a strong market share in major infrastructure projects in Brazil. Enaex Britanite leads its segment in Brazil thanks to its entrepreneurial spirit, determination and the strength of its team. Its main products are detonating chord, pumpable and cartridged emulsions and electronic and non-electronic initiation systems. They primarily supply the heavy civil construction, mining and quarrying industries as well as a wide network of distributors. Enaex Britanite stands out because it also offers technical assistance and distribution to these segments. Headquartered in the city of Quatro Barras, Enaex Britanite operates in more than eight Brazilian states.

The Company developed the world's first e-portal for explosive sales, called E-Blasting<sup>®</sup>, which allows users to purchase products and have them delivered in just a few steps. The widely used portal was very well-received by customers.

Harnessing group synergies, in 2017, Enaex Britanite added the Milodón<sup>®</sup> truck to its blasting operations. It also added Vertex<sup>®</sup> and Prillex<sup>®</sup> ULD to its portfolio.

For the second straight year, Angloamerican Brazil named Enaex Britanite"Outstanding Supplier" in the Strategic Alignment category.

## **Davey Bickford**

Davey Bickford leads the world in design, manufacturing and distribution of electronic detonators, which are known for producing more precise results in the rock fragmentation process. Founded in France with the invention of the safety fuse in 1831, the Company has nearly 200 years of innovation experience. Operating in France, Australia, Canada, the United States, Mexico, Peru and Chile, the Company primarily serves the markets of blasting, excavation and seismic exploration for mining.

In 1998, the company pioneered electronic initiation systems. This history of ongoing innovation expands Enaex's ability to innovate and develop new blasting solutions. Davey Bickford also focuses on safety, from design to implementation, for all its products. The company complements its products with services proven to increase customer productivity. It proposes operating optimizations based on the use of electronic products and preventing any type of uncontrolled interruption.

In order to increase global capacity, the company implemented its first automatic assembly machine for electronic detonators in 2016. It also launched the "Big Data" innovation project to optimize customer operations.

In 2017, Daveytronic<sup>®</sup> Evolution, a new digital electronic initiation system was designed with unique safety and technology features for use in large-scale blasting operations that are highly complex due to adverse climate conditions.



The spike in commodities prices in 2017 was one of the factors behind global economic growth. Both in the United States and the Eurozone, it grew at a rate of nearly 2.3%, compared to the 2016 rates of 1.5% and 1.8%, respectively. Elsewhere, the Chinese economy expanded about 6.8%, up from 6.7% in 2016.

Published in January 2018, the World Bank's most recent economic projections suggest that emerging economies will continue to grow at nearly 4.3%, up from 3.7% in 2016. China stands out with growth of nearly 6.8%, well above the 6.5% target. Chile recorded growth of 1.6%, in line with 2016 rates, while the Brazilian economy expanded nearly 1.0%, marking two straight years of recession. In 2018, growth in developed economies is expected to slow while the Chinese economy should expand 6.4%, down from the aforementioned 6.8%. Brazil is expected to grow even faster than previously predicted, at a rate of 2.0%. Growth in Chile is expected to recover, reaching 2.4% thanks to mining exports.

### **COPPER PRICES**

The economy was dominated by expectations of new expansionary fiscal policies and infrastructure projects in the United States, better-than-expected performance in China and reduced copper supply as a result of mining strikes in Chile, Indonesia and Peru. The price of the red metal recovered in 2017, averaging 2.80 USD/lb for the year, compared with 2.21 USD/lb in 2016 and 2.49 USD/lb in 2015.

Cochilco estimates an average copper price of 3.06 USD/lb in 2018, based on improved industrial projections and recovered copper consumption in Europe, the United States and India. The Chinese manufacturing sector's pace of expansion has consolidated with sustained, higher-than-expected growth in the last year.

#### **COPPER PRODUCTION**

In 2017, Chilean mining operations produced nearly 5.5 million tons, down 0.9% from the 5.6 million tons produced in 2016. According to Cochilco, copper production is expected to grow 4.3% in 2018 to 5.74 million tons and to 5.91 million tons in 2019. As of August 2017, the potential project portfolio and existing investment for 2026 total nearly US\$65 billion. If the entire project portfolio comes to fruition, Chile can be expected to produce over 6.1 million tons in 2026.



## EXPLOSIVES MARKET

The Company's business is primarily affected by the activity levels of the Latin American region's major mining companies, which directly and indirectly represent approximately 80% of copper production sales and approximately 5% of iron production sales. The remainder of the Company's sales are tied to production of other minerals by small and medium-scale mining operations, civil works and chemical sales.

In the global explosives market, there was evidence of a worldwide over-supply of ammonium nitrate, which has driven prices down in the last three years. Rather flat growth in local and regional market demand is expected in the short- and medium-term. This is primarily attributable to efficiency and production efforts by the larger mining companies. The Company seeks to consolidate its presence in the regional market, continuing to develop business in its Argentine, Brazilian, Colombian and Peruvian subsidiaries. Furthermore, the Company has entered new markets such as Asia Pacific, Oceania and North America, enabling it to diversify its sales and expand its global presence to around 40 countries.

## **CHAPTER 4**

# SOCIAL PERFORMANCE Enaex

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HUMAN RESOURCE MANAGEMENT

In 2017, Enaex continued working toward meeting its strategic challenges of "becoming a global company able to operate in a multinational environment and being the mining industry's most prestigious company, delivering high-value solutions to the world's most important mining regions.

As part of the transformation, the following main initiatives were implemented in 2017:



## **CULTURE CAMPAIGN: "WE ARE ONE"**

In 2016, the leadership of all Enaex S.A. subsidiaries came together to identify the Company's corporate values. This year, these corporate values were launched under the "We Are One" slogan in all the countries in four different languages (English, Spanish, French and Portuguese). The culture campaign was relaunched to continue integrating

In the second half of the year, the "Our Priority: Life" value was promoted around the world with activities to support exercise and healthy eating as well as initiatives to create a culture of safety and environmental protection. The campaign will culminate in April 2018 with a group of employees from all subsidiaries participating in the Santiago

## **ORGANIZATIONAL CLIMATE**

For the second straight year, an organizational climate survey was conducted throughout the Company, including employees from Enaex subsidiaries in a total of 9 countries. This enabled the Company to continue learning about employee perceptions regarding important issues like leadership, benefits, development opportunities, among others.

Organization-wide action plans have been drafted to address the issues raised in the survey.

### **RECOGNITION PROGRAM**

The recognition campaign, which aims to foster a culture that encourages positive employee actions, continued in 2017. This year, the number of awards increased by around 122% to a rate of 11.36 per person as of December. Each year, the program culminates with the Enaex Spirit (Espíritu Enaex) award.

### FLEXIBLE BENEFIT PROGRAM

The flexible benefits program allows employees to select benefits based on their individual needs. Available benefits include time off and bonuses. Launched in 2014, the current program participation rate is 98%.

## PEOPLE AT THE RIGHT TIME

## TALENT DEVELOPMENT AND SUCCESSION PLANS

The Company uses a performance-potential matrix to map and monitor its professional teams. Executives meet periodically to identify critical positions, succession plans and relevant facets. This year, we performed skill assessments at all Enaex S.A. subsidiaries.

## THE INTEGRATION PROCESS

The professional exchange between all Enaex S.A. subsidiaries is one of the Company's top integration initiatives. It seeks to create collaborative networks between the subsidiaries, share best practices, identify potential synergies and align cultures.

## **INTERNAL MOBILITY**

This year, approximately 70% of vacancies were filled from within the Company, including both international and domestic placements.

## TRAINING

The Company provided more than 61,000 training hours, reaching 71% of the workforce with an average of 35 hours per person. This is an increase from the 2016 figure of 38,000 hours reaching 58% of the workforce. The Company ensures that training covers technical specialization, certifications and retraining for critical positions. Furthermore, the Enaex Training Center created a strong job training program and launched four schools focused on developing technical skills: leadership, service, production and support. Furthermore,



## Employee Data

As of December 31, 2017, the Company had 3,436 employees.

By Company	
Enaex Servicios	1.319
Enaex	381
Britanite	935
Davey Bickford	582
Other Subsidiaries	219
	14 74 124
By Role	
Senior Management	21
Management	80
Supervisory	417
Middle Management	59
General	1.123
Subsidiaries	1.736



the CFE launched an on-line training platform featuring e-learning courses and an enhanced registration process for face-to-face courses.

One of the major production plant programs was "Career Development at the Prillex Plant". Offered in partnership with Universidad Católica del Norte's Technical Training Center, the program aims to help the plant's maintenance and production operators expand their knowledge and certify their skills. The largest service plant training program was "Recertification of Skills and Preparation of Mobile Manufacturing Units Driver Operators", which seeks to standardize drivers roles at service plants.

## TRAINING SCHOLARSHIP PROGRAM

Forty-six employees had their studies funded by the scholarship program. The initiative gives preference to programs leading to technical and professional degrees over graduate degrees.

## LEADERSHIP PROGRAM

The "Leadership Pipeline" project stands out among efforts toward cultural integration and standardizing leadership at the different Enaex S.A. subsidiaries. The program's four leadership levels are: leader of self, leader of others, leader of leaders and senior leader.

Face-to-face classes were offered in Chile. At the international level, online trainings in four languages were designed and offered at all subsidiaries.

One highlight in operational leadership was the development program for high-potential professionals at service plants. This program trains participants on labor legislation, accountability and other areas in order to develop their leadership roles.

## LABOR RELATIONS

The Union Leader Training program continued in 2017 with participation in the "SK Group Operational Leaders Program" and training specific to collective bargaining. The unionization rate was 53%, down from 54% the previous year.

The Company concluded three successful collective bargaining processes. It reached agreements with the Basic Services and Emergency Teams unions that were approved by the Labor Bureau.

## **Organizational Diversity**

	Board of Directors	Senior Management	Organization
By Gender			
Male	9	18	2,822
Female	0	3	614
By Nationality			
Chilean	8	21	1,710
Brazilian	0	0	929
French	0	0	444
Other	1	0	353
By Age			
Under 30	0	0	749
30 - 40	0	6	1,351
41 - 50	0	10	750
51 - 60	2	4	511
61 - 70	2	1	73
Over 70	5	0	2
By Years of Seniorit	t <b>y</b>	·	
Less than 3 years	1	4	1,538
3 - 6	2	10	708
7 - 8	0	2	208
9 - 12	0	1	293
Over 12 years	6	4	689

#### \*At Enaex, the salary gap between men and women is around 3.4%.

## HSEC RISK MANAGEMENT

In terms of comprehensive management of risks related to operating processes and resource protection, the 2017 campaign focused its efforts on enhancing worker occupational safety and health to maintain the highest possible level of physical, mental and social wellbeing among its people. The most common HSEC risk management activities include pre-employment and on-the-job health screenings, qualitative and quantitative assessments of risk agents, epidemiological surveillance and programs that specifically aim to control the risk of occupational disease.

THE FOLLOWING ARE HIGHLIGHTS FROM 2017 EFFORTS TO IMPROVE EMPLOYEE OCCUPATIONAL HEALTH AND WELLBEING:

### PSM (PROCESS SAFETY MANAGEMENT) IMPLEMENTATION

Successful completion of the plan to implement elements of the OSHA PSM standard in order to improve process safety standards at production plants marked a major milestone in the Company's safety policy.

- The Prillex Plant implemented Phase III, which includes the 14 elements that comprise the OSHA PSM standard. The last remaining elements are scheduled to be fully developed for 2018.
- The Rio Loa Plant completely implemented seven elements and, according to the implementation standard, partially implemented three.
- The Punta Teatinos Plant implemented Phase I, covering 100% of the program's 10 standard elements.



## HSEC MANAGEMENT SYSTEM

In 2017, the Company established the strategic pillars of the HSEC Management system, which include three areas of action: people, facilities and standards. These pillars were the basis for important multidisciplinary initiatives that improved the HSEC culture at the plants. Twenty constituent elements, including the 14 OSHA PSM standard elements, were identified as the basis for the Integrated HSEC System. The result was a world-class system that standardizes the main applicable regulations like OHSAS 18001, ISO 14001, etc.

#### **VISIBLE LEADERSHIP - SAFETY WALKS**

As part of the HSEC Management Program, the organization's executives now lead safety walks to verify safety, hygiene, health and environmental conditions in the workplace through direct, on-site contact with employees. Findings are monitored until resolved based on plans designed by plant management.

## **Safety Statistics**

January - December 2017

	Enaex Servicios	Enaex	Enaex Britanite	Other Subsidiaries <sup>1</sup>
Frequency Rate*	2.31	0.00	0.00	0.00
Accident Rate**	0.45	0.00	0.00	0.46
Total Hours Worked	2,595,671	851,797	2,308,286	509,770
Average No. of Employees	1,322	392	915	219

<sup>1</sup>Includes Argentina, Peru and Colombia

\* Number injured x 1,000,000/Number of hours worked

\*\* Number injured x 100/Number of workers

COMMUNITY ENGAGEMENT

In 2017, Enaex set the social objective of being an agent of positive change in the communities where it operates. Enaex makes concrete contributions that generate social capital and earn recognition for the Company as a role model of environmental responsibility, safety and transparency.

This is how Enaex works toward a sustainable business.

In 2017, the coverage for this report was 62%. \*Coverage = Enaex Chile\*\*/Enaex S.A. \*\*Enaex Chile = Enaex S.A. excluding international subsidiaries.



## MAIN COMMUNITIES

## MEJILLONES

The Prillex plant has operated in Mejillones, 65 km north of the city of Antofagasta, since 1982. The Company is careful to protect and continuously build up relationships with the community and its authorities.

## CALAMA

The Río Loa plant is located 15 km from downtown Calama, a city in the Antofagasta region. The Company has been nurturing community relationships since its founding in 1920.

## **PUNTA TEATINOS**

The town of Punta Teatinos is located 10 km north of La Serena in the Coquimbo region. The plant began operating in 2016. Since then, the Company has sought to maintain a proactive, diligent attitude in its dialog and response to neighbors concerns.

## **ACTION AREAS**

## 1. BUILD BONDS OF TRUST

Over the years the Company has concerned itself with getting to know the stakeholders in each community and maintaining transparent, open and proactive dialog with each of them.

## **Open-Door Program**

This program seeks to meet the community's need for information

on how the Company works and the safety standards applied at production plants.

In 2017, more than 300 people including relatives and community members, visited the Prillex, Rio Loa and Punta Teatinos plants. The initiative was positively evaluated for its professionalism and transparency in response to questions about employees and safety as well as care of its facilities.

## Small-Scale Fishing Work Group in Mejillones

The Company established the first working group with the Mejillones fishermen's union in order to share mutual concerns and needs as they relate to working together and creating shared value. Consequently, the group was assigned tasks specific to loading/unloading ammonium. In the process of transforming this important productive sector for the community, they created training courses that will enable access to better sources of income and received new employability tools, technical training and aid.

## 2. MANAGE IMPACT

The Company recognizes its social and environmental impacts and manages them in a timely manner. Upholding environmental commitments is a Prillex plant priority. Consequently, it is constantly working to reduce atmospheric greenhouse gas emissions, control the temperature of the sea water used to cool its processes and ensure that waste is disposed of in an environmentally friendly manner.

## HAZMAT Training Courses for the Emergency Response Team and Local Firefighters

As part of impact management, the Company offers scholarships for HAZMAT training courses in the United



States (Texas) to one emergency response team member and one firefighter representing the Mejillones, Calama and Antofagasta fire brigades. The objective is to professionalize the fire brigades that serve the communities and, at the same time, ensure trained responders are available in the event of an emergency.

## **3. SHARE BENEFITS**

It is important to the Company that the surrounding communities feel supported in their development and see Enaex as a neighbor who wants the area to prosper. The Company is constantly supporting local activities and promoting employability of local suppliers as well as quality education and sports.

## **Dual Education Program**

One of the Company's community focuses is quality technical-professional education as a means of promoting the development of families and society as a whole.

To that end, the Prillex and Rio Loa plants offer an annual co-op program through which 11th and 12th grade students from surrounding technical high schools spend three days at school and two in the plants. They complement and integrate their studies in a real working environment and gain early contact with the working world.

The program's main objective is for students to apply the basics of their technical specialty, develop work and relationship skills that are useful in the workplace and experience an organizational culture.

## **Corporate Volunteering**

The first corporate volunteer program was one of the major initiatives that arose from the 2017 organizational climate survey. Volunteers from the Santiago office organized weekly visits to homeless children and young people at Fundación Abrazame. The foundation has 12 years of experience serving and reinserting young people who have been separated from their families.

No. of Co-op Students	Male	Female	Total Co-op Students	No. of Mentors
Prillex Plant	7	5	12	6
Rio Loa Plant	12	11	23	15
Total	19	16	35	21

## **CHAPTER 5**

## ENVIRONMENTAL PERFORMANCE

**Enaex** 





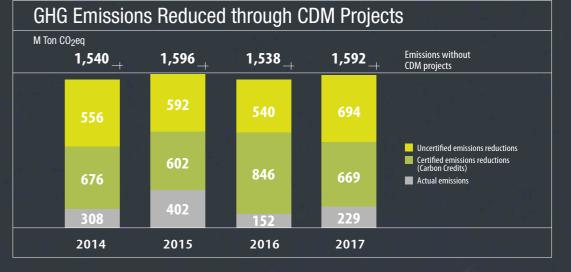
In 2017, the coverage for this report was 62%. \*Coverage = Enaex Chile\*\*/Enaex S.A. \*\*Enaex Chile = Enaex S.A. excluding international subsidiaries.

### CDM PROJECTS

In 2006, the Company implemented a Clean Development Mechanism (CDM) project to reduce nitrous oxide emissions from the nitric acid plant. Thanks to this project, CO<sub>2</sub> equivalent emissions at the Prillex América complex in Mejillones are down 98%.

Enaex currently has two CDM projects in place to reduce nitrous oxide emissions ( $N_2O$ ) during the production of nitric acid, a raw material used in the production of Ammonium Nitrate.

These projects reduce potential emissions by nearly 90%. In 2017, the United Nations issued Enaex Certificates of Emissions Reductions (CERs) for nearly 669 thousand tons of CO<sub>2</sub> equivalent.



#### **CARBON FOOTPRINT**

In 2017, total2 CO<sub>2</sub> equivalent emissions were approximately 1.3 million tons, up 9% from the year prior, primarily due to process emissions and indirect emissions from third and

related parties. However, addition of a new power generation turbine at the Prillex plant meant nearly 10,000 tons of CO<sub>2</sub> was not released into the atmosphere.

## 2017 Carbon Footprint

	Unit	2016*	2017*
Direct Emissions	Mt CO <sub>2</sub> eq	233	254
Indirect Emissions from Electricity Consumption	Mt CO2 eq	37	27
Other Indirect Emissions	Mt CO <sub>2</sub> eq	915	999
Corporate Carbon Footprint	Mt CO <sub>2</sub> eq	1,182	1,281

\*Calculated and verified by SGS Chile S.A

#### **PRODUCT LIFE CYCLE ANALYSIS**

In 2016, the Company was the first to develop a Life Cycle Assessment model for its products. This analysis uses ISO 14,040 and PAS 2050:2011 methodologies to estimate the environmental impact of the individual processes related to product manufacturing, distribution, use and availability and thus create a differentiating element for its customers.

Greenhouse gas (GHG) emissions by ton of product can also be included as an emissions factor for the explosive products and thus be used to estimate the impact, in terms of tons of  $CO_2$  equivalent, of blasting in the mining production process.

CO<sub>2</sub> emissions of Enaex products have been significantly reduced through the Company's Clean Development <u>Mechanism (CDM) and Energy Efficiency (EE) projects.</u>

The emissions factors for products are updated every two years. Ammonium Nitrate fell 23% this year thanks to efficiency improvements and emissions reductions.

Tons of CO2 equivalent	2015	2017
Prillex® Ammonium Nitrate	1,71	1,31

THUS, BY USING ENAEX PRODUCTS, CUSTOMERS CAN REDUCE CO<sub>2</sub>-EQUIVALENT EMISSIONS BY UP TO 40% IN THEIR BLASTING PROCESSES



#### ENERGY EFFICIENCY

Since 2010, the Company has developed energy efficiency projects that have significantly reduced operating costs while indirectly reducing CO<sub>2</sub> equivalent emissions.

In 2017, the Prillex plant used steam to generate 95% of the Company's energy consumption, representing nearly 60% of its potential consumption.

In self-generation, 2.5 Megawatts were attributable to the Panna 4 turbo compressor, 1.0 Megawatts to the frequency variation of Panna 3 and 1.4 Megawatts to the back pressure turbine installed in 2016.

These measurements have helped reduce the Corporate Carbon Footprint's indirect emissions by 18% since the base year (2014).

In terms of lighting, 100% of the corporate buildings are equipped with LED lighting.

#### ENERGY CONSUMPTION

In 2017, Enaex's total energy consumption was 115,980 MW in Chile, 17% below the prior year. The reduction was attributable to lower fossil fuel consumption and energy supply.

MW	2016	2017
Electricity	48,870	36,389
Fossil fuels	59,886	49,446
Self-generation	30,934	30,145
TOTAL	139,690	115,980

### **REGULATORY COMPLIANCE**

The Company is constantly working on projects of different sizes that are subject to more than one set of legal requirements.

In 2017, a Sustainable Legal Management System was implemented. In its initial phase, it seeks to create a culture that is adverse to legal risk in order to minimize the risk of sanction with preventative and corrective control systems.

2017	No. of Inspections	No. of Penalties
Regional Health Ministry	5	3
Other authorities	2	0

