

An aerial photograph of a large crowd of people walking on a paved plaza. The plaza is divided into three distinct color zones: a reddish-brown area on the top left, a light green area on the top right, and a dark grey area on the bottom. A large, stylized number '20' is overlaid on the image, drawn with a thick, orange, dashed line. The '2' is positioned over the reddish-brown and green areas, while the '0' is positioned over the green and grey areas. The people are scattered throughout the plaza, some walking in groups and others alone.

Cu

**International Copper
Association**
Copper Alliance

2018
ANNUAL REPORT

**The International Copper Association
and The United Nations:
20 Years of Partnership**



"Sustainable Energy for All (SEforALL) is grateful to the International Copper Association for its ongoing partnership and support. SEforALL is committed to advancing the clean-energy transition and delivering on UN Sustainable Development Goal 7 (SDG7): Clean and Affordable Energy. SDG7 underpins all 17 of the UN SDGs, and the leadership of industry partners like ICA is essential to increase the speed and scale of action to realize SDG7.

In particular, we recognize ICA's support for the advancement of the SDG7 goal of doubling the rate of improvement in energy efficiency worldwide. An energy-efficiency-first approach is critical to the realization of the Paris climate change agreement and SDG7.

The commitment of ICA to SEforALL's work as co-convener of the Appliance and Equipment Energy Efficiency Accelerator has been vital. We thank ICA for its support, and we look forward to our ongoing partnership as we go further, faster together."

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Members | As of 31 December 2018

Anglo American • Antofagasta Minerals S.A. • Aurubis • BHP Billiton Plc • Boliden AB • Buenavista de Cobre, S.A. de C.V. • Chinalco Luoyang • Compañía Minera Doña Inez Collahuasi • Compañía Minera Zaldívar • CODELCO-Chile • Daechang Co., Ltd. • Freeport McMoRan Inc. • Glencore • Golden Dragon Precise Copper Tube • Kennecott Utah Copper Corp. • KGHM Polska Miedź S.A. • LS-Nikko Copper Inc. • Metalurgica de Cobre S.A. de C.V. • Minera Antamina S.A. • Minera Antucoya • Minera Centinela • Minera Escondida Limitada • Minera Esperanza • Minera Los Pelambres • Mitsubishi Materials Corporation • Mueller Industries • Operadoras de Minas de Nacozari, S.A. de C.V. • Outotec Oyj • Pan Pacific Copper • Revere Copper Products, Inc. • Rio Tinto Plc • Sociedad Contractual Minera el Abra • Sociedad Minera Cerro Verde S.A.A. • Southern Perú Copper Corporation • Sumitomo Metal Mining Co., Ltd. • Teck • Tenke Fungurume • Wieland-Werke AG • Yunnan Copper Industry (Group) Ltd.



In October, Hennie Faul's two-year term as Chairman of the Board of ICA ended. Hennie ably guided the organization during his term, and the ICA he leaves behind is a stronger and more effective one. The members and management offer thanks to Hennie for his guidance and leadership.

Iván Arriagada, Group CEO of Antofagasta Minerals, began his two-year term as ICA's Chairman of the Board in October 2018. He brings a long history of working with ICA, at Antofagasta and in previous roles, and he is a leader and visionary within the world's copper industry. Iván will guide the organization through an important phase as we embark on our new ICA 2020 strategic plan. In this capacity, Iván will be instrumental in ensuring ICA is positioned to best serve the needs of an evolving copper industry, now and in the future.

Message to Membership

The 2018 International Copper Association (ICA) Annual Report celebrates our 20-year history of partnership with the United Nations (UN).

This ongoing and mutually beneficial relationship goes back to 1998, starting with the Common Fund for Commodities (CFC) established by the UN Conference on Trade and Development (UNCTAD). Those early projects focused on energy-efficiency programs in developing markets like China and India. Since that time, our partnership with the UN has expanded greatly and, in this report, we share many of the successes ICA has achieved with the UN during the last two decades.

It is fitting that ICA's work with the UN continues to focus predominantly on the efficient use of energy. Energy efficiency dominates the actions needed to limit man-made climate change to well below 2°C, even more than either renewables or electric mobility. This is underscored in the International Energy Agency's (IEA's) *Energy Efficiency 2018* report, which states: "the right efficiency policies could enable the world to achieve more than 40 percent of the emissions cuts needed to reach its climate goals without new technology."* ICA is proud to serve on the IEA Energy Efficiency Industry Advisory Board.

In line with the global megatrend for a clean and sustainable energy, ICA's market-development portfolio ensures copper maintains a favorable position in the end-use markets that are driving the clean-energy transition. Copper's inherent physical properties make it indispensable to a clean-energy, low-carbon future; as the best nonprecious conductor of electricity and heat, copper offers significant advantages over competing materials. Additionally, copper is infinitely recyclable, leading to its important role in the ever-increasing trend toward a circular economy.

In 2018, ICA hosted several events to present key data from ICA-sponsored market analyses on future copper demand. Among these was an event in London prior to LME Week, co-hosted with the International Wrought Copper Council, under the theme "Copper: The Building Block of the Energy Transition." Much of ICA's data on the potential for copper demand from the clean-energy transition is publicly available in the Trends and Innovations section of copperalliance.org. Other events took place during CESCO Week and Asia Copper Week.

While there is strong evidence of copper's critical role in addressing global sustainable-development challenges, industries and businesses themselves are under increasing pressure to demonstrate their contributions to long-term sustainability. This growing movement will define how business is done in the 21st century, and the copper industry must respond to this challenge. This report shares a select number of case studies from individual ICA members on actions making our industry more sustainable. We invite you to visit sustainablecopper.org for a broader perspective on our members' contributions to sustainable development.

ICA's work on sustainable development, which is led by Public Affairs, aims to show that members produce copper responsibly. ICA has formed a Responsible Sourcing Task Force to guide this important effort, and we expect significant announcements in this field in 2019.

From an operational perspective, in 2018 ICA's members began a process to develop the future strategy for the organization. This initiative, ICA 2020, will result in a substantially reformulated ICA, more focused and efficient and better positioned to deliver a value proposition fit to meet industry's challenges. This effort speaks volumes to the commitment of members to ensuring ICA is positioned to protect the long-term viability of the industry and the key end-use markets for copper.

As always, we offer thanks to ICA's members and to the employees of ICA and its Copper Alliance® affiliates worldwide for their continued commitment to meeting the long-term needs and goals of the organization.

We encourage leaders of those copper industry organizations that are not yet ICA members to consider joining. ICA serves the copper industry as a whole, not just its membership base, and greater participation from industry will only serve to strengthen our effectiveness.



Hennie Faul
Chairman



Tony Lea
President

ICA and the United Nations: 20 Years of Partnership

The International Copper Association, Ltd. (ICA) has a long and successful history of partnership with various divisions of the United Nations (UN).

This work originated in 1998 through the "Copper Energy Efficiency Project" with the Common Fund for Commodities (CFC), which was established by the UN Conference on Trade and Development (UNCTAD). This partnership began with projects on energy efficiency in China and India focused on motors, distribution transformers and ballasts. The collaboration expanded to include regional workshops in Africa, Asia, Europe and Latin America. This early work on regional energy-efficiency programs has served ICA and the UN well, with regional harmonization of standards now a hallmark of ICA-UN projects.

Soon after, cooperation began with the UN Development Program (UNDP) on implementation of projects funded by the Global Environment Facility (GEF). This includes the Polish Electrical Motor Efficiency Program, which was ICA's first partnership with UNDP, in 1999, and the first ICA-UN partnership in a copper center. Other early-days projects with UNDP included the removal of market barriers to energy efficiency standards/labeling in Asia, establishment of an India motor energy-efficiency technology center, and a global solar water heating program.

ICA's first project with UN Environment, "Global Solar Water Heating Market Transformation," was established in 2006. The project was funded by the GEF and implemented in partnership through ICA, UNDP and UN Environment. The project was initially focused in Albania, Chile, India, Lebanon and Mexico, leading to increased uptake of solar collectors for hot water preparation including awareness-raising, standards, regulations, training, financing schemes and delivery. The project also resulted in the creation of solarthermalworld.org, a global knowledge-management system aimed at providing the latest information on research, policy and markets for industry, policymakers and influencers.

Another area of partnership began in 2008 on providing energy access to the urban poor. Working with UN Habitat, projects started in Africa and then expanded to other parts of the world. These experiences provided ICA with opportunities to work with new partners to develop electrification programs in urban slums, most notably in Brazil. Today opportunities continue for ICA to contribute to the electrification of the world's poor—one of the most important components of the global sustainable-development agenda.

Since 2005 ICA has regularly participated in the annual UNFCCC Conference of the Parties (COP). At COP21, where the Paris Climate Change Agreement was adopted, ICA enjoyed multiple speaking engagements. At COP23, in Bonn, at a U4E event, the Turkish Government announced a countrywide project to upgrade its entire installed base of industrial electric motors (see page 13). At COP24 in Poland ICA participated in multiple speaking engagements, including a discussion on advancing U4E's partnerships in Africa and a dialog alongside the Chinese Government to promote energy efficiency. ICA is already looking forward to COP25, which will be hosted by Chile, and will provide an opportunity to showcase the copper industry's critical role in addressing man-made climate change.

ICA Partnerships with UN Organizations/Initiatives (current and past)

- UN Environment
- UN Development Program (UNDP)
- UN Industrial Development Organization (UNIDO)
- UN Foundation
- UN Energy
- UN Habitat
- UN Framework Convention on Climate Change (UNFCCC)
- UN Department of Economic and Social Affairs (UNDESA)
- Common Fund for Commodities (CFC)
- Sustainable Energy for All (SEforALL)
- UN Environment Science-Policy-Business Forum

A long-term project was established in 2006 with UNDP, and with funding from the GEF, "Barrier Removal to the Cost-Effective Development and Implementation of Energy Efficiency Standards and Labeling - (BRESL)." The project ran through 2014 in Bangladesh, China, Indonesia, Thailand and Vietnam.



Taking energy efficiency partnerships to new heights

ICA's work in energy efficiency and collaboration with the UN has enabled ICA to position itself as a credible expert and thought leader in this space. Evidence of this can be found in a partnership agreement between ICA and the UN Foundation (UNF) in 2009, with the mission to:

- "Leverage the expertise of ICA and the UN in support of the United Nations' ongoing work to promote access to clean energy and energy efficiency, enhance the UN system's collective engagement on climate change, and speed the transition to a low-carbon global economy."

In 2011, ICA provided the resources for the establishment of the Clean Energy Solutions Center (CESC, cleanenergysolutions.org), which helps governments design and adopt policies and programs supporting the deployment of clean-energy technologies. UN-Energy (through UNIDO) was impressed with the CESC and wanted to expand this work to all UN countries. This led to an additional concept note with UNF in May 2011 that mentioned "Sustainable Energy for All" for the first time. The opening paragraph of the concept note reads:

- "The United Nations Foundation is grateful for the International Copper Association's support for the launch of a new two-year multifaceted campaign in collaboration with the United Nations to mobilize the international community toward the goal of universal energy access by 2030. The Sustainable Energy for All (SEforALL) campaign has three primary objectives:
 - Achieve universal access to modern energy services;
 - Reduce global energy intensity by 40 percent; and
 - Produce 30 percent of the world's energy from renewable resources."

Today, SEforALL is the primary UN agency focused on delivering on UN Sustainable Development Goal 7 (SDG7, Affordable and Clean Energy). While SEforALL's goals have evolved since the 2011 concept note (e.g., the energy-efficiency goal now calls for a doubling of improvement in that area and a remit far beyond two years), ICA remains a key contributing partner in a number of areas.

- SEforALL has identified several high-impact areas for meeting its energy-efficiency goal
 - ICA (along with UN Environment) leads the SEforALL Energy-Efficiency Accelerator for Appliances and Industrial Equipment through the United For Efficiency (U4E) program
 - ICA co-established (along with UNF) the Global Partnership for Energy Efficient Buildings, which has transitioned to the SEforALL "Buildings Efficiency Accelerator"
 - ICA is an Implementing Partner of SEforALL
 - ICA serves on SEforALL's Industry Advisory Board for Energy Efficiency (currently as vice chair)

ICA and the UN today

As ICA's partnership with the UN matured, ICA strengthened its commitment to common goals. ICA is frequently featured at UN events, including an address to the UN General Assembly in 2015. Similarly, in recent years, ICA's UN partnerships have grown in scope along with ICA's ability to leverage like-minded organizations to scale up and accelerate projects advancing the global sustainable-development agenda. Energy efficiency continues to be the driving force behind this work, and as energy efficiency's role in addressing climate change grows, ICA's work will continue to expand.

Today ICA's flagship program with the UN is the SEforALL Energy Efficiency Accelerator, U4E (united4efficiency.org). This ICA-UN Environment initiative focuses on market transformations in developing countries to energy-efficient appliances, industrial equipment and lighting.

Twenty years after the work with the UN began, ICA continues to enjoy a productive and mutually beneficial relationship with the organization. ICA looks forward to many more years of effective partnership.

ICA China and UNDP partner on motor efficiency

UNDP and ICA share a common vision to enhance development activities in promoting energy-efficiency improvement, renewable energy utilization and increased quality of life. In October 2018, ICA China developed and signed a memorandum of understanding (MOU) with UNDP to coordinate the inputs of relevant stakeholders on the industrialization of high-performance motors (high-efficiency, lightweight, strong performance to price ratio) technologies in China. Areas for cooperation include:

- Partnering with government authorities to accelerate the transformation of the Chinese motor market
- Conducting market research of the entire China motor market supply chain to support strategy development and future program cooperation
- Exploring new efficient-motor technologies in industry to conserve industrial energy consumption and reduce CO₂ emissions
- Helping end users establish best practices in life cycle cost and green consumption, including motor refurbishment

Globally, electricity demand for electric motors will more than double by 2040, with about half this increase in China and India. Today, electric motors in Chinese industry consume about 6 percent of electricity.*

Energy-efficiency partnerships in Southeast Asia

In 2010, ICA and UN Environment established the ASEAN Energy Management Scheme (AEMAS), an industrial energy efficiency program for the development and adoption of a regional training and certification program for energy managers. The program provided training on ISO50001 to over 5,000 energy managers from factories and buildings in ten countries in the region.

This work transitioned to the ASEAN-SHINE program, which successfully fostered the first regional harmonization of energy-efficiency standards for room air conditioners. The ASEAN-SHINE regional model was adopted by U4E, and today work in the ASEAN is expanding to cover additional, high-energy-using products such as motors and distribution transformers.

Advancing copper rotor induction motor technology

Motor-efficiency programs are a stable feature in the ICA market-development portfolio. These programs look not only to advance higher efficiency standards for motors, but they also focus on new technologies. An example is the Copper Rotor Induction Motor (CRIM), an ICA-developed technology allowing motors to achieve "Super Premium" efficiency without the need for the rare-earth materials required in other motor technologies.

In 2006, the CFC, ICA and the International Copper Study Group (ICSG) developed the "Transfer of Technology for High Pressure Copper Die-Casting in India" project. This led to the establishment of the Non-Ferrous Materials Technology Development Center (NFTDC) in Hyderabad, India, and the building of an "Enabling Technology Center" (ETC). This project provides an example of how ICA-UN programs help to advance a copper-intensive solution.

Beyond the UN: Working with governments

As a not-for-profit, noncommercial entity, ICA is seen as a credible expert with governments, NGOs and other stakeholders focused on sustainable-development challenges worldwide. On the policy side, ICA has helped 38 countries adopt minimum energy performance standards (MEPS) for motors. In addition, ICA's program managers work closely with regulatory bodies around the world to develop codes and standards (for buildings, equipment, etc.) ensuring the safe and efficient use of electricity in developed and emerging economies alike. As the world's "middle class" is set to grow from two billion to five billion people in the next two decades, the need for policies providing equal parts of safety and comfort will only increase. ICA is well positioned to continue this important work alongside its project partners, including the UN.

* globalefficiencyintel.com/new-blog/2017/infographic-energy-industrial-motor-systems

ICA and the United Nations: 20 Years of Partnership



International Copper
Association
Copper Alliance



United Nations



1998

First ICA-UN
Partnership
Copper Energy
Efficiency Project

1999

First ICA-UNDP
Partnership
Motors Efficiency
in Poland

2001

First Regional
Workshops to
Promote Energy
Efficiency

2003

First Partnerships
with UNIDO and
UNDESA

2004

First year of
participation
by ICA in UN
Commission
for Sustainable
Development

2005

First Participation
at UNFCCC

2006

First UN
Environment
Partnership

2008

First Partnership
with UN
Energy

First Partnership
with UN Habitat





“ The International Copper Association and UN Environment have worked closely since 2006, and we continue to enjoy strong collaboration on a range of activities in countries throughout the world. Industry is critical to advancing the global sustainable development agenda and the results of our collaboration with organizations like ICA proves the value of working as partners. On behalf of myself and my colleagues at UN Environment, I thank ICA and its members for their consistent support of our common goals and look forward to many more years of success together.

MARK RADKA Chief, Energy, Climate and Technology Branch | United Nations Environment Programme

United for Efficiency (U4E)

ICA's flagship UN Partnership rapidly advances

For 30 years, since its establishment, ICA and its Copper Alliance® partners have developed and managed energy efficiency projects worldwide. As a result, ICA is recognized as a credible expert and one of the world's most active and accomplished organizations in the energy efficiency arena. Energy efficiency is one of three pillars in the 21st century energy transition along with renewables and electromobility, and is seen as the leading contributor in climate-change mitigation

In many ways, United for Efficiency (U4E) represents a culmination of ICA's long history of energy-efficiency leadership and its 20-year partnership with the United Nations. U4E is a shining example of the power of Public-Private Partnerships, bringing together like-minded organizations to share resources, expertise and experience to develop and scale-up high-impact projects.

Recent editions of the ICA Annual Report have provided background on U4E, which aims to accelerate the adoption of energy-efficient products (motors, transformers, air conditioners, refrigerators and lighting). U4E's goals, by 2030, are:

- 10 percent reduction in global electricity consumption
- Annual CO₂ reduction equivalent to the emissions of 500 million passenger vehicles
- Creation of up to \$350B in economic impact (through reduced energy usage)
- Avoidance of investments in new power generation of up to \$500B

The primary source of funding for U4E is the Global Environment Facility (GEF), which has provided nearly \$5M to date. Total funding for U4E from its many project partners and from GEF-funded country-level programs (20 thus far) stands at \$70M.

2018 was a critical year for the initiative as the project transitioned from the preparatory stage to full-scale implementation. A final audit by the GEF of the U4E preparatory phase resulted in a rating of "Highly Satisfactory." UN Environment-U4E's other founding partner—formalized a three-year partnership agreement with ICA to lead implementation and technical efforts on motors, transformers and air conditioners (these products have high potential for copper impact through increased efficiency). A critical achievement was the development of Policy Guidebooks for U4E's products that provide policymakers and energy practitioners with an A-to-Z roadmap to transform national economies toward energy efficiency through U4E's proprietary "Integrated Policy Approach." Model regulations strengthening U4E's offering to countries are also being developed.

U4E is committed to working with at least 40 countries over the next three years. A key deliverable will be on-the-ground training, led by ICA, on the U4E model in these 40 countries. ICA's approach to this ambitious target is to work with regional blocks of countries simultaneously, with the goal of regional harmonization on Minimum Energy Performance Standards (MEPS). This concept represents an advancement of a successful program, SHINE, in the ASEAN region led by ICA Asia, which resulted in the region's first harmonization of MEPS for room air conditioners in ten countries. The ASEAN-SHINE model is being expanded to include the other products covered by U4E, and it is being replicated in a number of regions: East Africa, Southern Africa, West Africa and Central America. Early-stage efforts are underway in Central Asia and Eastern Europe.

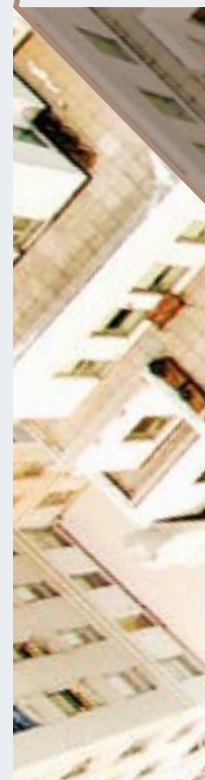
In October 2018, at a meeting in Egypt of the African Union, a provisional agreement was made for a continental-wide harmonization of energy efficiency standards by all 55 nations in Africa through U4E. While in very early planning stages, this is a good example of the reach and credibility of U4E around the world.

A final audit by the GEF of the U4E preparatory phase resulted in a rating of "Highly Satisfactory."

U4E was well represented at numerous forums in 2018, including the UN Framework on Climate Change Convention (COP24), the Sustainable Energy for All (SEforALL) forum and Energy Efficiency Global.

U4E enables ICA to expand its geographic coverage into additional countries and to increase copper usage through energy efficiency. Please see pages 14 – 15 for a graphical overview of this geographic expansion.

U4E provides powerful evidence of the copper industry's commitment to the global sustainable-development agenda. ICA encourages members to leverage the positive messages and associated collateral on U4E in their organizations and with important stakeholders. ICA management is ready to assist members in this effort.



U4E in Action: Early Replacement of Motors in Turkey

The Republic of Turkey partners with U4E to replace inefficient electric motors

During a U4E event at the UN Framework Convention on Climate Change (UNFCCC) 23rd Conference of the Parties (COP23) in Germany in 2017, Turkey's Ministry of Mining and Natural Resources announced an ambitious energy-efficiency project: total market transformation of Turkey's Small and Medium Enterprises (SMEs) to energy-efficient motors. If successful, this will be the first countrywide energy efficiency project of its kind. The UN Development Program (UNDP), a founding partner of U4E, is leading the project. The project, which will run from 2018 to 2027, presents challenges and opportunities:


- 1. Minimum Energy Performance Standards (MEPS) standardization:** Turkey's current standard for motors is at a high level—IE3, Premium Efficiency; however, a vast majority of the installed motors are not covered. Because motors can operate for 10 – 20 years or more, it will take many years for the installed base to catchup to the standard.
- 2. Energy consumption:** Turkish industry consumes a large amount of energy. SMEs consume nearly half of the country's electricity, and 72 percent of that consumption comes from electric motors above 7.5kW. An audit conducted by the Turkish Ministry of Science, Industry and Technology (MoSIT), with funding from the Global Environment Facility (GEF), showed that *less than one-percent of the installed base of 7.5+kW motors in Turkey's SMEs meet the IE3 Premium Efficiency Standard.* Moving the installed base to IE3 motors will result in annual electricity savings of 34 billion kilowatt-hours.
- 3. Diverse market:** Thousands of SMEs will need to be addressed through targeted outreach with support from the highest levels of government. Innovative financing is also needed, and ICA is working with UNDP to develop an all-in-one financing facility for the project, with a total project cost estimated at approximately \$2B. The GEF-funded audit estimates an average payback period of 21 months, providing an attractive value proposition to motor end users.

ICA's advantage

ICA brings a wealth of experience and expertise to the project. ICA authored U4E's 'Policy Guidebook for Electric Motors,' providing a step-by-step, proven approach to market transformations for energy-efficient motors. In addition, ICA is drafting model regulations for electric motors, which will be valuable to Turkish policymakers and energy practitioners in this ambitious project. ICA will also provide ongoing technical assistance to the Turkish government and the project's partners.

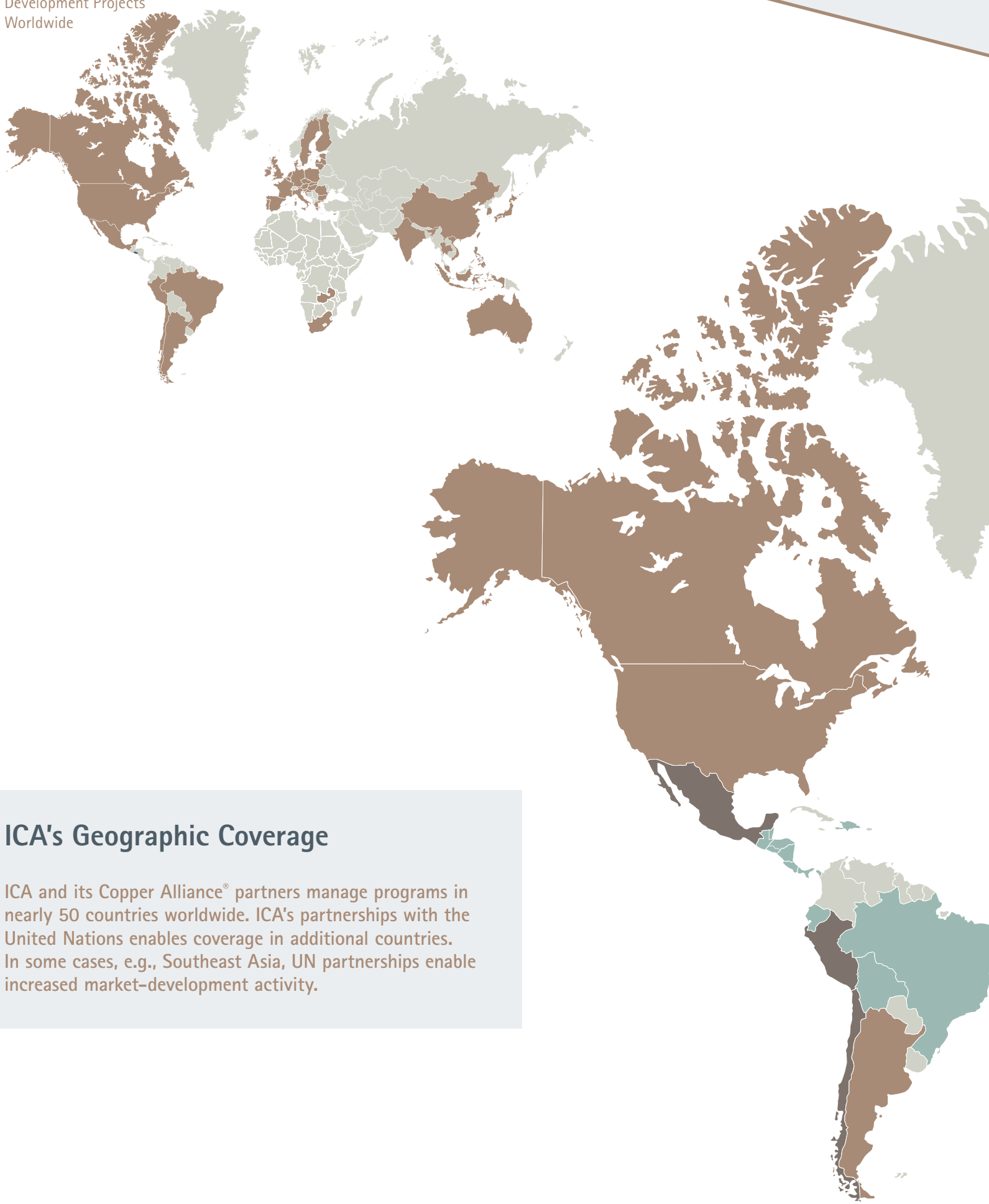
ICA and U4E feel this work can be duplicated in other industrialized countries and regions, such as Central Asia (Kazakhstan is a U4E partner country) and Eastern Europe. The regional harmonization of energy efficiency standards is a central pillar of U4E. Countries working together on market transformations based on U4E's proven "Integrated Policy Approach" have the opportunity to share resources and lower project costs.

U4E is exploring options to replicate the program in Chile. Industry and mining consume almost two-thirds of the Chile's electricity (the copper industry uses about half of this electricity), with about 60 percent of this consumption going to electric motors. *In some mining facilities, motors account for up to 90 percent of electricity consumption.*



ICA brings a wealth of experience and expertise to the project.

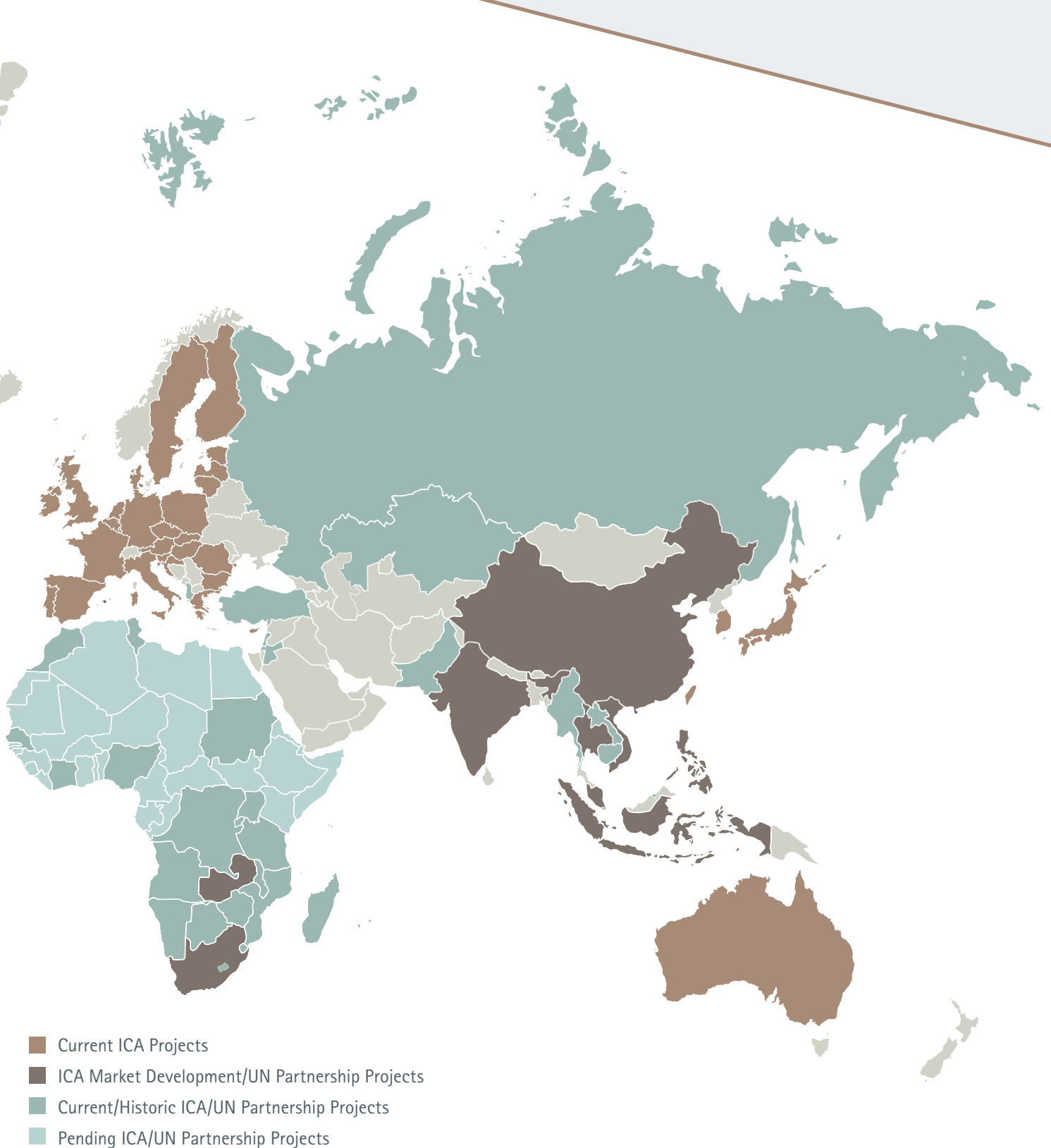
ICA Market -
Development Projects
Worldwide



ICA's Geographic Coverage

ICA and its Copper Alliance® partners manage programs in nearly 50 countries worldwide. ICA's partnerships with the United Nations enables coverage in additional countries. In some cases, e.g., Southeast Asia, UN partnerships enable increased market-development activity.

ICA's UN partnerships have resulted in an ICA footprint in more than 100 countries.





Measuring ICA Members' Contribution to Global Sustainable Development

Environment and sustainability programs: Essential for the future

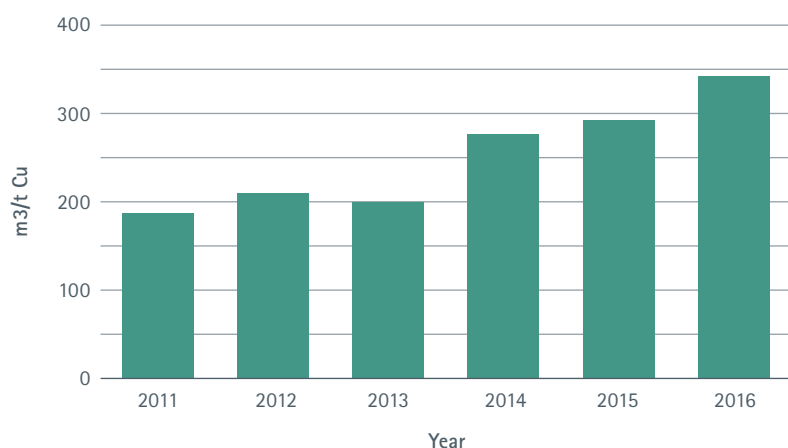
The UN's 17 Sustainable Development Goals (SDGs) provide a framework to ensure continuous advancement of the global sustainable development (SD) agenda. The copper industry has embraced the SDGs, both through the actions of individual member companies and through the program portfolio within ICA.



Proudly reporting the industry's sustainability trends

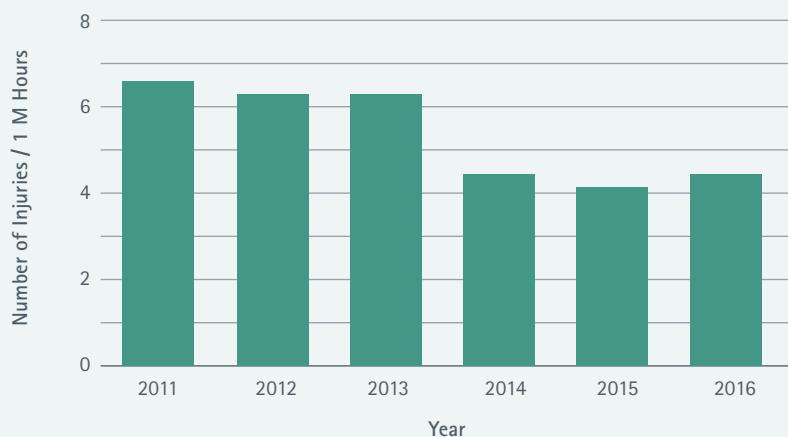
ICA has been analyzing members' sustainability data for seven years, evaluating nine indicators, characterizing 10 – 11 million unique copper tonnes annually. ICA tracks CO₂ emissions, water drawn, energy intensity, economic value, employment, workforce injuries and sustainability reporting.

On average, members surveyed feed \$115 billion per year into the global economy and invest \$20 billion every year to improve their contribution to sustainable development. To gain a better understanding of the indicator methodology and the data ICA has collected, visit sustainablecopper.org/ica-indicators. A sample of the data collected can be seen in the graphs below.



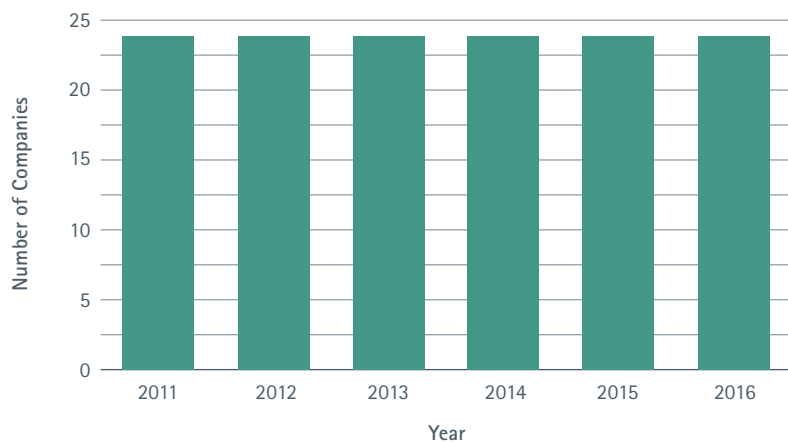
Water Recycled and Reused Intensity

In 2016 water drawn from primary sources was used at least twice on average before exiting production sites. Copper Alliance® members surveyed demonstrate continued positive progress in the amount of water they are able to recycle and reuse during copper production.



Injury Rate

Between 2013 and 2014 the Copper Alliance® celebrated a step change reduction in the injury rate by members surveyed. Significant investment in equipment and training, as well as industrywide use of the OHSAS 18001 (industrial safety and health protection) certification has driven progress on this indicator.



Companies Reporting on Sustainability Performance

The majority of Copper Alliance members publish sustainability reports. Please note that some companies are privately owned and are not legally obliged to publish sustainability reports.

ICA members demonstrate sustainability best practices

In 2018, ICA gathered stories on member-specific initiatives that align closely with the SDGs and highlight industry best practices. Each case study focuses on the member company's ability to help the local community, provide technological improvements and reduce the member's carbon footprint. These case studies offer value for political leaders seeking methods that can be adopted in other mining communities. Select case studies are shown below, and readers are encouraged to visit sustainablecopper.org to learn more.

ICA Indicators



Investment in Sustainable Operations



Water Recycled and Reused



CO₂ Emissions

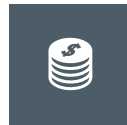


Energy

Desalinization of water at Minera

Escondida: As BHP Billiton aims to eliminate its use of freshwater in its operations in Chile by 2030, they added a second seawater desalinization plant (EWS) at Minera Escondida. This new plant is the largest such facility in the Southern Hemisphere. With its 2,500 l/s processing capacity, EWS contributes to smart water use—a pillar of SDG #6—and two key industry indicators: investment in sustainable operations and water recycled and reused.

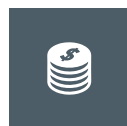
sustainablecopper.org/best-practices/scaling-sustainability-through-desalinization



Clean energy partnership for Minera

Zaldívar: Colbún S.A., a power producer, signed a 10-year 550-Gw (Gigawatt) contract with Antofagasta Minerals and its partners to develop energy based on existing and planned wind, solar and hydroelectric-based installations. In all, the asset is forecast to abate 350,000 tonnes of greenhouse gases (GHG)—equivalent to 87,000 vehicles—per year.

sustainablecopper.org/best-practices/all-in-for-clean-energy



New CSR strategy scales

sustainability commitments: Anglo American has rolled out an innovative strategy to foster energy efficiency, reduce GHGs, enhance smart water use and create value spanning its global footprint. The organization is pursuing 2020 freshwater reduction targets of 20 percent while moving toward recycling 75 percent of all water used at its mines. The proactive approach to water management allows more than 35 million cubic meters of water to be saved.

sustainablecopper.org/best-practices/anglo-american-scales-sustainability-commitments



Electrifying truck wiring at Gällivare:

Boliden, Caterpillar, ABB and Eitech are piloting a clean-tech initiative using an electrical conversion system for mining trucks in Sweden. Each truck will handle nearly 4.75 Mw (Megawatts) of power and allow speeds of up to 30 km hourly, doubling the 15 km hourly speed of the current diesel-electric units. The Aitik copper project trucks are expected to accelerate GHG reductions up to 80 percent.

sustainablecopper.org/best-practices/smart-wired-to-move-mountains



Providing heat to urban areas:

Aurubis and enercity have partnered to use industrial heat to power Hafencity, a district in Hamburg, Germany. This is the first time an entire district will be almost completely supplied with industrial heat from industry, saving 20,000 tonnes of CO₂ emissions per year by replacing the natural gas used currently to produce steam.

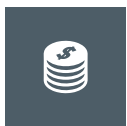
sustainablecopper.org/best-practices/providing-heat-to-urban-areas



Saving local habitats and species:

Freeport McMoRan demonstrates a strong commitment to stringent standards for conservation at its operations. More than 15 of Freeport's environmental initiatives have achieved recognition by the Wildlife Habitat Council's certification program, Conservation Certification. Freeport has introduced wildlife protection plans at each of its North American mines. For example, when activities at the Sierrita mine in Arizona were threatening a local species, Chiricahua leopard frogs, Freeport worked with wildlife officials to relocate over 500 frogs to a national forest in Colorado.

sustainablecopper.org/best-practices/a-commitment-to-conservation/



Each case study focuses on the member company's ability to help the local community, provide technological improvements and reduce the member's carbon footprint.

Comprehensive approach to sustainable mining:

For the ninth year running, Teck Resources has been named to the Dow Jones Sustainability World Index. Teck is putting its approach to sustainable mining into action near Pica, in the Tarapacá region of northern Chile. During Phase 1 of the Quebrada Blanca project (QB1), Teck committed to increasing its renewable energy use to 100 Mw by 2030 to reduce its carbon footprint. In Phase 1, Teck partnered with AES Gener S.A., a top Chilean electricity producer, to develop a power plant with a unique design to utilize solar, wind, hydro and biomass, and a 21 Mw capacity delivering a full 55-gigawatt hours (GWh) per year. As Teck extends this work in to Phase 2 (QB2), the solar plant will be instrumental to helping the company reach its goals.

sustainablecopper.org/best-practices/definitions-of-sustainability/



Twenty years after the work with the UN began, ICA continues to enjoy a productive and mutually beneficial relationship with the United Nations.

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