

A nighttime photograph of a city street with a blue grid overlay. The street is illuminated by streetlights, and there are blurred light trails from moving vehicles. In the background, several tall buildings are visible, some with lit windows. The overall color palette is dominated by dark blues and greys, with some warmer tones from the streetlights and building lights.

# 2014 ANNUAL REPORT

## CHAMPIONING THE FUTURE OF COPPER



**International Copper  
Association**  
Copper Alliance

---

## THE VALUE OF MEMBERSHIP

The International Copper Association (ICA) leads the world's copper industry on the issues critical to securing copper's future growth. ICA's members represent a majority of global copper production, and include many of the largest copper and copper-alloy fabricators. ICA's status as a not-for-profit trade association provides its members with a credible, independent advocate to address challenges faced by the collective industry.

The investments by its members ensure ICA is able to maintain an effective leadership position on behalf of the world's copper industry. By pooling resources through ICA, the industry is able to accomplish much more than any single copper industry company could on its own.

The commitment and ongoing investment by its membership base benefits the whole of the copper industry. ICA is committed to partnering with its members to increase the percentage of industry that is funding ICA's efforts to maintain the long-term viability of copper markets.



## MEMBERS

(As of 31 December 2014)

Anglo American  
Antofagasta Plc  
Aurubis  
BHP Billiton Plc  
Boliden AB  
Buenavista del Cobre, S.A. de C.V.  
Chinalco Luoyang  
Compañía Minera Doña Inez Collahuasi  
Compañía Minera Zaldívar  
CODELCO  
Daechang Co., Ltd.  
Freeport McMoRan Copper & Gold  
Glencore  
Golden Dragon Precise Copper  
Tube Group Inc.  
Halcor S.A.  
Kennecott Utah Copper Corp.  
KGHM Polska Miedź S.A.  
KM Europa Metal AG  
LS-Nikko Copper Inc.  
Luvata  
Metalurgica de Cobre S.A. de C.V.  
Minera Antamina S.A.  
Minera Centinela  
Minera Escondida Limitada  
Minera Los Pelambres  
Mitsubishi Materials Corporation  
Mueller Industries  
Nexans  
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 Copper Corporation  
Sumitomo Metal Mining Co., Ltd.  
Teck  
Tenke Fungurume  
Wieland-Werke AG  
Yunnan Copper Industry  
(Group) Co., Ltd.



## TABLE OF CONTENTS

04	Copper Alliance Directory
05	ICA Value Proposition
06	Message to Membership from ICA's Chairman and President
08	Program Portfolio and Tonnage Impact
10	Market Access: Update on Regulatory Affairs
12	Market Defense: ICA's Leadership Keeps Copper Ahead of Competition in China
14	Market Growth: Adopting Distribution Transformer Standards in Europe
16	Strengthening the Reputation of the Copper Industry
18	Sustainable Development Indicators

ICA'S MEMBERS REPRESENT A MAJORITY OF GLOBAL COPPER PRODUCTION, AND INCLUDE MANY OF THE LARGEST COPPER AND COPPER-ALLOY FABRICATORS.



John Holland, President | International Copper Association, Ltd.  
260 Madison Avenue, 16th Floor, New York, NY 10016, USA  
Phone: +1 (212) 251-7240 | Email: [info@copperalliance.org](mailto:info@copperalliance.org)

---

## COPPER ALLIANCE DIRECTORY

### ASIA

Richard Xu, ICA Regional Director  
Room 2814-2824, 28F, Central Plaza  
381 Huaihai Zhong Road, Shanghai 200020  
People's Republic of China  
Phone: +86 (21) 6391-5816  
Email: [richard.xu@copperalliance.asia](mailto:richard.xu@copperalliance.asia)  
Market Development Programs: China, Japan,  
Korea, India, Australia, Malaysia, Indonesia,  
Vietnam, Thailand, Philippines, Taiwan

### EUROPE & AFRICA

John Schonenberger, ICA Regional Director  
Avenue de Tervueren 168, b 10  
1150 Brussels  
Belgium  
Phone: +32 (2) 777-7070  
Email: [info@copperalliance.eu](mailto:info@copperalliance.eu)  
Market Development Programs: Belgium,  
Bulgaria, Czech Republic, Finland, France,  
Germany, Greece, Hungary, Italy, Netherlands,  
Poland, Romania, Slovakia, Spain, Sweden,  
Spain, United Kingdom and Africa

### LATIN AMERICA

Miguel Riquelme Alarcón, ICA Regional  
Director  
Avenida Vitacura 2909, Oficina 303  
Las Condes, Santiago  
Chile  
Phone: +562 2335-3386  
Email: [miguel.riquelme@copperalliance.cl](mailto:miguel.riquelme@copperalliance.cl)  
Market Development Programs: Argentina,  
Chile, Columbia, Brazil, Peru, Mexico

### NORTH AMERICA

Thomas Passek, ICA Regional Director  
260 Madison Avenue  
16th Floor  
New York, NY 10016, USA  
Phone: +1 (212) 251-7200  
Email: [thomas.passek@copperalliance.us](mailto:thomas.passek@copperalliance.us)  
Market Development Programs: United States  
and Canada

---

# ICA VALUE PROPOSITION

## WHAT IS THE INTERNATIONAL COPPER ASSOCIATION (ICA)?

- A not-for-profit trade association
- A credible, independent advocate on issues critical to future copper demand

## WHY THE INDUSTRY NEEDS ICA

- Industry is more effective, credible and efficient when it works together. ICA makes this possible.
- Without ICA, members would incur major expenditures individually, losing leverage opportunity:
  - Response to Europe REACH regulation. Cost: \$12M
  - Response to International Maritime Organization transport requirements: \$50-100M saved each year
  - Response to plans in China to switch from copper to aluminum in 1.9 Mt copper power cable market
- Market Defense/Growth
  - Prevent or slow substitution by alternative materials
  - Increase intensity of copper use in equipment (kg per unit) and in buildings (kg per m<sup>2</sup>)
- Image/Reputation Building
  - Communicate messages showing copper has a positive contribution to sustainable development
  - Position copper industry as a trusted partner of governments and nongovernmental organizations
- Achieved through a mix of health and environmental science, codes and standard setting, direct promotion, technical innovation, market intelligence, and strong communications.

## DEFINING VALUE TO MEMBERS

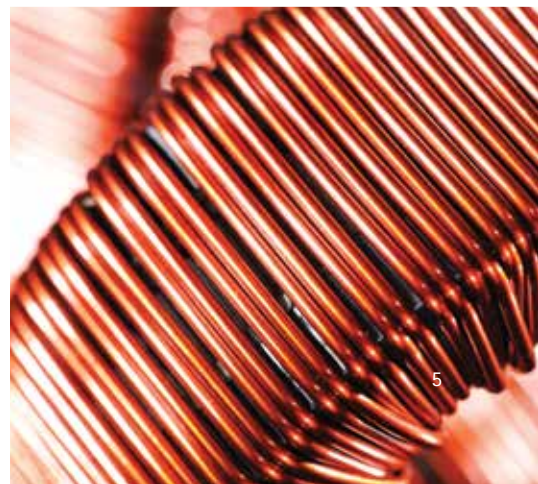
ICA is an efficient organization focused in markets that delivers measurable value to members

- Annually:
  - Tonnage impact of 200,000 tonnes per year
  - Equal to a greater than 10 percent return on investment on annual member dues
- Long-Term:
  - Positive image/reputation for copper metal and copper industry
  - Continued industry license to operate
  - Insurance against long-term demand destruction

## HOW ICA MEETS THE NEEDS OF THE COPPER INDUSTRY

- Active in more than 60 countries
- Working in partnership with:
  - Local copper fabricators and equipment manufacturers
  - Governments and regulators
  - Trade and other end users
- Three program areas:
  - **Market Access**
    - Maintain copper industry license to operate in complex regulatory environments
    - Ensure market access for copper products

FOR MORE INFORMATION PLEASE VISIT  
[WWW.COPPERALLIANCE.ORG](http://WWW.COPPERALLIANCE.ORG)



---

# MESSAGE TO MEMBERSHIP FROM ICA'S CHAIRMAN AND PRESIDENT

The year 2014 saw great change at the International Copper Association, Ltd. Copper markets continued to face pressure across the value chain. In the upstream sector recent trends continued toward cost reductions. Persistent substitution from competing materials affected copper's downstream fabricators. To reflect market conditions, the 2014 ICA Operating Plan of \$59.2 million represented a reduction of 14 percent versus the prior year.

With all facets of ICA's membership facing critical challenges, we wanted to ensure ICA was meeting the needs of its members. While a reduced Operating Plan was a positive step forward, more needed to be done. The membership agreed to look at all aspects of the organization—structure, programs, governance—and to work with the management team to deliver a leaner, more focused ICA—better positioned to meet the needs of industry.

While the membership recognized that ICA was delivering value, there was a general sentiment that an opportunity existed to refocus on the highest-impact opportunities for the copper industry. In early 2014 the Advisory Committee developed a set of guidelines—"Clean-Sheet Principles"—which enabled management to review, from the ground up, the configuration of ICA. This review would generate a profound change, a reinvention, beginning with a clean-sheet review and restructure. The desired result was a less complex, simplified and re-designed ICA, not merely a shrinking of existing programs and activities. Three Core Principles were chosen as a guide:

- Maintain the copper industry license to operate
- Focus on maximum tonnage impact
- Significantly enhance administrative efficiency

In addition, the membership asked ICA to reduce its cost basis. The Advisory Committee recommended members' dues be reduced by 25 percent over two years. This was confirmed by the ICA Board. On this basis, management developed an Operating Plan for 2015 taking into account a dues reduction of 15 percent. During 2015 management will work with membership to develop an Operating Plan for 2016, reflecting a further dues reduction of 10 percent. In line with the Clean-Sheet Principles, management is committed to delivering on all aspects of the ICA Value Proposition while reducing budgets based on a lower unit dues rate.

With reduced revenue going forward, significant changes needed to be made to ICA's organizational structure and program portfolio. ICA agreed to reduce its structural footprint while maintaining a presence in key geographic markets. The Clean-Sheet Principles provided the opportunity to reexamine the program portfolio and make changes. As a result, the ICA strategic plan structure will not be maintained in its entirety. Beginning in 2015, ICA's market-development efforts will be focused in these critical areas:

- Energy Policies and Efficiency Standards (EPES)
- Wire and Cable (W&C)
- Building Construction Nonelectrical (BCNE) Defense

- Heat Exchange Systems (HXS)
- Technical and Market Support (TMS)

ICA will continue to maintain a strong Health, Environment and Sustainable Development (HESD) initiative. The Technology Development and Transfer (TDT) initiative will no longer be a stand-alone initiative and is now incorporated into the main program areas above, focusing on near-term, high-potential opportunities and away from riskier, longer-term projects. The support functions of Communications, Funding and Partnerships, and Market Intelligence, Data and Measurement (MIDM) are retained.

In recognition of adverse market conditions based primarily on continued substitution by competing materials, the balance within the Operating Plan continues to shift. In 2013 the ratio of spend on growth vs. defense programs was 63:37. In 2014 it was nearly 50:50. In 2015 the balance shifts even further to 45:55.

This last point is critical. In spite of reduced revenue and a smaller operating plan, the impact of ICA's market-development programs is actually increasing. With a better-balanced program portfolio focused more on high-impact defense, the five-year tonnage impact of ICA's programs is estimated to be approximately 1.3 million tonnes.

## THE DESIRED RESULT WAS A LESS COMPLEX, SIMPLIFIED AND RE-DESIGNED ICA, NOT MERELY A SHRINKING OF EXISTING PROGRAMS AND ACTIVITIES.

Readers of the 2013 ICA Annual Report will recall that a listening tour was undertaken to more fully understand the perceptions and needs of ICA's members. The culmination of this yearlong effort included the publication of a new value proposition statement, which is shown on page 5 of this report.

The development of Clean-Sheet Principles and the associated implementation resulted in a more efficient and effective organization. The real evidence of this is in the achievements of the last year, and the balance of this report provides specific examples of how ICA delivers measurable value on the investments made by its members.

We thank the employees of ICA and its Copper Alliance partners worldwide for their hard work and dedication during a difficult year. The new ICA is better than ever before, and we are confident the management team will continue to deliver a strong value proposition on behalf of the membership.

We would be remiss in not recognizing Andy Kireta, Sr., who retires in early 2015 after 36 years of serving the copper industry. We wish Andy well and thank him for his dedication and many contributions to support the copper industry globally and in North America. We also welcome Thomas Passek as the new president and CEO of the North American Copper Development Association. Thomas joins the CDA in early 2015.

Finally and as always, we encourage greater participation of the copper industry in ICA. With a stronger value proposition and a higher return on investment through a reduced dues rate, there has never been a better time to become a member of the International Copper Association.



**Peter Beaven**  
Chairman



**John J. Holland**  
President

In October 2014 the ICA Board of Directors elected Jean-Sebastien Jacques, Chief Executive of Rio Tinto Copper, as Chairman of the Board of Directors for the next two years. We welcome Jean-Sebastien and thank him for this important commitment.

We offer our sincerest thanks and appreciation to Peter Beaven of BHP Billiton, who completed his two-year term as Chairman of the Board of ICA in October 2014. Peter ably guided the ICA, and he leaves behind a more efficient and effective organization that will ensure ICA continues to lead the world's copper industry on the issues critical to securing copper's growth.

---

# PROGRAM PORTFOLIO AND TONNAGE IMPACT

In 2014 ICA fundamentally restructured its market-development portfolio to provide focus and increase cost effectiveness.

Moving away from an initiative-based matrix structure, in which a very broad range of programs were pursued, to a much simpler operation organized around four main programs has allowed ICA to reduce its expenditures, while at the same time actually increasing its tonnage impact.

The elimination and consolidation of market-development programs has resulted in a 40 percent reduction in budget items, significantly reducing administrative costs, with further portfolio simplification still to come.

Meanwhile, the stronger focus on areas of highest return has increased our estimated annual tonnage impact from 200kt per year to 260kt per year. These estimates are based on calculations that already factor in a probability-of-success consideration, so we have a high degree of confidence that we are delivering these returns.

Another change in the portfolio is an increased emphasis on defensive programs, in light of a persistent and rising threat from aluminum conductor in the electrical sector—despite copper's superior conductivity and lifetime economic, technical and environmental benefits.

ICA has now adjusted its market-development portfolio from 37 percent defense in 2013 to

55 percent defense in 2015, a demonstration of our new flexibility in responding to prevailing market conditions.

Of particular note, 2014 saw the launch of strong competitive programs to protect the position of copper power cable in both China and Europe, the latter in a new collaborative venture with the International Wrought Copper Council.

In addition, nonelectrical markets such as heat exchange applications have received additional emphasis to combat the challenge from aluminum micro-channel technology. The continued success of smaller-diameter copper MicroGroove™ technology is critical to our defense of these markets.

Finally, while ICA remains committed to the defense and development of markets in Europe and North America, we recognize the need to place more emphasis on Asian markets, particularly the Chinese market. China accounts for around 40 percent of copper end use, and our market-development portfolio must reflect this.

Our new focus on areas of highest tonnage impact has resulted in a major improvement in return on investment and significantly enhanced our value proposition for members.

---



40%  
REDUCTION IN  
BUDGET ITEMS

ANNUAL  
TONNAGE IMPACT  
FROM 200KT TO  
260KT  
PER YEAR

MARKET-  
DEVELOPMENT  
PORTFOLIO FROM  
37% DEFENSE  
IN 2013 TO  
55%  
DEFENSE  
IN 2015



## ICA'S NEW MARKET- DEVELOPMENT PORTFOLIO

### BUILDING CONSTRUCTION NONELECTRICAL (BCNE)

Copper is an important material for many building applications, such as plumbing, architecture and brassware. It provides reliable, efficient and cost-effective service for decades, and at the end of life, is 100 percent recyclable without loss of its properties. We will continue to defend copper's position in these important markets.

### HEAT EXCHANGE SYSTEMS (HXS)

Copper is a vital component in heat exchange systems, e.g., air conditioning, heating and refrigeration, contributing to energy-efficient operation wherever it is used. Through ongoing technological innovation, we will ensure copper remains the material of choice.

### ENERGY POLICY AND EFFICIENCY STANDARDS (EPES)

National policies and standards need to place greater emphasis on energy-efficient equipment in the fight against global climate change. In those sectors where copper plays a key role in delivering environmental benefits, e.g., cables, motors and transformers, we will work to achieve the adoption and implementation of energy-efficiency standards.

### WIRE AND CABLE (W&C)

Due to its long-term technical reliability, total cost of ownership and environmental performance, copper is a superior conductor to all commercial alternatives. We will communicate these facts to material decision makers in power utilities, industry and building construction.



CHINA ACCOUNTS FOR AROUND  
40 PERCENT OF COPPER END USE,  
AND OUR MARKET-DEVELOPMENT  
PORTFOLIO MUST REFLECT THIS.



---

## GUIDING REGULATORY STRATEGIES

Adherence to chemicals management obligations will always be each member's responsibility. However, the International Copper Association's global experts play extremely important roles both in providing early warning of proposed regulatory initiatives and in supporting members in the development of common response strategies. During 2014, based on European practice, both the Asian and North American regions developed Regulatory Issue Inventories (which members can find on ICA's intranet). This section provides an overview of four of the most important global achievements from 2014.

### **SENSIBLE LIMITATION ON EXPANSION OF IMPACT CATEGORIES IN METAL LIFE-CYCLE ANALYSIS**

Increasing regulatory and nongovernmental organization (NGO) pressures to include additional impact categories, such as human toxicity and the long-term availability of metal reserves, are not based on sound science, will weaken the value of life-cycle results, and are highly unsuitable for inter-material comparisons. In response to this, ICA, along with other metals organizations, engaged governments, NGOs and the academic community in understanding the significant, science-based uncertainties that still exist. For instance, using the same toxicity models as for synthetic organic chemicals disregards the unique health and environmental characteristics of metals. This results in metal-containing products appearing to have poorer life-cycle environmental impacts. In 2014 the need for advocacy was most acute toward the authorities in the EU, North America and Japan.

### **TECHNICAL EDUCATION ON CHEMICALS MANAGEMENT SPECIFIC TO METALS IN THE PACIFIC RIM NATIONS**

Pacific Rim nations, such as China, Japan, Korea and Taiwan, want to implement harmonized chemicals management policies. Many are choosing to base them on the EU's Registration, Evaluation, Authorization and Restriction

of Chemicals (REACH) regulation. ICA and ECI, along with other metals organizations, encouraged these countries to convene a 2015 intergovernmental workshop under the auspices of the Asia-Pacific Economic Cooperation's (APEC) Chemicals Dialogue. At an August APEC meeting in Beijing, the metals industry (copper, nickel, manganese, zinc, molybdenum and cobalt) gained strong support for the workshop. We want to ensure the experience gained from years of engagement in North America and Europe—on why risk assessments for metals need to be different to those of organic substances—is available to these national authorities.

### **OECD APPROVAL OF HAZARD PROFILES FOR COPPER**

The EU Voluntary Risk Assessment (2008) and REACH dossier (2010) contain the most comprehensive datasets available for copper effects and exposures. In order to minimize the need for industry to reinvest in similar datasets, in particular for Asia, the European Copper Institute (ECI) submitted an effects dossier for copper (coated copper flakes, powders, massives and four compounds) for review by the Organization for Economic Cooperation and Development (OECD). Following submission by Italy (the rapporteur country), ECI received more than 300 comments from OECD member countries. The revised submission, agreed to in September, will be published by OECD in 2015. It presents the hazard profiles for copper and

copper compounds. The dossier recognizes the use of bioavailability to carry out environmental hazard assessments for freshwater, marine waters and terrestrial ecosystems and concludes no human health hazards for copper oxide, powders and massives. This is a very positive outcome for the global copper industry.

## EU RISK ASSESSMENT COMMITTEE ISSUES HARMONIZED CLASSIFICATION OPINIONS

Under the EU Biocidal Product Regulation, the EU Member States' Risk Assessment Committee (RAC) is legally obliged to agree on harmonized human health and environmental classifications for copper-based substances used in biocidal applications (e.g., coated copper flakes and copper compounds). ECI's dossier is aligned with the separate REACH Consortium covering copper compounds. At its September human health meeting, the RAC agreed with most conclusions of ECI's 2008 Voluntary Risk Assessment and 2010 REACH dossier and, most importantly, did not assign any chronic human health classifications.

However, the RAC conclusions on the harmonized environmental classification are much more severe than those proposed by the dossier submitter, France, which based its inputs primarily on ECI's dossiers. While the Committee's opinion does not cover copper metal, most of the industry's REACH dossiers (copper, intermediates and slags) come from prediction based on the characteristics from other soluble compounds. If the conclusions were to be applied more broadly, they would negatively influence the classifications of almost all copper value chain materials. ECI will work with its member HESD Committee, the REACH Copper Consortium and the IMO Copper Concentrates Working Group to carefully decide what follow-up strategies to pursue. ECI plans on reaching out to Eurometaux experts and other industry sectors for their support.



THE INTERNATIONAL COPPER  
ASSOCIATION'S GLOBAL EXPERTS  
PLAY EXTREMELY IMPORTANT ROLES  
BOTH IN PROVIDING EARLY WARNING OF  
PROPOSED REGULATORY INITIATIVES AND IN  
SUPPORTING MEMBERS IN THE DEVELOPMENT  
OF COMMON RESPONSE STRATEGIES.





---

## ICA'S LEADERSHIP KEEPS COPPER AHEAD OF COMPETITION IN CHINA

The global air conditioner market, which uses more than 900,000 tonnes of copper annually, is crucial for the copper industry. Recently aluminum substitution has threatened this important market. ICA activities in China successfully defended copper's position in the 600,000 tonne Room Air Conditioner (RAC) market in China, retaining over 99 percent of the market for copper.

The air conditioning industry had been leaning toward adopting aluminum as a heat-exchanging material. This change initially happened in the automotive industry where all the air conditioners in passenger cars were converted to aluminum from copper by the 1980s. The advantage of the aluminum heat exchanger technology was its low cost, high efficiency, reduction in refrigerant and lower weight. However, the downside to this was the poorer performance at heating mode and relative production difficulty. The substitution in the automotive industry opened the door for a threat to copper in the room air conditioning industry as a similar desire for low cost, less refrigerant and high efficiency existed.

In 2004, ICA China anticipated the potential threat and began to work proactively, taking immediate action through diligent and thoughtful analysis and evaluation. In order to retain RAC manufacturers, a copper technology with lower (or at least comparable) cost to aluminum and with technical superiority needed to be developed and adopted by RAC manufacturers. This development would lead to manufacturers overlooking aluminum alternatives due to economic and technological reasons. Today we see this technology—small-diameter copper tube heat exchanger—being adopted by Chinese RAC manufacturers.

---

## PROTECTING CHINA'S 2 MILLION-TONNE POWER CABLE MARKET

Actions in the past year by the aluminum industry have posted a significant threat to copper's dominant position in the power cable market, from buildings and industries to power utilities. ICA China reacted by expanding its longstanding defense strategy from end use and technically focused to a broader and more comprehensive approach. This includes mobilizing the Chinese copper industry, developing arguments on copper's benefits to users and society, and communicating with government policy makers. Although the way ahead is extremely challenging and the outcome is uncertain, the information and data developed through our efforts have been encouraging. The complexity and weight of the issue is well understood by all stakeholders, particularly government policy makers. A rush to decision making has been halted and, in time, ICA believes copper will prevail.

## THROUGH THESE EFFORTS, A 5MM DIAMETER COPPER TUBE HEAT EXCHANGER HAS BEEN DEVELOPED SUCCESSFULLY AND PENETRATED INTO 20 PERCENT OF CHINA'S RAC MARKET.

ICA positioned itself as a communicator, coordinator and project manager in the development and marketing of the small-diameter copper tube exchanger technology. A project team, led by ICA, and comprised of universities, ICA members, aircon tube and tubing equipment manufacturers, as well as leading air conditioner OEMs in China such as Gree, Chigo, Kelon, Haier, and Midea, was launched. A crucial step was getting the OEMs involved so they would take ownership of the technology, making them more eager to utilize it. In addition, the diversity of experts on the team presented value to each partner. Each team member could learn something from another member, from theoretical modeling to production know-how.

Through these efforts, a 5mm diameter copper tube heat exchanger has been developed successfully and penetrated into 20 percent of China's RAC market. The technology provides a cost advantage and performs better than aluminum technology in heating mode. All major RAC manufacturers in China have adopted this

technology, and none are providing an aluminum solution to the Chinese market. As a result, the copper share in the RAC market in China has remained at over 99 percent. The experiences of the team in China have been utilized to create a global promotion campaign for Microgroove™.

Activities for the RAC industry have started in India, Korea and Southeast Asia. In addition, the commercial air conditioner market has been targeted by ICA to combat the potential losses to aluminum.

Competition by aluminum technology will likely pressure copper in the RAC market for the foreseeable future. ICA must continue to conduct further research on the feasibility of using 4mm/3mm copper tube to further reduce cost and improve performance, keeping copper ahead of the competition.





## ADOPTING DISTRIBUTION TRANSFORMER STANDARDS IN EUROPE

An effective way to decrease CO<sub>2</sub> emissions is by increasing efficiency in industrial equipment and appliances. By advocating for regulations that set minimum energy performance standards (MEPS), the International Copper Association works toward reducing global warming. Almost 15 years after the publication of the European Copper Institute's (ECI's) first sector report, the European Commission has published its Ecodesign-based regulation on power transformers.

ECI estimates that the expanded use of MEPS would increase annual copper impact by 20,000 tonnes over and above today's market sector demand of 100,000 tonnes. If the regulation were to be applied to the whole EU installation base over the coming decades, the overall potential could reach one-million tonnes.

Back in 1998, there was no EU regulatory framework to cover transformer efficiency. The adoption of the EU's Ecodesign Directive in 2005 opened the door for us to act. At that time, the ICA organized a global workshop, under the patronage of the European Commission, the International Energy Agency and the Association of Transformer Manufacturers, to debate transformer efficiency. This led to the publication of ECI's Promotion Partnership for High Efficiency Transformers report (PROPHET). This has since been used, by regulators worldwide, as the basis to stimulate the setting of standards in other geographies.

The EU regulation, adopted on 21 May 2014, requires new power transformers, put into service in the EU internal market from 1 July 2015, to fulfill minimum energy-efficiency standards. The Commission estimates the resulting energy savings to be 16 TWh/year from 2020 onward, equivalent to saving half of the

annual electricity consumption of Denmark. This equates to 3.7 million tonnes/year of avoided CO<sub>2</sub> emissions.

Although power transformers are generally very efficient devices, small but cost-effective improvements in their efficiency can yield substantial energy savings, especially given their typical service life of 30 years or more. In 2011 the number of installed transformers in Europe was estimated at 3.6 million, with this figure expected to increase by 30 percent to almost 4.7 million by 2025.

The regulation covers small, medium and large power transformers used in electricity transmission and distribution networks or for industrial applications. Cost-effective and technologically feasible minimum energy-efficiency requirements will be applicable from 1 July 2015 (Tier 1) and will become stricter by July 2021 (Tier 2). The transition period provides manufacturers, electricity companies and industrial users with sufficient time to adapt. By eliminating the worst performing models from the market, the regulation requires economic operators to procure more efficient models, with typical payback period estimated at around eight years.



## ECI'S TRANSFORMER EFFICIENCY ADVOCACY STARTED IN 1998:

**1998 - 2000:**  
THERMIE PROJECT PROVIDED FIRST-EVER ASSESSMENT OF EUROPEAN ENERGY SAVINGS POTENTIAL

**2001 - 2005:**  
LIVE DEMONSTRATION OF BENEFITS OF HIGH EFFICIENCY TRANSFORMERS

**1999 - 2003:**  
PROPHET SERIES OF FOUR WORKSHOPS CONCLUDED WITH A GLOBAL POSITION PAPER

**2004 - 2008:**  
SEEDT WAS EU COMMISSION FUNDED PROJECT TO PROPOSE MEASURES TO IMPROVE EFFICIENCY

**2010 - 2014:**  
ECI WAS ONE OF KEY STAKEHOLDERS IN EU ECODSIGN REGULATION

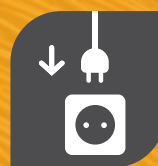
This achievement demonstrates the time required for such a campaign to succeed in the developed world. Given the need to bring together multiple stakeholder interests, it typically takes the European Commission four to five years to move a single product category through the Ecodesign Directive process. Used to overcome strong opposition from the supply chain, the quality of ECI's fact-based advocacy was key to delivering this achievement.

In 2014 ECI published its PROPHET II report. Based on the evolution of electricity demand and regulatory policies around the world since 2005, the report estimates the annual energy-savings potential from mandating

high-efficiency standards for distribution transformers could reach 500 TWh, equivalent to the electricity demand of Germany.

At the time of publication, Michel Barnier, the acting European Commissioner for Industry and Entrepreneurship, commented: "Today's decision represents a good example of how we can pursue policies that successfully reconcile competitiveness and sustainability. By aligning EU legislation with that of other advanced economies, this regulation will help reduce greenhouse gas emissions. It will also help reduce electricity prices for consumers, while helping EU manufacturers continue to be competitive in global markets."

POTENTIAL GLOBAL ENERGY SAVINGS:



500 TWh/  
YEAR

CO<sub>2</sub> SAVINGS OF MORE THAN 300 MILLION TONNES

EQUIVALENT TO:



100 POWER PLANTS WITH AN AVERAGE OUTPUT OF 500mW EACH

CO<sub>2</sub> SAVINGS OF MORE THAN 100 MILLION PASSENGER CARS



---

# STRENGTHENING THE REPUTATION OF THE COPPER INDUSTRY

The quality of messages available to members has evolved over time. Today our strongest, most compelling messages about copper focus on sustainable development. Our new ICA Value Proposition articulates image/reputation building on behalf of our members as one of ICA's three strategic pillars. A stronger ICA is achieved through two key actions: 1) Developing and communicating messages showing copper's positive contribution to sustainable development, and 2) Positioning the copper industry as a trusted partner of governments and nongovernmental organizations.

In 2011 ICA's Global Communications Team, in collaboration with ICA's members, launched the Societal Benefits of Copper (SBOC) campaign. This campaign provided ICA's members with positive, compelling messages linking copper and the copper industry to areas of critical societal concern. The messages originated from ICA's market-development programs, and topics covered included public health, food supply, electrical safety, and more. Members have used these messages in their own communications channels, including online, print, television, etc.

This year's SBOC program added podcasts to the mix. Two podcasts on energy-efficiency standards were produced and additional podcasts will follow in 2015. The SBOC section on our website transformed into Copper: Key to a Sustainable and Healthy World, where visitors can access the latest SBOC information. We created an ICA YouTube channel as well as an ICA Google+ page. A new social media landing

page was created on our website to provide members with easy access to some of the most popular social media activities across the Copper Alliance.

The new ICA Value Proposition calls for increased focus on high-impact areas. This is true not just for our market-development programs but also for the Communications initiative. At the core of all communications activities in one simple truth: as the best nonprecious conductor of electricity and heat, all objects containing copper tend to operate more efficiently. Increased efficiency means fewer greenhouse gas emissions. Therefore, the inherent conductive properties of copper enable the copper industry to make a positive impact in the topical areas of energy efficiency/ security and climate-change mitigation. Perhaps the best evidence of this is a global energy-efficiency partnership that ICA was instrumental in creating.

---



AT THE CORE OF ALL COMMUNICATIONS ACTIVITIES IN ONE SIMPLE TRUTH:  
AS THE BEST NONPRECIOUS CONDUCTOR OF ELECTRICITY AND HEAT,  
ALL OBJECTS CONTAINING COPPER TEND TO OPERATE MORE EFFICIENTLY.



## REDUCE GLOBAL ELECTRICITY CONSUMPTION BY 10 PERCENT

The Energy Efficiency Global Partnership Program was formally launched in 2014 by ICA and like-minded organizations. These include the United Nations Environment Program (UNEP), the UN Development Program (UNDP), the Collaborative Labeling and Appliance Standards Program (CLASP), and the Natural Resources Defense Council (NRDC). The initiative is focused on market transformations, based on mandatory minimum energy performance standards in six product categories: motors, distribution transformers, residential air conditioners and refrigerators, information technology, and lighting. Increased efficiency standards in many of these products will lead to increased copper demand, and we estimate the tonnage impact of this initiative to be 350,000 tonnes during the first five years of this long-term project. The image value of this partnership is high. Once branding for the effort is completed (anticipated in the second

quarter of 2015), ICA's members will be able to communicate they are part of an effort to:

- Reduce global electricity consumption by 10 percent
- Lower CO<sub>2</sub> emissions equivalent to a half-billion cars
- Create new economic activity of \$350 billion annually, primarily in the developing world

ICA is helping to lead this partnership's funding and outreach efforts. ICA presented the partnership in a number of settings, including at multiple UN events, to the European Commission, and to leading manufacturers. To date, start-up funding from the Global Environment Facility (GEF) for \$1.4 million has led to commitments of nearly \$8 million from other sources.



## LOWER CO<sub>2</sub> EMISSIONS EQUIVALENT TO A HALF-BILLION CARS

ICA formed a members' focus group at the end of 2014 to work with ICA management to strengthen collaborative communications that will deliver on the ICA Value Proposition's image/reputation-building goal.

A new members-only section is being developed for [www.copperalliance.org](http://www.copperalliance.org). This new resource, which we are calling InSite, will house all messages and supporting collateral so members can collectively elevate the position and reputation of copper. In addition, a section on crisis/issue management will be included so members can access safe-harbor statements and background information to address any negative stories about copper in the media. Market Intelligence, Data and Measurement reports and the Health, Environment and Sustainable Development library will also be accessible. The site will be password-protected, ensuring that only ICA members and management are able to take advantage of this critical industry resource.



## CREATE NEW ECONOMIC ACTIVITY OF \$350 BILLION ANNUALLY, PRIMARILY IN THE DEVELOPING WORLD



---

## SUSTAINABLE DEVELOPMENT INDICATORS

On an annual basis, nearly all ICA members report a suite of indicators related to Sustainable Development (SD). However, at the global level no public data and information describing the copper industry's contribution to SD exists. A few major commodities, e.g., aluminum, steel, plastics and paper, already measure their performance against indicators. We need to fill this gap by using our own set of SD indicators to strengthen the industry's reputation with substantiated evidence.

A year ago ICA members endorsed a short list of indicators, based on the international standard of the Global Reporting Initiative. The list covers the four pillars of SD, i.e., environment, society, economy and governance, in order to provide a balanced picture of this industry's impact and contribution to SD (see <http://copperalliance.org/sd/> for more information about ICA's position and activities in SD).

- **Environment:** the copper industry's performance is shaped, in part, by how it manages its energy and water resources and how much its CO<sub>2</sub> emissions are controlled.
- **Society:** the "total workforce" indicator tells us how many people are working, directly and indirectly, to produce copper. Health and safety performance, a key measure of an organization's duty of care, is captured by the "injury rate" indicator.
- **Economy:** the "Economic Value Distributed" indicator provides a basic idea of how an organization has created wealth for stakeholders including taxes paid to governments and employee wages. Based on members' inputs, ICA has also developed an original indicator showing

the amount of money invested by members to improve their operations.

- **Governance:** ICA is interested in learning how many companies publish a corporate social responsibility-type report and how many have adopted SD principles or goals.

Twenty-two members, representing the whole copper value chain from mining to smelting/refining and fabricating, are participating in this project and have shared data representing 40 percent of the world's annual copper demand, i.e., 10 million tonnes. This project is managed internally to ensure a higher degree of confidentiality and reduce costs, with direct participation from members. To improve the representativeness and accuracy of the data collected, ICA hopes to receive more data from Asian companies as well as from additional fabricators.

The data collected are aggregated at the global level, and each company's data remain anonymous. The intention is not to measure, compare or report on, one company's performance. The indicators cover the complete copper value chain, and it is not advisable to

THIS PROJECT IS MANAGED INTERNALLY  
**TO ENSURE A HIGHER DEGREE OF  
 CONFIDENTIALITY AND REDUCE COSTS,  
 WITH DIRECT PARTICIPATION FROM MEMBERS.**

compare an aggregated global figure with a company operating in a specific segment of the value chain.

Preliminary results indicate, for example, that 335,000 people are employed by these 22 companies, and \$120 billion comes into the global economy every year, including \$15 billion paid to governments as taxes. The data also demonstrate the copper industry's low carbon emissions and energy consumption. For example, CO<sub>2</sub> emissions from these 22 members amount to less than 0.2 percent of global CO<sub>2</sub> emissions and energy consumption by these same members amounts to less than 0.1 percent of the world's total primary energy consumption.

Our findings have been presented and discussed with members. ICA is developing a communication strategy and plan to strengthen the reputation of the global copper industry by demonstrating, with solid evidence, its positive contribution to sustainable development.

**THE INDICATORS  
 COVER THE COMPLETE  
 COPPER VALUE CHAIN.**



**ENVIRONMENT:** the copper industry's performance is shaped, in part, by how it manages its energy and water resources and how much its CO<sub>2</sub> emissions are controlled.



**SOCIETY:** the "total workforce" indicator tells us how many people are working, directly and indirectly, to produce copper. Health and safety performance, a key measure of an organization's duty of care, is captured by the "injury rate" indicator.



**ECONOMY:** the "Economic Value Distributed" indicator provides a basic idea of how an organization has created wealth for stakeholders including taxes paid to governments and employee wages. Based on members' inputs, ICA has also developed an original indicator showing the amount of money invested by members to improve their operations.



**GOVERNANCE:** ICA is interested in learning how many companies publish a corporate social responsibility-type report and how many have adopted SD principles or goals.

Visit <http://copperalliance.org/sd/> for more information about ICA's position and activities in SD



IN 2013,  
 GLOBAL CO<sub>2</sub>  
 = 36 BILLION TONS

ICA MEMBER  
 EMISSIONS REPRESENT  
 < 0.2 PERCENT

WORLD PRIMARY  
 ENERGY CONSUMPTION  
 = 12,500 Mtoe\*

ICA MEMBERS  
 CONSUMED  
 < 0.1 PERCENT

\* Million tonnes of oil equivalent



# International Copper Association

Copper Alliance

260 Madison Avenue, New York, NY 10016 USA  
Phone: +1 212 251 7240, Fax: +1 212 251 7245  
copperalliance.org, info@copperalliance.org



Printed on 100% recycled paper (100% post-consumer fiber)



Paper meets the Forest Stewardship Council mark of responsible forestry



Paper mill production processes, including packaging, are environmentally preferable



Paper made with 100% renewable green energy



Paper manufactured from sustainable raw materials and are free of chlorine chemistry



Vegetable-based (as opposed to traditional petroleum-based) inks used throughout