

Institute for Industrial Productivity Annual Report 2014



Institute for
**Industrial
Productivity**

Sharing best practices
for the low carbon future

iipnetwork.org

Institute for Industrial Productivity Annual Report 2014

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In This Report

Foreword from the Board	4
Foreword from the Executive Director	5
About the Institute for Industrial Productivity (IIP)	6
Our work	6
Our strategy	7
Industry's role in creating a low carbon future	8
Industry and urban development	8
Industrial energy efficiency	9
Our projects	11
Global	11
Waste heat recovery for the cement sector	11
Energy management practitioners' toolbox	12
IIP's online databases	13
Action Exchange: a supply chain initiative	14
USA	16
Boosting the use of industrial energy efficiency through the Clean Power Plan	16
The SEE Action Guide	16
Industrial energy efficiency programs in the Midwest	17
China	19
Increasing the role of energy efficiency in China's air pollution control efforts	19
Development of a technology and financing scale-up platform for China's chemical sector	19
EnMS and industrial energy efficiency policy program	19
China's coal consumption cap	21
India	23
Promoting resource efficiency across the supply chains of key sectors in South Asia	23
Knowledge Exchange Platform (KEP)	24
Policy reform to promote AFR in the Indian cement industry	25
New efforts	26
Accelerating Energy Efficiency Financing	26
Sustainable Energy for All (SE4All) Industry Accelerator Platform	26
Financial overview	27
Financial position	27
Statement of activities	28
Fundraising	28
Acknowledgments	29
Contact us	30



Foreword from the Board

In most countries, the industrial sector is the largest energy-consuming sector. In the US, it accounts for 31 percent of primary energy; in China, 75 percent; and in India, 68 percent. Despite this large use of energy, there are few organizations – aside from the specific industry associations – that have a goal to use energy more efficiently and also reduce greenhouse gas emissions. IIP was founded in 2010 with a vision to work together with industry, government and other NGOs to improve industrial energy efficiency. IIP has been managing this opportunity with determination, excellence and passion.

IIP has built a strong team, as evidenced by its achievements. The following are a few representative examples: IIP's best practices databases get over 18,000 visitors per month from countries all over the world; the India team was selected to support India's Bureau of Energy Efficiency on a knowledge exchange platform that will help industry achieve energy-saving targets; the China team is playing an important role in showing several commercial banks the value of investing in industrial energy efficiency projects; and, in the US, IIP is playing an active role in promoting industrial energy efficiency and combined heat and power as compliance mechanisms for the Environmental Protection Agency's Clean Power Plan.

At its inception, IIP was funded by philanthropies that placed a high priority on incubating non-profit organizations to mitigate climate change. To secure its long-term future, IIP moved away from this sole funder model in 2014 and took a

diversified approach, securing funding from multiple sources. In 2015, IIP will look to strengthen its funding base even more. This new funding comes, in part, from a change in the way IIP does its business. Fee-for-service contracts have become an increasingly important element of IIP's revenue stream and will continue to do so in the year ahead.

IIP has focused only on the industrial sector as it offers enormous potential to reduce greenhouse gas emissions. There are formidable barriers. Although energy efficiency strengthens a manufacturer's competitive position, many companies are slow to adopt best practices. Governments have few policies and programs that are specific for the industrial sector. IIP is working with governments and industry to bridge this gap and engage industry at a scale that is transformational.

IIP's work has enormous value and importance. Everyone on the Board has remained committed to their roles overseeing this dynamic and determined organization. I am looking forward to the successes IIP will achieve in 2015.



Maxine Savitz
Board of Directors, Institute for
Industrial Productivity



Foreword from the Executive Director

At IIP, we have a very clear vision about what we want to achieve. Our goal has always been to help governments, industry and NGOs to work together to improve industrial energy efficiency so that we can collectively reduce global greenhouse gas emissions. This goal is supported by the research, which shows that energy efficiency could reduce industrial energy use by over 25 percent. That equates to an 8 percent reduction in global energy use and a 12.4 percent reduction in global CO₂ emissions.¹ To help achieve this potential, IIP has primarily been working in China, the US and India over the past four years to drive both optimal policy design as well as effective and widespread implementation.

We have a talented team, offices in Beijing, New Delhi and Washington, DC and an international network of over 50 experts in energy efficiency policy, technologies and financing. We have built our brand and reputation, developed a large number of resources and publications, and created strategic partnerships all over the world.

In 2014, our strategy, coupled with a host of demonstrated impacts and smart public-private partnerships, have cemented IIP's role as the leading global organization in industrial energy efficiency.

IIP's flagship programs promote industrial energy efficiency measures globally. Together with the efforts of our strategic partners, they have an annual mitigation potential of 355 Mt CO₂-e by 2020. You can read more about all of our projects and achievements on pages 11 to 26.

Our new theme in 2015 will be on the role of industry in forging greener cities. Industry and urban areas are inextricably intertwined and, with global populations in cities projected to rise by 2.3 billion in the next 35 years, we can expect to see even greater energy demand. Industry faces significant challenges to improve energy productivity and competitiveness and it can play a critical role in helping to meet these challenges through energy efficiency and decarbonization.



Jigar V. Shah
Executive Director

¹ UNIDO (2009). *UNIDO and Energy Efficiency: A Low-carbon Path for Industry*.



About the Institute for Industrial Productivity (IIP)



IIP was set up to tackle growing greenhouse gas emissions. Our primary role is to accelerate energy productivity in industry, which we see as one of the most cost-effective solutions for reducing the harmful greenhouse gas emissions that cause climate change.

Our global team and network of independent experts provide advice on technology, policy and financing related to industrial energy efficiency and resource efficiency. We work at both national and local levels to improve energy efficiency policies, practices and technology adoption.

IIP is an independent non-profit organization.

Our work

Our work focuses on the countries and sectors that drive industrial demand and offer major opportunities for improvement. We target the cement, chemicals, paper, aluminum and iron and steel sectors, which are collectively responsible for more than 65 percent of industrial CO₂ emissions.² And we focus on China, India and the US, which

together produce around 50 percent of all industry energy-related greenhouse emissions.³

IIP's core programs include knowledge exchange for global best practices, the implementation of energy management systems, supply-chain efficiencies, energy efficiency finance, alternative fuel and raw material substitution, and the reduction of air pollution through energy efficiency.

We collaborate with a wide range of partners to achieve our outcomes and ensure that existing efforts are leveraged on an international scale.

Our approach to our work is built upon two unique attributes: our expertise as a collaborator and implementation partner; and our international presence, reputation and resources.

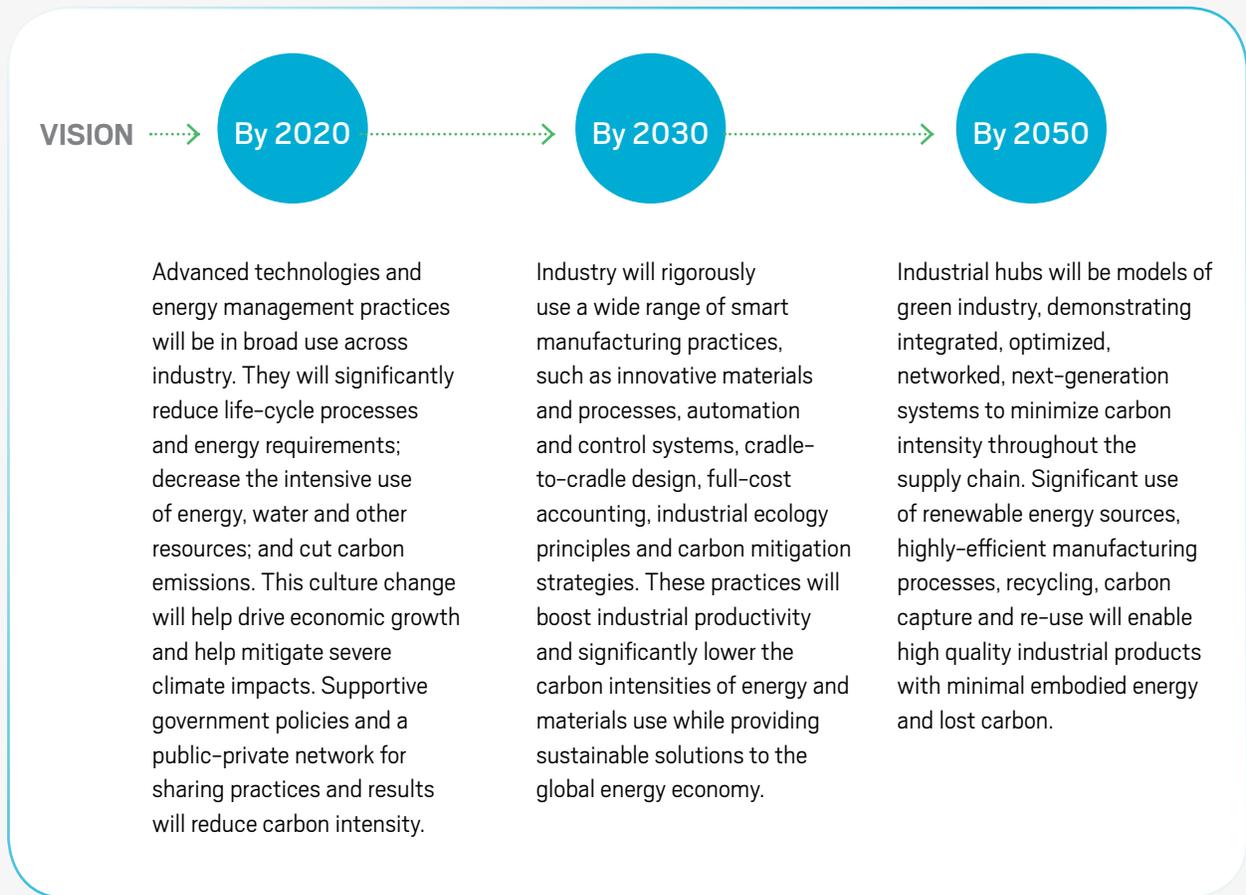
2 International Energy Agency (2012). [Energy Technology Perspectives 2012: Pathways to a Clean Energy System](#).

3 Energy Information Administration (2013). [International Energy Outlook 2013](#).



OUR STRATEGY

MISSION Our mission is to improve industrial energy efficiency, enhance industrial productivity and reduce greenhouse gas emissions. We do this by providing private sector and government decision-makers with best-practice information, technologies, tools and financial solutions.



GOALS Our two key goals are:

1) drive a reduction in industrial energy intensity averaging 3.5 percent per year until 2030 in China, India and the United States.

3.5% ↓
until 2030

2) contribute to a 25 percent reduction in annual emissions by 2020 (equivalent to 2 GtCO₂ per year) and a 50 percent reduction by 2030 (equivalent to 2.7 GtCO₂ per year) in the industrial sectors globally.

25% ↓
by 2020

50% ↓
by 2030



Industry's role in creating a low carbon future

2014 was the hottest year on record, yet governments around the world have still not struck a climate deal that will set our emissions on a downward path. It is clear that we are going to need solutions to our growing emissions that can make a real and lasting impact, and fast. An integral part of that solution lies in supporting and encouraging industry to become more energy efficient.

Industry and urban development

Industry today uses more energy than any other sector in the world. As a result, its greenhouse gas emissions eclipse all other sources of emissions.

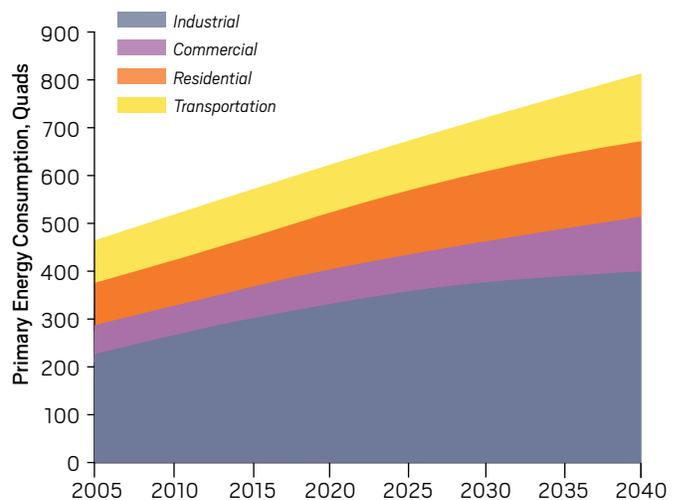
It accounts for around 50 percent of global energy use (on a primary energy basis), and around 28 percent of all greenhouse gas emissions.⁴

If industrial energy demand continues unchecked, it could grow by as much as 50 percent over the next two decades, particularly in emerging and developing countries.⁵

This would, in turn, increase demand for new fossil fuel-fired power plants, exacerbating harmful climate change.

Cities too are projected to grow. More than half of the world's seven billion people already live in cities, and that number is set to increase by about 2.3 billion by 2050.⁶ This will put immense pressure on existing infrastructure and resources, but at the same time it will offer ample opportunities to build our cities in a more sustainable fashion.

FIGURE 1: Industry Accounts for 50% of Total Global Energy Use (Primary Energy Basis*)



* Includes fuel for electricity generation and T&D losses

Source: Energy Information Administration (2013). [International Energy Outlook 2013](#).

4 Energy Information Administration (2013, 2014). [Annual Energy Outlook 2013](#) and [Annual Energy Outlook 2014](#).

5 Energy Information Administration (2013). [International Energy Outlook 2013](#).

6 United Nations Department of Economic and Social Affairs (2014). [World Urbanization Prospects](#).



Industrial energy efficiency

Industrial energy efficiency offers one of the most cost-effective solutions to curb growing greenhouse gas emissions and tackle climate change.

Industry has huge potential to slash both emissions and energy use, and this could help our environment as well as save billions of dollars. The key to this transformation will, in the short term, be integrating energy efficiency into all aspects of industrial operations.

Widespread adoption of energy efficiency measures could reduce industrial energy use by over 25 percent. That potential is significant: it represents 3.92 Gt CO₂ – an 8 percent reduction in global energy use and a 12.4 percent reduction in global CO₂ emissions.⁷

By putting a greater focus on industrial energy efficiency, we could effectively manage growing energy demand and pollution, and see a range of other benefits – such as improved public health, the creation of more jobs, higher economic growth, and reduced social, economic and environmental costs. Energy efficiency could also generate an additional \$18 trillion in global economic output. But this potential cannot be realized without the help of supportive policies.⁸

Building greener cities and accelerating industrial energy efficiency will require strong leadership by national and local governments. This will include smart urban planning, incentives for implementing energy management systems in industrial firms, capacity building amongst all levels of government and industry, transparency and disclosure, innovation, investment, and integrated authority.



7 UNIDO (2009). [UNIDO and Energy Efficiency: A Low-carbon Path for Industry](#).

8 International Energy Agency (2012). [World Energy Outlook](#).



\$188.2 billion.

That was the bill for the deaths, illnesses and disabilities associated with particulate matter pollution in Chinese cities in 2005. Industry accounted for two-thirds of that cost.

Improving energy efficiency alone would have slashed \$33.6 billion off that bill.*

* See our report [The Role of Industry in Forging Green Cities](#) for full references.



Our projects

In 2014, IIP worked on a number of global projects that have the potential to lead to significant energy savings.

Waste heat recovery for the cement sector

IIP, in conjunction with the International Finance Corporation (IFC), published a market and supplier analysis on waste heat recovery (WHR) in June 2014. The report, [Waste Heat Recovery for the Cement Sector: Market and Supplier Analysis](#), analyzes the current status of WHR in developing countries and investigates the success factors in those countries where it has become widespread. It provides a detailed focus on 11 countries, including Brazil, India, Pakistan, South Africa, Turkey and China.

The report analyzes 11 country-markets in five regions where the cement industry is expected to grow. It estimates that \$5 billion in investment could introduce about 2 gigawatts (GW) of WHR technology in developing countries. To put that amount in perspective, 2 GW of electric power produced by WHR would be enough to power about 1.3 million to 1.5 million homes.

Waste-heat recovery ensures “cement companies can get more reliable and cheaper energy and at the same time cut their greenhouse gas emissions.”

– Michel Folliet, Chief Industry Specialist, IFC

Key findings from the report included:

- WHR is a proven technology, but until now uptake has been limited except in China.
- Regulatory measures and lower capital costs have been key factors behind China’s success in mainstreaming WHR technology.
- WHR can reduce the operating costs and improve the earnings (before interest, taxes, depreciation, and amortization) of cement plants by about 10 to 15 percent.
- WHR can improve the reliability of power supply for cement facilities.
- There is a clear business opportunity in using WHR, but financing is key to realize the untapped potential.
- There is strong potential for WHR in Asia and Latin America as well as in Africa and the Middle East.

IIP translated the report into Chinese, and has also had success promoting it via the Chinese website, newsletter and WeChat. This project will be expanded in 2015.



Energy management practitioners' toolbox

In 2014, IIP worked with the Energy Management Working Group (EMWG) under the Clean Energy Ministerial (CEM) on a toolbox for energy management practitioners. This internationally-vetted online resource contains a compendium of tools and information that will help energy practitioners to improve energy management in their workplaces.

Included in the toolbox are case studies, software tools, energy-saving calculators and methodologies, technology guidelines, training materials and much more.

Over 400 resources have been collected and the draft web architecture, wireframes, and visual design are complete. In December 2014, the EMWG and IIP sought feedback from the wider energy practitioners' community on version 1.0 of the toolbox. Based on their response, the toolbox will be refined.

The toolbox will be launched in 2015, and targeted versions for key developing countries will be developed at a later date.

“Energy management represents a significant opportunity for organizations to reduce their energy use while maintaining or boosting productivity – and the global energy management standard, ISO 50001, provides a framework for organizations to manage energy. This toolbox provides the best-available, practical tools, from sources around the world, to apply the standard, implement a robust energy management system, and achieve savings.”

– Graziella Siciliano, Fellow, US Department of Energy



IIP's online databases

One of the most significant issues for government and industry in reducing emissions is getting access to quality information. With this in mind, IIP developed five comprehensive online databases that contain a rich set of resources to help decision-makers in governments and industry develop and implement policies and corporate practices that will dramatically reduce greenhouse emissions and increase productivity in the industrial sector. Included in our databases are guidelines, tools, reports, factsheets, case studies and key data. All the information in our databases has been peer reviewed by global experts and researchers as well as experts in the US, China and India.

In 2014, we continued to grow these databases, and they are becoming an increasingly valuable resource for governments, industry and NGOs across the world – particularly in the US, China and India, three of IIP's priority countries. Traffic to the site has increased rapidly in the past two years: with 191,000 unique visits in 2014, up from 163,000 in 2013 and 36,000 in 2012.

Our databases are publicly available and offered free of charge in both English and Chinese as part of our mandate to increase industrial energy productivity in energy-intensive sectors.



“The Industrial Efficiency Technology Database is a useful tool when looking for energy efficiency improvement opportunities in the

manufacturing industry. It has been especially useful when developing energy efficiency and decarbonisation roadmaps for industry as the information contains both utility and process improvement technologies and costs.”

– Ulrika Wising, Head of Section
Sustainable Energy Use Europe, DNV GL Energy

Industrial Efficiency Policy Database

The Industrial Efficiency Policy Database (IEPD) provides information on industrial energy efficiency and greenhouse gas mitigation policies from around the world.

www.iipnetwork.org/databases/policy

GLOBAL

Industrial Efficiency Technology Database

The Industrial Efficiency Technology Database (IETD) delivers rich, relevant information about the best technologies, tools and management systems that can facilitate commercial deployment of energy efficient and low-carbon technologies and practices.

www.iipnetwork.org/databases/technology

Industrial Efficiency Financing Database

The Industrial Efficiency Financing Database (IEFD) identifies vehicles and programs that have successfully delivered industrial energy efficiency financing.

www.iipnetwork.org/databases/finance

The Industrial Efficiency Programs Database

The Industrial Efficiency Programs Database (IEPrD) contains information about national level energy management programs, along with program descriptions, evaluations and assessments.

www.iipnetwork.org/databases/programs

Supply Chain Initiatives Database

The Supply Chain Initiatives Database (SCID) presents innovative ways for industries to save energy, increase productivity and improve environmental performance in their supply chain.

www.iipnetwork.org/databases/supply-chain



Action Exchange: a supply chain initiative

Action Exchange was created to address the barriers faced by multinational corporations in encouraging companies in their supply chain to become more energy efficient.

IIP teamed up with CDP on the development and implementation of the initiative, and drew on CDP's already successful Supply Chain program to identify the obstacles companies faced and create the solutions that could bring them better energy performance over the long term.

The pilot phase of Action Exchange ran from September 2013 to August 2014 and involved five leading CDP Members: the Bank of America, L'Oréal, PepsiCo, Philips, and Walmart. A total of 65 core suppliers participated in the pilot phase, and in aggregate are estimated to have emission reduction opportunities of 5 MTCO₂-e. In Phase 2, at least 188 will be joining, with estimated emissions reduction opportunities of 9.9 MTCO₂-e.

How Action Exchange works

Action Exchange helps embed energy efficiency into companies' decision-making processes. Partnerships created through the initiative are intended to grow, bringing continuous energy efficiency savings beyond the lifetime of their involvement.

Action Exchange uses multiple resources to assist participating suppliers improve their carbon and energy performance. At the core of the program is a database of

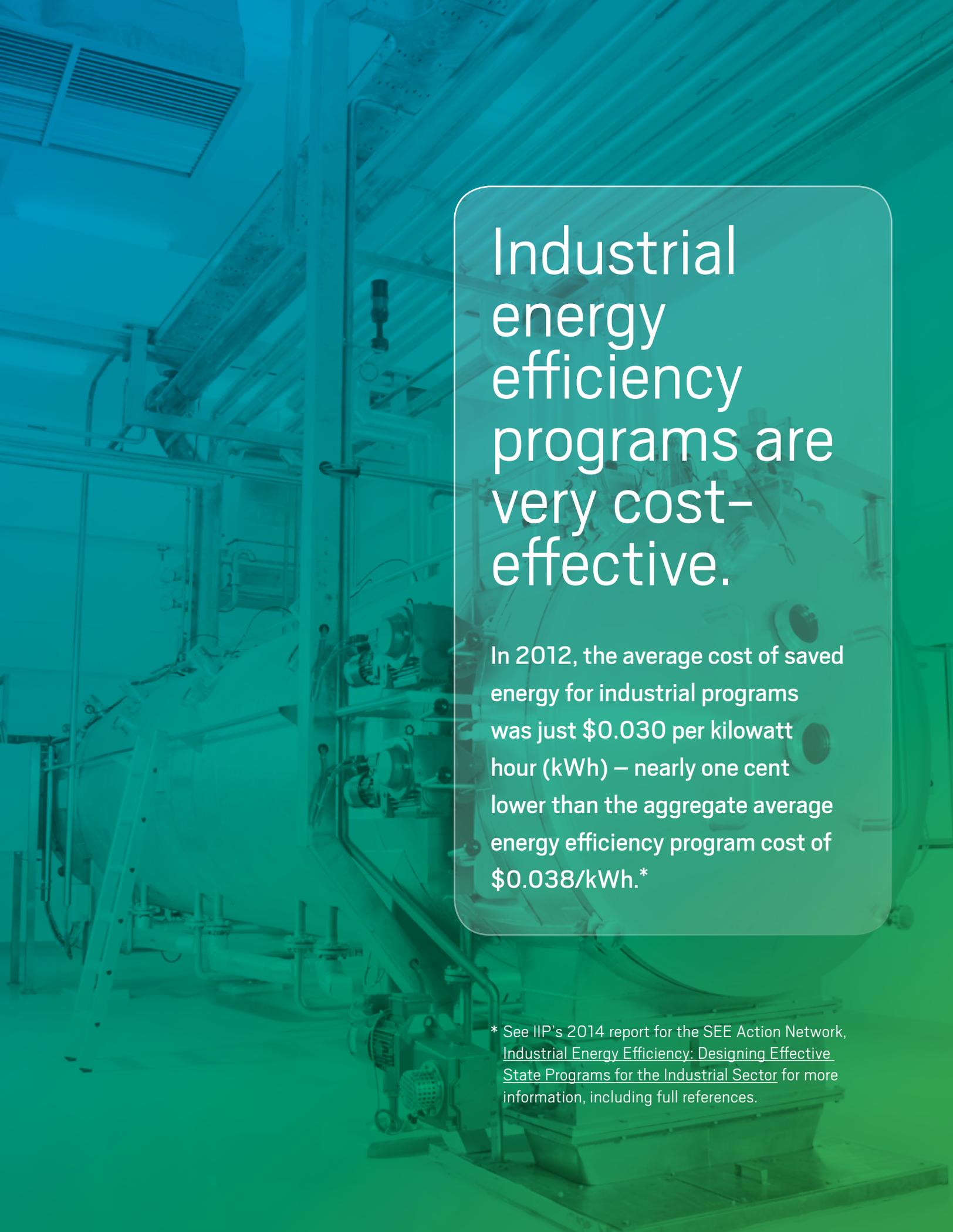
corporate environmental information, which is based on annual disclosures from companies to CDP's supply chain questionnaire. Other resources include a bank of technologies, measures and case studies on best practice energy efficiency projects. These tools are used to evaluate a supplier's basic level of energy efficiency and recommend a clear pathway for improvement and cost savings. Each supplier is analyzed individually and receives an emissions reduction profile, tailored for their specific sector and location. As a follow-up, personalized introductions are made between a supplier and a solutions provider to help them access cost-efficient emissions reduction technologies and services.

As part of Phase 1 of the program, detailed energy assessments were offered free-of-charge to selected suppliers to help them identify profitable energy efficiency and emissions reduction projects. Two detailed energy assessments were undertaken with Philips electronics component suppliers to identify profitable energy efficiency and emissions reduction projects that will lead to energy cost savings, productivity improvements and other benefits. These examples are being shared with suppliers of CDP supply chain program member companies that may be just starting their own energy efficiency activities and are interested in learning about both the energy-saving and non-energy benefits associated with implementation of energy management systems and energy efficiency projects.



“Many leading multinational corporations already prioritize emissions reductions in their business strategy and understand the economic opportunities presented by these efforts. Yet, in 2014, just 49 percent of suppliers that disclosed to CDP reported reductions in their company's emissions, with cumulative savings of \$8 billion. By leveraging their purchasing spend through Action Exchange, multinationals are uniquely positioned to empower more companies in their supply chain to improve energy efficiency, close the gap on their competitors and ultimately reduce cost.”

– Dexter Galvin, Head of Supply Chain, CDP



Industrial energy efficiency programs are very cost-effective.

In 2012, the average cost of saved energy for industrial programs was just \$0.030 per kilowatt hour (kWh) – nearly one cent lower than the aggregate average energy efficiency program cost of \$0.038/kWh.*

* See IIP's 2014 report for the SEE Action Network, [Industrial Energy Efficiency: Designing Effective State Programs for the Industrial Sector](#) for more information, including full references.



Boosting the use of industrial energy efficiency through the Clean Power Plan

The Environmental Protection Agency's (EPA) Clean Power Plan (CPP) is anticipated to cut greenhouse gas emissions in the power generation sector by 30 percent by 2030 (based on 2005 levels). Section 111(d) of the Clean Power Plan offers states and power companies a lot of flexibility in how they comply with the new rules, and it could provide a powerful new driver for industrial energy efficiency (IEE) programs and combined heat and power (CHP). IEE and CHP can produce large blocks of low-cost energy and carbon savings, and could therefore be attractive to state air and energy regulators as they develop their carbon pollution reduction plans.

In 2014, IIP partnered with David Gardiner & Associates to design model pathways to engage and reward industrial customers for reducing power use from the grid as an option for CPP compliance. As part of this effort, IIP's US team developed a toolkit that contains specific modules and elements, highlighting best practices and actionable recommendations for the integration of IEE and CHP into a state's compliance plan. In Michigan, the team is involved in a coalition to maximize CHP opportunities, address standby rates, engage businesses with CHP installations or potential, and raise policy and program options for current legislation reviews.

IIP also secured a grant from the Energy Foundation to co-fund with the National Electrical Manufacturers Association the development of a technical document on how privately-delivered industrial energy efficiency measures (including energy management systems and the Superior Energy

Performance (SEP) program) could be incorporated as a compliance option for section 111(d). As part of this work, IIP submitted its comments to the EPA on the proposed Clean Power Plan in December 2014.

IIP will continue to work on this initiative in 2015, focusing its efforts in Michigan and several other targeted states in the industrial Midwest.

The SEE Action Guide

In 2014, IIP authored an influential guide for the State and Local Energy Efficiency (SEE) Action Network, a state and local-led effort facilitated by the US Department of Energy and the EPA. The guide explores successful industrial energy efficiency programs in the US and provides insights into the special requirements of industrial customers. The guide, [Industrial Energy Efficiency: Designing Effective State Programs for the Industrial Sector](#), was launched in March 2014 and IIP delivered a number of webinars and presentations, and disseminated a suite of communications to share its findings.

As a part of the next phase of this project in 2015, IIP is developing a series of white papers that explore other issues related to industrial energy efficiency programs – such as how industrial companies have benefited from state and ratepayer efficiency programs, how industrial companies respond to different program offerings, how much additional energy efficiency gains industrial companies typically acquire through program participation versus a no-program scenario, and the systems benefits and price suppression effects from a reduction in industrial energy demand.



“The SEE Action Guide is an excellent resource. The New York State Energy Research and Development Authority (NYSERDA) regularly refers to and utilizes the guide and the SEE Action Network contacts to aid program delivery and improvement. Most recently, the guide and contacts have been used while NYSERDA conducted an ongoing Corporate Strategy Assessment and worked with the New York State Public Service Commission to develop a new Clean Energy Fund to help replace our Energy Efficiency Portfolio Standard.”

– Brian Platt, New York State Energy Research and Development Authority



Industrial energy efficiency programs in the Midwest

The Midwest has one of the country's most significant manufacturing bases. Industrial energy efficiency offers important opportunities to retain and grow the workforce in the region and help meet state and national clean energy and emission reduction goals. With a grant from the Energy Foundation, our strategy is to work with advocacy and industrial groups, policymakers and regulators to provide support at the critical implementation level and enhance the value and effectiveness of ratepayer efficiency programs, as well as to build support and demand for them by demonstrating their value to industry.

IIP started providing implementation support in Minnesota in 2014. Minnesota currently has a legal provision that allows large energy users to opt out from paying demand-side management (DSM) charges and participate in ratepayer IEE programs. Minnesota advocates have requested analytical support to understand how this situation is affecting the quantity and cost of the energy efficiency resources that utilities need to acquire to meet their targets, as well as to identify program options and implementation strategies to engage these large industrial energy users. IIP is working on both these areas, and is identifying effective program designs and technical and policy approaches that have been successfully implemented in other states, and tailoring these approaches to the political and regulatory needs of Minnesota.

Through this work, we hope to make industrial energy efficiency program offerings more useful and acceptable to industrial users. Future activities include participating in utility collaborations to integrate new offerings in the upcoming program cycle, and working with program administrators to effectively implement new initiatives.

In Michigan and Illinois, IIP is providing technical and implementation support on the role of IEE and CHP as state compliance options through the Clean Power Plan (see above).

“Industrial energy efficiency presents critical but difficult gaps in Minnesota energy policy. Smaller customers in one utility’s service territory have access to highly effective utility programs targeting process efficiency, while larger customers elsewhere in the state that present significant efficiency opportunity have opted out of utility program offerings entirely. The political landscape in the state prevents significant action to bring opted-out customers back into the utility program fold. New alternatives are needed. The Institute for Industrial Productivity has played a critical support role in analyzing the impacts that opted-out customers have on the state, bringing best practice alternatives from other states, and providing expert insight into action areas moving forward.”

– Will Nissen, Senior Policy Associate,
Fresh Energy, Minnesota



China's industry accounts for more than 70 percent

of the country's annual energy consumption. But it is making immense progress.

By 2014, China had reduced its energy intensity by 14.1 percent since 2010, and much of that success can be attributed to a bold set of policies targeted at the country's largest enterprises.*

* Source: China's National Development and Reform Commission (NDRC).



Increasing the role of energy efficiency in China's air pollution control efforts

China has made a great effort to improve its energy efficiency over the past decade. However, there is still much room for improvement. Its work to address its serious air pollution provides a good opportunity to also cut its energy intensity through efficiency measures. However, for risk-averse and non-expert decision-makers, there is still little clear documentary evidence about the impact of energy efficiency on greenhouse gas emissions. Because of the often disparate and unconnected work programs in different provinces, the air pollution control plans being developed by local environmental protection bureaus do not have much emphasis on using energy efficiency as a cost-effective air pollution control measure.

With a reserve grant from ClimateWorks Foundation, IIP partnered with the Regulatory Assistance Project (RAP) to strengthen the role of energy efficiency in China's regional and city air pollution reduction programs. This project involved working with energy and environmental officials and experts in Chongqing Municipality and the China Energy Conservation Association. This involved collecting data on energy and emissions savings and investment in large energy efficiency projects for the local environmental authority's air quality model. This data will be used to develop a cost-curve for leaders in Chongqing and other cities in China that shows the effect of energy efficiency on PM_{2.5} reduction. Building on the results of the project's pilot phase, the next step will involve rolling out the program in other cities, in partnership with the Clean Air Alliance of China.

Development of a technology and financing scale-up platform for China's chemical sector

This project involves documenting, demonstrating, and scaling-up innovative technologies and financing mechanisms to improve energy efficiency as well as reduce greenhouse gases (GHG), mercury, and conventional air pollutant emissions throughout China's energy- and emissions-intensive chemical sector.

Unlike much of the rest of the world, China's chemical industry relies heavily on coal as both a raw material feedstock and energy source. Because of these unique attributes, homegrown technologies are required to address the pollution

and GHG emissions associated with the manufacturing of chemical products in China, such as PVC and solvents. Significant investment and technical support are essential to sufficiently scale up these technologies from R&D pilots to larger commercial-scale facilities and, finally, to industry-wide application. Innovative financing models will also be necessary to ensure the industry can adequately address these issues over the long-term.

To this end, the Asian Development Bank (ADB) is looking to provide a loan to the China Haohua Chemical Group (CHC) – a large subsidiary of the China National Chemical Corporation (ChemChina) – to set up an innovative in-house energy service company (ESCO). The ESCO will be used to scale-up CHC's novel energy efficiency and emissions reduction technologies across the Chinese chemical industry by reinvesting the initial project energy savings.

Because of IIP's background and experience in China, we were asked to develop an analysis of the strategic and economic rationale for the ADB loan to CHC, as well as on-the-ground support for organizing experts, and providing advice on ESCO development. IIP's strategic report looked at the development of China's chemical industry and five innovative energy efficiency and emissions reduction technologies that CHC subsidiaries have developed. The two projects submitted for the ADB loan address energy efficiency as well as the world's largest sources of mercury and HFC-23 emissions, a lethal greenhouse gas with more than 10,000 times the global warming potential of CO₂.

EnMS and industrial energy efficiency policy program

In recent years, the Chinese Government has developed national and provincial EnMS standards and policies, sector guidelines, and looked at local capacity and implementation. These efforts have helped create initial awareness but, because they were promoted solely to comply with government mandates, they have failed to spur broader EnMS implementation. International and domestic practitioners are now working to increase the implementation of effective EnMS across China by providing toolkits and technical support to Chinese enterprises. As part of this effort, IIP is undertaking several projects in different provinces in China.

In 2014, IIP partnered with a number of Chinese government organizations and international experts to help some of the



The IIP China team with staff and experts at the Jiangsu Energy Conservation Center after a business-oriented EnMS training session in July 2014.

country's largest industrial enterprises adopt a quality EnMS. As a part of this successful strategy, IIP adapted international best practices to local conditions and developed critical support packages that fulfill the specific implementation-focused needs of Chinese enterprises, starting with pilots in pulp and paper factories in Dezhou, Shandong Province. This included a detailed, eight-step process for EnMS establishment in Chinese enterprises; step-by-step results and enterprise-oriented methodologies and tools; training and promotion strategies; and opportunities for networking and best-practice sharing between industrial companies and implementing bodies.

After conducting pilots in Shandong Province in 2014, IIP is now working on a World Bank-Chinese Ministry of Industry and Information Technology (MIIT) project with the provincial energy conservation centers in Jiangsu and Sichuan Provinces to help local officials, enterprises and experts build their capacity to implement an EnMS.

In Shandong, Jiangsu, Shanxi and Sichuan Provinces, IIP's partners are the local energy conservation and supervision centers, local industrial enterprises, and international EnMS experts.

These efforts are funded by the ClimateWorks Foundation and the Energy Foundation-China.

“EnMS is a proven effective systematic approach to assist enterprises to improve energy efficiency, and reduce energy costs and emissions. Jiangsu Energy Conservation Center (Jiangsu ECC) and IIP are working together to pilot EnMS in two selected enterprises. In 2014, IIP organized an EnMS expert team to deliver training to Jiangsu ECC and enterprises on EnMS establishment and energy review methodology, which was helpful for improving the capacity of participants. We are looking forward to working with IIP to further promote EnMS in other enterprises by using their EnMS approach, tools and guidance.”

– Ma Wuzhong, director of Jiangsu ECC



China's coal consumption cap

The Natural Resources Defense Council (NRDC) is working on a major policy research effort to develop a coal consumption cap analysis and strategy that will enable Chinese coal use to peak by 2020, or as soon as possible, and decline thereafter. The research is being implemented by 19 Chinese research units and professional associations with input from relevant senior experts and officials. Several international organizations, including IIP, were asked to assist with the research in order to provide Chinese government leaders with robust recommendations.

IIP has been specifically requested by NRDC, and the Chinese research institutes and industry associations that make up the project's working groups, to provide the best practice and international knowledge inputs to the research and planning.

In 2014, IIP started researching and writing two primary reports that will be completed in 2015: a roadmap for coal displacement in cement production with the use of alternative fuels and raw materials (AFR); and a joint China-German case study about how Germany's Ruhr Valley cut coal production and restructured its local coal and iron and steel dependent industry.



“Coal accounts for 70 percent of China's energy consumption. Our project aims to give policy recommendations to China's government on coal consumption control. However, it encompasses many complicated issues, such as economic restructuring, industrial transformation, energy efficiency, and alternative fuel resources (AFR). IIP's research on Germany's Ruhr Valley and AFR in the Coal Cap Project sheds light on international best practices and lessons learned, and are inspirational to Chinese policy-makers. IIP's contributions in regards to technical advice and research are highly respected. We look forward to an even closer partnership in the later stage of the project.”

– Dr Fuqiang Yang, Senior Adviser on Climate, Energy and Environment, NRDC China Program

Less than 1 percent

of Indian cement manufacturers use alternative fuels and raw materials. Instead, they depend on coal to drive production.

By lifting that figure to just 15 percent, they could save up to \$2.5 billion in cumulative fuel costs and reduce their CO₂ emissions by 16.2 million tons.*

* Cement Manufacturers' Association figures.

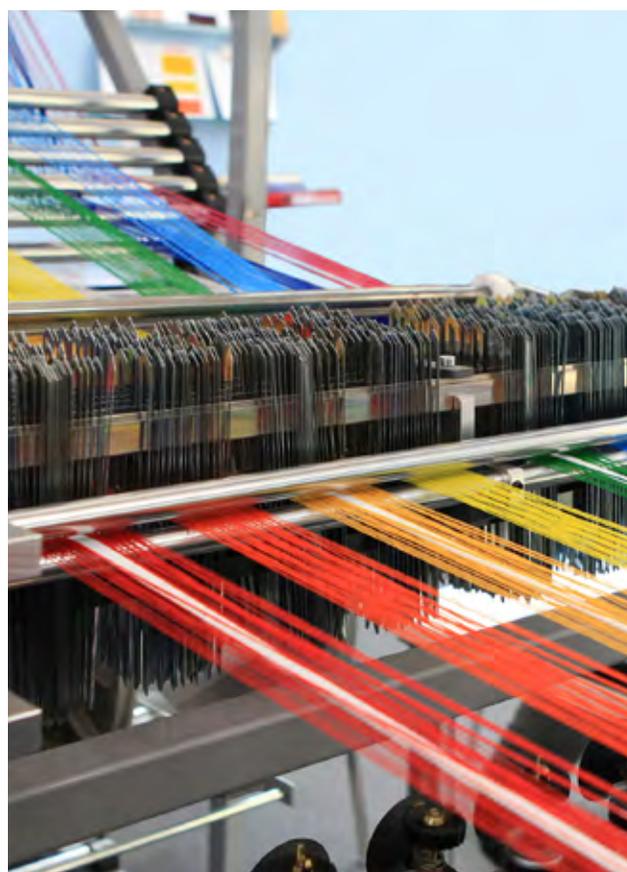


Promoting resource efficiency across the supply chains of key sectors in South Asia

Policy-makers in South Asia are increasingly focusing on how the development of small and medium-sized enterprises (SMEs) and agro-based value chains can promote economic growth and reduce poverty. Agriculture and SMEs already account for a major share of the workforce in developing countries, provide employment to millions (both directly as well as indirectly), and contribute to gross domestic product and export earnings. However, these sectors also have high dependence on natural resources (land, water, energy and forests), they reduce the quality of the environment (waste, pollution, resource depletion), and they can adversely affect people (poor working conditions, insecure livelihoods).

Using supply chains to address environmental and social issues can help in dealing with these challenges. If effectively implemented, supply chain initiatives can have a positive impact on:

- ensuring the sustainable supply of natural resources, raw materials and other inputs;
- the profit margins of SMEs and primary producers;
- employment;
- access to better markets for small and medium-sized enterprises;
- influencing government and public procurement policies;
- creating business linkages with large national and international buyers;
- improving the quality of life for workers and their families through better access to education, health and other facilities;
- creating better and safer workplaces; and
- reducing the impact on the environment.



IIP has initiated a project to tap into this potential by promoting Indian best practices, technologies and policies in key sectors in Bangladesh and Nepal. The project, supported by UK's Department for International Development (DFID) made substantial progress in 2014, particularly in terms of creating a critical mass of supportive partners. IIP facilitated multi-stakeholder dialogue to enable sector-wide action and policies and identify technologies, policies and financing options. The project is expected to result in policy and regulatory reforms that address the technical, environmental and social challenges, and provide the impetus necessary for mainstreaming resource conservation measures.



Knowledge Exchange Platform (KEP)

With funding from the British High Commission, IIP helped develop a vibrant Knowledge Exchange Platform in partnership with India's Bureau of Energy Efficiency (BEE).

The aim of the platform is to facilitate the sharing of best practices and the development of policies that can accelerate industrial energy efficiency in India's most energy-intensive industry sectors. It is intended to serve as hub for knowledge exchange and a venue for government-industry interface for

all subsequent cycles of the Perform Achieve and Trade (PAT) scheme, a flagship initiative of BEE that promotes energy efficiency in large industries.

In the short to medium-term, the Platform will facilitate better implementation of the PAT scheme; while in the long-term, it will play an important role in promoting energy management systems and greater adoption of ISO 50001 by Indian industry. The vision is to develop the Platform as a regional knowledge hub on industrial energy efficiency.



The team behind the Knowledge Exchange Platform.

“The Knowledge Exchange Platform – a joint initiative of BEE and IIP – holds enormous promise for unlocking energy efficiency potential in the industry sector through the exchange of best practices and peer-to-peer learning, complementing BEE’s PAT program.”

K.K. Chakarvarti, Energy Economist, Bureau of Energy Efficiency



Policy reform to promote AFR in the Indian cement industry

IIP, in partnership with the Cement Manufacturers' Association of India (CMA), is helping to promote the use of alternate fuel and raw (AFR) material use in cement manufacture as one of the key measures for reducing emissions, reducing dependence on coal, and facilitating the effective disposal of solid wastes.

IIP-India launched the initiative in 2012 with the CMA. Together they have been successful in identifying ways to mainstream AFR by addressing the technical, policy, regulatory and financial barriers.

In 2014, IIP significantly ramped up its initiative for promoting the use of AFR in the Indian cement industry. The Forum of Regulators (FOR) created by IIP – and the subsequent policy recommendations – led the Central Pollution Control Board and the Government of India to create a National Task Force on Co-processing. This is a major policy win for IIP and will greatly help in mainstreaming AFR use.

A [compendium of white papers on AFR](#) was developed by IIP and was published in December 2014.

IIP also developed an innovative partnership with the Indian Institute of Corporate Affairs (IICA) to get municipal solid waste co-processing considered as part of a company's corporate social responsibility (CSR) work. The initiative is designed to help the industry meet the compliance requirements under the CSR Act, reduce its coal usage, and find long-term sustainable solutions for managing urban waste. As part of this initiative, IIP organized a virtual roundtable discussion in March 2014 with the CEOs of several of India's biggest cement companies to assess their willingness to invest their CSR funds.

“IIP and CMA's joint initiative to promote AFR can go a long way to not only reducing the industry's dependence on fossil fuels but also addressing the burning issue of waste management in an effective manner.”

– N.A. Viswanathan, Secretary General, Cement Manufacturers' Association (CMA)



New Efforts

IIP will participate in two new global projects in 2015, both of which have the potential to trigger significant investments in energy efficiency.

Accelerating Energy Efficiency Financing

IIP is supporting the European Bank for Reconstruction and Development (EBRD) on a project to replicate the bank's successful integration of energy efficiency financing into its standard loan operations. This project is particularly significant because the vast potential for energy-savings opportunities remains unrealized, even though financial returns are strong. This is especially the case in developing countries where energy demand and CO₂ emissions are set to rise with demographic and economic growth and the continuous expansion of a new urban middle-class. The potential annual investment in industry is massive at an estimated at \$5 trillion.

This initiative was selected as one of the finalists from over 25 projects submitted in the Finance for Resilience intervention at the 2014 Bloomberg New Energy Finance Summit.

With support from the Global Environment Facility (GEF) and EBRD, IIP is now preparing a market assessment, providing advice and support on the design of the program and outreach to banks in China and India, and engaging in discussion with stakeholders through workshops and EBRD missions. EBRD will launch a second phase in mid-2015 that will include the development of operational strategies and financial products with cooperating banks in these key countries.

Sustainable Energy for All (SE4All) Industry Accelerator Platform

IIP is serving as a co-convener for the SE4All Industrial Energy Efficiency Accelerator Platform, a joint UN/World Bank initiative that brings together investors, donors and policy experts to scale up energy efficiency in select geographies. Its objective is to help double the global rate of improvement in energy efficiency by 2030.

IIP is partnering with the United Nations Development Organization (UNIDO) and The Energy and Resources Institute (TERI) on the project.

Together we will provide a platform to:

- support the development of energy efficiency policies;
- build the capacity of enterprises to adopt an EnMS;
- create financing solutions for both governments and enterprises; and
- share knowledge between industrial stakeholders.

The Platform will also help remove the barriers that are currently hampering industrial companies' efforts to improve their energy management.

“The new Industrial Energy Efficiency Accelerator Platform will work by securing commitments from both governments and industry, and by creating a collaborative network to provide industry with tools, resources and best practice information. It is imperative to transform targets into concrete actions on the ground. Through collaborative participation of governments, leading private sector companies, experts and development banks, we will ensure accelerated action.”

– Pradeep Monga, Director of UNIDO's Energy Branch



Financial Overview

Audited Statement of Financial Position at December 31, 2014

		2014
ASSETS (in US\$ '000s)		
Cash and cash equivalents		\$2,792
Accounts receivable		143
Income tax refund receivable		16
Prepaid expenses and other assets		107
Fixed assets, net		12
TOTAL ASSETS		\$3,070
LIABILITIES AND NET ASSETS (in 000's)		
LIABILITIES		
Accounts payable		\$42
Accrued expenses		95
Salaries and taxes payable		77
Total liabilities		\$214
NET ASSETS		
Unrestricted		177
Temporarily restricted		2,679
Total net assets		\$2,856
TOTAL LIABILITIES AND NET ASSETS		\$3,070



Audited Statement of Activities – For the Year Ended December 31, 2014

	2014
CHANGES IN NET ASSETS (in US\$ '000s)	
Revenues, gains and public support:	
Foundation grants	\$4,320
Consulting revenue	338
In-kind contributions	51
Total revenues, gains and public support	\$4,709
Expenses:	
Initiatives by region	
China	925
India	253
USA	284
Global	888
Consulting services	241
Total program services	\$2,591
Support services:	
Fundraising	34
Management and general	508
Total support services	\$542
Total expenses	3,133
CHANGE IN NET ASSETS	\$1,575

The information in this report provides a summary of our financials and activities. We are fully transparent about our funding sources and revenue – all of which go towards our mission to spur industry to improve its energy efficiency – so if you would like full financial information, please contact us.

Fundraising

In 2014, we secured \$1.5 million from a total of 14 funders – including global foundations, national industry associations, governments and multilateral agencies.



Acknowledgments

We would like to thank all of our 2014 funders and partners for their contribution to our work. Your time, expertise and financial contributions are highly valued and we look forward to working with you again in the future.

In particular, we would like to acknowledge the following individuals and organizations:

American Council for an Energy Efficient Economy
American Gas Association (US)
Asian Development Bank
Australian Government, Department of Industry and Science
Bureau of Energy Efficiency (India)
Carbon Trust
CDP
Cement Manufacturers' Association (India)
Center for Industrial Energy Efficiency (China)
Central Pollution Control Board (India)
China Banking Regulatory Commission
China Cement Association
China Iron and Steel Association
Clean Energy Ministerial
Clean Energy Solutions Center
ClimateWorks Foundation
David Gardiner & Associates
Dezhou Energy Conservation Center
Econoler
Energy Foundation
Energy Foundation China Energy Research Institute,
National Development and Reform Commission (China)
Energy Resources Center, University of Illinois at Chicago
European Bank for Reconstruction and Development
European Council for an Energy Efficient Economy
Fertilizer Association of India

Fresh Energy (US)
Global Superior Energy Performance Partnership
Great Plains Institute (US)
IKEA
International Energy Agency
International Finance Corporation, a member of the
World Bank Group
Jiangsu Provincial Energy Conservation Center
Lawrence Berkeley National Lab (US)
National Electric Manufacturers Association (US)
National Energy Conservation Center (China)
Natural Resources Defense Council
Oak Ridge National Lab (US)
Organisation for Economic Development and Cooperation
Paulson Institute
Philips
Sichuan Provincial Energy Conservation Center
State & Local Energy Efficiency Action Network (US)
TERI (India)
UNIDO
United Kingdom Department for International Development
United Nations Industrial Development Organization
United Nations Foundation
US Council for Energy-Efficient Manufacturing
US Department of Energy
World Bank Group
World Business Council for Sustainable Energy
World Resources Institute
World Steel Association

Contact us

Find out more about our work at www.iipnetwork.org

If you have a question about our work, please get in touch.

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