Global ISO 50001 Achievements:
Reducing costs, energy use, and CO₂ emissions around the world
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In 2019, 32 organizations across 19 countries/economies received global recognition. This booklet highlights their successes using the ISO 50001 energy management system standard.

The Clean Energy Ministerial’s Energy Management Working Group (EMWG) has been driving the global dialogue on quality ISO 50001 implementation since 2010.

To showcase leading organizations and share their ISO 50001 energy management successes, the EMWG organizes the Energy Management Leadership Awards.

To qualify for these awards, organizations prepare case studies to share a high-quality and replicable description of their ISO 50001 implementation and certification, resulting business benefits, and useful advice on lessons learned and keys to success. An independent panel of international experts select the winners.

In 2019, 32 organizations (with facilities in 19 countries or economies) received global recognition.

Four organizations receive the top honor, the Award of Excellence in Energy Management, at the tenth Clean Energy Ministerial (CEM10) in Vancouver, British Columbia, Canada:

- 3M Company (Global),
- Areej Vegetable Oils & Derivatives (Oman),
- JK Tyre & Industries, Ltd. (India), and
- PT Pupuk Kalimantan Timur (Indonesia).

Another 28 organizations received Energy Management Insight Awards for helping to build global insight on the benefits of energy management systems.

This booklet highlights the business benefits achieved by the awardees through use of ISO 50001. All awardees are listed on page 5, and at the end of the booklet, awardees are listed by country/economy and by sector.

Clean Energy Ministerial
The Clean Energy Ministerial (CEM) is a high-level international forum that promotes policies and programs to advance clean energy.

Through the EMWG, government officials worldwide share best practices and leverage their collective expertise to accelerate the use of EnMS in industry and commercial buildings.

Governments participating in the EMWG include Argentina, Australia, Canada, Chile, China, Denmark, the European Commission, Germany, India, Indonesia, Japan, Mexico, Republic of Korea, Saudi Arabia, South Africa, Sweden, United Arab Emirates, and the United States. The EMWG was launched in 2010 by the CEM and International Partnership for Energy Efficiency Cooperation.

www.cleanenergyministerial.org/EnergyManagement
ISO 50001 is a framework to help organizations of all sizes and in diverse sectors continually improve their energy performance and reduce emissions.

Why ISO 50001?

Countries and organizations are looking for strategies to reduce energy and carbon emissions. A strategic approach to energy management has demonstrated value. Energy efficiency is the least expensive, most quickly deployable, and cleanest of all energy resources.

ISO 50001 Energy management systems – Requirements with guidance for use (or simply “ISO 50001”) is the international energy management standard that represents the efforts of over 50 countries from around the world to develop an international best practice to help organizations better manage energy.

Leading organizations around the world are achieving their energy and carbon reduction goals using the global ISO 50001 standard for energy management systems. These early adopters are proving the business value of ISO 50001 and paving the way for its broad implementation.

The CEM Energy Management Leadership Awards highlight the clear energy, environmental, and business benefits achieved by the diverse types of organizations that invest in energy efficiency.

The 2019 class of awardees includes organizations at both ends of the spectrum in energy management experience—from single facilities to enterprise-wide platforms—showing that all organizations can use the ISO 50001 energy management system standard to advantages sectors and around the globe.

Collectively, all 32 organizations report annual energy cost savings of up to USD 57 million and emissions reductions of up to 554 million metric tons of carbon dioxide—the equivalent of taking seven million passenger vehicles off the road.
CEM 2019 AWARDS OF EXCELLENCE IN ENERGY MANAGEMENT

3M Company
Belgium: Zwijndrecht
Canada (7 sites): Brockville (2); London; Morden; Perth (2); Saint-Laurent
France: Tilloy
Germany (7 sites): Hilden; Jeuchen; Kamen; Kempten; Neuss; Seefeld; Wuppertal
Poland (3 sites): Wroclaw (3)

Republic of Korea (3 sites): Hwaseong (2); Naju-si
Taiwan: Tainan
United States of America (7 sites): Aberdeen, SD; Cordova, IL; Cottage Grove, MN; Cynthiana, KY; Decatur, AL; Hutchison, MN; Prairie du Chein, WI

Areej Vegetable Oil & Derivatives
Oman: Russayl

JK Tyre & Industries, Ltd.
India: Chennai

PT Pupuk Kalimantan Timur
Indonesia (2 sites): Bontang (2)

CEM 2019 ENERGY MANAGEMENT INSIGHT AWARDS

3M Canada
Canada (7 sites): Brockville (2); London; Morden; Perth (2); Saint-Laurent

A-Evangelista S.A.
Argentina: Ezeiza

Aguas Andinas S.A.
Chile (6 sites): Santiago (6)

ArcelorMittal Dofasco G.P.
Canada: Hamilton

Bambi
Serbia: Pozarevac

Dubai Electricity & Water Authority (DEWA)
United Arab Emirates: Dubai

Fiat Chrysler Automobiles
Brazil: Betim

Haier Group Company
China: Qingdao

Henan Xinliangxin Fertilizer Co., Ltd.
China: Xinxiang City

Hubei Xiangyun (Group) Chemical Co., Ltd.
China: Wuxue City

Ingersoll Rand
Mexico: Monterrey

Jing Brand Co., Ltd.
China: Huangshi City

Mall Plaza
Chile (15 sites): Antofagasta; Calama; Concepción; Copiapó; Iquique; La Serena; Los Ángeles; Santiago (7); Talcahuano

Mastellone Hnos. S.A.
Argentina (2 sites): General Rodríguez (2)

METRO S.A.
Chile: Santiago

MONDINO SRL
Argentina: Rosario

Ningxia Eppen Biotech Co., Ltd.
China: Yinchuan

Pampa Energia S.A.
Argentina: Marcos Paz

PT Chandra Asri Petrochemical
Indonesia (2 sites): Cilegon

Qingtongxia Aluminum Industry Stock Co., Ltd.
China (6 sites): Ningdong; QingTongXia (5)

Shenzhen Airport (Group) Co., Ltd.
China (10 sites): Shenzhen (10)

Terminales Río de la Plata S.A.
Argentina: Puerto Nuevo

Wyeth Nutrition
Ireland: Askeaton

Yishui Shanshui Cement Co., Ltd.
China: Linyi City

YPF SA (Headquarters)
Argentina: Puerto Madero

YPF SA (Petrochemical)
Argentina: Ensenada

Yumen Oil Field Company
China (7 sites): JiuQuan (7)

Zaozhuang Innovative Landscape Cement Co., Ltd.
China: Zaozhuang City
CEM Energy Management Leadership Awards
Congratulations to the 2019 Award Recipients!
In 2019, four organizations earned the top honor, the Award of Excellence in Energy Management:

**3M Company**

*30 sites globally*

3M expanded its ISO 50001 expertise and certification from two initial plants in 2011 (pilot study) to 30 sites in seven countries as part of its global enterprise model. Over three years, the 30 sites improved their collective energy performance by 4.5%—reducing energy use by more than 1.9 million GJ, cutting emissions by 330,000 tons (carbon dioxide equivalent), and lowering energy costs by USD 13.5 million.

**Areej Vegetable Oils & Derivatives**

*1 site in Oman*

Areej Vegetable Oils & Derivatives S.A.O.C (AVOD), the first company in Oman to achieve ISO 50001 certification, used its ISO 50001-certified EnMS to reduce natural gas use 23% and electricity use 11% over a one-year performance period. The plant installed energy meters; trained and engaged staff members; made simple changes in daily operations; and installed more energy efficient motors, pumps, and variable frequency drives.

**JK Tyre & Industries, Ltd.**

*1 site in India*

JK Tyre & Industries Ltd. of India saved nearly USD 1.8 million over a six-year period as its Chennai Plant gained certification and recertification to ISO 50001. By identifying the pieces of equipment that use the most energy, the plant prioritized opportunities for energy savings. In addition to using more renewable energy, the plant installed devices that alert staff to even slight increases in energy use and upgraded multiple systems to reduce both energy and water demand.

**PT Pupuk Kalimantan Timur**

*2 sites in Indonesia*

PT Pupuk Kalimantan Timur in Indonesia has certified two plants to ISO 50001. As the largest fertilizer company in Southeast Asia, the company supplies more than six million tons of product to domestic and foreign markets. The EnMS system led the state-owned company to upgrade operations and equipment at the two plants to save more than 866,000 GJ and USD 3.9 million in energy costs. An internal award for energy-saving innovations has led to two patents.
3M Company

ISO 50001 Certified:
30 sites globally

Cost savings: $13.5 million over 3 years
CO$_2$ reduction: 330,000 metric tons
Areej Vegetable Oils & Derivatives

ISO 50001 Certified:
Areej Vegetable Oils & Derivatives
S.A.O.C

Cost savings: $779,000 over 1 year
CO₂ reduction: 11,382 metric tons
JK Tyre & Industries, Ltd.

ISO 50001 Certified:
Chennai Tyre Plant

Cost savings: $1,790,676 over 6 years
CO₂ reduction: 144,932 metric tons
PT Pupuk Kalimantan Timur

ISO 50001 Certified:
PKT-3 Plant & PKT-1A Plant

Cost savings: PKT-3: $3,696,325 over 2.5 years; PKT-1A: $225,529 over 1 year
CO₂ reduction: PKT-3: 40,896 metric tons; PKT-1A: 2,670 metric tons
In addition, 28 organizations received Energy Management Insight Awards in 2019 for helping to build global insight on the benefits of energy management systems in industrial and commercial facilities.
3M Canada

ISO 50001 Certified:
7 sites in Canada

Cost savings: $3,960,000 over 3 years
CO$_2$ reduction: 27,200 metric tons
A-Evangelista S.A.

ISO 50001 Certified:
Planta Canning

Cost savings: $44,182 over 2 years
CO₂ reduction: 212.5 metric tons
Aguas Andinas S.A.

**ISO 50001 Certified:**

6 sites in Chile

Cost savings: $1,076,893 over 1 year
CO$_2$ reduction: 7,689 metric tons
ArcelorMittal Dofasco G.P.

ISO 50001 Certified:
ArcelorMittal Dofasco G.P.

Cost savings: $15,325,000 over 3 years
CO₂ reduction: 398,772 metric tons
Bambi

ISO 50001 Certified:

Bambi

Cost savings: ~$110,000 over 2 years
CO₂ reduction: 1,325.66 metric tons
Dubai Electricity & Water Authority (DEWA)

ISO 50001 Certified:
Dubai Electricity & Water Authority
Head Office

Cost savings: $75,747 over 3 years
CO$_2$ reduction: 105.66 metric tons
Fiat Chrysler Automobiles

ISO 50001 Certified:
FCA Betim Powertrain

Cost savings: $1,430,880 over 3 years
CO₂ reduction: 3,644 metric tons
Haier Group Company

ISO 50001 Certified:
Haier Group Company

Cost savings: $50 million over 5 years
CO₂ reduction: 157,105.02 metric tons
Henan Xinlianxin Fertilizer Co., Ltd.

ISO 50001 Certified:
Henan Xinlianxin Fertilizer Co., Ltd.

Cost savings: $37.5 million over 5 years
CO₂ reduction: 560,930 metric tons
Hubei Xiangyun (Group) Chemical Co., Ltd.

ISO 50001 Certified:
Hubei Xiangyun (Group) Chemical Co., Ltd.

Cost savings: $1,863.07 over 3 years
CO₂ reduction: 297,664.2 metric tons
Ingersoll Rand

ISO 50001 Certified:
Ingersoll Rand Manufactura S de R.L de C.V.

Cost Savings: $785,880 over 5 years
CO₂ Reduction: 3,140 metric tons
Jing Brand Co., Ltd.

ISO 50001 Certified:
Jing Brand Co., Ltd.

Cost savings: $3.02 million over 3 years
CO₂ reduction: 29,164 metric tons
Mall Plaza

**ISO 50001 Certified:**
15 sites in Chile

Cost savings: $1,982,278 over 1 year
CO₂ reduction: 14,951 metric tons
Mastellone Hnos. S.A.

ISO 50001 Certified:
Complejo Pascual Mastellone & Planta Armonia

Cost savings: $522,733 over 1 year
CO₂ reduction: 3,456 metric tons
ISO 50001 Certified:
Salvador Station - Line 1
Cost savings: $3,425 over 1 year
CO₂ reduction: 9,146 metric tons
MONDINO SRL

ISO 50001 Certified:
MONDINO SRL

Cost savings: $1,710.65 over 1 year
CO₂ reduction: 2.29 metric tons
Ningxia Eppen Biotech Co., Ltd.

ISO 50001 Certified:
Ningxia Eppen Biotech Co., Ltd.

Cost savings: ~$4.71 million over 3 years
CO$_2$ reduction: ~912,258 metric tons
Pampa Energía S.A.

ISO 50001 Certified:
Central Termoeléctrica Genelba

Cost savings: $1,469,600 over 5 years
CO₂ reduction: 96,490 metric tons
PT Chandra Asri Petrochemical

ISO 50001 Certified: Polymer Plant & Cracker Plant

Cost savings: $6.36 million over 2 years
CO₂ reduction: 55,697 metric tons
Qingtongxia Aluminum Industry Stock Co., Ltd.

ISO 50001 Certified:
6 sites in China

Cost savings: $15 million over 4 years
CO₂ reduction: 203,797 metric tons
Shenzhen Airport (Group) Co., Ltd.

**ISO 50001 Certified:**
10 sites in China

Cost savings: $318,530.30 over 3 years
CO$_2$ reduction: 14,959.73 metric tons
Terminales Río de la Plata S.A.

**ISO 50001 Certified:**
Puerto Buenos Aires

Cost savings: $2,013,300 over 4 years
CO₂ reduction: 9,278 metric tons
Wyeth Nutrition

ISO 50001 Certified:
Wyeth Nutrition

Cost savings: $2,790,667 over 7 years
CO₂ reduction: 24,161 metric tons
Yishui Shanshui Cement Co., Ltd.

ISO 50001 Certified:
Yishui Shanshui Cement Co., Ltd.

Cost savings: $382,329 over 4 years
CO₂ reduction: 182,754 metric tons
YPF SA (Headquarters)

ISO 50001 Certified:
Torre YPF Puerto Madero

Cost savings: $2.77 million over 7 years
CO₂ reduction: 15,017.76 metric tons
YPF SA (Petrochemical)

ISO 50001 Certified:
Petrochemical YPF

Cost savings: $9,561,000 over 4 years
CO₂ reduction: 98,378,280 metric tons
Yumen Oil Field Company

ISO 50001 Certified:
7 sites in China

Cost savings: $6.854 million over 3 years
CO₂ reduction: 62,500 metric tons
Zaozhuang Innovative Landscape Cement Co., Ltd.

ISO 50001 Certified:
Zaozhuang Innovative Landscape Cement Co., Ltd.

Cost savings: $789,077 over 1 year
CO₂ reduction: 2,840 metric tons
### 2019 Participating Organizations, by Sector

<table>
<thead>
<tr>
<th>Sector</th>
<th>Organization</th>
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<tbody>
<tr>
<td>Agriculture Manufacturing</td>
<td>Ningxia Eppen Biotech Co., Ltd.</td>
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<tr>
<td>Aluminum Manufacturing</td>
<td>Qingtongxia Aluminum Industry Stock Co., Ltd.</td>
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<tr>
<td>Automotive &amp; Parts Manufacturing</td>
<td>Fiat Chrysler Automobiles</td>
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<tr>
<td>Cement Manufacturing</td>
<td>Yishui Shanshui Cement Co., Ltd.</td>
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<td>Zaozhuang Innovative Landscape Cement Co., Ltd.</td>
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<tr>
<td>Chemicals Manufacturing</td>
<td>Henan Xinlianxin Fertilizer Co., Ltd.</td>
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<tr>
<td>Electrical Equipment Manufacturing</td>
<td>Haier Group Company</td>
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<td>Fertilizer Manufacturing</td>
<td>Hubei Xiangyun (Group) Chemical Co., Ltd.</td>
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<tr>
<td>Food and Beverage Manufacturing</td>
<td>Areej Vegetable Oil &amp; Derivatives</td>
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<td>Bambi</td>
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<td></td>
<td>Jing Brand Co., Ltd.</td>
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<td>Mastellone Hnos. S.A.</td>
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<td>Wyeth Nutrition</td>
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<td>Iron Steel and Fabricated Metals Manufacturing</td>
<td>A-Evangelista</td>
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<td>ArcelorMittal Dofasco G.P.</td>
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<tr>
<td>Machinery Manufacturing</td>
<td>Ingersoll Rand</td>
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<td></td>
<td>MONDINO SRL</td>
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<tr>
<td>Manufacturing (General)</td>
<td>3M Company</td>
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<td></td>
<td>3M Canada</td>
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<tr>
<td>Oil and Gas Production</td>
<td>YPF S.A. (Headquarters)</td>
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<td></td>
<td>Yumen Oil Field Company</td>
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<tr>
<td>Petrochemical</td>
<td>PT Chandra Asri Petrochemical</td>
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<td>PT Pupuk Kalimantan Timur</td>
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<td></td>
<td>YPF S.A. (Petrochemical)</td>
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<tr>
<td>Power Generation</td>
<td>Dubai Electricity &amp; Water Authority (DEWA)</td>
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<td>Pampa Energia S.A.</td>
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<td>Public Transportation</td>
<td>METRO S.A.</td>
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<td>Shenzhen Airport (Group) Co., Ltd.</td>
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<tr>
<td>Retail</td>
<td>Mall Plaza</td>
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<tr>
<td>Rubber Manufacturing</td>
<td>JK Tyre &amp; Industries, Ltd.</td>
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<tr>
<td>Shipping Ports</td>
<td>Terminales Rio de la Plata S.A.</td>
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<tr>
<td>Water and Wastewater</td>
<td>Aguas Andinas</td>
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<td>Shipping Ports</td>
<td>Terminales Rio de la Plata S.A.</td>
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<td>Shenzhen Airport (Group) Co., Ltd.</td>
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<td>Country/Region</td>
<td>Participating Organizations</td>
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<tr>
<td>Argentina</td>
<td>A-Evangelista, Ezeiza, Buenos Aires</td>
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<td></td>
<td>Mastellone Hnos. S.A., General Rodríguez, Buenos Aires</td>
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<td></td>
<td>MONDINO SRL, Rosario, Santa Fe</td>
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<td>Pampa Energía S.A., Marcos Paz, Buenos Aires</td>
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<td></td>
<td>Terminales Río de la Plata S.A., Puerto Nuevo, Buenos Aires</td>
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<td></td>
<td>YPF S.A. (Headquarters), Puerto Madero, Buenos Aires</td>
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<td></td>
<td>YPF S.A. ( Petrochemical), Ensenada, Buenos Aires</td>
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<tr>
<td>Belgium</td>
<td>3M Company*, Zwijndrecht, Antwerp</td>
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<tr>
<td>Brazil</td>
<td>Fiat Chrysler Automobiles, Betim, Minas Gerais</td>
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<tr>
<td>Canada</td>
<td>3M Company*, Brockville, Ontario; London, Ontario; Morden, Manitoba; Perth, Ontario; Saint-Laurent, Quebec</td>
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<td>3M Canada, Brockville, Ontario; London, Ontario; Morden, Manitoba; Perth, Ontario; Saint-Laurent, Quebec</td>
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<td>ArcelorMittal Dofasco G.P., Hamilton, Ontario</td>
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<tr>
<td>Chile</td>
<td>Aguas Andinas, Santiago, Santiago Province</td>
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<tr>
<td></td>
<td>Mall Plaza, Antofagasta, Antofagasta Province; Calama, El Loa Province; Concepción, Concepción Province; Copiapó, Copiapó Province; Iquique, Iquique Province; La Serena, Elqui Province; Los Ángeles, Bio Bio Province; Santiago, Santiago Province; Talcahuano, Concepción Province</td>
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<tr>
<td></td>
<td>METRO S.A., Santiago, Santiago Province</td>
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<td>China</td>
<td>Haier Group Company, Qingdao, Shandong</td>
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<td>Henan Xinlianxin Fertilizer Co., Ltd., Xinxiang City, Henan</td>
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<td>Ningxia Eppen Biotech Co., Ltd., Yinchuan, Ningxia</td>
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<td>Qingtongxia Aluminum Industry Stock Co., Ltd., Ningdong, Hechi; QingTongXia, Ningxia</td>
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<td>Shenzhen Airport (Group) Co., Ltd., Shenzhen, Guangdong Province</td>
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<td>Yishui Shanshui Cement Co., Ltd., Linyi City, Shandong</td>
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<td></td>
<td>Yumen Oil Field Company, JiuQuan, Gansu</td>
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<td></td>
<td>Zhaozhuang Innovative Landscape Cement Co., Ltd., Zhaozhuang City, Shandong</td>
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<tr>
<td>France</td>
<td>3M Company*, Tilloy-lez-Cambrai, Nord</td>
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<tr>
<td>Germany</td>
<td>3M Company*, Hilden, North Rhine-Westphalia; Jüchen, North Rhine-Westphalia; Kamen, North Rhine-Westphalia; Kempten, Bavaria; Neuss, North Rhine-Westphalia; Seefeld, Bavaria; Wuppertal, North Rhine-Westphalia</td>
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<tr>
<td>India</td>
<td>JK Tyre &amp; Industries, Ltd., Chennai, Tamil Nadu</td>
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<td>Indonesia</td>
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<td></td>
<td>PT Pupuk Kalimantan Timur, Bontang, East Kalimantan</td>
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<tr>
<td>Ireland</td>
<td>Wyeth Nutrition, Askeaton, County Limerick</td>
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<td>Mexico</td>
<td>Ingersoll Rand, Monterrey, Nuevo León</td>
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<td>Oman</td>
<td>Areej Vegetable Oil and Derivatives, Rusayl, Muscat</td>
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<tr>
<td>Poland</td>
<td>3M Company*, Wrocław, Lower Silesian Voivodeship</td>
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<tr>
<td>Republic of Korea</td>
<td>3M Company*, Hwaseong, Gyeonggi Province; Naju, South Jeolla Province</td>
</tr>
</tbody>
</table>

*Indicates sites included in an organization’s global or broader regional submission.
Clean Energy Ministerial

Energy Management Working Group (EMWG)

www.cleanenergyministerial.org/EnergyManagement