



2016 Responsible Care & Sustainability Report  
Highlights



A RESPONSIBLE CARE® COMPANY



## About This Report

Welcome to our 2016 Responsible Care and Sustainability Report.

This is a condensed version of the full report, which is available online at [www.methanex.com/2016RCsustainability](http://www.methanex.com/2016RCsustainability).

This report covers the period from January 1 to December 31, 2016, and focuses on Methanex's performance and impact in five key areas: Sustainable Energy Uses of Methanol, Environment, Workplace, Community, and Product Stewardship.

Our reporting scope includes assets over which Methanex has direct or part ownership and full operational control. In the case of our wholly owned subsidiary Waterfront Shipping Ltd. ([www.wfs-cl.com](http://www.wfs-cl.com)), our reporting boundary includes time- or spot-chartered vessels to the extent that Waterfront has commercial control through charter party contracts.

We report on our activities and achievements as part of our commitment to Responsible Care and sustainability, our accountability to the public, and our pursuit of continual improvement. Our Responsible Care Program is rooted in the Chemistry Industry Association of Canada's Responsible Care ethic, principles for sustainability, and codes of practice ([www.canadianchemistry.ca](http://www.canadianchemistry.ca)). These ethics and principles are recognized by the United Nations and adopted by the global chemical industry. They commit us to:

- Work for the improvement of people's lives and the environment, while striving to do no harm
- Be accountable and responsive to the public
- Proactively protect health and the environment
- Innovate for products and processes that conserve resources
- Engage with business partners to ensure responsible stewardship of our products throughout their life cycle
- Understand and meet expectations for social responsibility
- Work with stakeholders for public policy that enhances sustainability
- Promote awareness of Responsible Care and inspire others to commit to these principles

Please visit [methanex.com](http://methanex.com) for past reports and to learn more about Methanex, our safety policies, and methanol facts. For the complete version of our 2016 Responsible Care & Sustainability Report, please visit [www.methanex.com/2016RCsustainability](http://www.methanex.com/2016RCsustainability).

## Contents

Message from the CEO .....	1
Sustainable Energy Uses of Methanol .....	2
Environment .....	5
Workplace .....	8
Product Stewardship .....	11
Community .....	14
Summary of Responsible Care and Sustainability Indicators .....	17

Cover image:  
Methanex Waitara Valley plant in  
New Plymouth, New Zealand

This report may contain forward-looking statements. By their nature, such forward-looking statements involve risks and uncertainties that could cause actual results to differ materially from those contemplated by the forward-looking statements. For a discussion of these risks and uncertainties, please refer to the Risk Factors section of the Management's Discussion and Analysis, which can be found in our most recent Annual Report or on our website at [www.methanex.com](http://www.methanex.com).

## Message from the CEO

2016 was a year of record production and sales for Methanex, with ten plants in operation in six regions around the globe. The dedication and agility of our teams enabled us to navigate a difficult industry environment, respond to market conditions, and ultimately strengthen our leadership position in the industry, as evidenced by our sales.

Our priority is always the safety and well-being of our employees, contractors, and the communities where we do business.

We strive to keep people safe from harm, both in and outside the workplace. Over the year we saw a substantial improvement in our safety metrics across our operations. This is the result of enhancements we made to our incident-investigation and lessons-learned processes, and a concerted effort to strengthen our safety culture.

Protecting the environment is also central to our Responsible Care program. I am very proud to report that 2016 marked our third consecutive year with zero significant environmental spills. This achievement is the result of our continued focus on spill prevention and on process-safety programs that prevent the loss of containment of substances that can potentially harm people and the environment.

The use of methanol in various energy applications continued to grow in 2016. As a fuel and energy source, methanol is providing solutions to air-quality issues in many regions because of its clean-burning properties. In China, for example, methanol is being used to replace coal in industrial boilers and is helping to improve local air quality. The use of methanol as a vehicle fuel continues to grow as governmental policies are supporting wider commercialization of methanol blends.

Methanol is also being used as a clean-burning fuel for ships. In 2016 we took delivery of seven new methanol-fueled ships into our Waterfront Shipping fleet. The innovative vessels have been running successfully and achieved accolades from the marine industry for their use of clean-burning methanol as an alternative marine fuel.

As demand and new markets for methanol grow, we remain committed to the safe use and transport of methanol. I am proud of the outstanding results we achieved in 2016 for the safe rail transport of our product in North America, evidence of our team's strong commitment to product stewardship. Around the globe, we reached thousands of people last year with methanol safety education seminars, presentations, courses, and meetings. It is imperative that we continue to engage our supply-chain partners, customers, methanol users, and communities to support the safe use and handling of methanol.

Year after year, the commitment of our employees to investing and volunteering in the communities where we live and work is an inspiration to me. I commend the team for the many hours they gave to make a positive impact in their home communities.

As we go forward in 2017, we will continue to collaborate with our stakeholders and focus on Responsible Care and sustainability initiatives in a growing methanol market.



John Floren  
President and Chief Executive Officer



# Sustainable Energy Uses of Methanol



We support the development of new, innovative methanol applications. As the global demand for energy continues to grow, so does the demand for methanol as an alternative source of energy and fuel.

## METHANOL AS A MARINE FUEL

**In 2016, we took delivery of seven new methanol-fueled ships—the first of their kind in the world.**

This groundbreaking achievement was the result of Waterfront Shipping's ([www.wfs-cl.com](http://www.wfs-cl.com)) collaboration with partners Mitsui O.S.K. Lines, Ltd., Westfal-Larsen Management, and Marininvest/Skagerack Invest. These 50,000 dead-weight-tonne vessels are each built with the world's first MAN ME-LGI two-stroke dual-fuel engines.

Operating these engines on methanol significantly improves emissions. These engines can also continue to run on fuel oil, marine diesel oil, or gas oil. The delivery of these ships demonstrates our commitment to innovation in meeting regulatory requirements and in building awareness of sustainable energy applications of methanol.

## GROWING INTEREST IN METHANOL AS A MARINE FUEL

Global regulations for marine fuel continue to develop. In 2016, the International Maritime Organization (IMO) announced a 0.5% global sulphur limit on marine fuel as of January 1, 2020. In addition, China recently introduced similar regulations to limit sulphur content in fuels, as well as nitrogen oxides (NO<sub>x</sub>) and particulate matter.

These new regulations have ship owners worldwide looking for alternatives to conventional marine fuels. Possible solutions include switching to marine gas oil with compliant sulphur levels, installing scrubbers to clean exhaust, and switching to alternative fuels like methanol or liquefied natural gas.

The delivery of Waterfront Shipping's seven time-chartered ships is a prominent demonstration of methanol's viability as a marine fuel.

We collaborated with industry partners to complete the SPIRITH ("alcohol (spirits) and ethers as a marine fuel") demonstration project ([www.u3450026.fsddata.se/about](http://www.u3450026.fsddata.se/about)). This led to the development of the world's first methanol-powered vessel, the Stena Germanica ferry. The Germanica commenced operating on methanol in April 2015.

We're developing solutions for the smaller marine-engine market and are actively engaged with stakeholders in China. We are also partners with the LeanShips project in the EU.





## METHANOL AS A VEHICLE FUEL

### We continue to lead initiatives around the world to promote methanol as a clean-burning vehicle fuel.

In 2016, we engaged in broad education and stakeholder outreach to help communicate the environmental advantages of methanol in energy applications, and to promote the message of Responsible Care, both as an incentive for methanol fuel applications and as a message of safety for its proper handling and use.

For instance, we worked closely with China's Ministry of Industry and Information Technology (MIIT) to promote high-level methanol blending. This is the first time MIIT has ever partnered with a foreign company in this capacity.

As part of that work, we co-led seminars that promoted a methanol-fuel pilot program and shared Responsible Care messages of sustainability and safety. These seminars included 500 participants from all sectors of the methanol value chain and built valuable relationships for further partnerships in this region. Government officials provided positive feedback, stating that these seminars have laid a solid foundation for the safe expansion of methanol fuel application in China. In fact, MIIT is planning to expand the methanol vehicle-fuel pilot program to several new provinces.

We are also exploring pilot demonstration projects in Egypt and Chile to further promote the environmental and economic advantages of methanol in fuel blending.



## POLICY TRENDS ARE DRIVING METHANOL AS A CLEAN VEHICLE FUEL

Around the world, government policies are paving the way to wider commercialization of various methanol blends in vehicle-fuel applications. Here are some highlights:

- China's five-year plan includes clear directives for adopting cleaner energy and improving air quality. Already the largest end user of methanol in low-level blends (15% methanol), China is now seeing growing demand for higher-percentage blends (up to 100%).
- The United Kingdom has implemented a tax exemption for aqua methanol (95% methanol/5% water), in effect from 2016 to 2024.
- In 2016, an M15 standard (15% methanol blend) was developed in Israel.
- After years of advocacy efforts, 3% methanol is expected to be included in New Zealand Fuel Specifications by the end of 2017.
- An American Society for Testing and Materials (ASTM) standard was updated, extending the allowable methanol fuel blend from 70–85% to 51–85%. The new standard will support the adoption of high methanol blends globally.

We'll continue to advocate for methanol's use as a clean fuel and to work with governments and companies worldwide to ensure its safe handling.





## METHANOL AS A RENEWABLE POWER SOURCE

**We supported the development of technical and safety standards to support the growth of methanol-fueled industrial boilers in China.**

For environmental reasons, there has been growing demand for the use of methanol as a fuel for industrial boilers in China, which traditionally burn coal.

In 2016, we established a methanol industrial boiler demonstration project with key partners in the region, including Jinjingda Environmental Thermotechnical Co., Ltd., Beijing Sinder-Vet Technology Co., Ltd., and the China Association of Alcohol and Ether Clean Fuel and Automobiles (CAAFA).

The demonstration boiler will be tested in 2017 with the aim of developing relevant technical and safety standards.

## GLOBAL SYMPOSIUM ADVANCES METHANOL AS VEHICLE FUEL

In 2016, 120 delegates attended the first Global Symposium on Advancing Methanol Engines for Sustainable Transport, hosted by CRI in Reykjavik, Iceland. A highlight from the symposium was a presentation from Fiat-Chrysler, which has advocated the use of methanol as a vehicle fuel and is producing cars specifically for methanol blends in Israel.

Another highlight at the symposium was the launch of Geely's CRI M100 flex-fuel vehicle demonstration in Iceland. This is the first of Geely's 100% methanol vehicles to be used outside of China, and also marks the first use of cars running solely on renewable methanol.

## RENEWABLE METHANOL

**As a key shareholder and partner with Carbon Recycling International (CRI) in their work with renewable methanol, we supported their continued development of health, safety, and environmental practices.**

As interest in renewable methanol projects grows, we believe it is important that robust management systems and practices are in place for safe production, handling, and use of methanol in new markets. This becomes even more crucial as CRI expands its technology with other renewable methanol projects, including those in China and Europe (see [www.carbonrecycling.is](http://www.carbonrecycling.is)).

- Geely, a large vehicle manufacturer in China, announced a strategic investment in CRI last year, and launched a 12-month pilot program in Iceland with seven 100% methanol flex-fuel vehicles powered by Vulcanol, CRI's renewable methanol product.
- In Europe, a four-year project involving 11 companies from six countries will utilize surplus gases from steel production to produce methanol, planned for use as a fuel on the Stena Germanica ferry.
- In collaboration with industrial partners in Europe, CRI is implementing its emissions-to-liquids (ETL) technology in an innovative renewable-fuel pilot plant, which will recycle captured CO<sub>2</sub> from the emissions of a coal-fired power plant.

First cars to run on renewable methanol in Iceland





# Environment

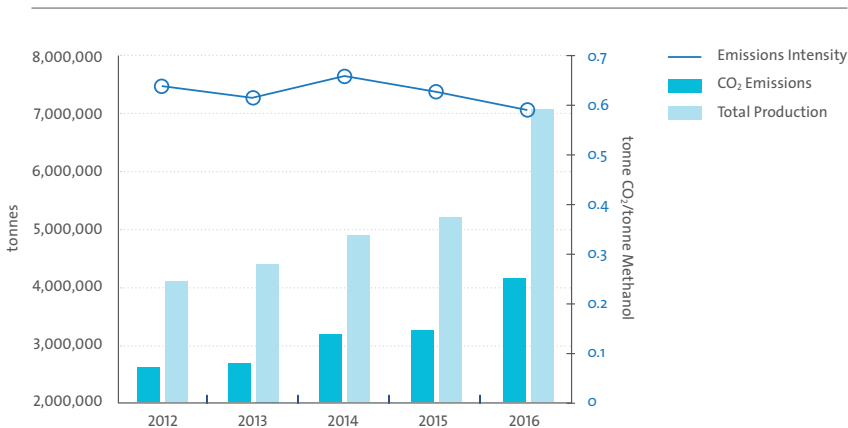
We take a multi-pronged approach to minimize our environmental impact. We make efficient use of natural resources, such as natural gas, energy, and water. We also minimize the production of waste and emissions, and have a comprehensive spill-prevention program.

## EMISSIONS FROM GLOBAL MANUFACTURING

### Our CO<sub>2</sub> emissions intensity from methanol production decreased by 6% compared to 2015.

Methanex generated 4,118,285 tonnes of CO<sub>2</sub> emissions (on an equity basis) from methanol production in 2016. Our total global production of methanol increased 35% from 2015, while CO<sub>2</sub> emissions increased by only 27%. The intensity of CO<sub>2</sub> emissions improved by 6%, from 0.625 tonnes of CO<sub>2</sub> per tonne of methanol in 2015 to 0.587 tonnes of CO<sub>2</sub> per tonne of methanol in 2016. These improvements were mainly due to our new, energy-efficient Geismar 2 plant.

CO<sub>2</sub> Emissions from Methanol Production



## IMPROVED PLANT EFFICIENCY MINIMIZES CO<sub>2</sub> EMISSIONS

Our Damietta plant was due for a turnaround in 2017. However, due to anticipated gas shortages in Egypt and mounting reliability issues at the plant, we decided to take the opportunity to idle the plant in 2016, earlier than anticipated, to do some maintenance and testing prior to the turnaround.

The testing resulted in a decision to replace the reformer catalyst before the scheduled turnaround.

The use of a reformer catalyst is a key step in converting the methane in natural gas to methanol, and its effectiveness is continuously monitored. During the operating life of the catalyst (3–5 years), it becomes less active and less able to promote the conversion of methane to CO<sub>2</sub>—one of the process synthesis gases—to methanol. As the catalyst ages, we adjust production conditions to partially offset the decline in performance and fully utilize this valuable resource before replacement.

In the case of our Damietta plant, after replacing the catalyst, the conversion of methane to methanol improved immediately. This is an example of how we continuously monitor and optimize our operation to maximize energy efficiency, which in turn minimizes associated CO<sub>2</sub> emissions.



## METHANOL AS A MARINE FUEL: BETTER FOR THE ENVIRONMENT

We're seeing an increasing number of companies interested in using methanol as a marine fuel due to its numerous environmental benefits.

To start with, it meets the most stringent emission-control regulations by the International Maritime Organization (IMO). It even meets more stringent standards being considered for the future. Also, when methanol is burned, it produces fewer smog-causing emissions (including sulphur and nitrogen oxide (SO<sub>x</sub> and NO<sub>x</sub>) emissions and particulate matter) than conventional marine fuels, which is better for air quality and related human health issues.

By using methanol as a marine fuel, the emissions of SO<sub>x</sub> are reduced by approximately 99%, NO<sub>x</sub> by 60%, and particulate matter by 95%.

Methanol is also readily biodegradable and more environmentally benign as compared to conventional marine fuels. It mixes quickly in water, and if spilled into open waters it rapidly dissipates to very low nontoxic concentrations, which also facilitates faster biodegradation.

Not only that, methanol can be made from anything that is, or ever was, a plant. Currently, commercial production of methanol primarily uses natural gas, but it can also be produced from renewable sources such as biomass and recycled carbon dioxide.

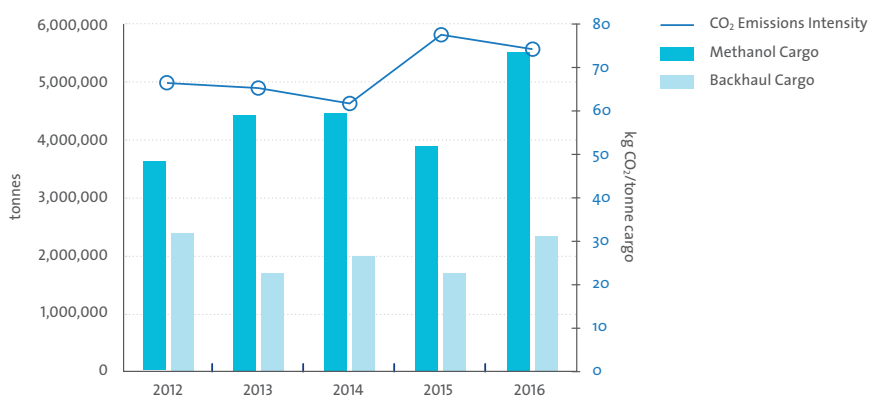
## EMISSIONS FROM MARINE SHIPPING

**We reduced CO<sub>2</sub> emissions intensity from our marine shipping fleet by 5%.**

In 2016, the volume of cargo (i.e., methanol and backhaul cargos) transported by Waterfront Shipping ([www.wfs-cl.com](http://www.wfs-cl.com)) increased significantly (42%), but CO<sub>2</sub> emissions increased by only 31% (from 428,914 tonnes in 2015 to 563,830 tonnes in 2016). Overall, we saw a 5% improvement in CO<sub>2</sub> emissions intensity (from 77.6 to 73.6 kg CO<sub>2</sub> per tonne of cargo carried).

There are several reasons for the improvement. First, Waterfront Shipping replaced some older, less efficient vessels with newer ones that have larger cargo capacities and achieve greater transport efficiency. We also took delivery of seven new dual-fuel vessels, all of which have greater energy efficiency features and are also the first of their kind to run on clean-burning methanol.

Waterfront Shipping CO<sub>2</sub> Emissions

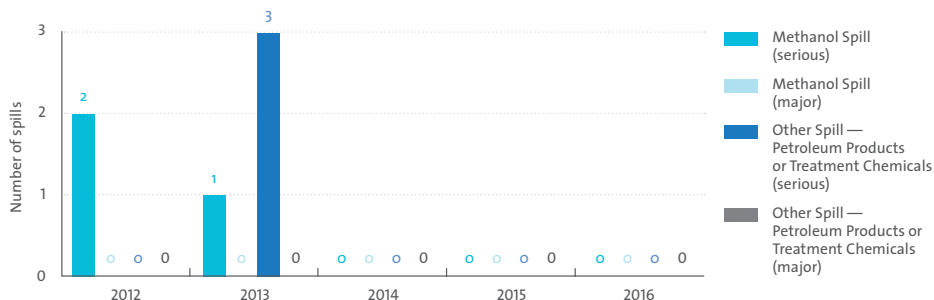


## SPILL PREVENTION AND RESPONSE

**For the third consecutive year, we had zero significant spills.**

We were able to achieve our goal of zero spills due to our continued focus on prevention and lessons learned. Through our process-safety management initiatives, we've increased our monitoring of systems that can impact safety and the environment.

Environmental Spills





## WATER MANAGEMENT

### We decreased the amount of water used for methanol production by 18% to achieve a ratio of 2.38 m<sup>3</sup> water per tonne of methanol.

Four of our sites use water originating from freshwater sources for methanol production. In 2016, these sites consumed 12,624,989 m<sup>3</sup> of fresh water (which excludes ~25% returned to the source as treated wastewater) to produce 5,310,399 tonnes of methanol.

The ratio of water consumed per tonne of produced methanol fell from 2.92 m<sup>3</sup> in 2015 to 2.38 m<sup>3</sup> in 2016. This improved efficiency of our water use is largely due to our new Geismar 2 plant, which consumes less water per tonne of methanol produced.

## WASTE MANAGEMENT

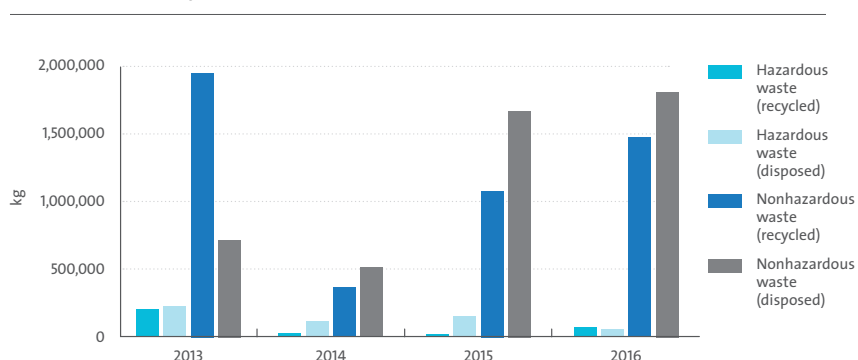
### We recycled or reclaimed approximately 45% of waste generated by plant operations.

From year to year, the amount of waste generated at Methanex is highly dependent on plant turnarounds and projects. In 2016, our Trinidad site had a turnaround, accounting for approximately 33% of our total recycled waste. The majority of recycled material was nonhazardous spent catalysts, steel from machinery, piping, and wood.

Other nonhazardous waste disposed to landfill includes materials such as insulation, spent filtering resins, asphalt, and sludge, which are disposed in accordance with local regulations.

Over the last few years, we've been steadily decreasing the volume of hazardous waste we generate, while recycling as much hazardous waste as possible. In 2016, 3% of our total waste was hazardous, of which half was recycled. On average, more than 95% of our waste is nonhazardous.

Waste Generated/Recycled



## A HOLISTIC APPROACH TO WATER STEWARDSHIP

Water is a feedstock resource needed for manufacturing methanol. It is also a resource for the communities and ecosystems where we operate. These are the key reasons why, in 2016, we developed a water stewardship standard that will help guide our decision-making and program development going forward.

The standard focuses on several key elements:

- Monitoring water risks and addressing impacts to communities, production, and suppliers
- Conserving water by minimizing, reusing, and recycling, and by closely monitoring water use associated with energy consumption
- Protecting water sources by reducing wastewater and contaminants of concern
- Monitoring data specific to water use, water quality, and effluent discharge
- Collaborating with local communities to invest in water stewardship initiatives

Methanex CEO John Floren noted the importance of continuously innovating for safer products and processes that conserve resources and provide value. "This is a great example of where our focus on maintaining and improving efficiency and reliability will simultaneously maintain and improve our environmental performance," he commented.

Water has become a critical component of sustainable and reliable operations. We'll continue to focus on using it efficiently and sharing our progress.

# Workplace



The safety and well-being of our employees, contractors, and the communities in which we do business is our number-one priority. Our talent-management programs are designed to ensure that staff have the knowledge and tools to be successful, and opportunities to maximize their potential.

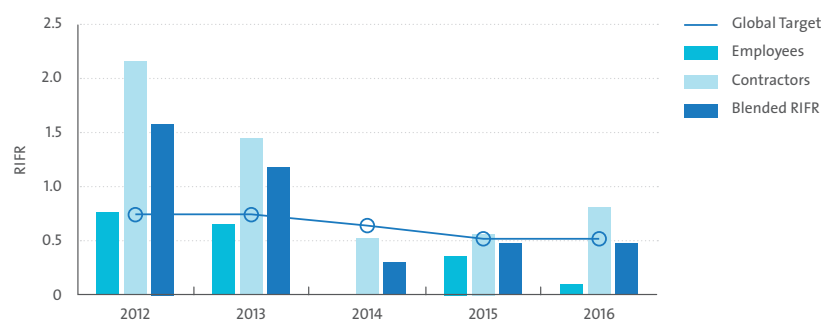
## PREVENTING INJURIES

### We lowered the severity of injuries by 48% over 2015.

The lowered severity rate (see RISR chart, page 9) is largely due to improvements we made to our job planning practices, and greater focus on managing hazards related to high-risk activities, such as confined-space entry, working at height, and electrical work.

However, we did see an increase in injury frequency rates with contractors (see RIFR chart, below), so we made improvements to our contractor-management and job-supervision processes.

Global Recordable Injury Frequency Rate (RIFR)\*



\* Recordable injuries are incidents that require medical attention or that result in restricted work or lost time. The frequency (RIFR) is calculated per 200,000 hours worked.

## REACHING CONTRACTORS WITH OUR SAFETY PROGRAMS

In 2016, we focused on recognizing job hazards, improving job planning, creating consistent safety messaging, and improving communication of Responsible Care standards to decrease contractor incidents. However, we found that contractor incidents continued to rise.

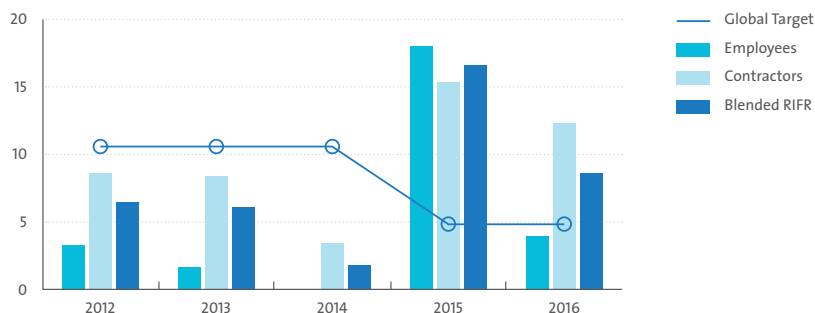
In response, we took additional measures to strengthen contract workers' awareness of hazards on our sites and engage them in our safety culture and preventative measures.

As a result, we focused on providing more detail and instruction in the job-planning stages, especially around hazard mitigation and supervision requirements. In 2017, additional efforts will include incorporating messages from our safety culture program (Switch On to Responsible Care) into our contractor induction; increasing communication with contractors about our standards and Critical Activities, Rules, and Expectations (CARE); and implementing our new Responsible Care Standard for Turnarounds. This standard defines performance requirements during project planning and execution, and places greater focus on the safety and supervision of contractors.

We believe that a zero-injury workplace is achievable—not just for our staff, but for our contractors and everyone in the Methanex community, too.



## Global Recordable Injury Severity Rate (RISR)\*



\* Recordable injury severity rate (RISR) is the ratio of significant incidents, and near-miss incidents with high potential for loss, per total number of incidents reported.

## PROMOTING HEALTH

### We continued to focus on global health promotion and management initiatives.

In 2016, we established a Health and Fitness to Work Network. This global forum helps Methanex health professionals share information, questions, and experiences to enrich their roles in leading health promotion across the organization.

Health-promotion initiatives in 2016 included a screening program for bladder and bowel cancers in New Zealand, a hydration-awareness campaign in Geismar, a weight-loss challenge in Trinidad, and a mental-health awareness week in Vancouver.

## IMPROVING PROCESS SAFETY

### We developed six new process-safety initiatives, focusing on preventing significant incidents related to our product and processes.

Our Process Safety Management (PSM) program is focused on safely containing hazardous materials within the plant systems. In 2016, we improved risk management and global standardization within our PSM programs. This work included:

1. A Process Hazard Analysis standard that defines requirements for risk studies
2. Key performance indicators, now tracked through global reporting systems
3. A standard for critical-process safe operating limits
4. A standard for safety critical equipment, to guide implementation in 2017–2018
5. Globally published acceptance criteria for process-safety risks
6. Agreement on global requirements for process-safety management systems at each site

By understanding and recognizing process-safety risks, we can manage them appropriately and maintain the integrity of our assets and systems.



Mood buttons worn to encourage conversations about wellness during Mental Health Week in Vancouver

### METHANEX NEW ZEALAND OFFERS BLADDER AND BOWEL SCREENING PROGRAMS TO EMPLOYEES

New Zealand has one of the highest rates of bowel cancer in the world, and men have particularly high rates of bladder cancer. However, the country has no national screening programs for bladder or bowel cancer.

That's why health professionals at Methanex's New Zealand plant decided to offer free bladder and bowel screening programs, along with educational and awareness programs, to employees. As a result, 82% of the site's employees participated in the bladder screening and 32% in the bowel screening, for a total of 280 screenings. Fifteen people then received follow-up appointments.

At Methanex, we take employee health and wellness very seriously. We're proud of our health professionals in each region for their work to identify and meet needs, and for their commitment to ensuring that our staff receive health care and information that can help them to live active, healthy lives.

## INSPIRING YOUNG WOMEN IN MEDICINE HAT

In Canada, only 12% of the country's 280,000 professional engineers are women ("Why there are still far too few women in STEM," *Maclean's Magazine*). We'd like to help improve that.

For the past three years, women at our Medicine Hat manufacturing site have worked with a local nonprofit, Operation Minerva, to mentor junior-high girls interested in science, technology, engineering, and math (STEM) careers. When the students visit the site, they are given a personal tour of the plant with their new mentors.

Heather Kempthorne, process engineer at the Medicine Hat facility, is one of the mentors. She began with Methanex as a graduate in training, then served as environmental advisor for six months. In 2017, Heather will assume a supervisor position overseeing the site's laboratory.

She understands firsthand why it's important to support the next generation of women engineers. "As an engineer, I know this career can be daunting for a student," explained Heather. "By participating in Operation Minerva, I'm able to expose students to engineering and help them understand what it really is."

Neela Sookoor (far right), DCS & I/E project coordinator, tours Operation Minerva students through the Medicine Hat plant's control room.



## ENGAGING OUR EMPLOYEES

**Our 2016 Employee Engagement and Culture survey had an outstanding response rate of 93% and gave us valuable feedback about our core values and business processes.**

The response rate from our 2016 survey is a great indication of how invested our employees are in their workplaces. In addition, their top rankings—in the areas of Responsible Care, strategy, and organizational culture—tell us they are aligned with our core values.

Employees told us that we "walk the talk" when it comes to caring for the health and safety of our people and environment. They have a genuine feeling of belonging to a caring family and feel confident in knowing how their individual work roles tie in with our strategic objectives.

While we celebrate these responses, we also look hard at the survey areas where we have room to improve. This is why, in the coming year, we will focus on learning and development opportunities and the effectiveness of our business processes and systems, to address employee concerns in these areas.

## BUILDING OUR RESPONSIBLE CARE CULTURE

**We have trained nearly 1,000 employees and contractors in Switch On to Responsible Care, as well as three more internal workshop facilitators.**

Our Switch On to Responsible Care program reminds people of their own personal reasons for working safely. In 2016, we continued advancing and embedding this message in Switch On workshops for employees and contractors at manufacturing sites.

We now have seven employees who are accredited as internal facilitators for the program. This enables us to continue introducing the message to new employees, and to take the message deeper into our organization and culture.

## PROMOTING DIVERSITY AND INCLUSION

**In 2016, we continued to give importance to diversity and inclusion in our workplace.**

Our Methanex Diversity Policy identifies three key diversity attributes—experiential, demographic, and personal—that enhance and improve our organization (see [www.methanex.com/sites/default/files/about-us/board-governance](http://www.methanex.com/sites/default/files/about-us/board-governance)). In 2016, through our talent-management programs, we continued to foster diverse teams of people from different backgrounds and regions and with unique skills, experience, and perspectives.

We recognize the need to support women in careers in science, technology, engineering, and math (STEM). At our Trinidad manufacturing site, one-half of the process-engineering team is women. Three of the six women on this team started their careers in the Graduate in Training program, one of our talent-management initiatives. Their development included hands-on learning and development opportunities in Trinidad and at other Methanex sites.



# Product Stewardship

Our comprehensive approach to product stewardship safeguards the public, the environment, and the communities in every country where we do business. We promote the proper use and safe handling of methanol, while implementing environmental stewardship and social responsibility across our supply chain.

## VESSEL SAFETY PROGRAM

**We completed 100% of our marine vessel-inspection, crew-training, and safety-visit programs.**

In 2016, vessel inspections and safety training for crews increased proportionately to the increase in our fleet size exceeding our targets. (Refer to table, right.)

In 2016, we continued to see a positive trend in our fleet safety rating, which is based on vessel safety visits. We attribute this to our rigorous Responsible Care training and inspection/ship-visit programs. Based on the number of criteria satisfied in our Safety Visit questionnaire, our fleet safety rating averaged 88%. This is a good level, considering the significant number of vessel changes in the fleet.

We completed eight more Chemical Distribution Institute's Marine (CDI-Marine) inspections than planned and see continued improvement, with a decrease in the average number of observations per vessel and their severity. See [www.cdi.org.uk/marine\\_scheme.aspx](http://www.cdi.org.uk/marine_scheme.aspx) for more information about the CDI-Marine inspection scheme.

In the methanol and nitrogen training sessions, approximately 1,475 crew members received training.

At the 2016 Lloyd's List Global Awards, Waterfront Shipping received Highly Commended recognition in the Company of the Year category, which acknowledges innovation and adaptation to the rapidly changing nature of shipping markets.

### 2016 Vessel Inspections, Visits, and Training

2016 Vessel Safety Program	Planned	Achieved
Vessel safety visits	20	23
Annual Chemical Distribution Institute – CDI-Marine Inspections	20	28
Methanol and nitrogen safety training sessions	70	117



## THE METHANOL GROUP: CREATING SAFER PRACTICES

Safety is always at the heart of our marine vessel practices. That's why, in 2010, The Methanol Group was formed by Waterfront Shipping, along with ship-owning and ship-management companies from its fleet.

Since its inception, the Group has increasingly focused on developing and implementing best practices for safety, health, and environment, as well as sharing of lessons learned.

In June 2016, 14 member-companies of the Group met to discuss their progress on safety initiatives and to plan future priority areas, such as shipboard energy efficiency. Their work brought specific progress on reducing the need for hazardous confined-space entry into vessel tank spaces during tank cleaning.

They also re-examined product quality requirements, tested different cleaning detergents, and experimented with different cleaning methods as alternatives to manual tank entry. As a result, the Group reissued revised tank-cleaning guidelines, which has resulted in a substantial reduction in average man-tank-entries per operation compared to 2013 levels.

The Methanol Group is just one way Methanex and Waterfront Shipping are tackling specific initiatives that make a long-term difference to our overall safety practices.



## AWARD-WINNING RAIL PRACTICES

### We continued to receive recognition for our safe rail-transportation practices.

In 2016, we were proud to earn the American Railroad Association's Grand Slam award, in recognition of exemplary shipping practices with at least four top railroads in North America. This is the second consecutive year we have won this award.

We achieved this honor by receiving Canadian National (CN) Railway's Safe Handling Award, Canadian Pacific (CP) Railway's Chemical Shipper Safety Award, the 2016 Union Pacific Chemical Transportation Safety Pinnacle Award, and BNSF's 20th Annual Product Stewardship Award for the safe transport of hazardous materials by rail.

In 2016, Methanex completed over 8,000 shipments by rail without a single non-accidental release. We attribute that to our five-year preventative maintenance program, which exceeds the required 10-year regulatory inspection frequency.

## METHANOL BEST PRACTICES

### In 2016, we held Responsible Care seminars and webinars that reached 1,340 people from nearly 300 organizations.

We conducted 49 Responsible Care seminars for customers, supply-chain partners, and trade associations around the world, including information on best practices for the safe handling, distribution, and use of methanol.

In China, we conducted Responsible Care seminars on methanol safety with the Ministry of Industry and Information Technology (MIIT), to support pilot projects with methanol fuels. (See Methanol as a Vehicle Fuel highlight, page 3.)

We also conducted Responsible Care and methanol safe-handling meetings with ANP (National Petroleum Association) in Brazil. These meetings were crucial as ANP regulates all imports and permitting for the country. In the United Kingdom, we held an interactive seminar with a key customer, with various service providers participating as guest speakers.

In Geismar, we conducted a seminar with 11 external organizations in attendance, including barge operators, rail/road carriers, surveyors, terminals, and plant management. This was a good opportunity to collaborate and share best practices on safety and environmental protection.



## TERMINAL SAFETY INSPECTIONS

### We completed third-party CDI-Terminal audits of safety and environmental practices at 12 contracted terminals.

In addition to these 12 inspections, which are conducted on a three-year cycle, we conducted 14 follow-ups to previous inspections to ensure that any findings were appropriately addressed. The inspections identified fire-fighting equipment and explosion prevention as areas with deficiencies; we will be working to make improvements in these areas. For more information about the CDI-Terminal inspection scheme, see [www.cdi.org.uk/terminal\\_scheme.aspx](http://www.cdi.org.uk/terminal_scheme.aspx).

The inspections and follow-ups also revealed variations between national requirements and international standards and best practices. In the spirit of continuous improvement, our aim is to progress towards world-class standards that exhibit best practice and exceed regional requirements.

## PARTNERSHIPS WITH DISTRIBUTORS

### We partnered with 19 distributors globally to implement our Distributor Responsible Care Standard.

In 2016, we continued to share our Distributor Responsible Care Standard throughout the Asia Pacific, North America, and Latin America regions, advancing our work via a collaborative implementation phase.

These partnerships resulted in subsequent joint initiatives such as emergency drills in Korea, co-hosting of Responsible Care seminars, and site visits to support Responsible Care initiatives with our customers' downstream partners in China and Australia.

In collaboration with some of our North American distributor-customers, we developed a Trans-loading Standard for methanol from railcars to road carriers. The standard was shared as a best practice with the Canadian Association of Chemical Distributors (CACD), a nonprofit chemical industry trade association that works to reduce incidents that threaten people or the environment.

Beyond their role in defining requirements, standards are a valuable tool enabling communication and collaboration with our partners. These two standards are improving our ability to ensure proper handling and storage of methanol along our distributor chain.

## INDUSTRY COLLABORATIONS

### We collaborated with a key industry association to produce up-to-date information about methanol and communicate it to the public.

In 2016, we worked closely with the Methanol Institute to help update information on their website ([www.methanol.org](http://www.methanol.org)). We also helped revise safe-handling guidelines and updated material for a methanol safety video and methanol safety data sheets, all of which are on the Methanol Institute's website. Our collaboration with industry associations is an important aspect of promoting the proper use and handling of methanol.



## THE METHANOL INSTITUTE

As the global trade association for the methanol industry, the Methanol Institute (MI) represents the world's leading methanol producers, distributors, and technology companies. Their mission is to ensure the safe handling of methanol and its derivatives across the global distribution chain.

The Institute also promotes the growth of the global methanol industry by furthering methanol as an essential chemical commodity and an emerging source of clean and renewable energy.

As a member of MI, we participate in numerous groups and initiatives. Ben Iosefa, our Vice President of Market Development and Stakeholder Relations, is Chairman of the MI Board of Directors. Five other Methanex representatives are active members of MI committees, including those focused on legislative regulatory affairs, marine fuels, fuel blending, market development, product stewardship, and strategic communications.

By working closely with MI, we are taking an active role in influencing safe practices and product stewardship for the betterment of the methanol industry.

# Community



We continuously look for ways to create positive and sustainable impacts in our communities. We invest in the communities where we do business through grants, education, regional development, and volunteerism. Our goal is to build and support healthy communities that are great places to live and work.

## COMMUNITY IMPACT

**We held 23 community advisory panel (CAP) meetings around the world, engaging communities about topics that matter most to them—and to us.**

The topics of our CAP meetings vary considerably by region. Here are some highlights from 2016:

In **Punta Arenas, Chile**, CAP meetings included discussions about plant operations, Responsible Care behaviours, and the site's pioneering work in fostering the inclusion of people with disabilities in the workplace. CAP members also helped us select charities to receive contributions through our Social Responsibility Program.

The **Medicine Hat, Canada** CAP developed a community outreach plan to better interact with the broader community and raise awareness of CAP activities. In 2017, we will conduct a Responsible Care presentation to address the CAP's questions about regional greenhouse gas (GHG) legislation and share information about our GHG management policy and site practices.

In **Taranaki, New Zealand**, CAP discussions covered plant maintenance issues, plant flaring and noise during unexpected shutdowns, pipeline excavation work, and community fundraising. The local council presented proposed land-use zoning changes that may impact the Methanex site, and we provided updates on new health and safety regulations.

**Damietta, Egypt** CAP meetings focused on community needs, with CAP members advising on social investments that made a meaningful difference in the community.

**Geismar, USA** CAP meetings featured discussions on plant activities, traffic considerations, sustainable infrastructure, HAZMAT responses, and chemical awareness.

**Trinidad** CAP members asked about potential risks associated with our plant operations, expressing concerns about the impact on Gulf of Paria marine life from treated water from the Point Lisas Estate, where Methanex and 20 other plants are located. To address their concerns, we supplied information about our water and sediment-testing programs, as well as water-testing work conducted by the local environmental authority.



In **Chile**, a welding student with physical challenges is supported in learning the trade by special modifications to his workstation.



Methanex staff demonstrate vibration testing at Methanex **New Zealand** Family and Friends Open Day.



## We conducted regular joint emergency response exercises with local emergency responders and agencies.

In **Santiago, Chile**, we held our 8th Annual Fire Safety training camp and methanol safety seminar at the Chilean Fire Academy. Attended by customer representatives from Mexico, Colombia, Brazil, and Chile, this continues to be one of our most successful Responsible Care programs in the region.

In **Medicine Hat, Canada**, we work closely with off-site partners to conduct emergency response education, training, and coordination programming. In October, this work culminated in a full-scale exercise involving ambulance, medical, fire, and police services, to test the emergency response plan and demonstrate how the system works.

In **Trinidad**, Methanex team members participated in a full-scale emergency response exercise as part of our mutual-aid agreement. In the event of an emergency, we provide ambulance, fire truck, and medical-response services to support the Point Lisas Industrial Estate and the surrounding residential community.

Our **Belgium** office completed two emergency exercises in Teeside, UK, to test our response to a potential incident involving our methanol pipeline. The exercises focused on operational aspects and communication systems, in coordination with local service providers.



Emergency-response team practices a high-angle rescue during a drill in **Medicine Hat**.

## COMMUNITY INVESTMENT AND VOLUNTEERING

### We invested over USD \$1 million into our communities, reaching 235 organizations around the world.

Our employees delivered funds and assistance to community programs and organizations that focus on children and families, education, healthcare, and environmental stewardship and awareness. In addition to the many volunteer hours devoted to these initiatives, more than USD \$1 million was invested into our communities globally.

Highlights of community investments from some of our regions are shared here in photographs.



In **Trinidad**, Methanex partnered with the CAP to create a kitchen garden at the Couva Home for the Aged, to help residents lower food bills and be more active outdoors.



The **Shanghai, China** team delivered a presentation to Lianying Elementary School on environmental protection and campus safety, and also donated household items to families in need.



Our **Geismar, USA** team raised funds for the St. Amant Volunteer Fire Department, whose station suffered heavy damage from the August floods.



In **Damietta, Egypt**, ten students received scholarships from the Methanex Scholarship Program. In its second year, the program currently has 20 students participating.

By committing their time to volunteering, our team members created positive impacts in local regions, and strengthened team spirit at the same time.

Last year, our team members identified areas of need in the communities where they live and work and made positive, long-lasting contributions. By spending time together volunteering and creating positive impacts in the community, many were inspired by the difference they could make for others and brought that renewed energy back to their work.

Highlights from some of our regions' volunteering-as-team-building efforts are presented here in photographs.



In **Dallas, USA**, Methanex employees built bunk beds for Camp Summit, a camp for children and adults with disabilities.



Our **Brussels, Europe** team held a fundraising barbecue to purchase kitchen tools and accessories for Snijboontje, a kitchen that offers free lunch to people with limited resources.



When historic rains caused significant flooding in southern Louisiana, our **Geismar, USA** team formed work crews to assist recovery efforts and packed food hampers for families affected by the floods.



In **Taranaki, New Zealand**, Methanex teams prepared weekly breakfasts for the local Breakfast in Schools program at Puketapu School.



Our **Punta Arenas, Chile** team volunteered at a kiosk to support a fundraising telethon for the Rehabilitation Centre, Club de Leones Cruz del Sur.



In **Medicine Hat, Canada**, Methanex was the title sponsor of Kiddies Day at the annual Exhibition and Stampede, with volunteers providing crews and staff for a half day of free activities for children.



In **Vancouver, Canada**, a Methanex team hosted a fundraising pancake breakfast and garden clean-up for the Harvest Project, which assists individuals and families experiencing social and financial hardships.



# Summary of Responsible Care and Sustainability Indicators

	2014	2015	2016	
ENVIRONMENT	CARBON DIOXIDE (CO <sub>2</sub> ) EMISSIONS			
	CO <sub>2</sub> emissions manufacturing (scope 1) <sup>1</sup>	3,169,259 t	3,245,947 t	4,118,285 t
	CO <sub>2</sub> emissions manufacturing (scope 2) <sup>2</sup>	67,709 t	131,370 t	177,376 t
	CO <sub>2</sub> emissions intensity manufacturing (scope 1) <i>tonne of CO<sub>2</sub> / tonne of methanol</i>	0.653	0.625	0.587
	CO <sub>2</sub> emissions marine transportation (scope 1)	397,923 t	428,914 t	563,830 t
	CO <sub>2</sub> emissions intensity marine transportation <i>kg of CO<sub>2</sub> / tonne of cargo shipped</i>	61.7	77.6	73.6
	ENERGY			
	Total energy use (excluding electricity)	226,303,331 GJ	222,201,248 GJ	292,556,200 GJ
	Total electricity use	229,460 MWhr	277,437 MWhr	411,800 MWhr
	Electricity self-generated – nonrenewable	44%	20%	20%
	Electricity self-generated – renewable	2%	0%	0%
	Electricity purchased – nonrenewable	46%	65%	65%
	Electricity purchased – renewable	17%	15%	14%
	WATER			
	Total freshwater consumed	11,870,091 m <sup>3</sup>	9,969,751 m <sup>3</sup>	12,624,989 m <sup>3</sup>
	WASTE			
	Total weight of hazardous waste – disposed	101,934 kg	140,920 kg	48,646 kg
	Total weight of hazardous waste – recycled	8,438 kg	16,088 kg	59,595 kg
	Total weight of nonhazardous waste – disposed	497,312 kg	1,670,064 kg	1,809,966 kg
	Total weight of nonhazardous waste – recycled	361,948 kg	1,065,124 kg	1,464,681 kg
	SIGNIFICANT SPILLS			
	Methanol spill (serious)	0	0	0
	Methanol spill (major)	0	0	0
	Other spill – petroleum products or treatment chemicals (serious)	0	0	0
	Other spill – petroleum products or treatment chemicals (major)	0	0	0
WORKPLACE	EMPLOYEE INJURY STATISTICS			
	Recordable injury frequency rate (RIFR) <sup>3</sup> <i>Number of recordable injuries / 200,000 hours worked</i>	0.28	0.46	0.47
	Recordable injury severity rate (RISR) <sup>4</sup> <i>Number of significant incidents / total incidents</i>	1.85	16.46	8.5
	GLOBAL EMPLOYEE STATISTICS			
	Total number of employees	1100	1300	1300
	Asia Pacific	4%	3%	4%
	Chile	9%	9%	10%
	Dallas	3%	3%	3%
	Egypt	13%	12%	11%
	Europe	3%	3%	3%
	Geismar	12%	13%	13%
	Medicine Hat	10%	10%	10%
	New Zealand	21%	22%	22%
	Trinidad	15%	15%	15%
	Vancouver	10%	10%	10%
	LENGTH OF EMPLOYEE SERVICE			
	< 1 yr	17%	11%	9%
	1–2 yrs	21%	25%	24%
	3–5 yrs	20%	21%	23%
	6–10 yrs	17%	25%	21%
	11–15 yrs	11%	5%	10%
	16–20 yrs	6%	5%	6%
	21–25 yrs	3%	2%	2%
	26+ years	5%	5%	5%
	EMPLOYEE GENERATION			
	Millennials (1981 or after)	27%	30%	34%
	Generation X (1966–1980)	48%	48%	48%
	Boomers (1946–1965)	25%	22%	19%
	Mature (1945 or prior)	0%	0.1%	0.2%
	EMPLOYEE GENDER			
	Female	26%	26%	27%
	Male	74%	74%	73%
	Females in Senior Management	2	2	2
	Females on the Board	2	4	3

<sup>1</sup> Scope 1 emissions are direct emissions from owned or controlled sources.

<sup>2</sup> Scope 2 emissions are indirect emissions from the generation of purchased energy.

<sup>3</sup> Recordable injuries are incidents that require medical attention or that result in restricted work or lost time.

<sup>4</sup> Recordable injury severity rate (RISR) describes the ratio of significant and near-miss incidents with high potential for loss being reported as compared to the total incidents reported.

For the complete version of our 2016 Responsible Care & Sustainability Report, please visit [www.methanex.com/2016RCSustainability](http://www.methanex.com/2016RCSustainability). If you have any questions or comments about this report or our Responsible Care and sustainability activities, **please contact us**.

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A RESPONSIBLE CARE® COMPANY

Methanex is the world's largest producer and supplier of methanol to major international markets in North America, Asia Pacific, Europe, and South America. Headquartered in Vancouver, Canada, Methanex currently operates production sites in Canada, Chile, Egypt, New Zealand, the United States, and Trinidad and Tobago. The company's global operations are supported by an extensive global supply chain of terminals, storage facilities, and the world's largest dedicated fleet of methanol ocean tankers. To learn more, visit us at [www.methanex.com](http://www.methanex.com).

