



METHANOL
INSTITUTE

MILESTONES



TWENTY SIXTEEN

Methanol Industry
In focus



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A MESSAGE FROM
OUR CHAIRMAN

Opportunities & Challenges Ahead

By - **Ben Iosefa**, Chairman of the Board, Methanol Institute
(Vice President, Global Market Development & Stakeholder Relations,
Methanex Corporation)

As the global trade association for the methanol industry, the Methanol Institute (MI) represents the world's leading methanol producers, distributors and technology companies. MI's mission includes:

- Building product awareness and ensuring the safe handling of methanol and its derivatives across the supply chain;
- Promoting the growth of the methanol industry by furthering methanol as an essential chemical commodity and an emerging source of clean and renewable energy; and
- Influencing global regulatory and public policy initiatives that impact the methanol industry.

MI accomplished a great deal in 2015, expanding both our geographic reach and our capabilities, including:

- Welcoming six new members to the association;
- Undertaking four major research initiatives, including a report on *Methanol as a Marine Fuel*;
- Leading two inaugural methanol forums (Europe and China) resulting in deepening relationships with regulators and decision makers in both key markets;
- Establishing five new strategic partnerships with allied trade associations to further expand our global reach;
- Creating a new Strategic Communications Task Force; and
- Expanding our lifesaving prevention program to educate on bootleg alcohol poisoning into Vietnam.

In this year's edition of *Milestones*, you will learn more about some of these initiatives. Articles focus on MI's release of a report from FCBI on *Methanol as a Marine Fuel*; our new *Methanol Safe Handling and Safe Berthing Technical Bulletin and Checklists*, which codify industry-wide best methanol safe handling practices in the marine industry; and the growing opportunities for methanol in China.

As a Board member since 2013 and newly elected Chairman of the Board, I am excited for the work that lies ahead in 2016. This year, MI will adopt a three-year strategic plan; launch a new committee focusing on methanol as a marine fuel; unveil a newly redesigned website to more effectively engage stakeholders at www.methanol.org; expand our bootleg alcohol poisoning education and prevention efforts; continue to lead the way in the emergence of methanol as a global transportation fuel; and many other important initiatives.

With over 40 member companies representing the world's principal methanol producers and distributors, as well as the technology leaders that support the industry, MI is truly a global organization. Our members are headquartered in more than a dozen countries (Australia, Canada, China, Germany, Italy, Japan, Malaysia, Netherlands, Oman, Qatar, Russia, Saudi Arabia, Trinidad, United Kingdom, United States, and Venezuela), and do business in every corner of the world.

The organization and members of the Methanol Institute are making significant contributions to the advancement of the global methanol industry. There are both opportunities and challenges for the industry in 2016, and the Methanol Institute is well positioned to advance the interests of our members.

M I
O F F I C E S

SINGAPORE

Contact:

10 Anson Road
#32-10 International Plaza
Singapore 079903

+65 6325 6300

Staff:

CHRIS CHATTERTON
COO
cchatterton@methanol.org

DOM LAVIGNE

*Director of Government & Public Affairs,
Asia Pacific / Middle East*
dlavigne@methanol.org

APRIL CHAN

Executive Manager
achan@methanol.org

UNITED STATES

Contact:

225 Reinekers Lane
Suite 205
Alexandria, Virginia 22314 United States

+1 703 248 3636

Staff:

GREG DOLAN
CEO
gdolan@methanol.org

LARRY NAVIN

Senior Manager, External Affairs Americas / Europe
lnavin@methanol.org

SHEEVA NOSHIRVAN

Executive Assistant
snoshirvan@methnaol.org

BRUSSELS

Contact:

Avenue Jules Bordet 142
1140 Brussels, Belgium

+32 276 116 59

Staff:

EELCO DEKKER
EU Chief Representative
edekker@methanol.org

BEIJING

Contact:

#511, Pacific Sci-tech Development Center,
Peking University, No. 52 Hai Dian Road,
Hai Dian District, Beijing 100871, China

+86 10 6275 5984

Staff:

KAI ZHAO
China Chief Representative
kzhao@methanol.org

CONNECT WITH US



MI/FCBI REPORT MAKES STRONG CASE FOR METHANOL AS A MARINE FUEL

FCBI
energy

METHANOL AS A MARINE FUEL REPORT

Prepared for:
METHANOL
INSTITUTE



The global shipping industry is facing increasingly stringent emissions requirements. As of January 1st, 2016, newly-built ships sailing in certain Emission Control Areas (ECAs) known as NOx Emission Control Areas (NCEAs), which currently comprise the North American and Caribbean Sea ECAs, are required to meet stringent 'Tier III' NOx emission standards. These Tier III standards require around 70% lower NOx emissions than the current Tier II standards and cannot be met simply by taking the sulfur out of fuel oil.

2016's implementation of Tier III NOx emission standards join 2015's requirement that ships entering within 200 miles of US, Canadian, Caribbean and northern European waters began to face a 0.1% fuel-sulfur limit. National and regional environmental agencies in these areas had established Sulfur Emission Control Areas (SECAs) under pollution rules adopted by the International Maritime Organization (IMO). While shifting to low-sulfur marine gasoil (MGO) provided a viable, albeit expensive, compliance strategy with 2015's sulfur regulations, it will not help to meet the new Tier III NOx reduction regulations.

Potential solutions for the Tier III limits include Selective Catalytic Reduction (SCR) systems and Exhaust Gas Recirculation Systems (EGR), but these technologies are complicated, costly, and largely unproven.

For the existing fleet of some 100,000 commercial vessels plying the world's oceans, and the 2,000 new keels laid each year, the option of adding dual-fuel capability for diesel-LNG (liquefied natural gas) or diesel-methanol is increasingly seen as the smart course. While there are already some 50-60 ships using LNG as a bunker fuel, interest in the use of methanol fuel, as a considerably less expensive alternative to LNG, is quickly gaining speed.

A new report released by FCBI Energy in December 2015, and commissioned by MI, details the many advantages of methanol. The report, *Methanol as a Marine Fuel*, contains a number of key findings and is available at www.methanol.org.

- **Methanol is plentiful, available globally and could be 100% renewable** - There are over 70 million tons of methanol being produced annually, and depending on the feedstock used in its production, it can be 100% renewable as well.
- **Current bunkering infrastructure needs only minor modifications to handle methanol** - Methanol is very similar to current marine fuels such as heavy fuel oil (HFO) as it is also a liquid. Existing storage, distribution and bunkering infrastructure can handle methanol with only minor modifications necessary due to methanol being a low-flashpoint fuel.
- **Infrastructure costs are modest compared to alternative solutions** - Installation costs of a small methanol bunkering unit have been estimated at around € 400,000, and a bunker vessel can be converted for approximately € 1.5 million. In contrast, an LNG terminal costs approximately € 50 million, and an LNG bunker barge € 30 million.
- **Conversion costs will drop dramatically as experience mounts** - The main reference point on conversion costs comes from conversion of the *Stena Germanica* which launched in March 2015 featuring methanol dual-fuel engines from Wartsila. Being the first of its kind, the *Stena Germanica* retrofit entailed much design work on new technical solutions, safety assessments and adaptation of rules and regulations. It has been estimated that a second retrofit will cost only 30% to 40% of the *Stena Germanica* conversion.

- **Current engines have performed well on methanol and upcoming technologies will further improve this performance** – Thus far, methanol ships have been powered by diesel concept engines modified to run on both methanol and marine diesel. Converted methanol engines have performed as well as, or better than, diesel engines in both field and lab tests. Methanol-optimized engines currently in development are expected to perform even better than the current converted engines.
- **Shipping and chemical industries have a long history and ample experience in handling methanol safely** – Methanol has been shipped globally, and handled and used in a variety of applications for more than 100 years. From a health and safety perspective, the chemical and shipping industries have developed tested procedures to handle methanol safely. These have been codified in the *Methanol Safe Handling and Safe Berthing Bulletin and Checklists* available on MI's website www.methanol.org
- **Methanol is biodegradable** – From an environmental point of view, methanol performs well. Methanol dissolves rapidly in water and is biodegraded rapidly. In practice, this means that the environmental effects of a large spill would be much lower than from an equivalent oil spill.

On 9 February, FBCI held a webinar to discuss the results of this report, which featured presentations by MI CEO Gregory Dolan, report author Karin Anderson of Sweden's Chalmers University, and Stena Lines' Per Steffenson. This webinar has been archived and is available on our website www.methanol.org

As the lifecycle economics, and other benefits of using methanol compared with other emission compliance options becomes more evident, MI expects to see the tide rising on the use of methanol as a marine engine fuel.

SAFE HANDLING AND SAFE BERTHING BULLETIN SETS INDUSTRY-WIDE STANDARDS



In December 2015, MI released a *Methanol Safe Handling and Safe Berthing Technical Bulletin and Checklists*. This bulletin sets new marine industry standards in the loading and unloading of methanol cargo vessels.

Methanol safe handling is at the core of MI's mission, and as the methanol industry grows, the safe handling of our product is the single most important thing we do as a global industry. Additionally, being stewards of the environment has also played a key role in formulating these best practices for shippers, port operators and methanol producers.

Methanol is one of the world's most widely shipped chemical commodities and an emerging energy resource. Continuous improvement and how we impact the environment prompted MI to engage Distribution Consulting Services (DCS) of Grand Prairie, Texas, to help quantify industry best practices and introduce new guidelines for terminals and for the safe berthing, loading and discharge of methanol ships and barges.

Over the years, ship operators and terminal operators have made significant progress in introducing new safety procedures and safer designs to minimize risks. In consultation with the industry, DCS has highlighted industry best practices and set guidelines

for the industry to follow. A technical bulletin and six checklists have been developed as part of this effort, covering:

- Declaration of Security
- Declaration of Inspection
- Methanol Personal Protective Equipment (PPE)
- Marine Terminal Checklist
- Marine Vessel/Barge Checklist
- Terminal and Vessel Pre/Post Transfer Checklist & Time Log

Together, the technical bulletin and checklists provide a comprehensive suite of materials which will enable ship and terminal operators to ensure that they are working at the cutting edge of industry safety and environmental stewardship knowledge.

The *Methanol Safe Handling and Safe Berthing Bulletin and Checklists* are available to download in the Health and Safety section of MI's website www.methanol.org.

METHANOL BOOTLEG ALCOHOL EDUCATION PROGRAMS EXPANDING FROM 2016-2020



MI and The LIAM Charitable Fund began collaborating in November 2013 on community and medical education programs (CEP/MEP) to address and stem incidences of bootleg alcohol methanol poisoning in Indonesia. 2015 was a pivotal year for MI, during which we finalized a pilot program model with LIAM, developed a five-year strategic plan for Indonesia, and expanded the programs into Vietnam with similar commitments for 2016-2020.

MI Board member Paul Moschell (AMPCO), who has served as Chairman of MI's Product Stewardship Committee (PSC), Christian Meinecke from solvadis (PSC Vice Chairman), and Hank Williams (AMPCO) who served as Chairman of MI's Bootleg Alcohol Prevention Subcommittee (BAPS), led these important initiatives in coordination with the PSC/BAPS, MI staff, and other partners.

The 2015 Indonesia Methanol Education Programs (MEP) saw expanded outreach to communities, public health officers, and medical specialists in Bali, Lombok, and the Gili Islands. Through generous support by the International Methanol Producers and Consumers Association (IMPCA), LIAM further expanded these initiatives into East Java. This Indonesian province has seen a dramatic rise in methanol poisonings since December 2014, due to increased consumption of improperly brewed homemade alcohol and spirits laced with industrial methanol.

In 2015, the MI-LIAM MEP provided training to more than 2,000 stakeholders in Indonesia. MI's Board of Directors approved a five-year strategic initiative, through which MI would work with LIAM to bring in additional strategic partners and donors between 2016-2020. The goal is to have a locally-run, self-sustaining, self-funding program that can run long-term. As these programs become self-sustaining, MI will then enter other at-risk markets to provide seed funding and advisory services, with the same goal of having those countries build MEP initiatives over a five-year period.

Last year, MI and LIAM developed a pilot program model and key supporting documents which will serve as important resources for other markets looking to undertake similar efforts. These materials were translated into Bahasa Indonesia and English, and will be produced similarly in a bilingual format for future MEP markets.

The 2016 MI-LIAM programs will focus intensely on methanol poisoning prevention and education for junior and senior high school students in Indonesia. These groups have been increasingly targeted by homemade spirits producers and risk health problems resulting from consuming adulterated alcoholic beverages.

In November, MI's Board approved expanding the MEP to Vietnam, along a similar model for 2016-2020. Although Vietnam's economy ranks eighth among the 10-member Association of Southeast Asian Nations (ASEAN), it is first in beer and liquor sales growth. A World Health Organization (WHO) study in 2014 showed that consumption of alcohol among adults (age 15+ years) in Vietnam skyrocketed by 412%, from

1.6 liters per person in 1990 to 6.6 liters per person in 2010, and by 150% between 2004-2014. Increased alcohol consumption has been fueled by rising income levels among many Vietnamese, combined with easy access to cheap homemade alcohol options.

55%

Nearly 55% of all alcohol available in Vietnam is homemade moonshine.

Nearly 55% of all alcohol available in Vietnam is homemade moonshine. Improperly brewed homemade spirits, methanol-laced counterfeit beverages flooding into Vietnam from China, and legitimately produced spirits adulterated with methanol are seen as the three biggest factors in a growing health epidemic across the country.

MI is developing a five-year project in Vietnam (2016-2020) in partnership with the Institute for Preventative Medicine & Public Health at Hanoi Medical University (IPMPH-HMU) who will develop and run the Vietnam MEP programs for MI. Bach Mai Hospital's Poison Control Center, which has significant experience identifying and treating methanol poisoning cases in the country (i.e., 33 cases in 2015 alone), will also play an important role in the programs. LIAM representatives will serve as technical advisors in helping setup the Vietnam programs.

MI and IPMPH will develop the Vietnam pilot project in Phu Tho Province and expand it nationwide in 2017 and beyond. Located 85km from Hanoi, the province of 1.36 million residents is home to diverse ethnic minorities, many of whom produce homemade alcohol as their sole means of economic support.

The Vietnam programs will begin with a detailed research study and needs assessments in Phu Tho in March and April. From there, MI and IPMPH will work with Bach Mai and other partners in 2H-2016 to develop medical training and protocols for treatment of suspected methanol poisoning victims.

If your company would like to learn more about the MI MEP programs and/or to contribute to these life-saving initiatives, please contact Dom LaVigne in MI Singapore's office at +65 6325 6302 or by e-mail at dlavigne@methanol.org.

MI MEMBER COMPANIES

- Atlantic Methanol Production Companies (AMPCO)
- BP Chemicals
- Carbon Recycling International
- Clariant
- Coogee Chemicals Pty. Ltd.
- Ecofuel
- Enerkem
- FiTech
- Fuel Freedom Foundation
- G2X Energy
- Haldor Topsoe
- HELM AG
- International-Matex Tank Terminals (IMTT)
- Johnson Matthey
- Lanxess
- Metafrax
- Methanex Corporation
- Methanol Holdings Trinidad Limited (MHTL)
- Metor
- Mitsubishi Gas Chemical
- Mitsubishi International Corporation
- Mitsui & Co., Ltd.
- Mitsui OSK
- NW Innovation Works
- Oberon Fuels
- OCI N.V.
- Oman Methanol Company
- Oorja Fuel Cells
- PETRONAS Chemicals Group
- Qatar Fuel Additives Company Limited (QAFAC)
- SABIC
- Salalah Methanol Company
- SCC Distribution
- Sipchem
- Solvadis Group
- Southern Chemical Corporation
- Tricon Energy, Inc.
- UNIPEX Solutions Canada, Inc.
- Vitol
- Vitusa Products, Inc.

INAUGURAL EUROPEAN METHANOL POLICY FORUM A RESOUNDING SUCCESS



With a stellar line up of excellent speakers, and more than 100 registered participants, the first MI-hosted European Methanol Policy Forum was a great success. In keeping with MI's goal of continuing to expand our global reach, MI held the forum in Brussels on October 13-14, 2015.

On Day One, participants had a choice between technical workshops about DME, Power-to-Methanol, and Methanol Marine Fuels.

Following the workshop, speakers and VIP guests - including the Canadian ambassador to the EU, and members of the European Commission and Parliament - were invited to an informal dinner. The dinner guests enthusiastically discussed their personal experience with, and views on, the role of methanol as a fuel for Europe. Elements of their feedback were used as input for the Policy Forum the next day. The morning session on Day Two was kicked off with a key note presentation by Professor Surya Prakash of the Loker Hydrocarbon Research Institute at the University of Southern California, and

co-author with Nobel Prize Laureate George Olah of "*Beyond Oil and Gas, the Methanol Economy.*" During the rest of the morning presentations from industry and policy-makers focused on different low carbon methanol production technologies. At the end of this 'well'-session presenters were invited to share their views about relevant EU policies and their impact on developing and investing in methanol production in Europe. This resulted in a lively constructive discussion with members of the audience.

After lunch, the afternoon aptly named 'wheel' session looked at different methanol fuel applications in road and marine segments, and the benefits in terms of emission reduction and energy efficiency. Following another interactive debate between presenters and participants, the day was closed with a cocktail reception.

MI would like to extend our gratitude to member companies Methanex, MHTL, and Southern Chemical Corporation for enabling this inaugural European Methanol Policy Forum through their sponsorship of the event.

MI CONVENES FIRST-EVER LAKE VIEW METHANOL DIALOGUE IN CHINA



MI continued to expand our global engagement in 2015, holding our inaugural Lake View Methanol Dialogue on 10 November 2015 together with Peking University's Center for Global New Energy Strategy Studies (CGNESS) on the Peking University campus. Representatives from MI member companies, Chinese methanol producers, trade associations and research institutes including the Chinese Academy of Sciences (CAS), China Petroleum & Chemistry Industry

Federation (CPCIF), China Nitrogen Fertilizer Industry Association (CNFIA), China Association of Alcohol and Ether Clean Fuel and Automobiles (CAAEEFA), and China Classification Society (CCS) attended the dialogue.

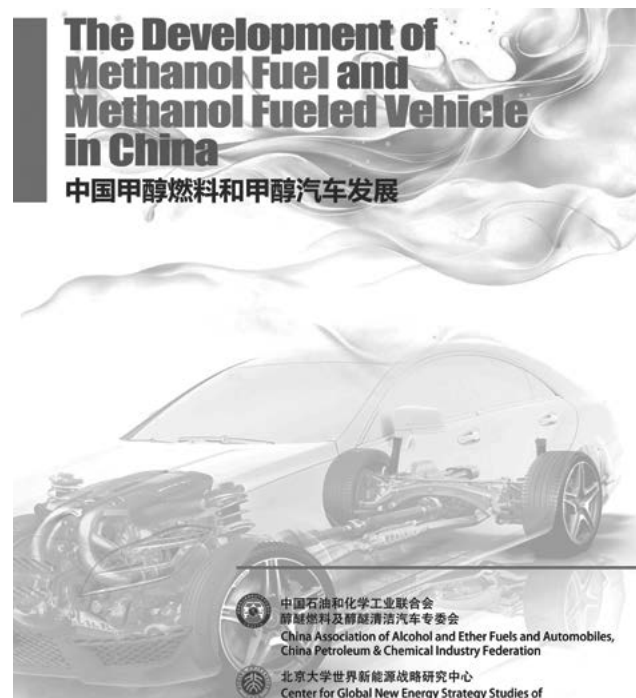
The dialogue focused on the Chinese methanol industry and its rapidly developing downstream applications such as Methanol to Olefins (MTO) and fuel blending. Ben Iosefa of MI member Methanex provided the welcoming remarks, Mr. Gu Zongqin, Vice President of CPCIF and consecutively Chairman of CNFIA, and President of China National Petroleum and Chemical Planning Institute (CNPCP) representing the Chinese methanol industry trade association, delivered the keynote address on “The Chinese Methanol Industry and the 13th, Five-Year Plan Outlook.”

China’s Ministry of Industry and Information Technology (MIIT)’s methanol vehicle pilot, methanol as a cooking and boiler fuel, and methanol as a marine fuel to meet IMO regulations were also discussed.

Gregory Dolan, CEO of MI, closed the dialogue noting that the discussions had helped to provoke thought on ways in which MI can work cooperatively to help meet China’s energy security and environmental challenges while also achieving economic expectations.

The dialogue marked the first time for MI to bring the majority of its Board members to China, in an effort to underscore methanol’s growing importance as a clean burning, efficient fuel for transport and energy applications. The Roundtable was also given coverage in MIIT’s internal publication; “*Methanol Vehicle Pilot Brief.*” MI is significantly scaling up its efforts in China, working closely with Chinese government and industry stakeholders to promote the expansion of methanol in China and globally.

REPORT ON THE DEVELOPMENT OF METHANOL FUEL AND METHANOL FUELED VEHICLES IN CHINA



MI, in conjunction with the China Association of Alcohol & Ether Clean Fuel and Automobiles (CAAEEFA), is preparing to release a new report on the state of methanol fuel blending and methanol vehicles in China. After over 20 years’ research and development on methanol as a transportation fuel, local government promotion and ministry pilot projects, China has accumulated a considerable amount of technical experience and achieved a degree of industry scale in methanol gasoline and methanol fueled vehicles.

This report is organized into seven chapters, with each one focusing on a specific topic: general background; technology issues in methanol and automobiles; previous projects on methanol fuel and methanol automobiles organized by the Chinese government; methanol gasoline’s provincial promotion; R&D of M100 methanol fueled vehicles; and Ministry of Industry and Information Technology (MIIT); pilots and emission tests on M15 and methanol fueled vehicles.

This report offers a fascinating window for the rest of the world into the state of methanol fuel-blending and methanol fueled vehicles in China, which is currently the global leader in these categories.

NEW METHANOL APPLICATIONS IN CHINA: BOILERS AND COOK STOVES



MI and the Center for Global New Energy Strategy Studies of Peking University (CGNESS) have released a report on new methanol applications in China. In addition to conventional applications in the chemical industry, methanol also serves as a source of fuel and energy in China. This report focuses on methanol usage in boilers and cook stoves.

Due to cost advantages, environmental cleanliness, and convenience, there are rapid developments in the use of methanol to produce heat in industrial boilers and as a fuel in cook stoves.

Industrial development in this area is small-scale and distributed, and there is difficulty in establishing the current consumption statistics of methanol in these applications. However, methanol usage in these markets may partly explain the frequent observation that methanol production statistics are greater than methanol consumption statistics in China.

MI STANDING MEMBER COMMITTEES

LEGISLATIVE/REGULATORY AFFAIRS

Directs all international public policy advocacies.

- MI's Legislative & Regulatory Committee is focused on interactions with governments around the globe to ensure that the development of

public policies utilize the best available scientific evidence and do not unduly hinder the growth of the methanol industry.

- As the chemical industry globally comes under increasing regulatory scrutiny, the Committee is charged with ensuring that the methanol industry meets every challenge head on.
- The Committee is currently coordinating with the REACH Methanol Consortium on the European Union's review of methanol, and monitoring regulatory initiatives across Asia Pacific and the Middle East.
- The committee also tracks regulatory challenges to downstream products like formaldehyde and methyl tertiary butyl ether.

PRODUCT STEWARDSHIP

Responsible for methanol health & safety activities.

- MI's Product Stewardship Committee (PSC) is responsible for overseeing efforts to promote health and safety activities throughout the global supply chain.
- The Committee supervises the development of MI's critical *Methanol Safe Handling Manual* and related documents that distribute best practice and safety information to producers, distributors and consumers.
- The PSC also is responsible for addressing issues related to methanol health and safety that arise around the globe, including oversight of the Bootleg Alcohol Prevention Subcommittee (BAPS).

MARKET DEVELOPMENT

Facilitating the development of methanol applications in a number of emerging markets.

- From fostering emerging technology companies to promoting the use of methanol as a vital energy solution, the Market Development Committee is focused on augmenting methanol markets around the globe.
- The Committee oversees issues related to the use of commercialization of fuel cells and fuel-related technologies, methanol-to-power (MTP), the use of methanol in wastewater treatment facilities, methanol-to olefins (MTO), renewable methanol production, dimethylether (DME), industrial boilers, and cooking applications.

GLOBAL FUEL BLENDING

Encourages the growth of methanol fuel blending worldwide.

- Aggregate all relevant technical & emissions data on methanol road transport fuel blending (low, mid, & high level).
- Identify research needs & fund appropriate testing programs that fill information gaps and share with all members.
- Support & lobby for critical programs and legislation such as the Open Fuels Standard Act in the U.S., and defend and support methanol inclusion in fuel regulations in the EU and around the world.

MARINE FUEL

Encourages the growth of methanol as a marine fuel worldwide.

- The Marine Fuels Committee focuses on expanding methanol as a marine fuel, by:
 - developing and advocating legislation
 - proving conversion, new build and infrastructure economics
 - addressing supply & demand issues
 - promoting environmental benefits
 - providing best practices and safe handling

NEW MEMBER HIGHLIGHTS

NW Innovation Works



New MI member Northwest Innovation Works (NWIW) is a strong multi-national partnership committed to meeting a global need – a cleaner source for methanol production.

NWIW plans to construct methanol plants in three locations in Oregon and Washington States; NWIW has proposed a two-phase, US \$1.8 billion methanol plant at Port Westward, Oregon; a two-phase US \$1.8 billion methanol plant at the Port of Kalama, Washington; and a two-phase, US \$3.4 billion methanol plant at the Port of Tacoma, Washington which will produce as much as 20,000 metric tons of methanol per day. Production from the completed plants will be shipped to Asia for use in the manufacture of olefins.

NWIW is committed to building a “double green bridge” – local economic benefit and global environmental sustainability. NWIW’s proposed facilities will include investment of more than \$7 billion to build industry-leading ultra-low emissions technology manufacturing plants and, between the three projects will provide as many as 3000 construction jobs, and over 650 permanent jobs. CECC (Shanghai Bi Ke Clean Energy Technology Co., Ltd.), is a partnership between the Chinese Academy of Sciences (CAS) and Double Green Bridge Hong Kong (DGB), an investor group comprised of members of CECC management. CECC, the parent company for NWIW, is a technology commercialization and project development company with a distinctive portfolio of environmentally responsible technologies and projects in the growing gas and syngas to chemicals and fuels markets.

www.nwinnovationworks.com





G2X Energy

MI member company G2X Energy, headquartered in Houston, Texas, is dedicated to converting abundant, low-cost natural gas resources into methanol and other downstream products.

G2X's first plant, located in Pampa, Texas, processes local, low-cost natural gas into 65,000 tonnes per year of methanol. The Pampa facility commenced commercial operations in May of 2015 and partners with MI member Southern Chemical Corporation to market the methanol to customers in the panhandle region and beyond.

A second, much larger facility, recently broke ground in Lake Charles, Louisiana. Phase One of the Big Lake Fuels facility represents a US \$1.6 billion investment and will produce over 1.4 million tonnes of methanol per year when it is completed. The facility, located on roughly 200 acres, will provide over 2,500 construction jobs, and 150 permanent jobs.

An additional 400 acres is also available to G2X, and future phases could see additional methanol capacity, as well as an expansion into ammonia and fertilizer. The incremental acreage also gives G2X the ability to install facilities to convert Methanol-to-Gasoline (MTG) in the future with proven MTG technology licensed from ExxonMobil Research and Engineering.

www.g2xenergy.com

(G 2 X)

150
PERMANENT
J O B S

&

2,500
CONSTRUCTION
J O B S

Topsoe HALDOR TOPSOE

This statement from Topsoe, a new member of MI, highlights the Danish company's leadership in providing profitable, energy-efficient and sustainable solutions for the production of methanol. Topsoe solutions also extend to process and catalyst technologies for the further processing of methanol to products such as formaldehyde, DME, and TIGAS (synthetic high-quality gasoline).



Making the best use of conventional and unconventional feedstocks and turning them into valuable, high-quality chemicals at minimum cost, optimal energy utilization, and low environmental impact is our focus.

Performance, reliability and energy efficiency have been cornerstones of Topsoe's products and services since the company's founding in 1940. Now with offices and customers around the world, the company sets itself apart through its integrated approach – offering comprehensive solutions ranging from project development, process technologies and proprietary equipment to catalysts and technical services. Proven front end and synthesis section products are available for any type of revamp or new plant project and for any type of feedstock. Some of the unique capabilities that significantly reduce capital and operating costs include stand-alone Topsoe ATR (autothermal reformer) technologies and operation at minimal steam-to-carbon ratios.

Topsoe's MK series of synthesis catalysts is a demonstrated frontrunner in the methanol industry. These catalysts, developed by the company's own R&D division, have been proven to deliver the highest conversion rate and stability in the market. Operating in more than 45 plants worldwide, the MK catalysts can be used under a wide range of operating conditions and offer very attractive return on investment.

The largest Topsoe-designed methanol plant has a capacity of 5000 MTPD, and plans are underway for even larger capacities. Topsoe also works with customers to supply optimized designs addressing any variety of needs. One such solution is the IMAP™ scheme for the co-production of ammonia and methanol, which delivers lower capital cost compared to stand-alone plants and offers full flexibility under fluctuating global demand

and prices. Sustainability solutions such as NOx removal as well as effective CO₂ utilization are also available through Topsoe. In an industry demanding continuous improvements in plant efficiency and environmental responsibility, Topsoe has firmly established itself as an innovative leader, delivering maximum profitability through high-quality products and services.

www.topsoe.com



Established in 1884, Mitsui O.S.K. Lines (MOL) has developed into one of the Japan's most distinguished shipping companies with more than 10,000 employees and 896 operating vessels worldwide. The MOL fleet consists of a wide variety of vessels including tankers, LNG carriers, container ships, dry bulkers, car carriers and more to meet all the customers' transportation needs.

MOL operates 171 tankers, which includes the world's largest fleet of 16 methanol tankers.

MOL began operating methanol tankers in 1983 with its first newly-built dedicated methanol tanker, "Kohzan Maru" and over the years, the company has expanded the methanol transportation business and has grown to become the leader in the industry backed with their rich operational experience and knowledge.

The company also never stops challenging. New innovative dual-fueled methanol tankers are scheduled to join their fleet this year.

"MOL CHART" - Challenge, Honesty, Accountability, Reliability and Teamwork- allows the company to navigate through the global ocean under any conditions.

With the values of "MOL CHART," MOL will continue to fulfill its mission of providing safe and reliable transportation service contributing to stable world trade and economic development.

www.mol.co.jp





Fuel Injection Technologies



Fuel Injection Technologies Co., Ltd. (predecessor was Injection Logic LLC.) was set up in 2001 and specializes in the development, manufacturing and supply of engine management system products and parts for smart automobiles. In 2010, Hong Kong Fuel Injection Technologies Co., Ltd. invested and set up Dongguan Transmission & Fuel Injection Technologies Co., Ltd. (FIT) in Dongguan, China and in 2014 opened FiTech Inc. in California. At the end of 2015, an R&D center in Detroit was set up by FIT. FIT owns numerous intellectual properties associated with ECU design and development and also has ISO/TS16949 2009 certification. FIT has successfully cooperated with many car and engine manufacturers, auto parts suppliers and manufacturers in and out of China in new energy, natural gas vehicles, range-extended electronic vehicles and motorcycle EFI system development projects.

In 2005, FIT started its research and development on methanol as an alternative energy for petroleum. In 2006, FIT signed its first methanol car development project contract with Geely auto. As of today, FIT has developed many different methanol car models for many Chinese car manufacturers including Geely passenger car, Geely commercial car, China First Auto (FAW), HuaChen Auto (Brilliance), BAIC Motor and Shan xi TongJia Auto. FIT's technologies, experiences and achievements in the application of methanol as an alternative energy to petroleum are industry leading and encompass cutting edge engine management systems which provide world class fuel consumption economy, torque, power, durability, and emissions.

www.fitinjection.com



Enerkem Enerkem

The world's very first full-scale biorefinery to use non-recyclable municipal solid waste as a feedstock reached a pivotal milestone in 2015, when it initiated biomethanol production at the commercial scale – a game-changing success which had never been accomplished before anywhere in the world, and one of the most significant developments both the waste and biorefinery sectors have seen yet.

Montreal-based Enerkem converts non-recyclable household garbage into biomethanol and cellulosic ethanol and its first full-scale facility in Edmonton (Alberta, Canada) represents a tangible step towards closing the loop of the circular economy. This public-private partnership with the City of Edmonton can also become a model for many municipalities around the world by offering a sustainable and economical alternative to landfilling or incineration.

Since 2000, Enerkem has tested and validated a number of different feedstocks – from solid waste coming from several municipalities to dozens of other types of residues. With this exclusive breakthrough technology, non-recyclable waste can be converted into methanol and other widely used chemicals, at the lowest cost compared to alternatives.

Headquartered in Canada, Enerkem owns a full-scale commercial facility in Alberta as well as a demonstration plant and a pilot facility in Quebec. The company is developing additional biorefineries in several regions of the world, based on its modular manufacturing approach.

www.enerkem.com

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We are proud that municipalities around the world are looking at the City of Edmonton and the Enerkem facility to see how they too can divert waste from landfill while producing clean fuels and chemicals through this innovative technology.

MAYOR DON IVESON, CITY OF EDMONTON, ALBERTA, CANADA

MEMBERSHIP TIERS

“ W H E R E Y O U F I T I N ”

T I E R

01

Major Methanol
Producers

T I E R

02

Methanol
Producers

T I E R

03

Associate
Members

T I E R

04

Affiliate Members
(non-producers)

T I E R

RA

Reciprocal
Members

CRITERIA

Major producers of methanol (over 1.5 MMT per year).

BENEFITS

- Appoint two voting representatives to the Board of Directors
- Membership on the MI Executive Committee
- Ability to serve as Board Officer including Chairman, Vice Chairman, or Treasurer
- Ability to chair Standing Committee(s)

CRITERIA

Organizations which are producers of methanol or are otherwise interested in promoting the interests of the methanol industry

BENEFITS

- Appoint one voting representative to the Board of Directors
- May be invited to participate in Executive Committee meetings (non-voting)
- Ability to serve as Board Secretary
- Ability to chair Standing Committee(s)

CRITERIA

Minimum level of membership for methanol producers. Also includes non-producers and sellers of methanol who are interested in promoting the interests of the methanol industry.

BENEFITS

- May participate in Board of Directors meetings (non-voting)
- Ability to chair Standing Committee(s)

CRITERIA

Organizations that are interested in promoting the interests of the methanol industry.

BENEFITS

- Ability to participate in Standing Committee(s)

CRITERIA

Allied trade associations and other non-profit organizations who are interested in promoting the interests of the methanol industry.

BENEFITS

- Cross-listing in membership directories and websites
- Sharing of newsletters and informational resources
- Joint legislative /regulatory activities
- Co-sponsored research initiatives

2016 METHANOL INSTITUTE CALENDAR OF EVENTS

JANUARY, 2016

Sun, Jan 13TH

BAPS Workshop at Bach Mai Hospital

📍 Hanoi

Weeks of 18/25 - Committee Calls & Strategic Communication Task Force Calls

FEBRUARY, 2016

Feb 11ST - Feb 12TH

IMPCA Mississippi Conference America

📍 New Orleans

🖥️ www.impca.eu/IMPCA/

Feb 15TH - Feb 16TH

GPCA/MI Methanol Seminar

📍 Dubai

🖥️ www.jumeirah.com/en/hotels-resorts/dubai/jumeirah-beach-hotel/meetings-and-events/

Feb 17TH

MI Board Meeting

📍 Dubai

✉️ sg@methanol.org

Feb 17TH - Feb 18TH

International Gas Technology Conference

📍 Dubai

🖥️ www.europetro.com/en/igtc2016

MARCH, 2016

March 15TH

Gas Indonesia Summit

📍 Jakarta

🖥️ www.gasindosummit.com/

APRIL, 2016

April 27TH - April 29TH

Fuels Institute Annual Meeting

📍 San Francisco

🖥️ fuelsinstitute.org/Events/AnnualMeeting/2016/default.shtm

MAY, 2016

May 18TH - May 20TH

20TH Oil & Gas Uzbekistan (OGU) 2016

📍 International Hotel, Tashkent

🖥️ www.oilgas-events.com/OGU-Exhibition

May 19TH - May 20TH

7TH Turkmenistan Gas Congress (TGC)

📍 Berkarar Hotel, Turkmenbashi, Turkmenistan

🖥️ www.oilgas-events.com/TGC

JUNE, 2016**June 2ND - June 3RD****23RD Caspian Oil & Gas Conference**

📍 JW Marriott Absheron Baku,
Baku, Azerbaijan

🌐 www.oilgas-events.com/Caspian-OG-Conference

June 8TH**MI Board Meeting**

📍 Crowne Plaza Porto Hotel
Porto, Portugal

✉ sg@methanol.org

June 9TH - June 10TH**IMPCA Europe**

📍 Porto, Portugal

🌐 www.impca.eu/IMPCA/IMPCA/Future-Conferences

SEPTEMBER, 2016**Sept. 12TH - 14TH****Argus JJ&A Methanol Forum**

📍 Omni Hotel Houston

🌐 www.argus.com

Sept. 14TH - 16TH**7TH International DME Conference**

📍 Houston, Texas

🌐 www.aboutdme.org

Sept. 30TH - Oct. 1ST**IHS World Methanol Conference**

📍 Budapest, Hungary

🌐 www.ih.com

OCTOBER, 2016**Oct. 5TH - Oct. 6TH****Kazakhstan International Oil & Gas Conference (KIOGE)**

📍 InterContinental Almaty,
Almaty, Kazakhstan

🌐 kioge.kz/en/conference/about-conference

Oct. 24TH - Oct. 28TH**Singapore International Energy Week (SIEW 2016)**

📍 Marina Bay Sands, Singapore

🌐 www.siew.sg/

October 26TH - October 28TH**Gas Asia Summit (GAS) 2016**

📍 Marina Bay Sands, Singapore

🌐 www.gasasi summit.com/

NOVEMBER, 2016**Nov. 1ST - Nov 3RD****19TH IMPCA Asian Methanol Conference**

📍 Regent Hotel, Singapore

🌐 www.impca.eu/IMPCA/IMPCA/Future-Conferences

Nov. 3RD**MI Board Meeting**

📍 Regent Hotel, Singapore

✉ sg@methanol.org



WWW.METHANOL.ORG

WWW.METHANOLFUELS.ORG

