

Mitsubishi Gas Chemical Co. Inc.



Methanol and DME from Natural Gas/ Usage of New Fuel DME

May 13th, 2010 Khabarovsk, Russia

Mitsubishi Gas Chemical Co., Inc.

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MGC's Profile

Key Facts

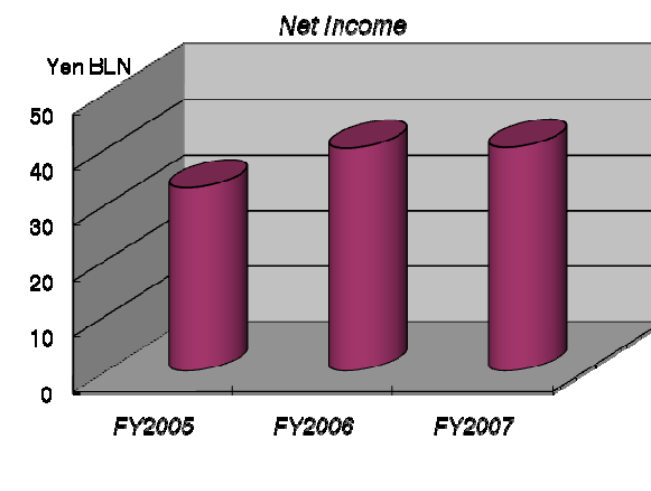
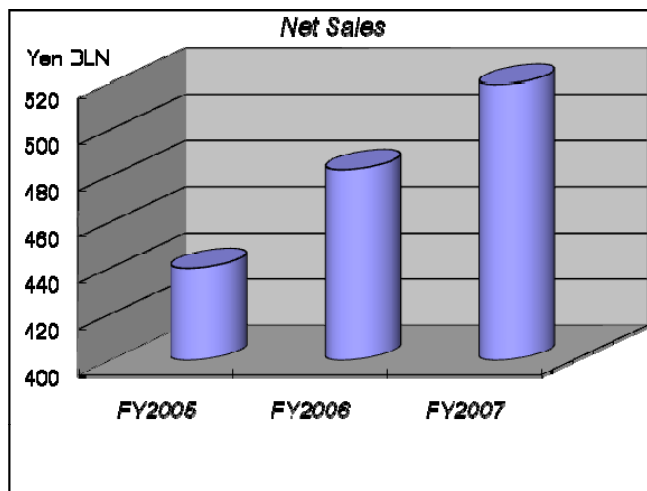
Incorporated in 1951

Employees : 4,686 (as of Mar 31, 2008 consolidated)

Consolidated Subsidiaries : 33 (as of Mar 31, 2008)

Paid-in capital : JPY42 BLN (as of Mar31, 2008)

Net Sales : JPY519 BLN (USD5BLN) : FY2007, consolidated



Mitsubishi Gas Chemical Co. Inc.



MGC's Division

Natural Gas Chemicals Division

- | | |
|--|--|
| <ul style="list-style-type: none"> • Commodity chemicals • Organic chemicals • Energy Resources • Others | <p><i>Methanol (DME).</i>Ammonia, Formaldehyde</p> <p>Amines, Polyols, MMA</p> <p>Exploration & Development for Gas & Oil, Geothermal</p> <p>Biochemical, Technology Sales</p> |
|--|--|

Aromatic Chemicals Division

- | | |
|---|--|
| <ul style="list-style-type: none"> • Common Aromatic Chemicals • Functional Aromatic Products | <p>Paraxylen, PTA, Phthalic anhydride,</p> <p>Orthoxylene, Plasticizers</p> <p>MXDA, MX nylon, Aldehydes, Polycarbonic acid</p> |
|---|--|

Specialty Chemicals Division

- | | |
|---|--|
| <ul style="list-style-type: none"> • Inorganic Chemicals • Engineering Plastics | <p>Hydrogen peroxide, Sodium hydrosulfide,</p> <p>Hydrazine hydrate, Persulfates</p> <p>Polycarbonate, POM, m-PPE, Reny</p> |
|---|--|

Information & Advanced Materials Division

- | | |
|---|--|
| <ul style="list-style-type: none"> • Electronic Materials • Info-Advanced Materials • Oxygen Absorbers | <p>BT laminate, Epoxy laminate,</p> <p>Magnetic garnet single crystal</p> <p>AGELESS, Anaeropac, RP systems</p> |
|---|--|

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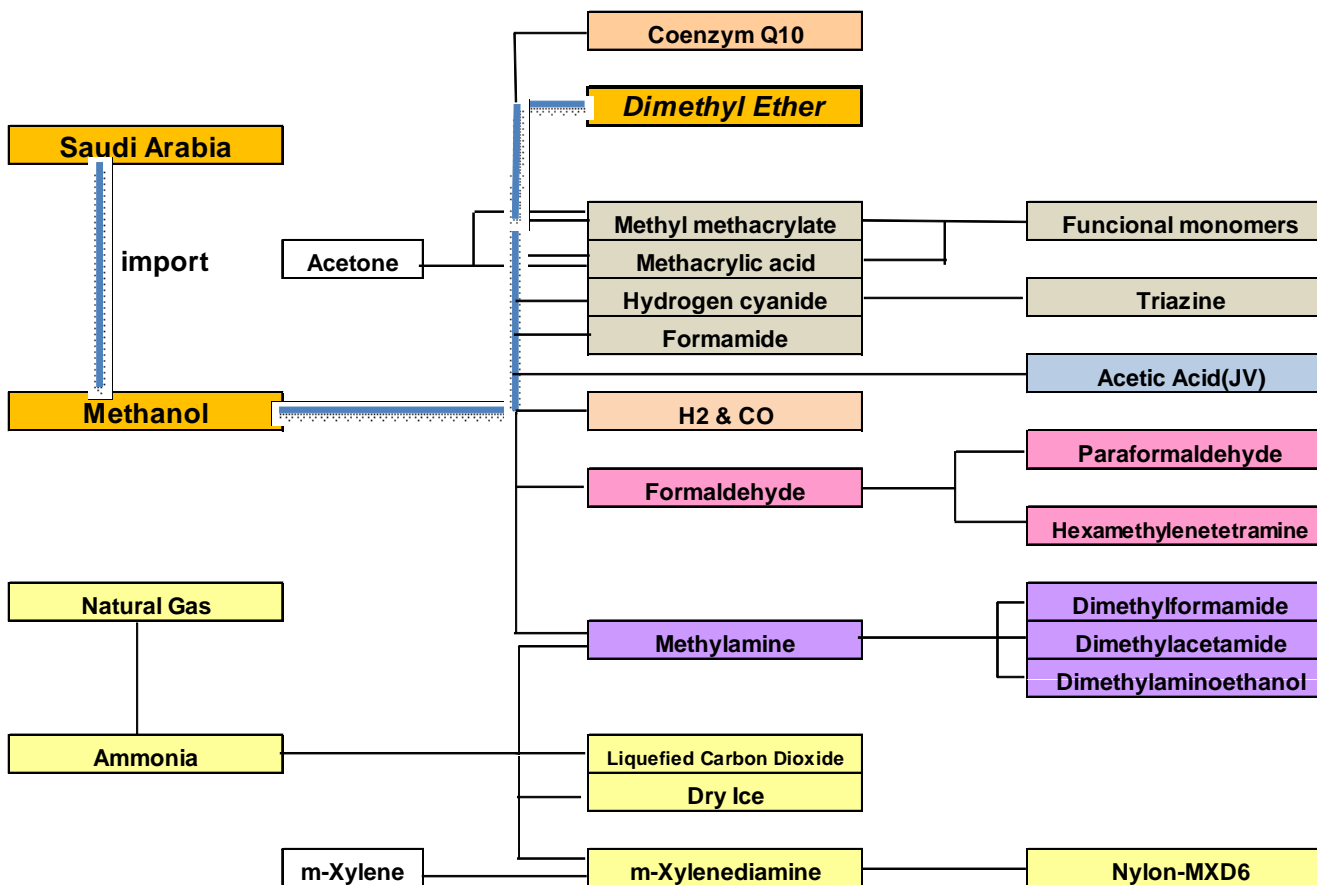
Outline of Natural Gas Chemicals Business

- ***First Company in Japan to synthesize Methanol (1952) and Ammonia (1957) from Natural Gas.***
- ***AR-RAZI commenced commercial operation in 1983.***
- ***METOR commenced commercial operation in 1994.***
- ***Brunei will commence commercial operation in 2010.***
- ***MGC has developed Businesses based on Natural Gas as follows.***
 - ***Development of Natural Gas Resources in Niigata Prefecture Gas Field.***
 - ***Expansion of methanol business overseas***
 - ***Production of Derivatives derived from Methanol & Ammonia***
 - ***Updated necessary functions to proceed with the Natural Gas Chemicals business***

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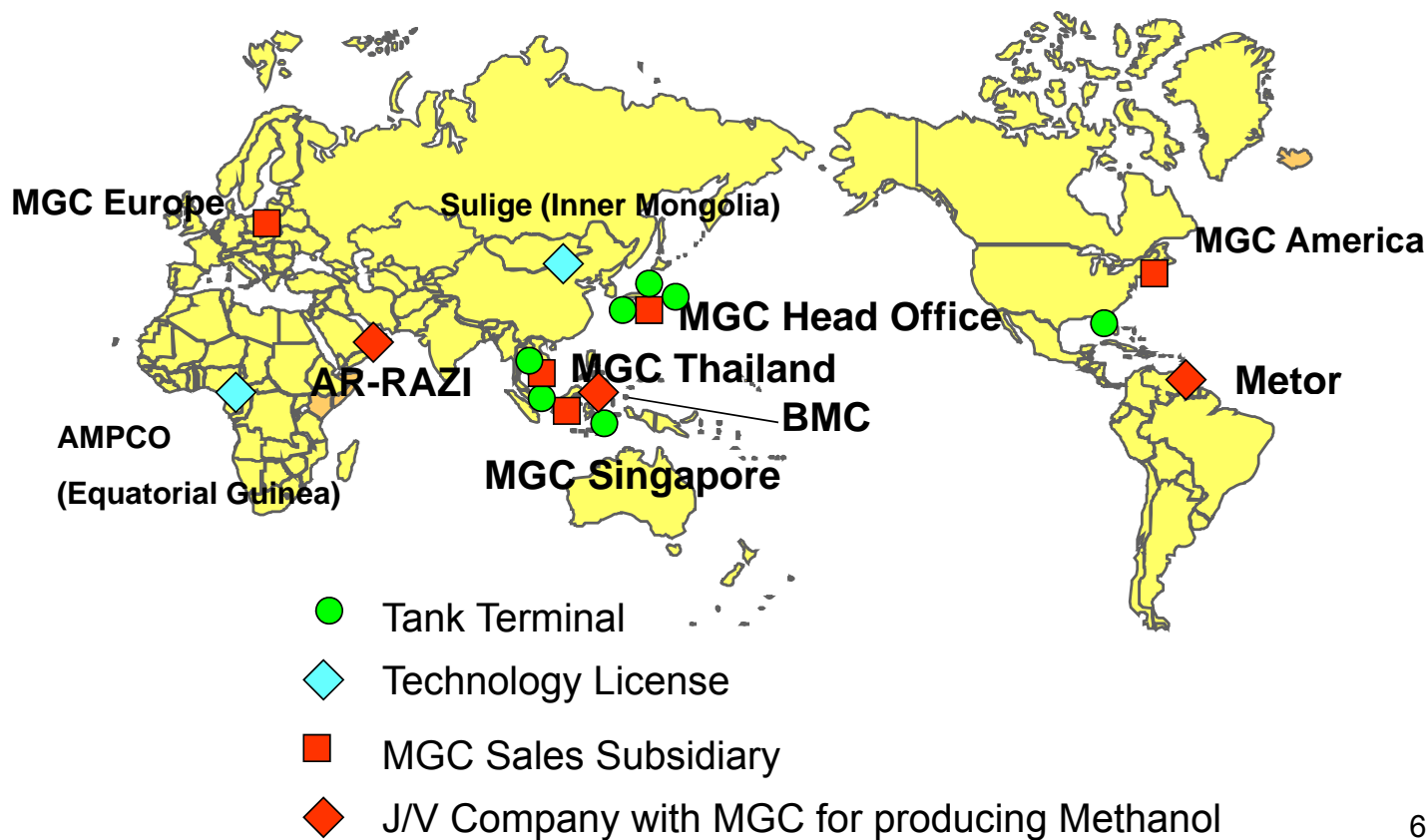
Methanol /NG derivatives in MGC



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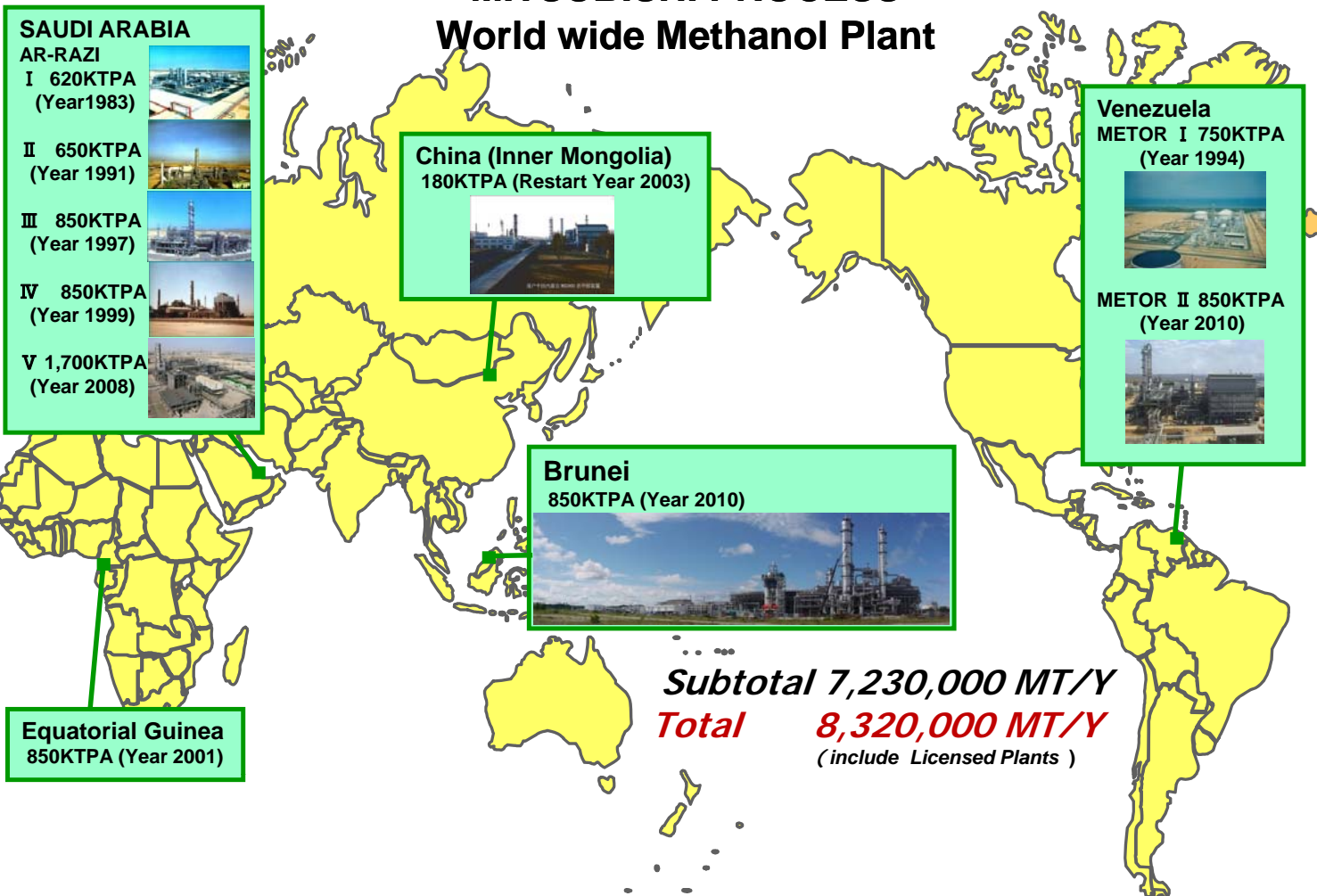
Methanol Business of MGC Worldwide Networks

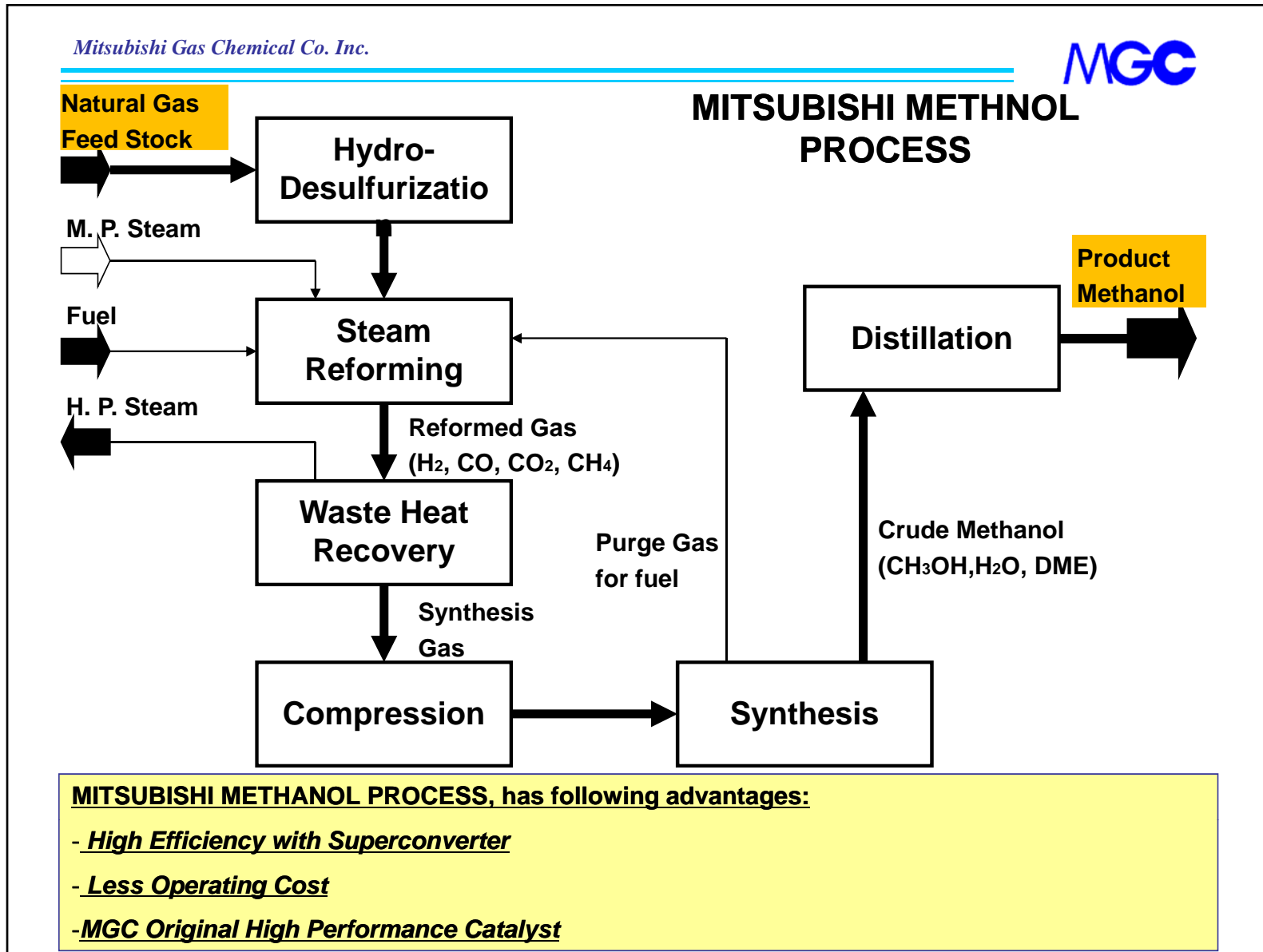


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MITSUBISHI PROCESS World wide Methanol Plant

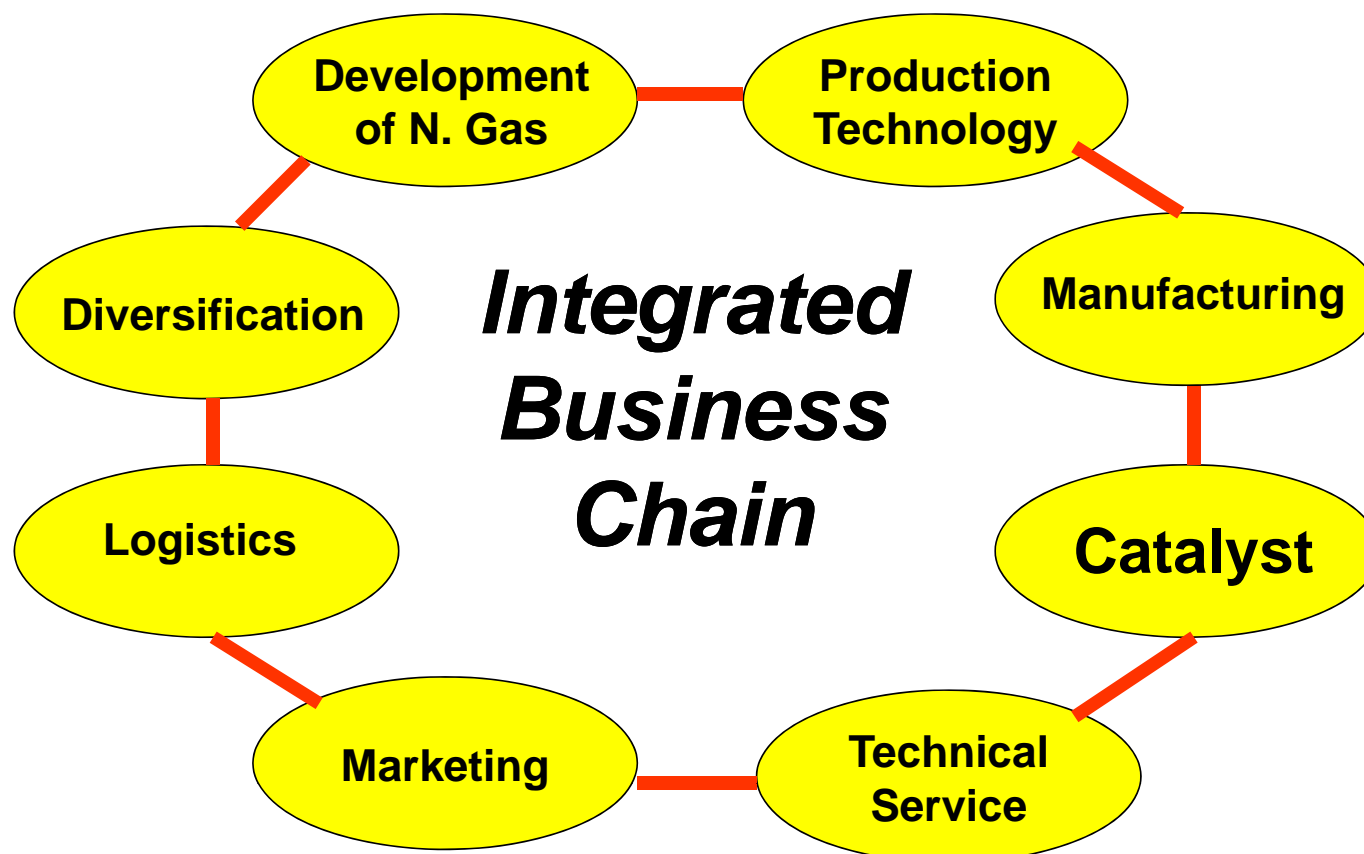




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Features of MGC's Methanol Business

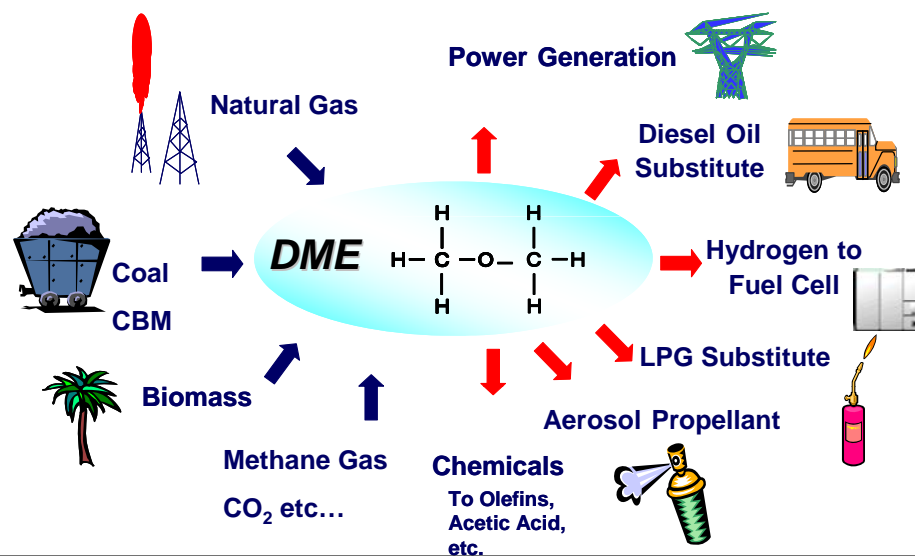


What is DME (Di-Methyl Ether)?

- ◆ Multi-Use and Multi-Source energy
- ◆ Clean Energy (no Emission of SO_x nor Particulate Matter (PM))
- ◆ Similar Characteristics to Liquefied Petroleum Gas (LPG)
 - Mixed with LPG up to 15-20wt%.
- ◆ High cetane number as diesel oil
 - Utilized for diesel engine.

Multi-Source

Multi-Use



DME Plant completed in Niigata, and Commercial Delivery Started



1st DME Promotion Plant in Japan

Plant Site : Within MGC Niigata Factory

Production : DME 80KT/Y using
imported Methanol

Production Start : August 2008

Delivery Start : January 2009



Current Usage of Fuel DME

For Vehicle, Boiler and Agriculture



Development of DME Trucks for Public Road Test by Commercial Use in 17th, Nov. 2009



First DME Boiler started commercial operation in 13th, Jan. 2009



DME fuel used warming machine for the green house cultivation. Exhaust gas used to promote the plant.

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ASIA DME CONFERENCE

***16th-17th, Nov, 2011
in NIIGATA, JAPAN***

Mitsubishi Gas Chemical Co. Inc.



Thank you



Mitsubishi Gas Chemical Company, Inc.

MGC HP <http://www.mgc.co.jp/eng/index.html>

Fuel DME HP <http://www.fueldme.com/>

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