

## **Act on Sophisticated Methods of Energy Supply Structures**

An act to promote the use of non-fossil resources and more effective use of fossil sources by energy supply businesses.

It facilitates measures necessary to promote the use of renewable energy sources such as sunlight and wind, non-fossil resources including nuclear energy, and more effective use of fossil resources by energy supply businesses including electric, gas, and oil companies.

(Source: Agency for Natural Resources and Energy, Ministry of Economy, Trade and Industry)

## **ALA**

5-aminolaevulinic acids (ALA)

ALA is a natural and important amino acid and it has an important role as a raw material used for the production of haem in the blood and chlorophyll in the plant body. It is used as an enhancer of fertilizer to promote plant growth. It is also used in photodynamic cancer therapy, and is expected to be applied in the sectors of pharmaceuticals for both humans and animals and animal feed in areas, such as prevention of anemia in pigs and improvement of disease resistance in fish. The market for ALA is highly expected to grow into a huge one that can be equal to the size of the markets for main amino acids in the future. Cosmo Oil has developed a low-cost method of manufacturing ALA, which is supplied to the fertilizer, animal feed, cosmetics, health food, pharmaceutical, and other markets. At the same time, Cosmo Oil is working with partners on the development and sales of new applications for these markets.

## **API**

The American Petroleum Institute gravity, or API gravity is a measure of the density of a crude oil liquid. If its API gravity value is greater, it indicates that a larger quantity of lighter and more highly value-added distillate products (gasoline, kerosene, jet fuel and diesel fuel) is likely to be distilled from the liquid, which is priced higher in the market.

## **Biogasoline**

Biofuels, made from plants as raw materials, are eco-friendly fuels since they don't increase CO<sub>2</sub> in the atmosphere, even if they release CO<sub>2</sub> through incineration since plants have already absorbed CO<sub>2</sub> through photosynthesis in the growing process, which is called the "carbon neutral effect".

In 2010, the oil industry in Japan has decided to introduce 840,000 kl of ether tertiary butyl ether, or ETBE, which is a fuel produced by mixing ethanol and isobutylene.

## **Car Care Merchandise**

It includes car inspection, repair, lubricating oil change, and car wash services, tires, batteries, accessories, and other automotive products and services, which represent the value added merchandise.

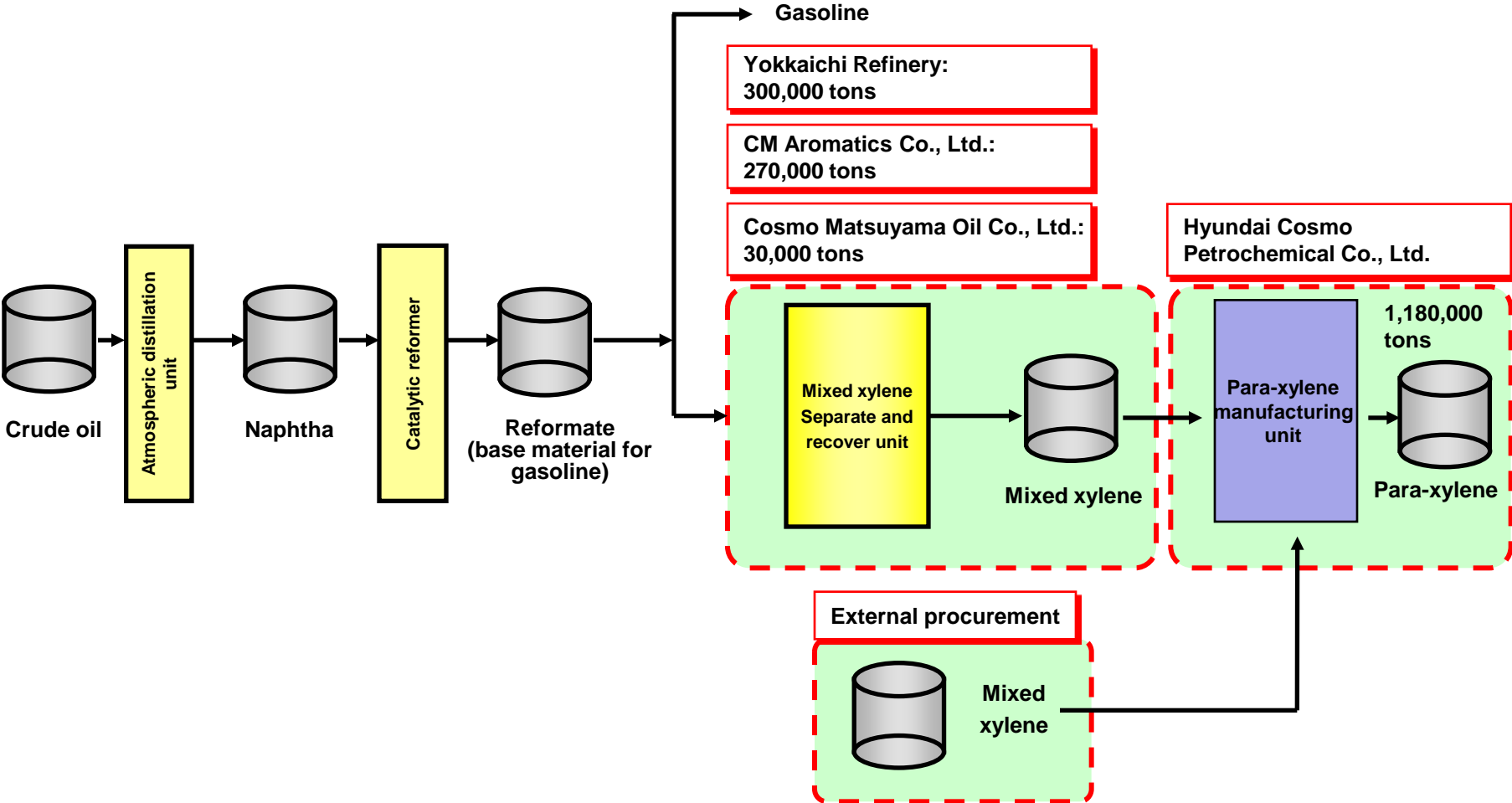
# CM Aromatics Co., Ltd.

A joint venture company established by Cosmo Oil and Maruzen Petrochemical Co., Ltd. to procure the base material to manufacture mixed xylene and to store and market it.

Date of establishment: April 1, 2005

Capital: ¥100 million

Invested by: Cosmo Oil at 65% and Maruzen Petrochemical Co., Ltd. at 35%



## Coker Unit

A new unit built at the Sakai Refinery of Cosmo Oil (with a capital investment of some ¥100 billion) scheduled to start operation during fiscal year 2010. In addition to the Coker unit, a Coker Distillate hydrodesulfurization unit is also newly being built. These units, when completed, will be used to produce naphtha, jet fuel and diesel fuel from an asphalt fraction.

These efforts are expected to provide benefits, such as cost reductions in the refining process by using heavy crude oil (by taking advantage of heavy-lighter crude oil price gaps, or price gaps between heavy crude oil and light crude oil aimed at maintaining the same distillate production rates as conventionally by using lower-priced heavy crude oil) and better responses to structural changes in oil product demand in Japan and higher refining margins with a shift to the production of intermediate fractions from that of a heavy oil fraction (by taking advantage of light-heavy distillate product price gaps, or price gaps between oil product and heavy fuel oil aimed at improving rates of producing more highly value-added lighter distillates), thereby improving profitability at the company.

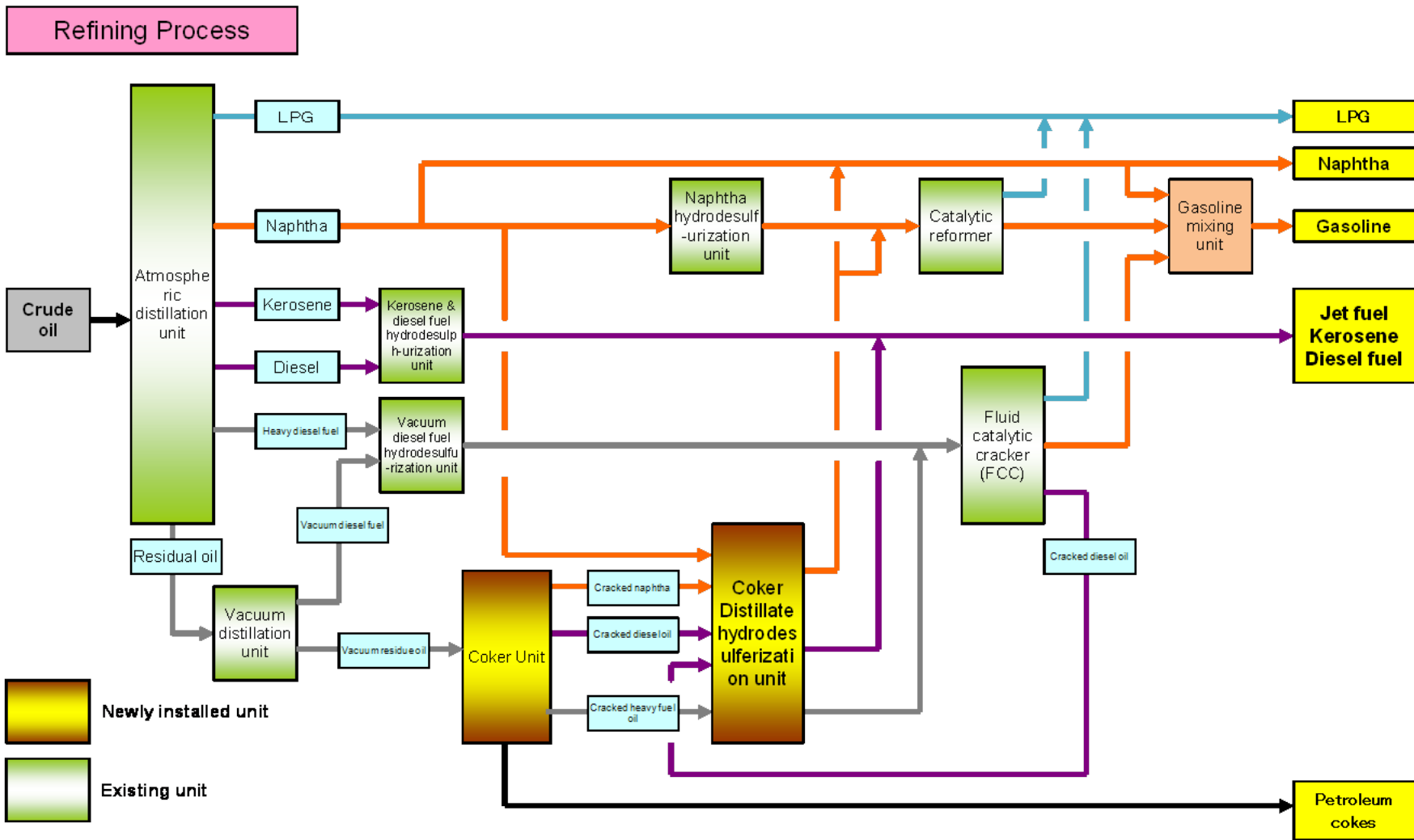
### <Outline of the New Facilities to Introduce>

- (1) Coker unit - Processing capacity of 29,000 BD
- (2) Coker Distillate hydrodesulfurization unit - Processing capacity of 42,000 BD

### <Outline of Production Capacity Expected>

Naphtha: 250,000 kl/year; Jet fuel: 700,000 kl/year; Diesel fuel: 350,000 kl/year;  
and Petroleum cokes: 400,000 tonnes/year

# <Refining Process Chart After Introduction of Coker and Other Units>



## **COSMO B—CLE LEASE**

An integrated, “one-stop” vehicle lease service encompassing procurement of vehicles, automobile safety inspection, car insurance, discounted fueling. With a monthly payment of fixed lease fee, customers can receive all of above services at our outfit without going anywhere else.

We have applied to the business method patent for our original services including discount on fuel fee and carry-in maintenance services.

## **Cosmo The Card House**

Cosmo Oil’s proprietary credit card that is available only at Cosmo Oil SSs.

The card provides great benefits for the three parties customers, dealers (SSs) and Cosmo Oil, respectively, as follows:

- Customers: Issuing cards immediately, cashless payment for purchases at the service station (SS), redemption of premiums (please refer to the section Mileage, Mile –Cosmo Gasoline Mileage), cash loans and many other benefits are available.
- SS: Actively issue new cards at the time of SS opening to set up a system so that customers will come back to Cosmo SSs and use the cards repeatedly.
- Marketing activities by utilizing POS (point of sales) data gathered through card use would help dealers enhance the ways they operate their SSs and increase sales.
- The card also makes it easy for SSs to process customer payments and offers the issuer’s commission lower than credit sales companies’.
- Cosmo Oil: Enhancement in marketing tools and SS management is expected to bring more sales and more card commission revenues.

## **Cosmo The Card Opus**

Starting June 2006, "Cosmo the Card Opus" was issued in affiliation with AEON Credit Service Co. Ltd.

Co-branded with no annual fee international brands (VISA, MasterCard, JCB), the line-up will be able to accommodate a range of customer needs.

## **Desulfurization Catalyst**

The typical desulfurization process is such that sulfur (S) is removed in the form of hydrogen sulfide by reacting the sulfur contained in crude oil with hydrogen (H).

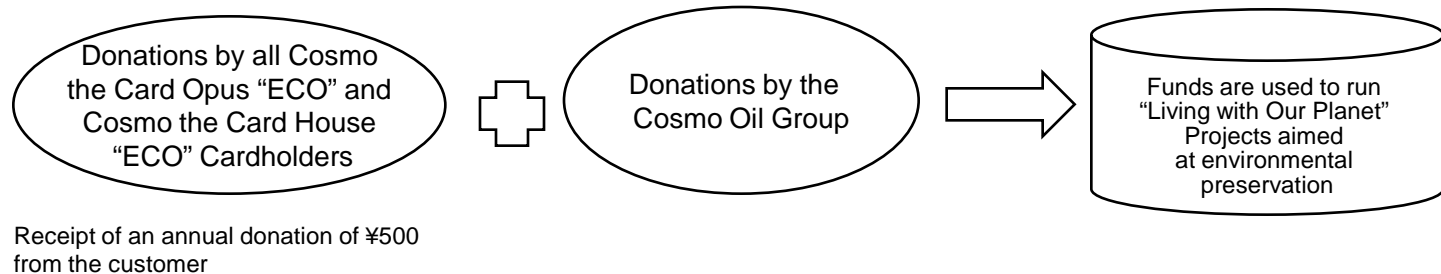
A catalyst is used to promote this chemical reaction.

## **Direct Hydrodesulfurization Unit**

- One of hydrosulfurization units for heavy fuel oil
- The unit designed to remove sulfur component from residual oil derived by fractional distillation from crude oil through the atmospheric distillation unit (topper), converting the residual oil into hydrogen sulfide by reacting it with hydrogen at high temperature and high pressure in the tower type reactor filled with catalyst.

## Eco Card

Cosmo Oil's proprietary credit card providing an opportunity for its cardmembers to "participate in environmental preservation" activities in addition to the same features offered by Cosmo The Card Opus and Cosmo The Card House. Two "Eco" cards are available: Cosmo The Card Opus "Eco" and Cosmo The Card House "Eco." The Eco Card is designed to acquire new customers highly sensitive to environmentalism in addition to attracting Cosmo The Card targets.



- Note: In addition to that described above, Cosmo Oil will send to each cardmember the "Cosmo Oil Eco Card Fund Report" on environmental preservation activities and how donations from cardmembers will be used.

→ Please refer to Cosmo The Card House

## EcoPower Co., Ltd.

In March 2010, Cosmo Oil acquired all the shares (98.8%) owned by Ebara Corporation in its wind power generation subsidiary, EcoPower Co., Ltd. ("EcoPower"). EcoPower owns wind turbines in wind-rich areas, mainly in Tohoku and Hokkaido. Since 2004, Cosmo Oil has operated the Cosmo Oil Sakata Wind Power Plant (1,500 kw), a wind turbine in Sakata City, Yamagata Prefecture.

<Outline of Eco Power > (End of FY2012)

- Number of sites for power generation: 29
- Number of units: 128
- Total power generating capacity: 145,810 kw

Please refer to URL : <http://www.eco-power.co.jp/project.html>



## **FCC (Fluid Catalytic Cracking Unit)**

FCC stands for fluid catalytic cracking unit.

This is a secondary decomposition unit designed to produce a larger quantity of lighter fuel oil fractions (mainly the gasoline fraction).

## **Feed-in Tariff (FIT) Scheme for Renewable Energy**

- The scheme introduced by the Japanese government for the purpose of promoting the use of renewable energy across Japan
- The scheme requiring electric companies to purchase electricity generated from renewable energy sources by existing and new facilities at a fixed price (procurement price) for a fixed period (procurement period).
- The price and period for procurement of electricity generated from wind power:  
Class of 20 kW or more: ¥23.10 per kW (tax inclusive), or ¥22, tax-exclusive, for the 20-year period

(Source: The Agency for Natural Resources and Energy in the Ministry of Economy, Trade and Industry, “the Feed-In Tariff Scheme for Renewable Energy” published in July 2012)

## F Index

An index that dealers use to manage their SSs (or to raise their cost awareness)

The primary objective of introducing this index is to have each dealer understand the ratio of the gross margin of sales of the value added merchandise (including statutory car inspection, lubricating oil change, car wash, tires, batteries and accessories and other services and products) to labor cost to draw their greater attention to cost.

An SS with a larger index would be stronger with value added sales.

$$\text{Calculation method} = \frac{\text{Value added gross margin}}{\text{Labor cost}} \times 100$$

E.x., F Index value of more than 100%: A value added gross margin is offset by labor cost.

F Index value of more than 120%: Labor is more than offset by a value added gross margin. =  
Strong SS.

## Hyundai Cosmo Petrochemical Co., Ltd (Ex. HC Petrochem)

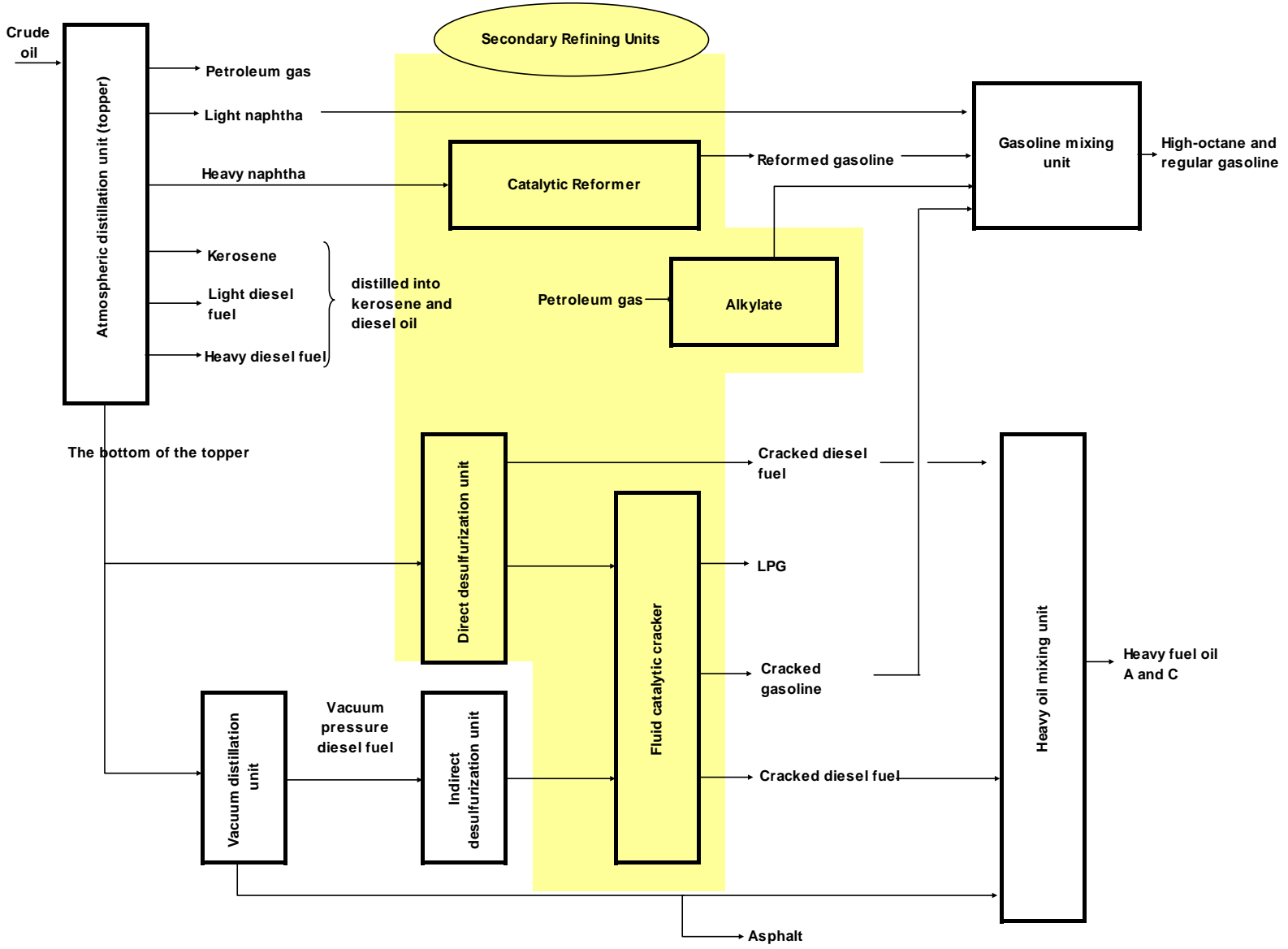
This is an equal joint venture company that Cosmo Oil established with Hyundai Oilbank Co., Ltd. (HDO) in November 2009. Using a paraxylene plant (with a production capacity of 380,000 tonnes per year) assigned by HDO, Hyundai Cosmo Petrochemical(HCP) started manufacturing and marketing paraxylene in February 2010.

The new paraxylene production unit (with a production capacity of 800,000 tonnes per year) has been completed on November 2012. Commercial operations production and marketing of 1,180,000 tonnes of per year of paraxylene began in January 2013.

→ Please refer to “Hyundai Oilbank Co., Ltd. (HDO).”

# Heavy Fuel Oil Desulfurization Units (Direct and Indirect)

Units designed to recover sulfur from what is in the bottom (or heavy fuel oil) of the atmospheric distillation unit



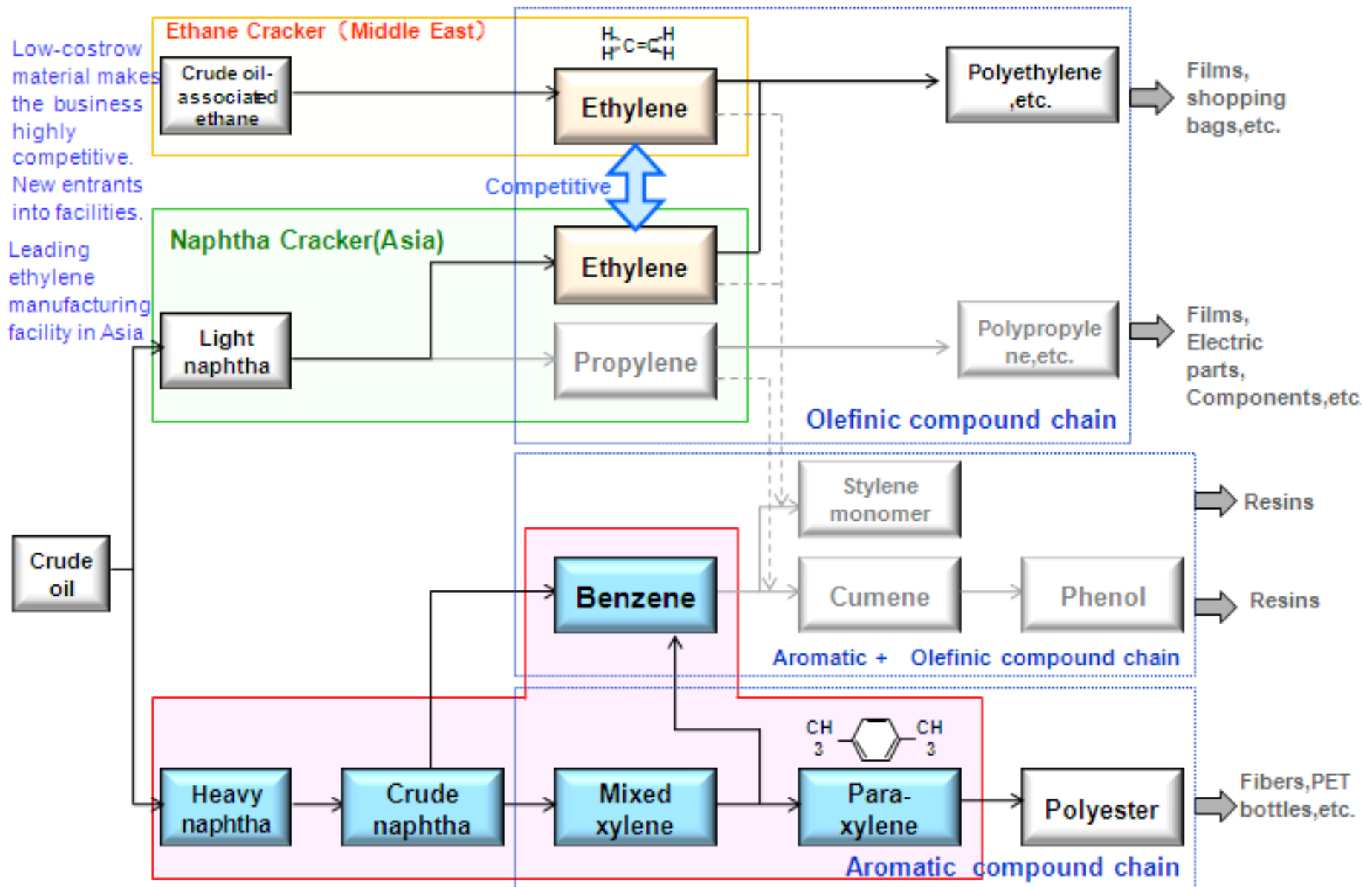
## **Hyundai Oilbank Co., Ltd. (HDO)**

HDO is an oil refining and marketing company based in the Republic of Korea. Established in 1964, HDO processes crude oil at 390,000 barrels a day.

As part of its joint projects with IPIC, Cosmo Oil in April 2008 signed a memorandum of understanding for comprehensive and strategic cooperation of the oil business with HDO. In June 2009, the two parties signed a memorandum of agreement in relation to the establishment of a joint venture company (JVC) for para-xylene business collaboration and in October 2009, the parties signed a memorandum of agreement for the establishment of the JVC to undertake the para-xylene business. Cosmo Oil and HDO established a joint venture company (Hyundai Cosmo Petrochemical Co., Ltd.) in November 2009.

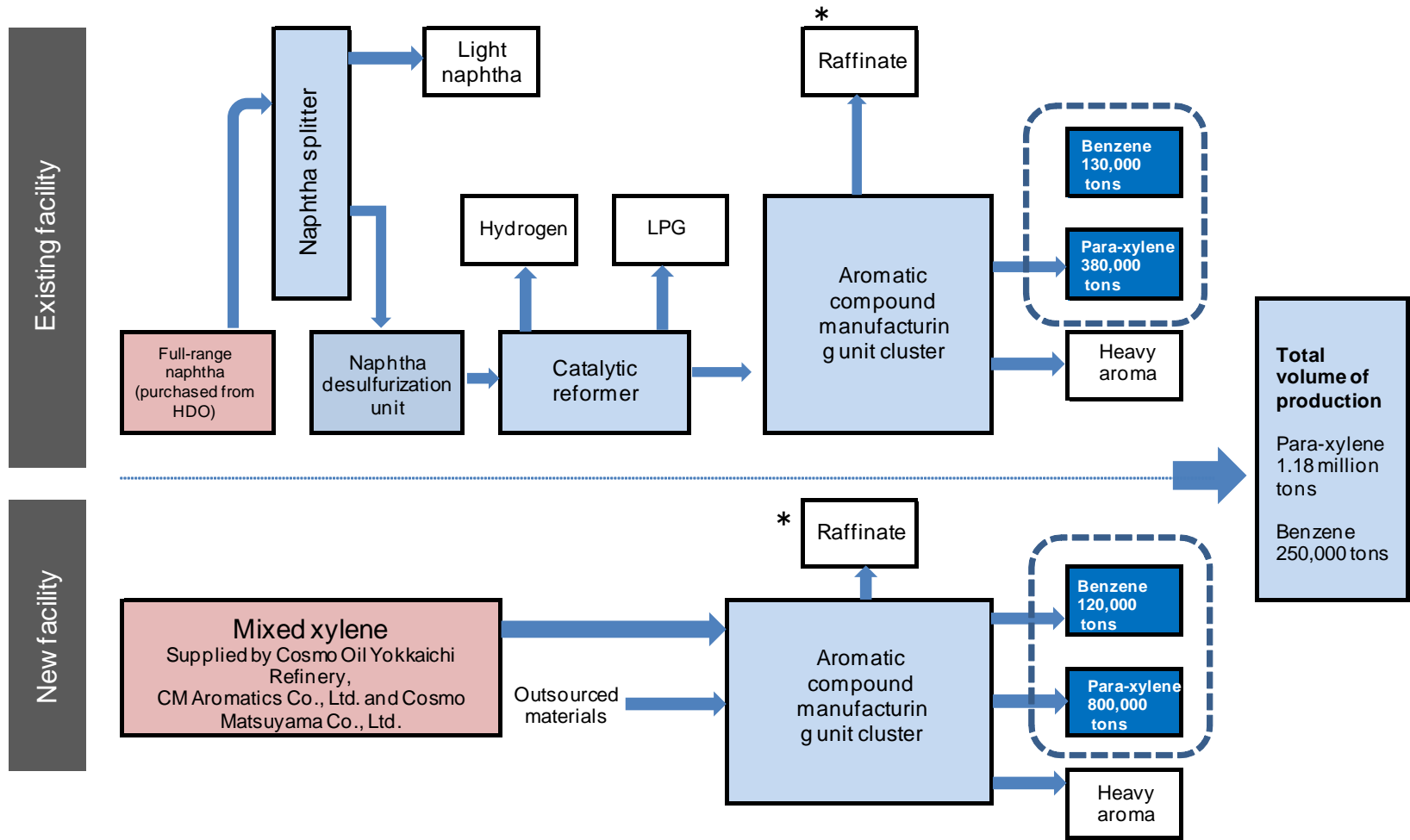
Please refer to “Hyundai Cosmo Petrochemical Co., Ltd.”

※ Visualized Concept for Olefinic and Aromatic Products



The red framed indicates the scope of business done by Hyundai Cosmo Petrochemical Co., Ltd. (HCP)

※ Para-xylene manufacturing facility structure in the JV business:



\* The raffinate collectively refers to a product that remains insoluble in a solvent extracted in the solvent extraction process.

## **IPIC**

Established in 1984, International Petroleum Investment Company is a wholly owned energy-related investment subsidiary of the Emirate of Abu Dhabi. IPIC is specialized in making long-term investments in oil and gas-related businesses outside Abu Dhabi. It owns about 20% of Cosmo Oil shares by accepting a third-party allotment offered by Cosmo Oil.

## **IPP (Independent Power Producer)**

Electricity wholesale business

Cosmo Oil has built a 200,000-kw power station adjacent to its Yokkaichi Oil Refinery, currently supplying electric power to Chubu Electric Power Co. starting from July 2003.

## **Mixed Xylene**

A raw material used to manufacture para-xylene. Mixed xylene is mainly produced based on reformat (base material for gasoline) that is manufactured by an oil company.

Please refer to "Para-xylene."

## **Number of Cards in Force**

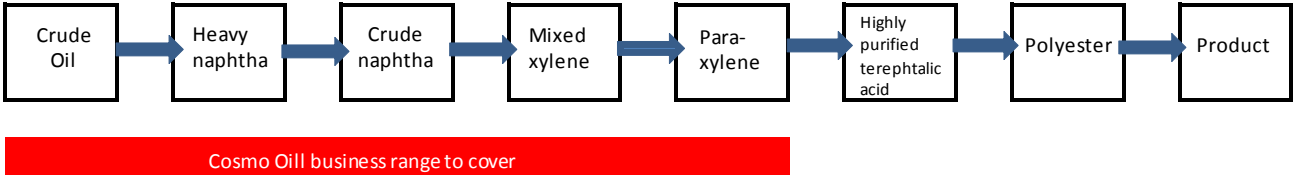
The net number of "Cosmo The Card" cardmembers after the deduction of the number of ex-cardmembers.

The actual number of cardmembers as of today.

# Para-Xylene (PX)

Aromatic compounds that are used to manufacture PET bottles and polyester textile products.

-Production Process from Crude Oil to Product .



- Mixed xylene: Please refer to the section of “CM Aromatics Co., Ltd
- Para-xylene: Please refer to the sections of “Hyundai Oilbank Co., Ltd.” and “Hyundai Cosmo Petrochemical Co., Ltd.”

## Sales Unit, or SS Sales Unit

A monthly sales volume of automobile fuel oil per SS

NEW

## Sogo Energy Corporation

In November 2012, Cosmo Oil acquired all the shares (97.08%) owned by Sojitz Corporation in its subsidiary, Sojitz Energy Co., Ltd. In February 2013, the name of corporation changed from ‘Sojitz Energy Corporation’ to ‘Sogo Energy Corporation’. The numerous procurement sources, loyal customers, talented personnel and know-how of Sojitz Energy, will all strongly contribute to Cosmo Oil's domestic marketing strategy, and furthermore, create significant synergies in our supply stability and logistics network.

« Company Logo »





## SS NV Index

This refers to a management evaluation index that provides navigation for SS operators to strengthen their management of SSs (or to build the management basis to improve profitability even if they face such an unfavorable business environment that may reduce operating margins).

The primary objective of the introduction of this index is to have SS operators understand the management policy of minimizing costs to operate an SS, while maximizing a value added gross margin (to be earned from selling statutory car inspection, lubricating oil change, car wash and other services and tires, batteries and accessories and other products) and gasoline and diesel fuel sales.

A dealer would become stronger if it achieves a smaller index value (or even minus figures).

Minimize SS operating expenses

Calculation method = 
$$\frac{\text{Direct SS operating expenses} - (\text{Value added gross margin} + \text{Kerosene gross margin})}{\text{Automobile fuel (gasoline + diesel fuel) sales volume}}$$

Maximize a combined non-fuel gross margin

Maximize a combined fuel sales volume

## Sulfur-Free Gasoline and Diesel Fuel

Gasoline and diesel fuel containing 10 ppm of sulfur or less, respectively.

## Topper

An atmospheric distillation unit. Generally speaking, the crude oil processing capacity of an oil refinery is represented by its topper's processing capacity per day.

## Total Number of Cards Issued

The cumulative number of "Cosmo The Card" cards issued so far, including the number of cardmembers who have been withdrawn.

## Wind power generation

→ Please refer to "EcoPower Co., Ltd."