

AFRAMAX Product Tanker Delivered

On 6th March, MES delivered AFRAMAX type product tanker "HAIMA" to her owner Perennial Transport Inc., Panama. This vessel can simultaneously carry clean and dirty petroleum products as well as crude oil. Her cargo oil tank capacity is 126,000 m³, which is the largest class as the AFRAMAX type of 42 m hull width, securing 110,000 deadweight tons loading capacity. Bulbous bow and stern figures with the latest design achieves most superior propulsion efficiency as the AFRAMAX type vessel. Cargo oil tanks are coated with two layers of pure epoxy paint for the protection of cargo damage. 3 kinds of oil can be

efficiently unloaded independently and simultaneously with the equipment of 3 sets of cargo oil pump with automatic suction-up system.



Hot News in MES's Underwater Vehicles

Inside Inspection of Underwater Pipe

In this February MES completed inside inspection of an underwater oil transportation pipe located in west Japan using underwater vehicle made by MES. Inside inspection of the transportation pipe, of which diameter was 1 m, was carried out filling sea water in the pipe instead of oil to enable the underwater vehicle to move inside of the pipe. The inspection was performed throughout the

distance of 1,850 m putting the vehicle into the inside of pipe from seaside manifold provided on the loading facility and from pipe distribution bridge on the shore side. Generally, because that the underwater pipes are laid for long distance, inspection by divers almost cannot be performed.

The underwater vehicle used for this inspection is Mitsui RTV-100MKII fitted with 1,200 m underwater cable of neutrally buoyant in sea water. MES's RTV series underwater vehicles have the delivery record of more than 300 units. RTV is a small sized vehicle able to move the inside of 1 m dia. pipe smoothly even through the curved parts bent 90 degrees and up-and-down. It can present real-time image of inside of pipes extend over 2.5 km through the underwater cable.

Pipelines are laid like the net as the social infrastructure, and periodical inspection of the pipes are very important. MES's underwater vehicle is hoped to play an important role in the inspection of these fields.



Water Supply Pipe Inspection Vehicle

In this March MES developed a very small underwater vehicle system which can inspect the inside of water supply pipe lines under pressurized condition without suspension of water supply. This underwater vehicle can inspect the conditions of joint and corrosion of pipes with the diameter of 500 mm and over. The system is composed of operation and recording unit, underwater vehicle body, underwater cable of 300 m long and launching and recovery device without suspending water supply. The vehicle is of 60 mm diameter with 450 mm length. The vehicle can be inserted into the pipe through more than 75 mm air vent valve. A side view TV camera, a side lighting

system, a thruster for forward motion, and two float control devices are equipped on the vehicle. Operation of the vehicle can be done by 1 operator including cable handling. The operator maneuvers the vehicle monitoring the images sent through the cable.



Contract Award for Civil & Architectural Work for Power Station

MES has been awarded a contract for all civil and architectural work related with the expansion of a coal fired thermal power station at "Tanjung Jati B" in Indonesia from Sumitomo Corporation. The award was finalized in March, 2009. The project is a doubling of the existing power station with 1,320 MW total generation capacity by the addition of 2 x 660 MW power plant units in the adjoining area to the existing power station, which is located in the central part of Java, Indonesia. Upon completion, the power station will be leased for a period of 20 years to PT. Perusahaan Listrik Negara, an Indonesian governmental power company, by PT. Central Java Power, a company wholly owned by Sumitomo Corporation. The total project expenditure amounts to ¥200 billions.

onshore civil engineering work, such as: construction of foundations for boilers and turbines; concrete water tanks of various kinds; and all other associated civil structures. In addition MES will construct the turbine building and central control room, and the concrete chimney which has a height of 250 m. Project completion is scheduled for the end of 2011 for Unit 3, and beginning of 2012 for Unit 4.

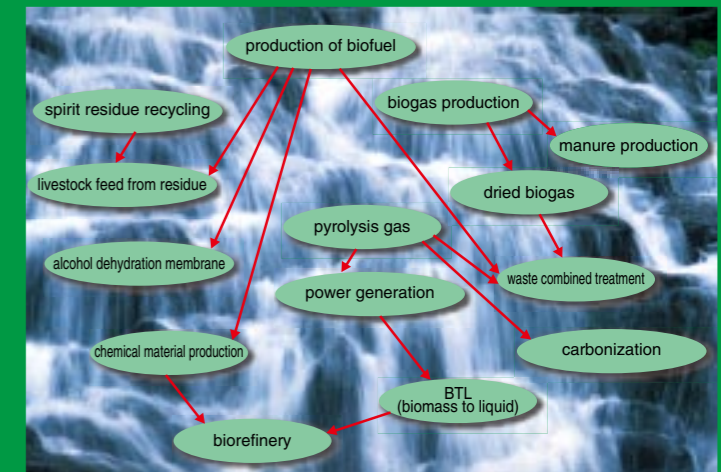


From Fossil Fuel to Bioenergy
MES's Commitment to Bioenergy Production

Mitsui Engineering & Shipbuilding Co., Ltd. (MES) promotes various businesses to mitigate deterioration of the global environment in line with its corporate basic principle for the preservation of global environment. The principle says "MES and its group companies recognize that preservation of the global environment is one of the most important issues in the world today and will contribute through every business activity to realize affluent society in harmony with environment by promoting the good health of mankind and preservation of the global environment." One of the newly developing business areas under 100th anniversary vision is a concept called "BIOCASCADE", where a biomass is utilized in multi-stages to the extreme, e.g. with the biogas made from biomass generate electricity and by-produced exhaust gas of high temperature is then used as the heat to dry something and the gas of medium temperature after such process is further used for methane fermentation, etc.

In this issue, we would like to introduce examples of our bio-energy production plants.

Concept of MES "BIOCASCADE" Business



Biomass Power from Waste Wood

MES Group works comprehensively on biomass power plant
From construction, operation and maintenance of the plant to supply control of fuel

Biomass power generation

This plant is to generate electricity firing fuel made from demolished house wood and house organic waste, etc. In Japan about 330 biomass generation plants are in operation at the end of October 2008.

Green Power Ichihara Co.,Ltd. an MES's subsidiary company, constructed biomass power plant in the premises of Chiba Works of MES aiming to mainly use demolished house wood together with refuse paper and plastic fuel (RPF) gathered from Tokyo metropolitan and its surrounding prefectures.

Power generation capacity of the plant is 49,900 kW and power transmission capacity is 43,800 kW, which are the largest scale in Japan as the biomass generation plant. The wood chip fuel and RPF are supplied by Recycle Sources Company, established by MES and New Energy Supply Company, under supply control where temporary storage as necessary and timely supply of the fuel are made.

Approx. 350 thousand tons of CO₂ (equivalent to about 100 thousand kl of crude oil) can be decreased in a year by this power plant.



Wood Chips



Wood Chips storage Yard



RPF

The fuels for the biomass power plant

As mentioned above the fuels are recycled wood chips and RPF. The wood chips are made from demolished houses and wood remainder materials after lumbering by refining removing impurities. Other fuel used is RPF. It is the high-calorie solid fuel made from waste paper and plastics, which are difficult to be recycled to paper and plastic.

Biogas, Electricity, Heat Source, Liquid Manure, etc. from Human Excreta, Garbage, etc.

MES had been tackling the development of disposal plant for human excreta, sludge from the waste water treatment facility, household garbage, etc. for several decades, and has constructed many plants in the past. In the recent years in line with the enhancement of social consciousness for preservation of environment, such treatment facilities to be newly constructed are changing from mere treatment facility to the facility to recycle such waste to valuable things as biogas, electricity, heat resource, fertilizer, etc.

One of such facility is recently constructed in Oki Town, Fukuoka Prefecture in western part of Japan. The facility named "Oki Recycling Center Kururun" was born as a Framework for Biomass Town, availing subsidy of the Japanese Ministry of Agriculture, Forestry and Fisheries. In this facility human excreta, sludge from waste water treatment and household garbage are mixed and fermented to make liquid manure, which is recycled to farmland. Further, biogas made in the process of fermentation is utilized to generate power to be used for the electricity required for operation of the facility.



Biogas, Electricity, Heat Source, Manure from Garbage



Another plant we would like to introduce is the waste treatment facility named "Recyclean" constructed in Nakasorachi, Hokkaido, located in the northern part of Japan. This plant is the largest class garbage disposal facility in Japan and can treat 55 tons (nominal capacity) of garbage gathered from 40 thousand households and offices in the Nakasorachi Area in a day. The garbage is fermented to biogas to be used for power generation and as boiler fuel. The electricity made is used for operation of the facility and surplus electricity is sold to electric company. Further, heat produced by generator and boiler is used to heat methane fermentation tank and road heating. In addition, sludge after methane fermentation can be utilized as the high quality farmyard manure, since the gathered garbage in collecting bags is made to pure garbage by removing the collecting bags and metal materials in the preliminary treatment process.