

FLOATING POWER PLANTS

ENERGY
ENVIRONMENT
ECONOMY





THE POWER SOLUTION THAT TAKES FLEXIBILITY ONE STEP FURTHER

A common denominator for all Wärtsilä's power plants is world-class flexibility. Our power plants are based on diesel, gas or dual-fuel engines that are designed to run on various types of liquid and gaseous fuels. They allow for switching fuels according to cost and availability. The plants' output can also easily be multiplied by installing more units in parallel.

Options such as steam production, combined cycle and desalination provide economic optimisation.

Controlled combustion and an unequalled electrical efficiency form the foundation for the environmental friendliness of all Wärtsilä plants. When required, various NO_x and SO_x reduction options are available, making these plants comply with the most stringent environmental standards anywhere in the world.

Uniquely fast starts, stops and load ramps ensure fast load following. You can rely on an uninterrupted power supply and

excellent energy efficiency in any use – from peaking power to baseload.

Still, we have even more to offer. Wärtsilä floating power plants take flexibility one step further; not even the location is a fixed parameter anymore. In an ever-changing world Wärtsilä provides you with solutions that anticipate challenges and help you master the situation, come what may.



EXPERTS ON POWER ON WATER

Wärtsilä's floating power plants integrate our expertise in marine technology with the many benefits of flexible, decentralised power generation.

Floating power plants are based on tested components and system solutions. They are constructed cost effectively and rapidly in a well-controlled industrial setting. When towed in place and connected to the grid the plants are fully functional, providing a fail-safe option even in the remotest locations and under the most challenging ambient conditions.

Floating power plants can also provide a rapid answer to an increase in power demand in advance of new, land-based plants.

Our turnkey solutions include site preparation and operation and maintenance services according to customer needs. The lead time from contract to start-up of commercial operations is short, guaranteeing a quick return on your investment.

Advantages of a floating power plant:

- Provides fast supply of electricity to areas with limited infrastructure
- Is a mobile asset, possible to relocate or trade
- Does not require a large site
- Is less dependent of soil quality
- Provides secure power supply in the event of an earthquake or floods



THE BENEFITS OF WÄRTSILÄ FLOATING POWER PLANTS INCLUDE:

- mobility
- short construction time
- robust design and reliable technology
- flexible fuel choice
- optimal matching at different loads
- compliance with the strictest environmental standards
- conservation of water
- comprehensive maintenance and operational services



Wärtsilä has built more than 20 floating power plants over the last two decades.

BARGING IN NICE AND EASY

The Haripur floating power plant in Bangladesh took part in improving the critical power situation then prevailing in the country. Site work was minimal since no onshore fuel tanks were required. The engines are cooled with onboard radiators. The plant was commissioned as an engineering, procurement and construction contract with NECP Haripur Ltd.

Electrical output	148.6 MWe
Engines	9 x Wärtsilä 18V46
Delivered	2001



THE REIGN OF THE SULTAN

La Sultana del Este was ordered by Empresa Generadora de Electricidad Haina, S.A. in the Dominican Republic. Wärtsilä's solution featured operational commitment, environmentally advanced performance and highly efficient thermoelectric power generation operating with heavy fuel oil.

Electrical output	148.6 MWe
Engines	9 x Wärtsilä 18V46
Delivered	2001



THE DOCTORS THAT STEER CLEAR OF HURRICANES

A survivor of many hurricanes, Dr Bird II is safely moored next to its older counterpart Dr Bird I in the Jamaican bay. This is the first power barge that Wärtsilä designed from scratch in order to satisfy the owners requirements on fuel storage capacity, and easy operation and maintenance. Dr Bird is a powerful lifesaver, providing electricity for Jamaica's national grid.

Electrical output	123.5 MW
Engines	8 x Wärtsilä 12V46 3 x Wärtsilä 18V46
Delivered	1994 and 2005



THE POWER TIGERS OF BANGLADESH

The Khulna power plants are equipped with nineteen Wärtsilä 32 liquid fuel generating sets, nine for Tiger I and ten for Tiger III. All of the equipment was designed and constructed for operation in extreme site conditions, at high temperatures and in sea water. The floating baseload power plant was designed to burn heavy fuel oil as the main fuel, with light fuel oil as a standby fuel. When natural gas becomes available at the site, the plant can be converted to operate on gas with a liquid pilot fuel.

Electrical output	110 MW
Engine type	9 x Wärtsilä 18V32 and 10 x 18V32
Delivered	1997



ALWAYS NEW, GOLDEN OPPORTUNITIES IN SIGHT

The barge-mounted plant in Papua New Guinea is equipped with Wärtsilä 20V32 engines operating on heavy fuel oil. The customer is Lihir Gold Limited, a leading global gold company, and the power plant provides electricity to its Lihir Island gold mine. Since the power plant is an interim solution to the company's power needs for the site, the power plant is mounted on a barge so that it can later be moved to another location when no longer needed at Lihir Island.

Electrical output	71.4 MW
Engines	8 x Wärtsilä 20V32
Delivered	2011

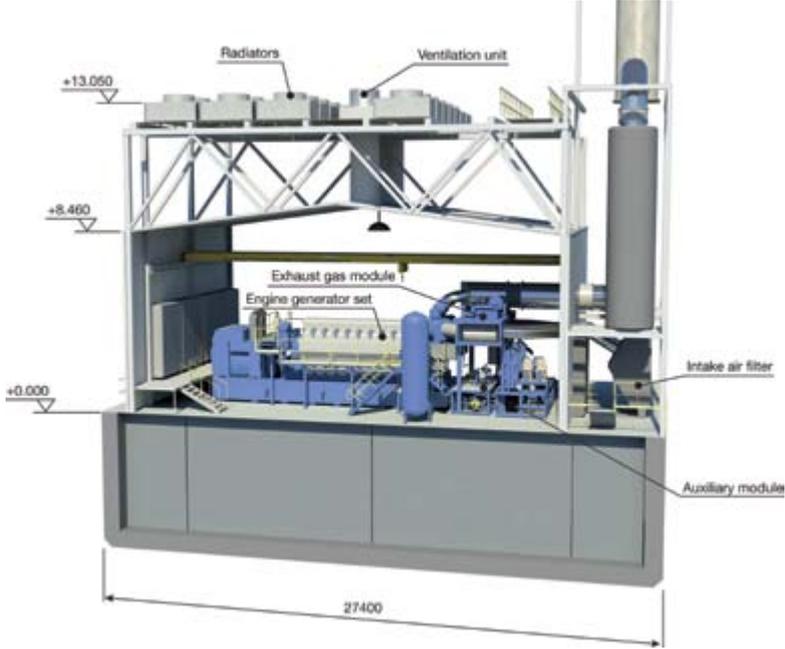
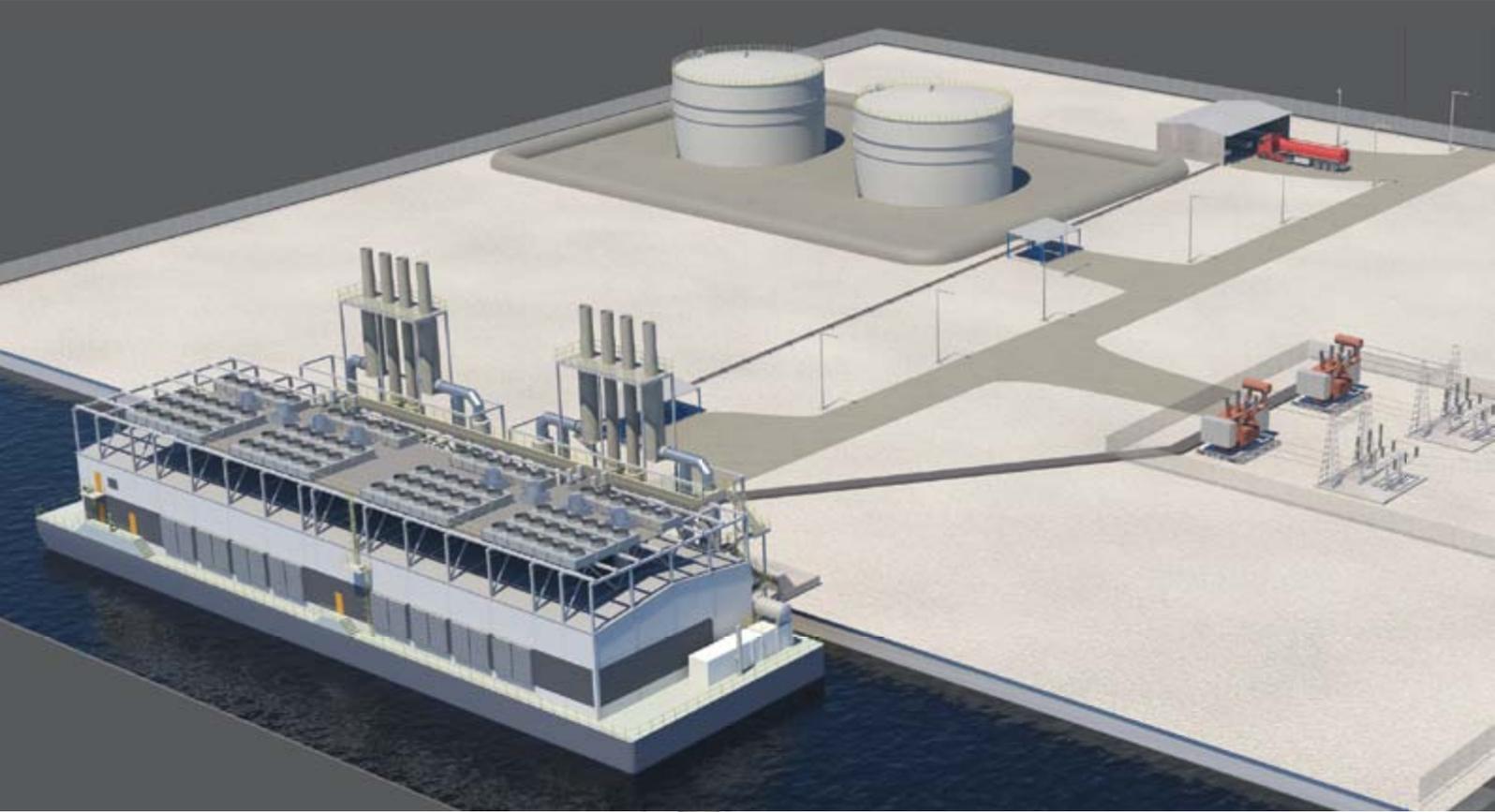
A PIONEER IN ITS PRIME

Seaboard's Estrella Del Norte power barge in the Dominican Republic has been a continuous success story for a good 20 years. By introducing the latest technological improvements available, Wärtsilä has maintained the heavy fuel oil plant's position as one of the most reliable power plants in the country. With an expected lifespan of 30–35 years, the barge engines should be able to produce a total of 10 million MWh before their retirement.

Electrical output	40 MW
Engines	5 x Wärtsilä 18V32 2 x Wärtsilä 16V32
Delivered	1990

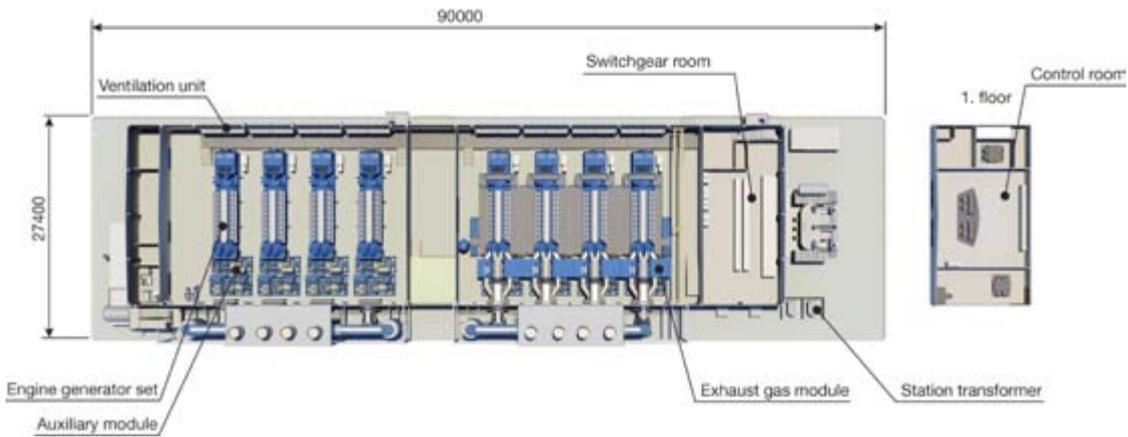


EXAMPLES OF LAYOUT, PLAN AND SECTION PICTURES FOR A FLOATING POWER PLANT BASED ON 8 X WÄRTSILÄ 20V32 ENGINES (71 MW)



WÄRTSILÄ 32 POWER BARGE DIMENSIONS

Engines	Length	Width
4	64.8	27.4
5	73.8	27.4
6	79.2	27.4
7	84.6	27.4
8	90.0	27.4



WÄRTSILÄ SERVICES: LIFECYCLE EFFICIENCY SOLUTIONS

Optimising your operations and preventing the unexpected is our shared passion – we serve you whenever, wherever.

Companies now focus on the efficiency and impact of their operational expenses. Wärtsilä Services serves and supports customers in improving and optimising their operational efficiency. Wärtsilä Services provides full service throughout the product lifecycle for both marine and power plant customers, and constantly develops its network worldwide.

We offer lifecycle efficiency solutions in the following areas of expertise:

- Engine Services
- Propulsion Services
- Electrical & Automation Services
- Boiler Services
- Environmental Services

- Service Agreements
- Service Projects
- Training Services

Our services cover everything from basic support with parts, field service and technical support to service agreements and condition based maintenance; from installation and commissioning, performance optimisation, including upgrades and conversions, to environmental solutions, technical information and online support. The choice available to you extends from parts and maintenance services to a variety of comprehensive, customised long-term service agreements, including performance and operations & management agreements.

Additionally, we are continually broadening our range of services by adding valuable

solutions and specialist services to our portfolio. In this way we support you around the globe through our workshops and in key ports, regardless of your equipment make.

Our Services organisation currently features more than 11,000 dedicated professionals in 70 countries.

Wärtsilä adds value to your business at every stage in the lifecycle of your installation. With us as your service partner, you receive many measurable benefits such as availability and performance, productivity gains and cost benefits.

Above all, peace of mind in the knowledge that your installation is being serviced by the most experienced partner you could have – Wärtsilä.



Wärtsilä is a global leader in complete lifecycle power solutions for the marine and energy markets. By emphasising technological innovation and total efficiency, Wärtsilä maximises the environmental and economic performance of the vessels and power plants of its customers. Wärtsilä is listed on the NASDAQ OMX Helsinki, Finland.

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