Wärtsilä Energy Business

Wärtsilä leads the transition towards a 100% renewable energy future. We help our customers unlock the value of the energy transition by optimising their energy systems and future-proofing their assets. Our offering comprises flexible power plants, energy management and storage systems, as well as lifecycle services that enable increased efficiency and guaranteed performance. Wärtsilä has 72 GW of installed power plant capacity in 180 countries around the world.

We serve three main customer segments

Wärtsilä’s three main customer segments in the energy markets are Utilities, Independent Power Producers (IPPs), and Industrial customers.

Utilities supply electricity, heat, and gas to residential, commercial, and industrial end users. They invest in various types of power generation and energy storage assets to ensure adequate load coverage, and the right palette of cost-effective and reliable products and services for their customers.

IPPs are financial investors investing in power generation and energy storage assets. They then sell the generated power either to utilities or directly to end customers. Their investments are return driven, and as with utilities, their technical requirements are application driven.

Industrial customers are mainly private companies with energy intensive production operations. By investing in captive power, they can achieve lower energy costs and be prepared for any grid reliability issues, thus ensuring security of supply. Wärtsilä serves the top end of this customer group, i.e. large industries requiring a relatively high electrical load, such as data centres, cement factories, and mining operations.

Our offering is based on flexibility and lifecycle support

Wärtsilä’s energy solutions are used for a wide variety of applications. These include baseload generation, capacity for grid stability, peaking and load-following generation, and optimisation of high renewable content power systems. We provide our customers with a comprehensive understanding of energy systems, including fully integrated assets and advanced software, complete with value adding lifecycle services.

Our flexible power plants are tailored according to specific customer requirements, utilising modular products and services. The delivery scope ranges from equipment deliveries to complete engineering, procurement and construction (EPC) packages, supported by superior project management capabilities. Wärtsilä’s power plant solutions provide the best means of support to power systems by offering the highest degree of flexibility, thereby enabling the design and build-up of high renewable content power systems, while minimising the system costs. Combined with our offering of energy storage and advanced software for energy management, our solutions enable the transition to a sustainable, reliable, and affordable low carbon power system. In markets where this power transition is still to come, Wärtsilä’s solutions provide efficient, reliable, and flexible baseload solutions, which can be shifted to back up renewable power in the future.

With services ranging from spare parts and basic support to full operations and maintenance agreements, we ensure maximised life and increased availability for plants, along with a lifecycle cost guarantee. The performance of our customers’ installations is optimised over their lifecycle through upgrades, modernisations, fuel conversions, as well as solutions enhancing safety and cyber security. The shift in our customers’ business models increases the need for asset management services and drives opportunities for using real time monitoring and analytics to optimise their business performance.
Market drivers

In the energy markets, the main drivers for Wärtsilä are:

- Economic growth, electrification, and improving standards of living
- Rapidly increasing use of renewables and phasing-out of inflexible thermal capacity
- Decentralised energy
- Increasing role of flexible gas
- Emerging storage technologies
- Data and digitalisation

Economic growth, improving standards of living, and consequential electrification are jointly resulting in increased electricity consumption in non-OECD countries. The development of a more sustainable energy infrastructure is being driven by climate policies and economics. Tightening emissions legislation is forcing the closure of ageing capacity, with carbon-intensive energy sources being replaced by low carbon fuels, such as natural gas and renewable power sources. Investments in renewable generation are growing as solar and wind become increasingly cost competitive. This, in turn, is decreasing the running hours of conventional thermal capacity and creating a substantial need to add flexibility into power systems through energy storage and flexible capacity. Gas as a fuel is seen as having a key role in providing flexibility to the system. In the future, gas will be more and more carbon neutral as power-to-gas technologies utilising renewable energy to produce synthetic fuels penetrate the markets. New data, along with platform-based business models and solutions, enable system level integration and asset base optimisation throughout the entire lifecycle.

Competitive landscape

Wärtsilä’s main competitors in large gas-fired projects are gas turbine manufacturers, such as GE, Siemens and Mitsubishi Hitachi Power Systems. When competing against gas turbines, Wärtsilä’s combination of high efficiency, greater fuel flexibility, and superior operational flexibility enables better value propositions for many different types of customer projects. In smaller gas power plants, and in the liquid fuel power plant market, the competitors are mainly other internal combustion engine suppliers, such as MAN Energy Solutions, Caterpillar (MAK), and Rolls-Royce, as well as high speed engine manufacturers. Wärtsilä’s advanced gas and dual-fuel engine technology, optimised modular power plants, superior project management capabilities, and the global service support provided throughout the lifecycle of installations, have led to Wärtsilä holding a leading position in the gas and liquid fuel combustion engine power plant markets. When looking at energy management systems and battery storage, the competition comes from companies such as Fluence, NEC and Tesla, among others.

Competition within maintenance activities is fragmented in nature and consists mainly of local players with a limited offering scope. The competition for lifecycle solutions comes from a few regional players capable of offering plant operational services. In asset performance management related services, there are new and more established competitors that provide software and analytics across industries, while some utilities are establishing these skills and knowledge in-house.

Wärtsilä’s strengths:

- Competitive capital cost and engineering, procurement and construction (EPC) capability
- Unique operational and fuel flexibility
- The most proven software platform for the optimisation of renewable energy sources
- Strong track-record in operations and maintenance, optimising operating costs and increasing plant availability and efficiency throughout the plant’s life
- Global technical support capabilities and know-how