



— Solution 1

Certification for Wind Turbines

ClassNK conducts certification for wind turbines based on the international standard IEC61400 series.

In line with ClassNK's Guidelines for Certification of Wind Turbines and Wind Farms, we provide services that cater to the diverse needs of the renewable energy industry.



Certification for Wind Turbines

Wind Turbine Type Certification

ClassNK performs various evaluations for wind turbines based on related standards and technical requirements such as Design Evaluation and Type Testing for prototype machine, finally issuing a "Type Certificate" once the applicable standards have been satisfied.



Small Wind Turbine Type Certification

ClassNK performs evaluations for small wind turbine systems with an output of less than 20kW to ensure that they meet requirements specified in domestic and international standards established by IEC and JIS, issuing type certificates once it has confirmed conformity to the applicable standards.

ClassNK type certifications for small wind turbines also ensure eligibility for the Feed-in Tariff Scheme launched by the Japanese government as a policy to promote the use of renewable energy.



Certification for Wind Power Plants

Wind Farm Certification

ClassNK evaluates the environmental conditions of the site, and based on the conditions, evaluates and confirms that the strength and safety of the wind turbine and support structure are guaranteed by design. This Wind Farm certification unique to ClassNK is specialized to be used for licensing by the Electricity Business Act,.



Project Certification

ClassNK conducts certification for wind power plants covering site-specific environmental conditions, wind turbines and their support structures, from development through construction and even after operation to evaluate and confirm conformity with the relevant technical standards.

Floating Offshore Wind Turbine Certification

Although floating offshore wind turbines are subject to regulations in the Electricity Business Act, their towers, floating structures, and mooring systems are also subject to the Ship Safety Law. ClassNK carries out a wide range of classification related services such as design evaluation, inspection of materials, components, and structures in addition to site surveys as a registered Classification Society in accordance with the Ship Safety Law requirements and its own Guidelines for Floating Offshore Wind Turbine Structures.

Certification for Support Structure of Small Wind Turbines

Owners of electrical power plants have a responsibility to ensure that the support structures of small wind turbines such as towers and foundations are compliant with requirements specified in the Electricity Business Act. ClassNK performs plan approvals and conducts site surveys as a third party organization to evaluate and confirm compliance with these requirements.

— Solution 2

Certification for Marine Renewable Energy Converters

As Japan possesses the world's sixth largest exclusive economic zone, there is huge potential for the development of renewable energy such as offshore wind, wave, tidal, ocean current and ocean thermal energy. ClassNK's portfolio of certification services caters to the wide-ranging needs of not only the wind power but also marine renewable energy sectors.



Wave

**Tidal,
Ocean Current**

OTEC

ocean
thermal
energy
conversion

Guidelines for Certification of Marine Renewable Energy Generation Systems

ClassNK also provides Guidelines for the certification of marine renewable energy such as wave, tidal, ocean current and OTEC

Certification for Marine Renewable Energy Convertors

ClassNK performs a variety of certification services for marine renewable energy convertors ranging from type certification, prototype certification and component certification, to project certification to verify if the facility and its supporting structures are suited to the installation site.

— Solution 3

Marine Warranty Survey

Reducing risks related to safety and reliability is essential to the smooth promotion of oceanic renewable energy generation projects such as offshore wind power plants, tidal currents / ocean current power generation, and ocean thermal energy conversion.

Marine Warranty Surveys offered by ClassNK comprehensively implements offshore installation and operation in addition to reviewing construction methods, procedures, and statements, as well as monitoring during various constructions at the site, thus reducing risk and contributing to an appropriate insurance application.



■ Protection of assets through the mitigation of technical and operational risks

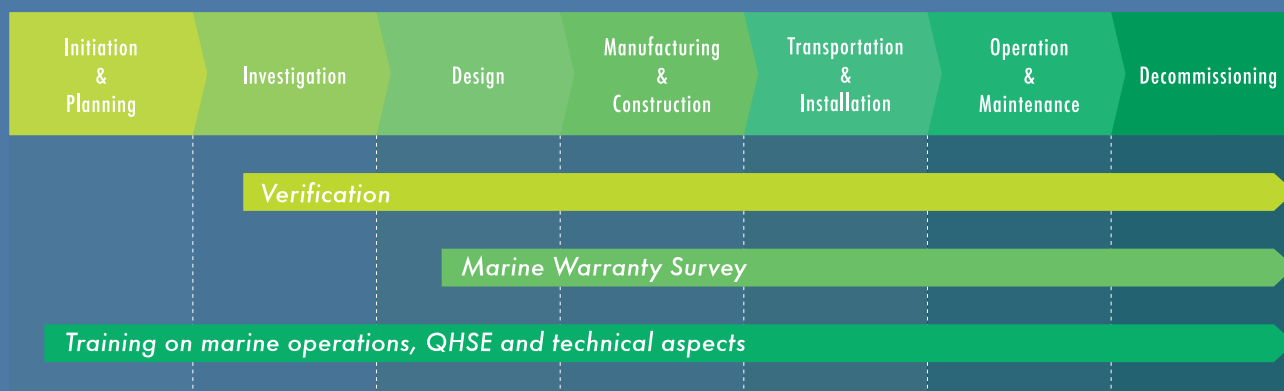
■ Risk reduction of insurance claims

■ Increased reliability of technical and economical project performance

■ Increased technical reliability and transparency through third party surveillance of operations

Entire Value Chain

ClassNK's services cover the entire value chain, helping to identify and mitigate risks.



— Solution 4

Safety assessment of wind power plant

In case of installation of wind power plant with an output of more than 500 kW, it is required to have its periodical inspections reviewed by the safety management review organization every 3 or 6 years.

ClassNK is a Registered Safety Management Review Organization under the Electricity Business Act and provides services related to safety management review of wind power plants.



Applies to:

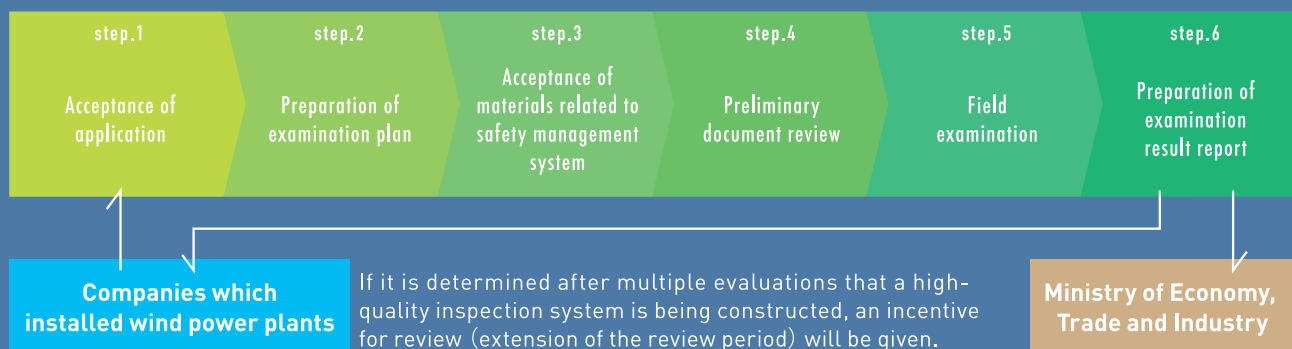
Wind power plant with an output of more than 500 kW

Review period

Every 3 or 6 years

Implementation status of periodical inspections (period of implementation and inspection methods for each part are prescribed) must be reviewed by a safety management review organization.

Flow of the review



ClassNK Mission

ClassNK is dedicated to ensuring the safety of life and property as well as environmental protection and other related matters through various businesses related to classification, the establishment of various standards, inspection, registration, certification, and research and development, etc.

To achieve this mission ClassNK will:

- Deliver the highest quality services, by the highest quality personnel, while maintaining our totally independent third party, non-profit status.
- Develop relevant rules, guidances, and procedures, and conduct technical research and development to positively contribute to the maritime industry.
- Maintain and develop our global operations in line with the needs of our clients

Nippon Kaiji Kyokai, also known as ClassNK or NK, is a Ship Classification Society founded in 1899.

ClassNK develops its own rules and guidance in order to ensure the safety of life and property at sea and to prevent pollution of the maritime environment and undertakes surveys to ensure that its rules are applied to both existing ships and ships under construction.

The Society also provides certification services for a wide range of renewable energy technologies including type approval and design evaluation for wind turbines, certification for wind power plant systems and a range of marine renewable energy platforms that utilize wave power, tidal current, ocean current and ocean thermal energy conversion.

ClassNK Activities

Ship Classification Services

ClassNK is known as a highly-regarded and reliable third party organization by marine transport, shipbuilding, underwriting and other maritime related industries around the world. ClassNK provides a broad range of classification services including plan inspections and approvals, ship classification surveys, offshore structure and class maintenance surveys in addition to type approvals for materials, equipment and installations. This range of services has been expanded to include audits for ship safety management systems, ship security systems and maritime labor systems. ClassNK is authorized to carry out statutory surveys in line with international code and conventions on behalf of more than 100 flag administrations around the world.

Research & Development

In order to respond to the diversifying needs of the maritime industry, ClassNK conducts innovative joint R&D alongside leading industry partners, offering both financial and technical support to develop solutions that further ensure the safety of ships and protection of the marine environment.

Technical Seminars and ClassNK Academy

The ClassNK Academy program, based on ClassNK's years of extensive experience in performing classification surveys and cutting-edge research, is offered around the world upon the request of governments and organizations within Japan and internationally.

Certification Services

ClassNK provides certification services for quality, environmental and occupational health and safety management systems amongst others in line with ISO 9001, ISO 14001, OHSAS 18001, ISO 39001 and ISO 50001 international standards.

Technical Services

ClassNK uses its knowledge and experience acquired over years in ship classification to provide a broad selection of technical services ranging from ship related consulting services, appraisals and certifications to inspections for industrial equipment used in other sectors such as boilers and pressure vessels.

International Activities

As a member of the international Association of Classification Societies (IACS), ClassNK plays a pivotal role in IACS' decision making and rule development, including the development of its Unified Requirements. ClassNK also participates in discussions at the International Maritime Organization (IMO) both via IACS and as a delegate of the Japanese government, where researchers and maritime experts from ClassNK attend to contribute on a range of industry-related topics.

