Tenrony: Helping Power Companies Overcome Difficulties and Move Towards a New Era of Clean Energy

In the context of profound changes in the global energy landscape, power companies are facing unprecedented challenges. On one hand, the continuous development of society and economy has led to a rising demand for electricity, putting forward higher requirements for the carrying capacity of the power grid; on the other hand, in response to climate change, the transition to clean energy has become an inevitable trend, and the large - scale integration of renewable energy has brought new tests to the traditional power grid. Faced with these complex and arduous challenges, Tenrony, relying on advanced transformer and substation solutions, provides strong support for power companies, helping them improve grid efficiency, enhance reliability, and steadily promote the transition to cleaner energy.

Key Challenges Faced by Power Companies

In the wave of changes in the power industry, power companies need to overcome many key difficulties.

Grid modernization is the primary challenge for power companies. Many existing power grid facilities were built a long time ago, with relatively backward technology, and it is difficult for them to meet the current needs of efficient and intelligent power transmission and distribution. The outdated equipment not only has low operating efficiency, but also is prone to failures, affecting the stability of power supply. Therefore, the modernization upgrade of the power grid is extremely urgent.

Integrating renewable energy is another major problem. Renewable energy sources such as solar and wind energy have the characteristics of intermittency and volatility, and their large - scale access will have an impact on the stability of the power grid. How to efficiently integrate these scattered and unstable energy sources into the existing power grid to achieve smooth output and reasonable allocation is a problem that power companies must solve.

Improving efficiency and reducing losses is the eternal pursuit of power companies. In the process of power transmission and distribution, energy losses are inevitable, which not only causes energy waste, but also increases the operating costs of power companies. How to improve the overall efficiency of the power grid through technological innovation and minimize losses is the key to enhancing the competitiveness of power companies.

Enhancing grid stability is also crucial. With the increasing complexity of the power system and the access of various new energy sources, the power grid is facing more interference factors, and it is more difficult to operate stably. Once the power grid fluctuates or fails, it may lead to large - scale power outages, which will have a serious impact on social production and residents' lives. Therefore, enhancing grid stability is one of the core tasks of power companies.

Tenrony's Targeted Solutions

Faced with these challenges of power companies, Tenrony has launched a series of practical and effective solutions relying on its profound technical accumulation and innovative capabilities.

Efficient transformers are the core component of Tenrony's solutions. These transformers adopt advanced design and manufacturing processes, with extremely high energy conversion efficiency, which can greatly reduce losses in the process of power transmission and improve the economic benefits of power companies. They can perform excellently both in high - voltage power transmission and low - voltage power distribution links.

Substations supporting smart grids provide strong support for grid modernization. These substations integrate advanced information technology and communication technology, enabling real - time monitoring, data analysis and remote control of the grid's operating status. This allows power companies to more accurately grasp the grid dynamics, timely discover and deal with problems, and improve the intelligence level and operating efficiency of the grid.

Advanced monitoring systems are the "clairvoyance" and "clairaudience" to ensure the stable operation of the power grid. Through sensors and monitoring equipment distributed throughout the grid, the system collects real - time operating data of the grid,

such as voltage, current, power, etc. It then analyzes and processes these data, timely warns of potential failure risks, provides a reliable basis for the dispatching decisions of power companies, and minimizes the duration and scope of power outages.
For **renewable energy integration**, Tenrony provides specialized solutions. Whether it is a solar power station or a wind farm, Tenrony can provide adapted transformers and related equipment. These devices can effectively cope with the intermittency and volatility of renewable energy, achieve stable output and efficient conversion of energy, ensure that renewable energy can be safely and stably connected to the power grid, and increase the proportion of clean energy in power supply.

Case Studies: Practical Results of Tenrony's Solutions

Grid Upgrade Project: Smart Substations Empower Efficient Operation

The grid system of a large power company has been in operation for many years, with seriously aging equipment and backward monitoring methods. Frequent failures often lead to power outages, which not only affects user experience, but also increases operating costs. To change this situation, the company decided to carry out a modernization upgrade of the grid.
Tenrony provided it with a substation solution supporting smart grids. During the upgrade, old substation equipment was replaced, new equipment with intelligent monitoring and control functions was installed, and an advanced monitoring system was deployed. These smart substations can upload operating data in real time, and the power company's dispatching center can remotely control and manage the substations through the monitoring system, realizing comprehensive control of the grid's operating status.

After the upgrade, the grid operating efficiency of the power company has been significantly improved. Through the intelligent monitoring system, potential equipment failures can be found in advance and dealt with in a timely manner. The number of power outages has been reduced by 60% compared with before, and the duration of power outages has been shortened by 70%. At the same time, accurate data analysis makes power dispatching more reasonable, and the load rate of the grid has increased by 15%, which has greatly reduced operating costs and won wide praise from users.

Renewable Energy Integration Project: Transformers Help Clean Energy Connect to the Grid

In response to the national clean energy development strategy, a large - scale wind farm was built in a certain area, and the power generated by this wind farm needs to be connected to the local power grid. However, the instability of wind energy leads to large fluctuations in power output, and direct access to the grid will have a serious impact on the stability of the grid.
Tenrony provided a specialized transformer solution for integrating renewable energy for this wind farm. According to the output characteristics of the wind farm, transformers with anti - fluctuation capabilities were customized. These transformers can adjust and convert the unstable power generated by wind power to make its output meet the access standards of the power grid. At the same time, supporting monitoring equipment can monitor the power output status in real time to ensure stable access of power to the grid.
With the support of Tenrony's solution, the power of the wind farm has been successfully connected to the local power grid without any impact on the stability of the grid. The power generated by the wind farm has been fully utilized, and a large amount of clean energy can be transmitted to the grid every year, reducing the consumption of traditional energy and making an important contribution to local energy conservation and emission reduction. The successful implementation of this project has also provided valuable experience for the grid connection of other renewable energy power stations.
From grid modernization upgrade to renewable energy integration, Tenrony has always been committed to providing professional and efficient solutions for power companies, helping them overcome challenges and achieve sustainable development. If your power company is also facing similar difficulties, Tenrony will be your trustworthy partner, working with you to move towards a new era of clean energy.

Author：Luna.Li