

## ICT Data Center

In the ITC data center industry, there are a great amount of harmonics in the power distribution system, such as UPS, switch power supply, and VFD etc, which generated high harmonic current content. The 5th, 7th, and 11th harmonic order are served, and sometimes there are also a large number of 3rd harmonic order. Moreover, most newly built data center currently use high-frequency UPS, which can easily cause capacitive reactive power problems.



## Case Study

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### Petroleum offshore drilling platform



The drilling equipment in petroleum offshore drilling platforms is driven by high-power AC or DC motors, usually using VFD frequency converter speed control system or SCR DC speed control system to meet the drilling process requirements. During operation, a large number of harmonics are generated, and instantaneous voltage drops also require higher voltage regulation requirements for the stability of the line system.

### Case Study

BP Gulf of Mexico drilling ASVG+Capacitor reactive power hybrid compensation project. The VFD, cargo oil pumps, fans, air conditioning equipment, and low-voltage distribution systems widely used in the drilling platform of this project generated a large amount of harmonic current during operation, which form harmonic voltages through system impedance. A large amount of harmonic injected into the common connection point (PCC) will affect the long-term stable operation of the equipment. In addition, the instantaneous start-up of nonlinear loads will cause the voltage of the line system to drop sharply to 50% of the rated voltage, and at the same time, the three-phase imbalance cannot meet the equipment's requirements for high reliability power supply. For this purpose, the project is equipped with 12 new generation ASVGs with reactive power compensation and harmonic filtering functions at 400kvar, and an 800kvar thyristor switching Control(TSC) capacitor cabinet to achieve instant voltage stabilization and harmonic filtering functions.



### Hospitals

Modern medical institutions continuously introduce new and complex advanced medical equipment such as magnetic resonance imaging (MRI), whole-body spiral CT scanners, high-frequency electric knives, etc. to improve the level of medical services. These advanced medical devices all have high-quality computer components and a large number of high-sensitivity microelectronic devices, which require high harmonic quality from the power supply.



### Case Study

Queen Mary Hospital Hong Kong is a large comprehensive general hospital with 1440 beds and 3800 staff. To provide 24-hour emergency services, surgery, organ transplantation, pediatrics and other high-quality medical services to Hong Kong citizens. The hospital's power system has numerous components such as air conditioning units, ventilation equipment, lighting, and elevator equipment. These devices are typical nonlinear loads that generate harmonics that flow into the distribution system, resulting in poor power quality. High precision equipment such as magnetic resonance imaging (MRI), whole-body spiral CT scanner, and high-frequency point imaging require high power quality. To resolve this contradiction, SINAVA POWER has installed AHF products for the hospital to handle heavy harmonics in the current system and ensure the normal operation of precision medical instruments.

