YIFA 中国·伊发

YFYBT 太阳能智能箱式变电站

Solar box-type substation

技术背景 Technical background

太阳能光伏电力所提供的清洁能源，是移动通信在 3G、4G 时代所关注并大力采用的新能源。由于移动通信基站电源需求的特殊性，促使了太阳能光源成为移动通信基站电源的首选能源之一。随着科学技术的不断发展与进步，太阳能光伏电力产业已成长为新能源的主导产业，并在通信领域内得到了广泛的推广和应用。本项目是在 2002 年，信息产业部发问推广与应用的高新技术成果项目《太阳能移动通信无人值守基站电源设备系统项目》的基础之上，经过深度研发出来的第三代智能设备系统。该项目已成为移动通信第三代电源设备的最佳解决方案。

The clean energy provided by the solar photovoltaic power is the new energy that is concerned and extensively used by the mobile communication at the era of 3G and 4G. As the particularity of the power supply requirements of the mobile communication base station, the solar light source becomes one of the preferred energy for the power supply of the mobile communication base station. Along with the continuous development and progress of science and technology, the solar photovoltaic electric power industry has grown into the leading industry of new energy, and been extensively promoted and applied in the communication field. The project is the third generation intelligent device system generated through the deepened research and development based on the high-tech achievement project in 2002 Power-Supply Device System Project for Solar Mobile Communication Unattended Base Station, which is developed, promoted and applied by Ministry of Information Industry. The project has become the best solution for the third generation power supply device of mobile communication.

功能特征 Functional characteristics

太阳能移动通信箱变智能基站设备系统（以下简称太阳能箱变站），是将太阳能光伏发电设备、上网送电设备、变电站 12KV 以下开关电源电气设备、BTS 收发信机设备、光缆传输设备、微机保护监控设备、多媒体直流开光电源设备、防雷接地设备、消防安检设备、照明空调设备等装置，集成在保温隔热、防辐射、防水防潮的全密闭金属箱体内，组合成为一个智能化的移动通信专用基站机房。同时在箱体的顶部与基站铁塔上，安装面积达 30m2 的太阳能电池板方阵，太阳电池板的发电效率为 6KWh。由以上装置组成一个移动通信光伏发电站，并由箱变站箱体组合成一个完整的移动通信基站机房。在有风资源的山口地区、河滩峡谷地区、名山旅游景区安装 6KW 以上的风里发电设备，组合成风光互补的新能源电网。所以说，太阳能箱变站，不仅是一个拥有 6KWh-10KWh 发电功率的光伏发电站和风光互补的新能源电站，同时也是一个可容纳 8 个载频以上的移动通信基站，它是一套系统总集成的、光电信一体化、节能环保的新一代智能化移动通信设备系统。

太阳能箱变站的设计独特，造型美观，结构紧凑，节能环保，安维方便，箱体牢固，安全防盗。产品能够做到工厂集成一体化预装生产，是移动通信基站建设工程的最佳设备。该项目实用性强，推广与应用广泛，是移动通信行业完成国家节能减排指标的最佳实施方案。

Intelligent base station equipment system of the solar mobile communication box-type substation (hereinafter referred to as solar box-type substation) integrates such devices as solar photovoltaic power generation equipment, internet transmission equipment, switch power supply electrical equipment of the substation of 12KV below, BTS transceiver equipment, optical cable transmission equipment, computer protection monitoring equipment, multimedia DC switch power supply equipment, lightning grounding equipment, fire fighting security inspection equipment, lighting and air conditioning devices, etc, in the totally enclosed metal box of thermal insulation, radiation protection, waterproof and moisture proof, so as to combine into an intelligent mobile communication special base station room. The solar-cell panel square matrix with area of 30m2 is installed on the top of the box and iron tower of the base station, the power generation efficiency of the solar-cell panel is 6KWh. A mobile communication photovoltaic power station is made up of the above devices, and the box bodies of the box-type substations are combined into a complete mobile communication base station room. Wind power generation equipments of more than 6KW are installed in the mountain pass region, river shoal and gorge region and famous mountain tourist attractions with the wind resources, to form a wind-solar hybrid new energy power grid. Therefore, the solar box-type substation is not only a photovoltaic power generation station with 6KWh-10KWh power generating capacity and a wind-solar hybrid new energy power station, but also a mobile communication base station with the capacity of more than 8 carrier frequency, it is a new generation intelligent mobile communication equipment system with the wholly integrated system and photovoltaic telecommunication integration, energy saving and environmental protection.

Solar box-type substation is featured with unique design, attractive appearance, compact structure, energy saving and environmental protection, convenient installation and maintenance, strong box, security and guard against theft. Product can be integrated, pre-assembled and produced in the factory, it is the best equipment for the construction engineering of the mobile communication base station, with strong practicability, extensive promotion and application, it is the best implementation program for the mobile communication industry to accomplish the national energy saving and emission reduction targets.