



ISSN 2095-8676  
CN 44-1715/TK  
CODEN NFNYJK

# 南方能源建设

## SOUTHERN ENERGY CONSTRUCTION

2024年7月 第11卷第4期 Vol.11 No.4

封面文章：万物互联视角下的能源物联网：现状、技术和案例

——宋航<sup>✉</sup>, 问翔, 翟华

\* 封面图片源自 "Internet of Everything: Key Technologies, Practical Applications and Security of IoT"

ISSN 2095-8676



主办单位：南方电网数字传媒科技有限公司  
中国能源建设集团广东省电力设计研究院有限公司

### 目次

万物互联视角下的能源物联网：现状、技术和案例分析 .....	宋航，问翔，翟华 (1)
二氧化碳催化加氢合成燃料的微通道反应器 .....	骆攀，谈文杰，胡恩祥，杨应举，华芷萱，刘晶 (16)
宽光谱共轭小分子在太阳能海水淡化与热电发电中的应用 .....	朱景帅，邱肖盼 (23)
调相机在电力系统中的发展应用与动态特性 .....	张冬清，张国华，徐玲玲，高晟辅 (31)
新型配电网分布式储能系统方案及配置研究综述 .....	黄海泉，黄晓巍，姜望，王媛媛，王言方，丁浩，左杰文，夏晨阳 (42)
压缩空气储能地下人工洞室研究现状与展望 .....	杨雪雯，任灏，廖泽球，王金玺，贾斌 (54)
5G 定制网技术在海上风电场智慧管理与生态环境监测中的应用实践 .....	谭任深，戚永乐，周冰，范永春，冯艺洋，彭家骏，麦磊鑫 (65)
海上风机基础与网箱融合系统静力计算 .....	王立鹤，符妃 (76)
海上换流站无线通信系统设计 .....	梁泽勇，邝建荣，党彤，陈艺 (88)
面向碳中和的广东省电源结构转型分析 .....	罗莎莎，郭经韬，蔡颖倩，余欣梅 (102)
新型电力系统变电站绿色低碳技术分析 .....	顾靖达，白小会，李伟，王亚峰，宋宝同 (111)
脉冲涡流检测在核电厂管道的应用 .....	韩扬，朱琪，陈永安，徐宁 (118)
基于离散小波变换和 GRU 的触电诊断分析 .....	蔡高凤，王庆斌，陈镇宇，徐桂培，冯家琪，罗棋昌 (127)
线圈放置方式对脉冲涡流检测的影响分析 .....	朱琪，王勤，韩扬，章雅林 (137)
某燃气轮机电厂启动全过程无硝黄烟排放操作方法 .....	张石凯，程硕，黄庆，周建，朱为东，唐寅 (144)
从 BIPV（光伏建筑一体化）到 BIPVES（光伏储能建筑一体化） .....	蒋洋，蒋序来，张晴楠，闵杰，蔡如剑，王亚杰 (156)
掺氢条件下的燃气轮机用输气管道设计 .....	朱军辉 (164)
500 kV 海上升压站电气一次设备交接试验方法及应用 .....	李浩良，潘剑南，梁如清 (172)
海上风机单桩基础沉桩施工工艺与应用 .....	王耀武，郑康胜，张吉海，朱挺进，李大超，罗必雄，范永春，赵大文，池元清，刘东华，张永康 (180)
◆ 信息	
广告目次 .....	(110)

## CONTENTS

Energy Internet of Things in the Perspective of Internet of Everything: Current Status, Technologies and Case Analysis .....	SONG Hang, WEN Xiang, ZHAI Hua (1)
Microchannel Reactor for Hydrocarbon Fuel Synthesis from CO <sub>2</sub> Catalytic Hydrogenation .....	LUO Pan, TAN Wenjie, HU Enxiang, YANG Yingju, HUA Zhixuan, LIU Jing (16)
Application of Wide Spectrum Conjugated Small Molecule for High Efficiency Solar-Powered Seawater Desalination and Power Generation .....	ZHU Jingshuai, QIU Xiaopan (23)
Development Application and Dynamic Characteristics of Synchronous Condenser in Electric Power System .....	ZHANG Dongqing, ZHANG Guohua, XU Lingling, GAO Shengfu (31)
A Review of Distributed Energy Storage System Solutions and Configurations for New Distribution Grids .....	HUANG Haiquan, HUANG Xiaowei, JIANG Wang, WANG Yuanyuan, WANG Yanfang, DING Hao, ZUO Jiewen, XIA Chenyang (42)
Research Status and Prospect of Underground Artificial Rock Caverns for Compressed Air Energy Storage .....	YANG Xuewen, REN Hao, LIAO Zeqiu, WANG Jinxi, JIA Bin (54)
Application Practice of 5G Customized Network Technology in Intelligent Management and Ecological Environment Monitoring of Offshore Wind Farm .....	TAN Renshen, QI Yongle, ZHOU Bing, FAN Yongchun, FENG Yiyang, PENG Jiajun, MAI Leixin (65)
Static Calculation on Integrated System of Offshore Wind Turbine Foundation and Aquaculture Cage .....	WANG Lihe, FU Fei (76)
Design of Wireless Communication System for Offshore Converter Station .....	LIANG Zeyong, KUANG Jianrong, DANG Tong, CHEN Yi (88)
Analysis on Power Supply Structure Transformation Towards Carbon Neutrality in Guangdong .....	LUO Shasha, GUO Jingtao, CAI Yingqian, YU Xinmei (102)
Analysis on Green and Low Carbon Technologies for New Power System Substations .....	GU Jingda, BAI Xiaohui, LI Wei, WANG Yafeng, SONG Baotong (111)
Application of Pulsed Eddy Current Detection in Pipeline of Nuclear Power Plant .....	HAN Yang, ZHU Qi, CHEN Yongan, XU Ning (118)
Analysis on Electrocutation Diagnosis Based on Discrete Wavelet Transform and GRU .....	CAI Gaofeng, WANG Qingbin, CHEN Zhenyu, XU Guipei, FENG Jiaqi, LUO Qichang (127)
Analysis of the Influence of Coil Placement on Pulsed Eddy Current Detection .....	ZHU Qi, WANG Qin, HAN Yang, ZHANG Yalin (137)
A Methodology for Yellow Non-Nitrate Smoke Emission During the Full-Process Startup of A Gas Turbine Power Plant .....	ZHANG Shikai, CHENG Shuo, HUANG Qing, ZHOU Jian, ZHU Weidong, TANG Yin (144)
From BIPV (Building Integrated Photovoltaic) to BIPVES (Building Integrated Photovoltaic and Energy Storage) .....	JIANG Yang, JIANG Xulai, ZHANG Qingnan, MIN Jie, CAI Rujian, WANG Yajie (156)
Design of Gas Turbine Fuel Gas Transmission Pipe Under the Condition of Natural Gas Mixed with Hydrogen Gas .....	ZHU Junhui (164)
Handover Test Method and Application of Electrical Primary Equipment in 500 kV Offshore Booster Station .....	LI Haoliang, PAN Jiannan, LIANG Ruqing (172)
Pile Driving Construction Process and Application of Offshore Wind Turbine Monopile Foundation .....	WANG Yaowu, ZHENG Kangsheng, ZHANG Jihai, ZHU Tingjin, LI Dachao, LUO Bixiong, FAN Yongchun, ZHAO Dawen, CHI Yuanqing, LIU Donghua, ZHANG Yongkang (180)
<b>◆ Information</b>	
Advertisement List .....	(110)