

# 社会责任报告



创新 协调 绿色 开放 共享

## 2016 社会责任报告 SOCIAL RESPONSIBILITY REPORT

## 2016 SOCIAL RESPONSIBILITY REPORT

INNOVATION  
COORDINATION  
GREEN  
OPENNESS  
SHARING

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## 报告编制说明 About This Report

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## 集团简介

中国东方电气集团有限公司（简称：东方电气集团）是中央确定的涉及国家安全和国民经济命脉的国有重要骨干企业之一，属国务院国资委监管企业，是全球最大的发电设备制造和电站工程总承包企业集团之一，发电设备产量累计超过5亿千瓦，已连续13年发电设备产量位居世界前列。

东方电气集团起步于上世纪50年代末期，通过几代人的不懈奋斗，孕育出“大三线建设精神”、“铸魂”、“创新”、“和谐”、“自强”的企业精神和“东汽精神”，用跌宕起伏的创业发展史铸就了中国民族工业走向世界的灿烂辉煌，以“中国装备，装备中国；中国装备，装备世界”的气概铸就了装备制造业的国之重器。

践行“创新、协调、绿色、开放、共享”发展理念，东方电气集团积极发展大型清洁高效能源，拥有“核电、火电、水电、气电、风电、太阳能”全产业链研制能力，可批量研制1000MW-1750MW等级汽轮机组、1000MW等级超超临界火电机组、1000MW等级水轮发电机组、重型燃气轮机设备、风电设备、太阳能电站设备、大型环保及水处理设备、电力电子与控制系统、新能源电池及储能系统、智能装备等产品。

紧密围绕“一带一路”建设，东方电气集团大力拓展海外市场，大型机组产品和服务出口到近70个国家和地区，创造了中国发电设备出口历史上若干个第一，连续23年入选国际全

## 核心数据

### 2016年 核心数据



发电设备  
**3033.81** 万千瓦



员工总数  
**22375** 人



营业收入  
**372** 亿元



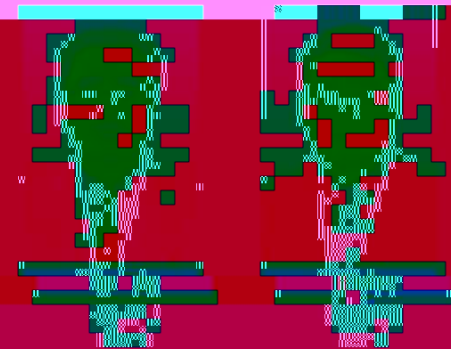
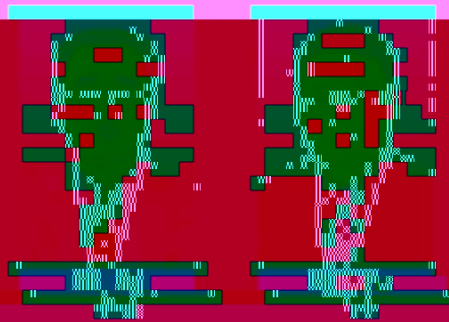
营业收入  
**370.37** 亿元



科技投入  
**15.26** 亿元



纳税总额  
**30.44** 亿元



欧阳长明

执行董事

孙文江

执行董事

刘洪勃

执行董事

朱海根

执行董事

何 畅

执行董事



黄 浩

党组书记  
副总经理

朱文强

党组成员  
副总经理

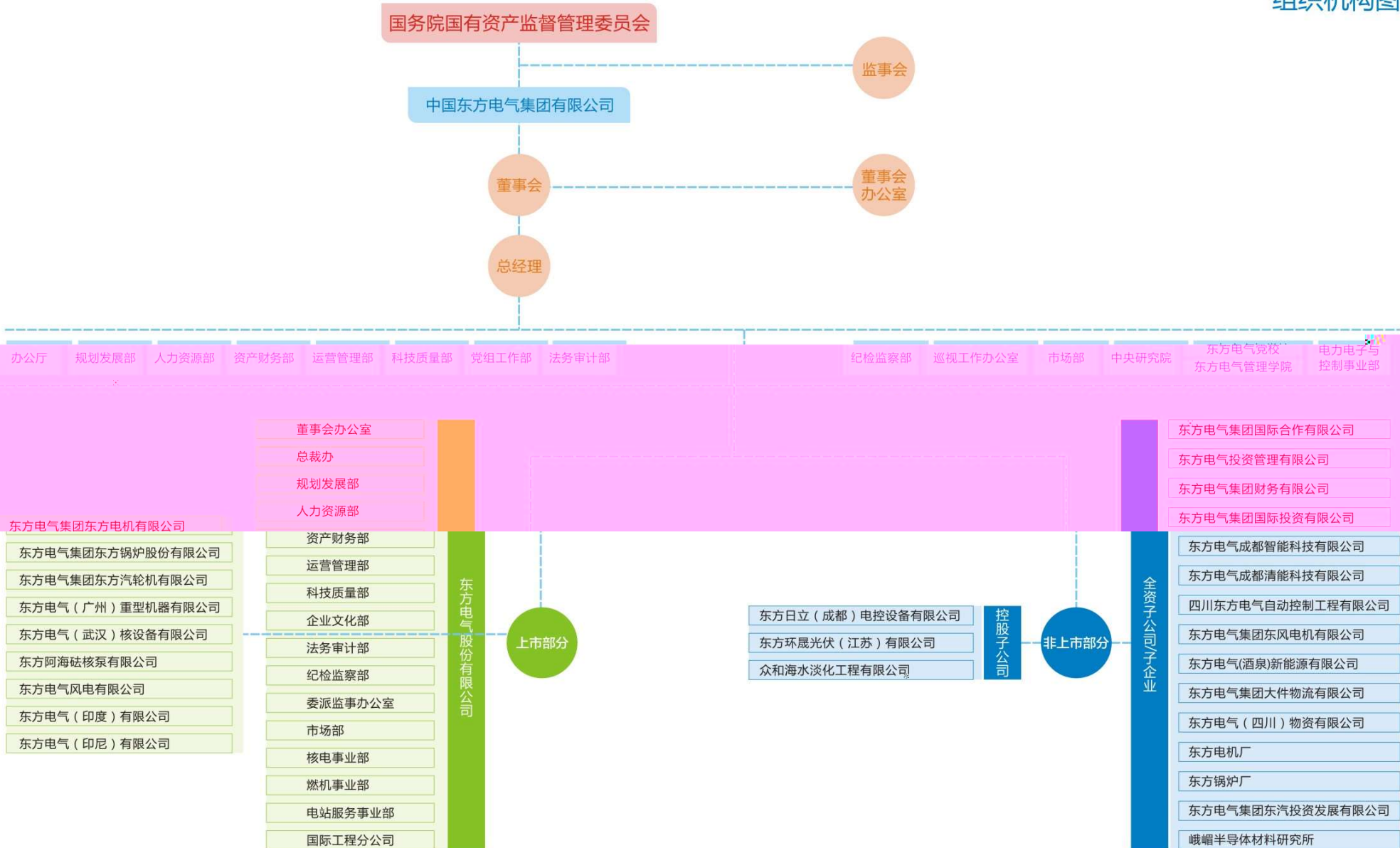
胡为民

党组成员  
副总经理兼工会主席

艾利局

党组成员  
总会计师

# 组织机构图



## 产业分布图

### 四川德阳

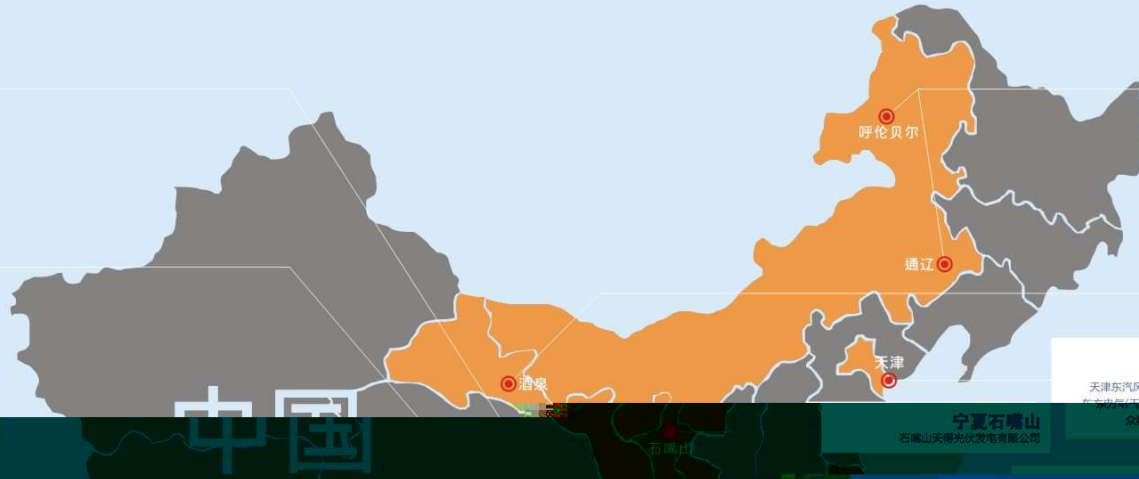
东方电气集团东方电机有限公司  
 东方电气集团东方汽轮机有限公司  
 东方电气风电有限公司  
 东方电气集团东汽投资发展有限公司  
 东方网海连接系有限责任公司  
 四川东方电气自动控制工程有限公司

### 四川成都

中国东方电气集团有限公司(总部)  
 东方电气股份有限公司(总部)  
 东方电气股份有限公司国际工程分公司  
 东方电气投资管理有限公司  
 东方电气集团国际合作有限公司  
 东方电气集团财务有限公司  
 东方日立(成都)电控设备有限公司  
 东方电气成都智能科技有限公司  
 东方电气成都清能科技有限公司

### 四川乐山

东方电气集团东方电机有限公司



### 内蒙古

东方电气(通辽)风电工程技术有限公司  
 东方电气(呼伦贝尔)新能源有限公司

### 甘肃酒泉

东方电气(酒泉)新能源有限公司  
 东方电气(酒泉)太阳能工程技术有限公司  
 东方电气(酒泉)光伏发电科技有限公司  
 东方电气(酒泉)太阳能发电有限公司

### 天津

天津东汽风电叶片工程有限公司  
 东方电气(天津)风电叶片有限公司  
 众和海水淡化工程有限公司

### 宁夏石嘴山

石嘴山天得光伏发电有限公司

### 印度

东方电气(印度)有限公司

加尔各答

### 老挝

老挝南芒河电力有限公司

### 印尼

东方电气(印尼)有限公司

泗水

### 广东广州

东方电气(广州)重型机器有限公司

广州

### 香港

东方电气(香港)有限公司

### 南美洲

委内瑞拉  
 东方电机委内瑞拉有限责任公司

加拉加斯

1/8a (a为原比例)

1.3a (a为原比例)



# 卷首语

## BREIFACE

2016年，东方电气认真履行中央企业的政治责任、经济责任和社会责任，统筹抓好深化改革、资源整合、集团管控、转型升级、提质增效、依法治企、风险防范等方面工作，在创新发展、协调发展的同时，携手各利益相关方推进绿色发展、开放发展和共享发展，东方电气可持续发展取得新进展。

### 创新发展引领卓越未来

发展愿景明晰，公司治理持续完善，商业模式更加多元化；依法治企深入推进。加快推进科技创新体制、机制建设，科技人才、劳动模范、技能大师不断涌现。我们在发展理念、体制机制、商业模式、技术研发等进行全方位、多层次、广领域的创新，不断推动发展的内生动力和活力的根本性转变。

### 共享发展引领和谐未来

坚持安全生产，保障职业健康，保护员工权益，践行“人和”文化。加强效能监察，打造阳光供应链。关注民生发展，实施惠民工程。加强资源禀赋研究，实施产业扶贫，构建长效机制，打造“已交上接”品牌。东方电气三名党员获评中组部2016“感动山西”特别奖。我们以“共创价值、共享成果”为宗旨，与社会共创和谐未来。

### 结构调整引领转型发展

优化生产管控模式，实现资源共享和  
优化配置。做强发电设备制造主业，做大服务产业，向制造服务型企业转型。清退低效、无效产能和投资，发展节能环保、电力电子产业，培育燃料电池、储能系统、工业和机器人等新兴业务。我们对接《中国制造2025》和“互联网+”行动，引领高端装备产业协同发展

### 开放发展引领开放未来

整合海外资源，加快全球化步伐。加强与国际巨头对标，引入国际先进理念、管理、技术、网络和人才。走进海外社区，共享发展成果。2016年，东方电气风电高中压产品进入拉美、俄罗斯市场，为外人和国际设备企业负责，突破。我们包容开放，共建“一带一路”

### 绿色发展引领美丽未来

坚持绿色发展，推进节能减排，加大环保投入，提升绿色制造水平。推进绿色供应链建设，实现绿色采购、绿色生产、绿色销售。推进绿色金融，创新绿色信贷、绿色债券、绿色保险等金融产品。推进绿色文化，开展绿色宣传、绿色培训、绿色竞赛等活动。推进绿色社区，建设绿色家园、绿色学校、绿色企业、绿色社会。

# 创新篇

Guide the development with management innovation  
Brighten the future with technological innovation

## 管理创新引领发展 科技创新驱动未来

## 聚焦12345战略

为应对严峻内外部形势，集团公司新班子确定了“逆势求进、创新求变、转型升级、做强做优”的发展思路，明确了12345战略。

1/

做强一个品牌，实施品牌制造十强策

3/

抢占三个制高点，技术、人才、服务

2/

开拓两个市场，装备制造做强

4/

推进四个转变，打造四个新兴产业

# innovation

## 运营管理不断优化

### 整合优化市场资源

加强集团公司国际业务资源统筹协调，对集团驻外机构、境外子公司及境外电站服务业务管理模式进行了优化调整。对市场开发、项目执行和售后服务资源进行了整合，形成集团市场合力。



### 不断夯实基础管理

理顺了综合计划、预算、劳动用工分配等基础管理工作，强调从严执行制度，强调完善内控体系，建立了财务、市场、质量、经济运行和审计等系列工作例会制度，推动工作落实。

### 持续改进质量工作

深入开展“质量月”活动，全体干部职工对质量的“敬畏”之心不断增强。



### 深入推进集中采购

建立系统的供应商管理体系，成立了集中采购管理中心，推进





## 技术创新硕果累累



2016年新增专利

2016年新增专利

东方汽轮机

研发

2009 2014 2015 2017 2018

高效低NOx燃烧器项目开发及应用研究  
先进煤气化炉制造工艺技术开发应用

四川省科技进步奖  
四川省科技进步奖

东方锅炉 二等奖  
东方锅炉 三等奖



# 协调篇

Forge ahead with our customers and  
create the mutual benefit with the investment

与客户携手前行  
与投资者实现共赢



# Coordination

## 用心服务客户 赢得真情回馈

除了为客户提供满意的产品和服务，东方电气积极开展用户培训，为客户提供延伸服务。全年共举办6期神华集团用户培训班，221人参训，培训天数共计96天。秉持以用户为中心的理念，让学员通过培训深入了解东方电气产品特点、技术优势、合作空间，培训效果得到神华集团的充分认可。



东方电气各个项目团队精湛的技术水平和认真负责的工作态度赢得了客户的一致好评，受到多次表彰。



东莞中电第二热电厂有限公司专程发来感谢信



荣获宁德核电一期工程建设“突出贡献奖”

## 与投资者充分沟通 共享发展成果

以投资者需求为导向 持续合规信息披露



根据《公司法》、《上市公司治理准则》、《上市公司章程指引》、《上市公司股东大会规则》等法律法规及《公司章程》、《股东大会议事规则》、《董事会议事规则》、《独立董事工作制度》、《关联交易管理制度》、《募集资金管理制度》、《内幕信息知情人登记管理制度》、《信息披露管理制度》等规定，结合公司实际情况，不断完善公司治理结构，规范公司运作，提高公司运营效率，保障公司持续、健康发展。



# 绿色篇

Harness cleaner energy to preserve global climate balance  
Speed up innovation to ensure a low carbon community

## 绿色能源 节能减排 创新环保 低碳运营

### 潜心发展绿色能源

#### ■ 燃机节能减排效益

目前国内投运的先进级燃气-蒸汽联合循环机组效率在59.0%左右，东方电气制造的M701机组效率高于61.0%。以一个安装有两台燃气轮机的联合循环电厂为例，假设年运行时间4000小时，M701机组年发电量将增加13.6亿度，机组燃料消耗降低240千吨，年发电每度电的氮氧化物排放量减小约4%，同样得到提升的还有机组的可用率和检修效率。



#### ■ 水电节能减排效益

目前东方电气研制的1000兆瓦级核电机组成功投运3台，每年可减少煤耗12299万吨，减排二氧化碳32220万吨，二氧化硫105万吨，氮氧化物9.2万吨。



#### ■ 核电节能减排效益

东方电气研制的1000兆瓦级核电机组成功投运3台，每年可减少煤耗12299万吨，减排二氧化碳32220万吨，二氧化硫105万吨，氮氧化物9.2万吨。



#### ■ 风电节能减排效益

东方电气2016年产出风力发电机283台，总容量592.5兆瓦，每年节约标准煤1.5万吨，减排二氧化碳4.4万吨，二氧化硫0.1万吨，氮氧化物0.1万吨。

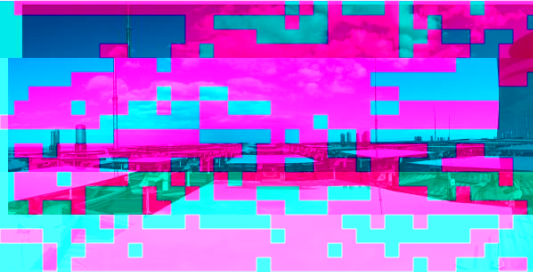


# Green

## 实施综合节能改造

### ■ 光煤互补联合循环

2016年，山西国金电力有限公司2号机组顺利投运。该项目采用东方电气研发的1兆瓦塔式太阳能光热与350兆瓦超临界循环流化床燃煤机组联合循环发电技术，这是目前中国首个将塔式太阳能光热发电技术与传统燃煤发电技术进行“光煤互补”实现联合循环发电的项目。



改造后发电效率提升1.5个百分点，

后煤耗降低1.5个百分点，设计值平均煤耗由417千焦/千瓦时，煤耗降低15克，改造后供电煤耗达到305克，低于国家煤电节能减排升级与改造行动计划要求，这也是国内600兆瓦高效亚临界机组首次实现“光煤互补”

和产生7.4克的氮氧化物计算，50兆瓦中等规模燃煤电站每年

完成常熟2号机组的通流改造，改造前参数为24.2Mpa/536°C/566°C，改造后参数升为24.2Mpa/566°C/566°C，三缸效率都得



提升0.5个百分点。

### ■ 环保设备改造减排

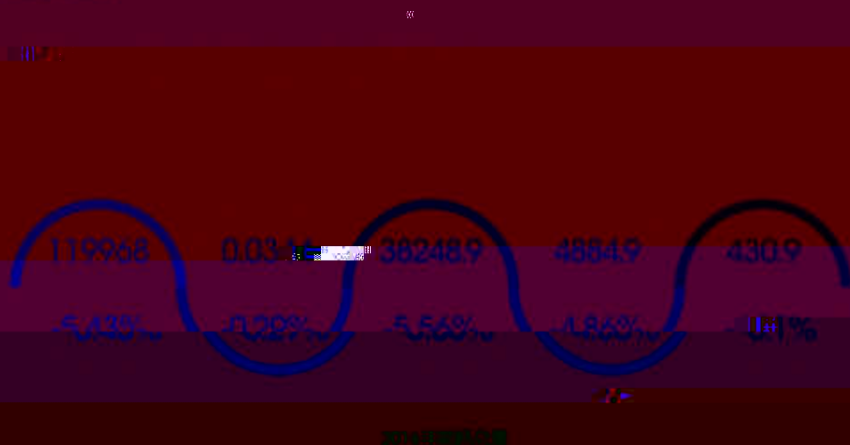
2016年，东方电气完成常熟2号机组通流改造，改造后参数升为24.2Mpa/566°C/566°C，三缸效率都得提升0.5个百分点。

2016年，东方电气完成常熟2号机组通流改造，改造后参数升为24.2Mpa/566°C/566°C，三缸效率都得提升0.5个百分点。



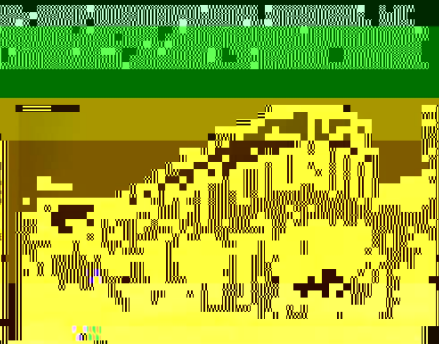
## 节约优化资源使用

能耗总量持续减少

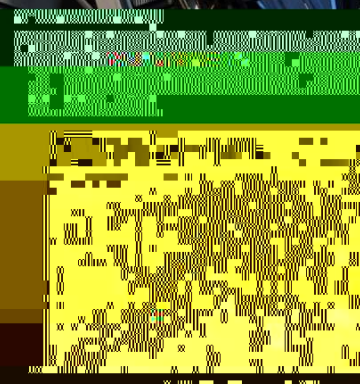
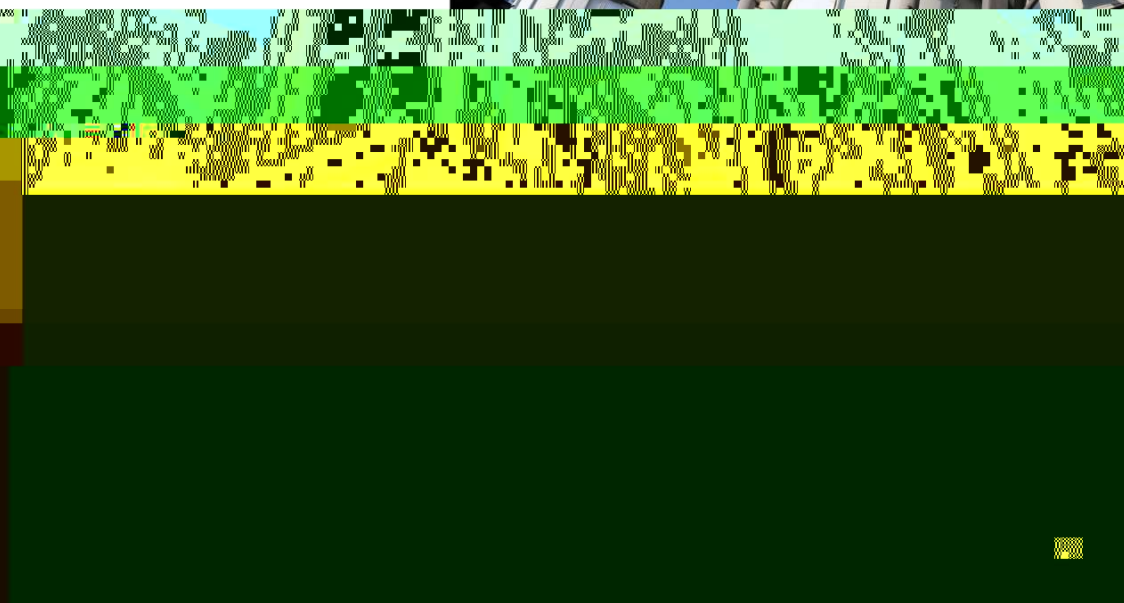


2014-2016年趋势

水利资源合理利用



葛洲坝水电站



金沙江溪洛渡水电站

## 排放防治合法合规

### 废气排放

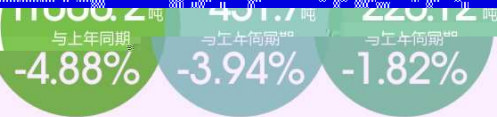
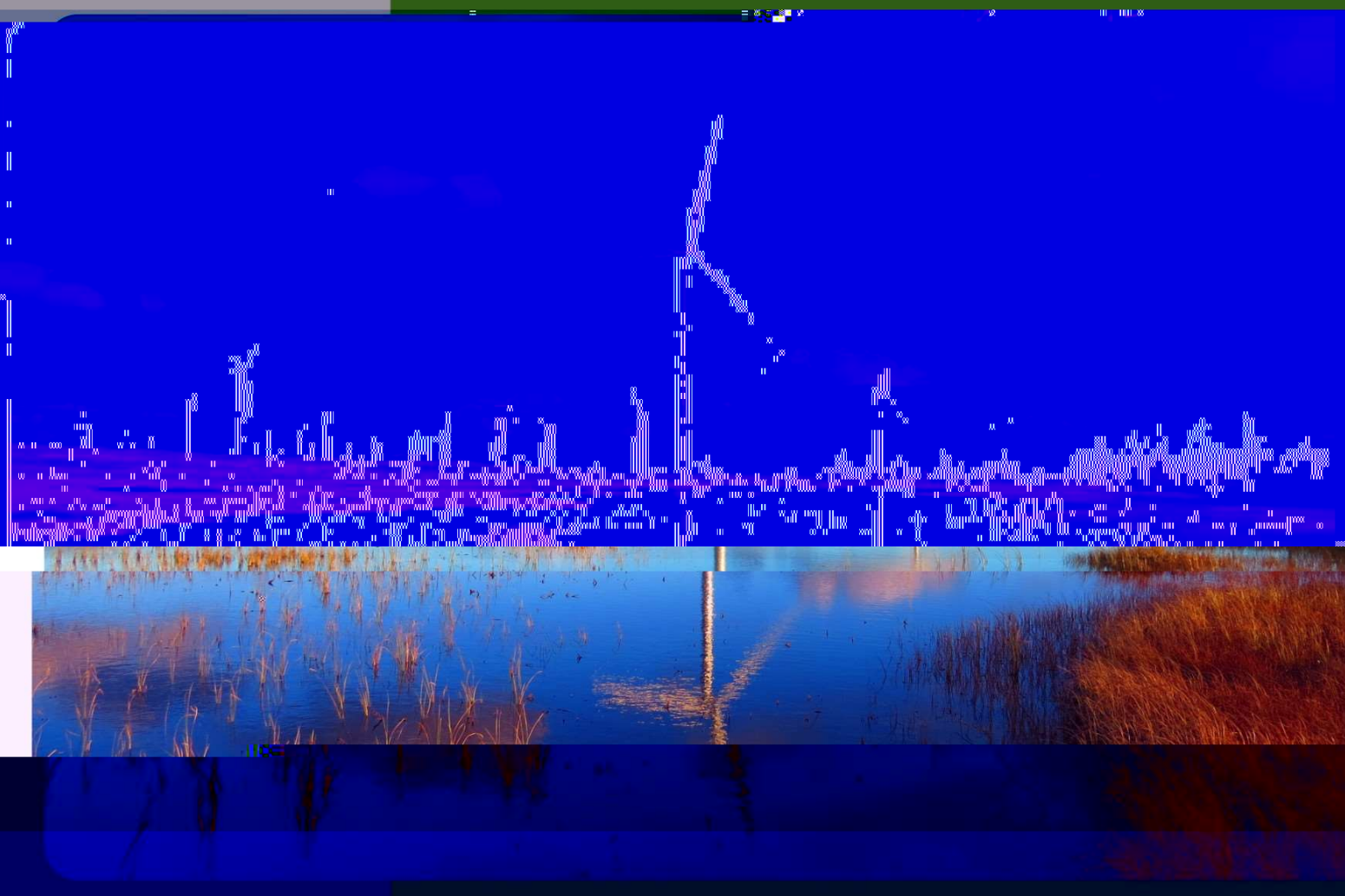
2016年，公司按照《大气污染防治法》、《大气污染防治行动计划》、《打赢蓝天保卫战三年行动计划》等法律法规及政策要求，严格落实大气污染防治各项措施，持续加大环保投入，不断提升废气治理水平，确保废气排放达标。2016年，公司废气排放总量为11000.2吨，较上年同期下降4.88%。

### 废水排放

2016年，公司按照《水污染防治法》、《水污染防治行动计划》、《水污染防治行动计划》等法律法规及政策要求，严格落实水污染防治各项措施，持续加大环保投入，不断提升废水治理水平，确保废水排放达标。2016年，公司废水排放总量为401.7吨，较上年同期下降3.94%。

### 固体废物

2016年，公司按照《固体废物污染环境防治法》、《固体废物污染环境防治法》等法律法规及政策要求，严格落实固体废物污染防治各项措施，持续加大环保投入，不断提升固体废物治理水平，确保固体废物排放达标。2016年，公司固体废物排放总量为220.12吨，较上年同期下降1.82%。



废气排放



# 开放篇

Ride b&r wave to further open up  
Reinforce branding by living up to responsibilities overseas

一带一路开放发展  
海外履责树立品牌



# Openness

## 推进结构升级 分区定策开拓海外市场

### 优化市场布局 传统市场挖掘取得新成果

2016年，签订印尼佳蒂格德2×56兆瓦水轮发电机组合同，将首次为印尼提供水力发电设备。签订印尼卡尔腾2×100兆瓦火电EPC项目，巩固了东方电气在印尼火电市场的优势。签订孟加拉S4联合循环1×125兆瓦项目汽轮机合同和帕亚拉一期2×66兆瓦汽轮机及其配套辅机设备合同，继续参与孟加拉电力基础设施建设。



### 突围新兴市场 多元化策略成为敲门砖

根据新兴市场经济发展水平、资源禀赋等情况，采取外贸和总承包方式，带动自身和国内其它产业进入市场。2016年，签订古巴赫拉杜拉二期50兆瓦风电项目、俄罗斯乌里扬诺夫斯克14×2.5兆瓦风电项目，进入拉美、俄罗斯市场。签订埃塞俄比亚120兆瓦风电总承包项目，是东方电气在海外的第一个风电总承包项目。签订泰国23兆瓦太阳能电站总承包项目，实现太阳能电站海外总承包零的突破。



俄罗斯乌里扬诺夫斯克风电项目签约

### 致力前沿技术研究 先进技术引领高端市场竞争

围绕清洁高效主题，开展高参数、高效率的火电、水电、风电等技术研发，与国际能源技术联盟合作推动前沿课题研究，参与行业技术标准的制定，以全球领先技术参与欧美高端市场竞争。波黑斯坦纳瑞水电站采用世界先进的具有自主知识产权的300兆瓦燃用高水分低热值褐煤循环流化床锅炉技术，具备初步移交条件的瑞典布莱肯风电三、四期项目采用中国首创的混合叶片除冰技术，投运的巴西杰瑞水电站采用世界迄今容量最大的灯泡贯流机组技术。



波黑斯坦纳瑞电站



瑞典布莱肯风电三、四期项目

巴西杰瑞水电站

波黑斯坦纳瑞电站

## 拓宽商业模式 拓展开放合作

### 与中央企业“强强联合”编队出海

2016年，东方电气获得“中巴经济走廊”首个水电投资项目供货订单——巴基斯坦卡洛特4×180兆瓦混流式水轮发电机组。这是在东方电气与三峡集团首次海外合作，中巴中水电上下游产业链“抱团出海”的首个大型项目。

### 探索多种海外项目经营模式

2016年，波黑斯坦纳瑞水电站开始执行5年运行维护服务合同，代表东方电气集团开启“EPC+运行维护”经营模式，实现了中国制造、金融支持与当地资源有效融合。契合塞尔维亚总理在主持中塞合作论坛开幕式上提出的“打造产能合作新样板”理念。

## 提升品牌价值 扩大国际影响力

### 以西博会为平台 加强与国际政要的交流

第十六届中国西部国际博览会（西博会）期间，波黑塞族共和国总统多迪克和几内亚总统孔戴到东方电气访问，东方电气整合中国企业资源参与波黑塞族共和国自贸区的建设和服务，并积极参与其以火电、水电为主的循环经济的发展；希望东方电气发挥技术和装备优势，与更多中国企业一起寻求能源建设的合作机会。



波黑塞族共和国总统多迪克来访

几内亚总统孔戴来访

### 建设标杆项目 以“精品”提升品牌影响力

坚守“建一座电站，树一座丰碑”、“24小时服务”和“持续改进”理念推进项目执行和后期服务。我们凭借出口巴西杰瑞水电站22台世界迄今单机容量最大的75兆瓦灯泡贯流式水电机组项目，被业主授予唯一的“优质供货商”称号。总包包的澜沧江口截流电站被评为“精品电站”。

亚洲品牌500强

113位

ENR全球最大500家国际承包商

107

### 加强品牌宣传 与海外媒体以诚相待

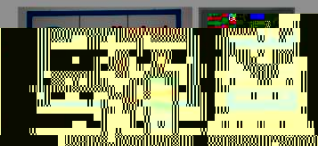
西博会期间，来自非洲和南亚32个国家共35名媒体记者到东方电气参观采访，加深了对东方电气的了解，为国家间友好的交流与合作助一臂之力。



瑞典媒体报道大使访问布莱肖风场 非洲和南亚媒体代表团来访

### 履行社会责任 提升企业海外口碑

参与项目所在地的道路建设、教育扶贫、医疗援助等公益活动，与当地保持良好的公共关系。在越南，为支持茶荣省扶贫帮困工作和当地教育事业，公司向当地扶贫基金捐款上亿越南盾，用于帮助那些居无定所的人修建房舍、购置衣物等以及进行孤寡老人生活援助。



## 融入海外当地发展 做负责任企业公民

### 属地化分包和采购

持续推进属地化分包和采购，带动当地的经济的成长。

海外属地化分包和采购金额达

357.1 亿元

海外属地化分包和采购人数达

226 人

### 加大属地化用工

积极鼓励工程使用项目所在国的社会人力资源，截止2016年底，海外工程项目聘用的外籍员工共计322人，同比增长92.8%。外籍员工分布在印度、巴基斯坦、印尼、越南、波黑、瑞典等多个国家，工作岗位涉及到技术、管理、普工和勤杂。这一举措不仅有利于工程项目的执行，也为东方电气融入当地、解决当地人员就业、履行社会责任发挥了积极的作用。

### 支持当地经济发展

2016年，东方电气海外共10台机组投产发电，单年投产机组容量达372.5兆瓦，稳定运行的机组源源不断地为项目所在国的经济、社会发展提供电力资源，缓解项目所在国的用电紧张情况。



吉布3水电站



吉布3水电站



吉布3水电站



### 东方电气为吉布3水电站提供参与海外投资

由东方电气总承包的埃塞俄比亚吉布3水电站自是目前为非洲出口的最大水电站项目，共10台机组，总装机容量1870兆瓦，是埃塞俄比亚目前在建的第一大水电站项目。2016年实现了10台机组全部投运发电，该电站目前为埃塞俄比亚首都亚的斯亚贝巴提供了90%的电力，受到

部在建设过程中积极履行社会责任，为当地发展作出了突出贡献。

埃塞俄比亚总理为东方电气颁发吉布3水电站纪念碑



本地化雇佣。项目部坚持“除部分管理和高级技术人员从中国派遣之外，其他职位和人力需求均从本地获取”的政策。截止2016年12月，我公司GIBE III项目部常驻现场中方人员10人，本地雇员25人，安装分包商中方人员80人，本地雇员约为200人，本地雇员约为中方人员2倍多。为埃塞当地人民提供了大量的工作机会，改善了当地人的生活质量与生活水平。

本地化采购。在工程物资和生活物资以及服务采购问题上，项目部坚决执行本地化采购原则“只要是能在埃塞境内采购到的物资和服务，就决不从第三国采购”，每年项目部本地化采购的物资和服务金额都上亿元人民币。蔬菜食品和生活用品方面，项目部实现了100%的本地化采购。部分施工所需设备和施工材料，项目部及项目分包商也都在可能的范围内实行本地化采购，大大节约了成本。

支持当地教育。吉布3水电站位于埃塞国土南部偏远山区，在项目开始之前，该地区没有公路与外界沟通，极为偏僻，当地百姓生活极为原始，思想极端落后，当地的教学设备及其缺乏，教育资源极端匮乏。我司GIBE III项目部的现场相关人员积极到周边考察调研，了解到项目现场附近的多所山区小学教学与生活环境极端落后。多年来连续给当地小学学生提供物资帮助。2016年2月23日，项目部分驱车前往右岸的一所小学，再次向其捐赠了包括文具，体育用品和办公用品在内的价值约5000 比尔（约人民币1700多元）的物品。



支持本地教育



分发学习用品

# 共享篇

Targeted poverty alleviation

热心公益心系社会  
关爱员工共享发展



## 精准扶贫暖民心 真帮实扶促发展

自精准扶贫工作开展以来，在历年扶贫帮扶行动中，通过实施帮扶、产业带动等措施，真帮实扶，帮助贫困群众尽早脱贫。

向遭遇罕见冰雹灾害的吉县捐资50万元，用于当地苹果种植业的发展。

积极协调所属企业在福利发放、职工团险方面采购吉县苹果、土特产、饮料等农副产品。2016年共计采购农副产品1000万元。

通过11个定点帮扶村开展精准扶贫工作，通过建立帮扶长效机制，切实帮助贫困群众脱贫致富。



吕梁农特产品网上展销会 品味吕梁太行—山西贫困地区农特产品走进东方电气 邹磊董事长在展台询问

在总部和三个主要子企业设立了5场巡展，助推吕梁、太行山两大片区的农特产品、旅游资源及劳务资源走出山西，帮助贫困群体实现有尊严脱贫探索新路径。

参与吉县光伏扶贫项目建设，首批5×100KW分布式村级光伏扶贫电站建设已顺利完成工程验收，并按时间要求并网发电，有效带动人口脱贫致富。



吕梁太行农特产品推介活动走进东方电气

吉县光伏扶贫项目建设

## 传递无边大爱 点燃爱心公益

### 四川省昭觉县——教育扶贫为基



团委与东方电气第一希望小学全体师生合影留念

持续捐助东方电气第一希望小学。2016年，向东方电气第一希望小学捐赠、捐赠共计3.87万元。继续向昭觉县600余名贫困学生发放奖学金10万元、助学金20万元，帮助民族地区贫困学生克服困难完成学业。捐资20万元对哈甘乡中心校危房和校舍进行维修改造，确保教学用房安全，惠及700多名在校生。捐资20万元，用于普诗乡路灯项目建设，解决300多户居民的夜间出行照明问题。

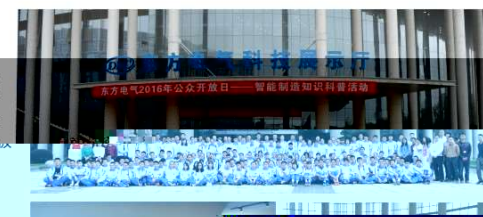
### 四川省壤塘县——民生扶贫为急

组织全集团员工对壤塘县滞销的农产品莴笋进行了集中采购，交易量达15万斤，解决了壤塘县农产品滞销难题。组织集团员工开展“结对帮扶”活动，为当地贫困户提供帮扶。

捐资10万元，为定向帮扶的壤塘县建档立卡贫困户

### 东方电气公众开放日

智能制造知识科普活动，迎来了近600名成都市第七中学高二年级的师生。通过公众开放、校企互动，使东方电气的智能制造、电力装备知识得到有效普及，为帮助广大在校中学生树立远大理想、承担社会责任、成就精彩人生发挥了积极推动作用。



### 献爱心送温暖

与德阳柏隆镇小学、陇西汪家城小学等举办爱心“金秋双十”圆梦捐资助学活动、“暖冬助学、欢度圣诞”等活动，关爱留守儿童和贫困学生。

开展纪念红军长征胜利80周年敬老慰问活动，为老兵送去关怀和慰问。



东方电气员工在柏隆镇小学开展慰问活动

## 促进员工成长 创造快乐幸福生活

### 员工管理以人为本

#### 人才引进公开透明

通过校园招聘、内部公开招聘、社会公开招聘及通过中介机构引进高层次人才等多渠道补充人员。实行公平、公开、公正的招聘政策，禁止设置民族、种族、性别、宗教信仰等歧视性条款，未设置指定毕业院校、户籍范围等与岗位要求无关的招聘条件；对拟录用人员按规定进行至少7天的公示期，主动接受社会监督，确保招聘工作公开透明。

#### 注重员工职业生涯规划

根据各岗位员工职业生涯规划，分类设计各岗位职业发展通道和路径，通过规范岗位晋升标准，突出岗位能力条件和工作业绩导向，消除晋升中的论生、论职称、论资历等现象，建立了员工职业发展自我引导和激励机制，为员工自我价值实现创造条件。

#### 不断完善健全薪酬分配制度

实行全员绩效考核，构建以岗位和能力为基础、以绩效为核心的薪酬体系。对各层级经营班子成员实行年薪制、对经营班子成员外的其他在岗人员实行

#### 岗位工资制、目标收入制、协议工资制及特定功能

辅助工资等，充分发挥薪酬激励作用。严格执行所在地最低工资标准和最低生活保障标准，保障部分特殊员工基本生活。

#### 建立和谐劳动关系

建立员工入职管理、劳动合同管理、岗位晋升管理、绩效考核管理、离职管理等系列制度，根据员工的知识结构、年龄结构、学历及身体素质、个人专长等因素，适时调整到适合的岗位工作。不能适应岗位工作的员工，提供调整岗位及培训机会。对达到解除劳动合同条件的员工，依法依规解除劳动合同，并按照法律规定支付补偿金。

#### 保障员工休息休假权利

实行每日工作8小时，每周工作40小时工作制。严格遵守国家规定的休假休息规定，建立了员工假期管理制度。对符合休假条件的员工，提供不低于国家规定的休假天数，保障员工休息休假的权利。



### 员工结构



### 招聘人员结构

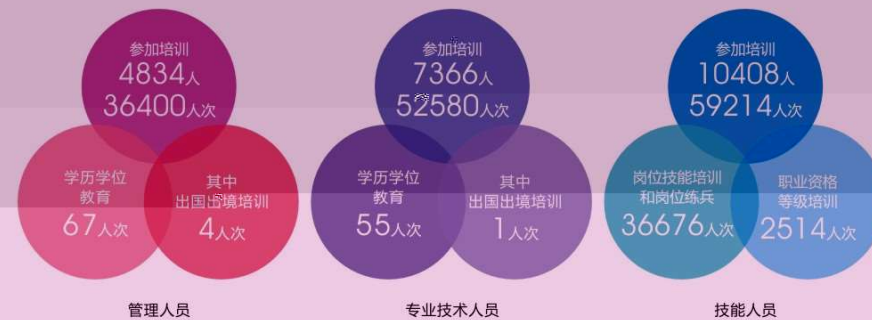


职业健康与安全保障



责任落实	按照“党政同责、一岗双责、齐抓共管”安全生产责任体系的要求，落实安全生产主体责任，签订安全目标责任书，逐级落实。
安全投入	全年安全环保投入约8470余万元。
教育培训	以岗位安全操作规程为重点，全年共开展各类安全教育培训23200余人次。
隐患排查	组织开展重要危险源、重点防火部位、环保、职业健康专项检查以及汛期安全专项检查等工作，隐患排查治理形成常态化机制。
职业健康	体检工作，职业健康应体检率100%。
应急管理	修订完善应急预案，强化预案的培训、演练和持续改进，全年共开展各类应急预案演练70余次。

激励发展 落实培训



遵纪守法 和谐共赢

公司严格执行《劳动法》、《劳动合同法》、《国家职业卫生标准》等法律法规，明确各岗位任职年龄条件，禁止任何形式的雇佣童工。严格遵守有关法律法规，无以暴力、威胁或者非法限制人身自由的手段强迫劳动的行为，并禁止、杜绝强制劳动。依法为从业人员参加各项社会保险及住房公积金；依法与员工签订劳动合同并依法解除劳动合同；依法解除劳动关系并依法支付经济补偿金，维护了公司和员工合法权益，促进了公司劳动关系和谐，保障了员工权益。



四川省政府安委会办公室在东电开展“安全进企业”安全技能竞赛电视专题节目制作

触电应急救援演练

消防应急演练

### 创造和谐文化氛围

公司秉承“社会、企业、员工和谐统一”价值观，组织了各类文娱、体育活动，丰富了青年员工的业余生活，激发了青年员工的生活与工作热情。活动受到了广大青年职工的热情响应和积极参与，为青年员工营造了良好的文化生活环境。



东方电气总部与东方锅炉职工篮球友谊赛

东方电气总部室外新球场启用暨新春“东方电气杯”篮球友谊赛



东方汽轮机“质量杯”职工运动会



东方锅炉“相爱到永远 携手伴一生”第五届集体婚礼



东方重机摄影俱乐部活动

### 慰问帮扶困难员工

元旦春节期间慰问特困职工、危重病职工、职工遗属等

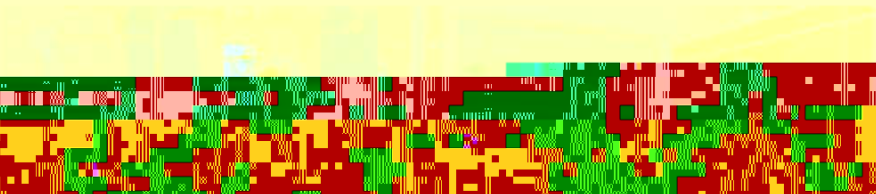
5000

余人次

全年慰问患职业病人员、工伤人员等人员各类劳模等

2000

余人次



# PROSPECT 展望

## 展望2017 蓝图绘就 扬帆起航

2017年是实施“十三五”规划的重要一年，也是东方电气深化改革、脱困振兴的关键之年。面对国内外错综复杂的经济形势以及全球竞争格局的重大调整，我们将全面贯彻党的十八大和十八届历次全会精神，深入贯彻落实习近平总书记系列重要讲话精神，以“脱困振兴、二次创业”为目标，以深化改革为动力，以“科技创新 质量立企 成本领先 深化改革 管理提升”五大工程为重

www.dongfangelectric.com

# 2016 SOCIAL RESPONSIBILITY REPORT

## About This Report

Following the principles of authenticity, objectivity, sincerity and transparency, Dongfang Electric Corporation takes initiatives in reporting to the public our fulfillment of social responsibilities, and the efforts we have made in expediting corporate progress and social sustainable development. For better understanding of this report, "Dongfang Electric Corporation" would be referred to as "DEC Group", "DEC", "The Group" or "We" while "Dongfang Electric Corporation Limited" as "DEC Ltd." for short.

**Reporting Period:**  
2016 fiscal year from 1 January 2016 to 31 December 2016, with some exceptions.

**Release Frequency:**  
on an annual basis

**Past releases:**  
9

**Data Illustrations:**  
the data included in this report stem from formal documents and statistical report submitted by relevant departments and subsidiaries of DEC Group and reviewed carefully by CSR Leading Group.

**Guidelines of the Report:**  
Chinese Academy of Social Sciences-Corporate Social Responsibility 3.0 (CASS-CSR3.0); Global Reporting Initiative (GRI) Sustainability Reporting Guidelines (G4)

## COMPANY PROFILE

Dongfang Electric Corporation (hereinafter referred to as "DEC Group" or "DEC"), one of Central State-owned enterprises (SOEs) as the backbone of the country's economy and having a vital bearing on national security, under direct supervision of State-owned Assets Supervision and Administration Commission of the State Council, is one of the world largest power generating equipment manufacturers and power plant EPC contractors, with the accumulative power equipment capacity output amounting more than 500GW and top-ranked among the world for these 13 consecutive years.

Since 1950s, through unremitting efforts of several generations, DEC Group incited several inspiring spirit, such as "Three line construction spirit", enterprise spirit of "Practical, Innovative, Harmonious and Initiative" and "DTC Spirit". The ups and downs in DEC pioneering history can be deemed as a miniature of the glory in the globalization of Chinese national industry and the aspiration of "Manufacture for China, Manufacture in China, Manufacture in China, Manufacture for the World," made DEC the pillar of the equipment manufacturing industry.

DEC is implementing a strategy of innovation-driven development, building up an innovation-oriented enterprises, national technology innovation-oriented enterprises, state-level enterprise technical centers, national large-scale clean and efficient power generation equipment R&D centers, as well as the innovation bases for the overseas talents, DEC Group, with its state key laboratory, academic research program, and the State Key Laboratory Research Institute to establish a multi-level innovation system for the future-adapted new and common

technologies and that for the market-responsive products, thus boosting its sustainable and stable development.

Practicing the concept of "innovation, coordination, green development, openness and sharing" and actively following the principle of developing clean and efficient energy, DEC possesses the design and manufacturing ability for nuclear, thermal, hydro, gas turbine, wind as well as solar power industry, able to mass-produce 1000MW-1750MW class nuclear power units, 1000MW class ultra-supercritical thermal power units, 1000MW class hydro power units, heavy-duty gas turbines, wind power equipment, solar power equipment, large-scale environmental protection and water treatment devices, power electronics and control systems, renewable battery and energy storage systems, intelligent manufacturing equipment and others.

Embracing "Real and Real" in the DEC Group, making a big push into the overseas market, with equipment and services exported to more than 70 countries and regions, creating a number of the first in Chinese power equipment history and listed among ENR Top 250 International Contractors for 13 consecutive years.

Looking into the future, DEC Group will, adhering to the principle of "a joint endeavor to create value and share success" and guided by the vision of "Become China's GE" message by Premier LI Keqiang, make our commitment to become a world leading energy equipment and service supplier with international competitiveness that jointly drives the development of China and world economy.

## CORE DATA



Output Capacity of Power Generating Equipments:  
**30338** MW



Employees:  
**22375**



New Patents:  
**372**



Operating Revenue:  
RMB **37.037** billion yuan

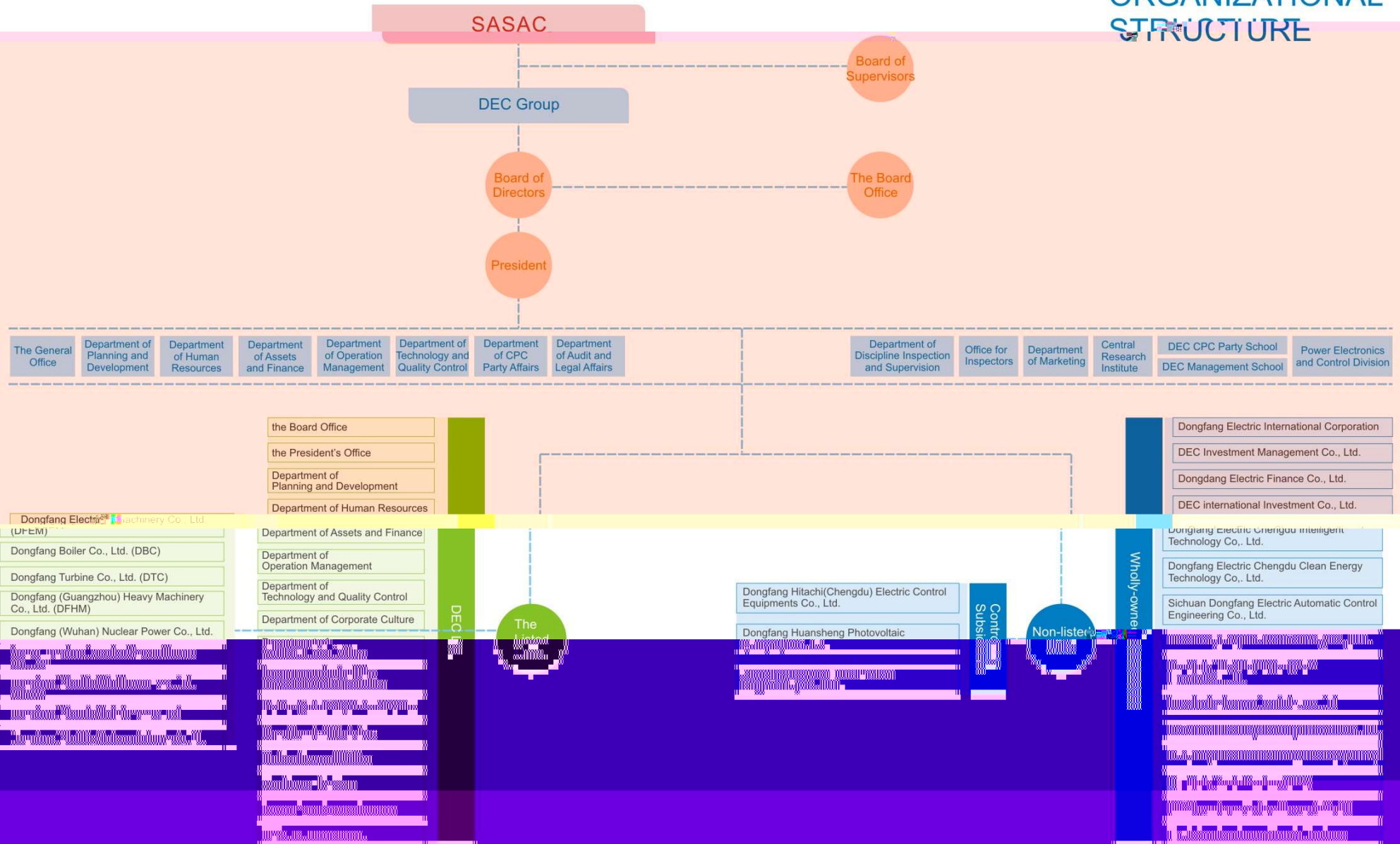


Inputs in Science and Technology:  
RMB **1.526** billion yuan

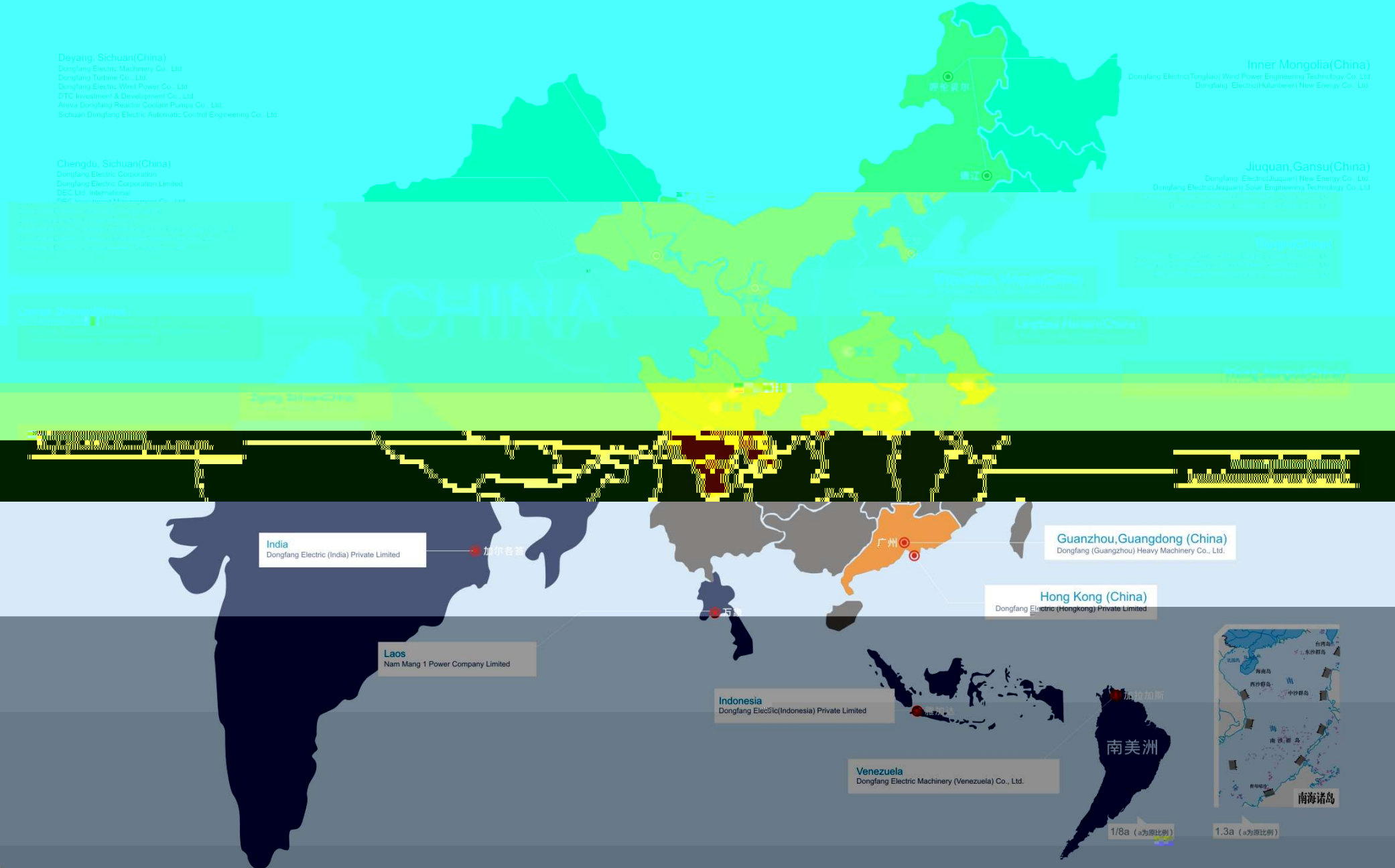


Tax Payment:  
RMB **3.044** billion yuan

# ORGANIZATIONAL STRUCTURE



# INDUSTRIAL DISTRIBUTION MAP



# PREFACE

In 2016, DEC earnestly fulfilled its political, economic and social responsibilities as a Central SOE and stepped up the overall planning of deepening reform, resources allocation, corporate governance, transformation and upgrade, quality and effectiveness improvement, law-based corporate ruling, risk prevention and others. Following the concept of innovation and coordination development and endeavoring with all relevant parties to conduct a green, open and sharing development, DEC made new progresses on its sustainable development.

## Innovative development leads to a bright future

Having had a clear business vision, we continued to perfect the corporate governance, formed a more diversified business model, ruled the company according to the laws and enhanced the transparency in businesses. The establishment of technical innovation system and mechanism was well progressed. Numerous technological talents, model worker, and craftsmen sprung up. We made an all-dimensional, multi-tiered and wide-ranging innovation in

steadily directing ourselves to a green, low-carbon, and sustainable development path.

## Sharing leads to a harmonious future

Adhering to the philosophy of safety and health at work, we protected the rights and interests of our staff and practiced the people-oriented culture. We forged a transparent supply chain to enhance the efficiency of supervision. We conducted the people-benefited projects to reflect our care for the livelihood of the people. Besides, we also strengthened our research in

## Cooperative development leads to a sustainable future

We heightened our group governance and achieved the resource allocation and configuration optimization. Our strategy is to strengthen the core business of power equipment manufacturing, to expand the service business and to transform itself to a service-oriented manufacturing corporation. Consequently, we sorted out and withdrew from the inefficient capacity and investment, expanded the environmental protection and power electronics industry, and nurtured the emerging businesses, such as fuel cells, energy storage systems, and industrial robots. We will, by matching with "Made in China 2025" and "Internet Plus" action plan, keep with the times to take the lead in the coordinative development of high-end equipment manufacturing industry.

harmonious society and future.

## Openness leads to a win-win future

We speeded up the pace of globalization through integrating overseas resources. We strengthened the benchmarking with international giants and brought in internationally advanced concept and management, technology, supply chains and talents. We stepped into the communities abroad and enjoyed together the development achievements. In 2016, DEC had its wind products stretched into markets of Latin America, Russia and Africa, and made a breakthrough in overseas solar power plant EPC contracting. Upholding the spirit of transparency and inclusiveness, we will make unremitting efforts to support "Belt and Road" Initiative.

## Green development leads to a beautiful future

Along with a structured green manufacturing system, we actively promote the cutting edge technology in the circulating fluidized bed, ultra-low emission, energy

Adhering to the vision of "Green power will light the future," DEC will "keep on moving forward." It is expected that all of you could verify our performance and facilitate our continuous improvement. We will continue to work with you to create a better future.

# INNOVATION

Guide the development with management innovation  
Brighten the future with technological innovation

## Focus on a "12345" strategy

In order to cope with the severe internal and external circumstances, the new group management executives decided new development strategies of "Seeking progress amidst difficulties, pursuing innovation and change, undergoing transformation and upgrade, delivering enhancement and optimization" together with a clear 12345 strategic planning which encompasses "concentrating on one vision, expanding two markets, capturing three prominent positions, promoting four transformations, and implementing five development principles".

1/

Concentrate on one vision to fulfill our china dream in manufacturing

3/

Capture three prominent positions: technology, talents, and services

2/

Expand two markets: domestic and international

4/

Structure a business pattern of 4 ten-billion sectors

An innovation in the business model. Aligning with a pattern of "A combination of real economy, virtual economy and sharing economy", we are making a development and transformation in accordance with a business model of "Manufacturing + Services + Financing + Intelligent manufacturing and Internet plus".

A refinement in the management. We are moving towards a refinement in the fields of the group administration, industrial operation and production.

A shape of 4 ten-billion business sectors: DEC would, continuing the making of a stronger and better growth in hydro power, thermal power, nuclear power, and gas turbine, structure a business pattern of 4 ten-billion business sectors:

new green businesses (such as wind power, solar thermal and photovoltaic power)

international businesses (such as international projects and trades)

services businesses (such as power plant services, financing services)

emerging businesses (such as distributed energy, marine equipment, stored energy)



5/

Implement five development principles and five major programs

We are practicing the concept of "innovation, coordination, green development, openness and sharing"

We are dedicating our resources into implementing five major programs: deepening reform program, science innovation program, quality improvement program, cost control, and further reform and management enhancement program.



## Unceasing optimization of the operational management

### Integrate and optimize the domestic and overseas market and resources

In 2016, we implemented a series of measures to integrate and optimize the domestic and overseas market and resources. We established a unified management system for the domestic and overseas market and power grid operation. We also established a unified management system for the domestic and overseas market and power grid operation. We also established a unified management system for the domestic and overseas market and power grid operation.



### Steadily strengthen the administrative management

Following a straighten-out of the administrative management such as overall planning, budgeting and labor force allocation, we focused a strict compliance with the rules and an improvement in the inner control system, formed a mechanism of conducting series of regular meetings themed with finance, marketing, quality, operation, audit and so on, as a strong impetus to make the relevant work well-fulfilled.

### Continuous improvement on quality-related issues

We formulated 10 decisions in light of enforcing the quality management. We launched a special event, namely Long-term Quality Assurance Campaign, having visited 10 power plants, such as Huaneng Anyuan

The monthly-implemented activities aimed at fostering a corporate concept of building a quality-focused company and providing the quality-assured products were thoroughly implemented, thus reinforcing awareness of all our staff for the quality.

### Centralize the procurement inside the whole group in an in-depth manner



In order to centralize the procurement inside the whole group, we established a supplier management system and formed a centralized procurement management center. In 2016, after the launching and implementing of the centralized procurement management platform, among which 80% procurement was placed through the platform.

## Continuous technological improvement on the main businesses

### A success in manufacturing HPR1000 steam generator

In 2016, the FOAK steam generator of HPR1000 modeled ZH-65, designed and manufactured by DEC, successfully completed its hydro test before delivery. Unit 5 of Fuqing nuclear power plant is also the world's first demonstration project which adopts the generation III nuclear power technology HPR1000 with China's independent intellectual property rights. This one-time success of the hydro-test for HPR1000 steam generator marks an accomplishment that such nuclear island main equipment with self-reliant design and manufacturing is prepared to be installed on site and a symbol that the Chinese enterprises have a full grasp of the generation III nuclear power equipment design and manufacturing technology.



### Set several new world records for the development of hydropower units

In 2016, 22 sets of 75MW bulb type hydro units in Brazil Jerry power plant, supplied by DEC, were all successfully put into operation, which set 4 world records in bulb-type hydropower industry in terms of capacity, unit capacity, runner diameter as well as quantity of the units installed. The electricity generated from this project is supplied stably to the local power grid, thus effectively alleviating the problem of energy shortage, and accelerating local economic development. The annual power generation capacity of Jerry hydropower plant is equivalent to an annual saving of 3.96 million tons of standard coal, about reducing CO2 emissions of 9.87 million tons.



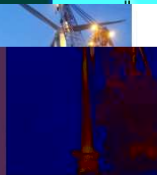
### Launch of research and development for more clean and efficient 1000MW double-reheat thermal demonstration unit with ultra-high parameters

The first domestic ultra-supercritical 660MW double-reheat thermal unit, developed and manufactured by DEC, was successfully put into operation in Jiangxi Huaneng Anyuan power plant, marking that DEC made a brand-new breakthrough in the new generation of clean and efficient coal-fired units. In order to continuously enhance the upgrading of coal-fired units, DEC further started a research and development for 1000MW class 35MPa / 615°C / 630°C / 630°C double-reheat thermal unit, of which the technology was evaluated and approved by the reviews organized by China International...



### Accomplishment of the technical upgrade for the optimized 5 MW offshore wind power unit

In 2016, the technical upgrade for the prototype of 5MW wind turbine in Rudong project was well completed, making such optimized 5MW offshore wind turbine, adapted to IC class wind field and designed with anti-typhoon function design, have its wheel diameter of 140 meters and rotor swept area per KW reaching 3.079 m<sup>2</sup>, of which the performance top-ranked among the I-class wind projects. The upgraded unit was connected to grid on August 23, 2016, with a utilization rate of more than 95% for several consecutive months, thus revealing that this kind of unit is capable for preliminary commercial promotion based on its maturity and technology.



### New steps in developing heavy-duty gas turbine

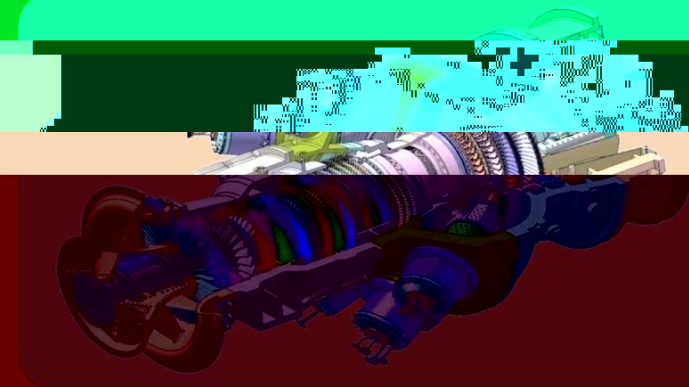
At present, M701F5, M701J gas turbine is the world's most advanced F-class, H-class gas turbine in operation. On June 23, 2016, DEC and Mitsubishi Hitachi Power Systems signed M701F5 gas turbine technology transfer agreement as well as M701J gas turbine technology transfer framework agreement, denoting that DEC stepped forward to the new direction of seizing the initiative in the upmarket of heavy-duty gas turbine.



## A good progress in the gas turbine R&D

### A speed-up of the transformation and industrialization of scientific research made by Central Research Institute

Our standby power system went through the inspections and tests conducted by China TTL, thus winning the access to the market with a small batch production capacity. We successfully carried out the demonstration operation for the Megawatt-class LTO battery in Inner Mongolia Tongliao wind field. In the aspects of the intelligent manufacturing and special robots, we completed the R&D for the boiler header tube welding robot system and handed this system over to the client. Besides, we also advanced the construction of digital steam blade manufacturing workshop as scheduled. The development of health and intelligence management and demonstration project for thermal power units, based on Shenhua Wanzhou power plant and Yuneng Hengshan power plant, was progressed in a faster pace. Moreover, we certificated the efficiency of the three-level photovoltaic inverter of high power, efficiency and low cost in the national testing center, with its efficiency reaching the qualification of the top runner and becoming the top-ranking in the industry. At the same time, mastering the fifth generation IGBT industrialization technology, DEC achieved sample preparation of the fifth generation IGBT with the sample performance close to the international leading level. With respect to electric drive, prototype development of 100KW ship motor drive controllers was completed, of which full-loaded test will be carried out soon. Apart from that, we completed the optimization design for the DC / DC module, 60KW and 100KW permanent magnet motor controllers for electric vehicle and formed a small batch production capacity.



### Striving to develop 50MW gas turbine

DEC is striving to develop 50MW gas turbine, to test domestic heavy-duty gas turbine with fully independent intellectual property rights. Upon the success of R&D, DEC will crack hard nuts in 21% critical factors, break through the monopoly from international equipment manufacturing giant on the core technology of heavy-duty gas turbine and forge the domestic gas turbine industry stepping onto a new level.



2009 2014 2015 2017 2018

### Fruitful Technical Innovation...



Intellectual property rights (By the end of 2016)

Serve the customers with heart and soul and expect their hearty appraisal and favorable feedback

# COORDINATION

Forge ahead with our customers and pursue the mutual benefits with the investors

### Serve the customers wholeheartedly

In addition to provide the customers with the satisfactory products and services, DEC is also actively engaged in extending the services, such as training the clients. This year witnessed 6 training courses held for Shenhua Group, with a participation of 221 trainees and the courses totaling 96 days. Adhering to the client-centered concept, we did, through the trainings, make the trainees have had the in-depth understanding of the features and technical advantages of our products and potential cooperation scope with us. Shenhua Group gave a high appraisal of the effect of the aforesaid trainings.



### Unanimous praise from the clients

DEC and its project teams, with their superb management and responsible working attitude, won the unanimous praise and received many recognitions from the clients.

2016年，东方电气集团东方电气股份有限公司（以下简称“东方电气”）在社会各界的广泛支持下，紧紧围绕“创新驱动、绿色发展、开放合作、共享共赢”的发展理念，坚持“以客户为中心”的服务理念，不断提升产品质量和服务水平，赢得了广大客户的认可和好评。全年共完成各类项目120余项，合同总额达150亿元。特别是在新能源领域，东方电气凭借先进的技术实力和丰富的项目经验，成功中标多个大型风电、光伏项目，进一步巩固了公司在新能源领域的领先地位。此外，公司还积极参与社会公益事业，履行社会责任，树立了良好的企业形象。

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# Coordination

## Effective communication with the investors to share the benefits

### Timely completion of the business and legal information in responding with news and regulations



In 2016, DEC completed information disclosure for a total of 168 times with all work implemented as planned. DEC was awarded A from Shanghai Stock Exchange for our excellence in information disclosure in 2016 and 2015 respectively.



### Established the complete governance and protect shareholders' and rights of all shareholders.



Under a thorough system of corporate governance, DEC formed a mechanism to build the checks and balances among shareholder general meeting, board of directors, supervisors and management and to make them fulfill their respective responsibilities. In 2016, 8 board meetings were held with 26 board resolutions, 9 online special board committees with 17 resolutions. Besides, we also held 2 general meetings.



### Business return to high investors, providing good investment return as a listed company



For years, we formulated to hold the performance briefings, stress on the communication with the investors after regular reports disclosure, and constantly enrich the forms of investor-rotation management activities. We did our best to



investors in a more precise manner. For recent 10 consecutive years, the cash dividend totals about 2 billion Yuan RMB, proved to be a good return to investors.

# GREEN

Harness cleaner energy to preserve global climate balance  
Speed up innovation to ensure a low carbon community

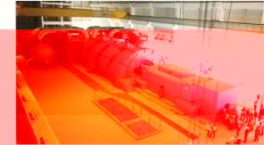
## Improve standard discharge of wastewater and waste gas

### Energy conservation and emission reduction effects of gas turbines

The efficiency of advanced F-class gas – steam combined circulating units that have been put into operation domestically is at about 59.0%. The efficiency of M701J manufactured by Dongfang Electric is above 61.0%. Taking a combined circulating power plant equipped with two gas turbines as an example, assuming annual operating time of 4,000 hours, the annual generation capacity of M701J unit will be increased by 1.36 billion kWh, the best in the world.



### Energy conservation and emission reduction effects of hydropower

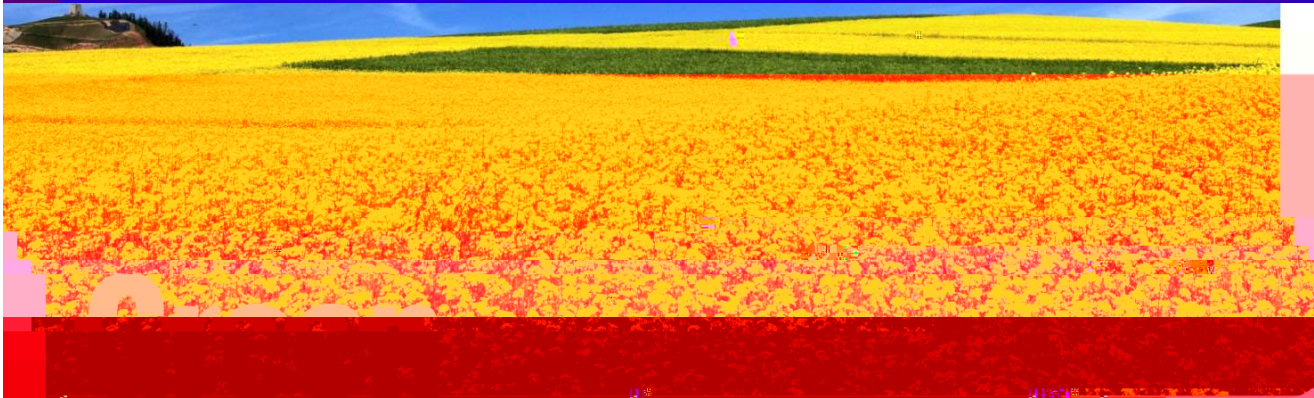


### Energy conservation and emission reduction effects of nuclear power

3 1,000MW nuclear power units developed by Dongfang Electric have been successfully put into operation, which can achieve annual savings of approximately 122.99 million tonnes of coal and reduction of emissions of carbon dioxide, sulfur dioxide and nitrogen oxides by 322.20 million tonnes, 1.05 million tonnes and 920,000 tonnes, respectively.

### Energy conservation and emission reduction effects of wind power

In 2016, Dongfang Electric produced 283 wind turbines with a total capacity of 582.5 MW, which can achieve annual savings of approximately 430,000 tonnes of standard coal, reduction of carbon dioxide emissions by approximately 860,000 tonnes and energy conservation and consumption reduction of approximately RMB820 million.



## Implementation of comprehensive energy conservation

As a power generation enterprise, Dongfang Electric has always been committed to energy conservation and emission reduction. In 2016, unit 2 of Shanxi Guojin Power Co., Ltd. was smoothly put into operation. The project adopts the 100% technology integration of the 1MW tower-type solar-thermal and 350MW supercritical circulating fluidized bed coal-fired units developed and designed by Dongfang Electric. It is the first project adopting tower-type solar-thermal power generation technology and traditional coal-fired power generation technology to achieve combined cycle power generation with "solar power and coal power complementary to each other".



### Transformation of consumption and emission reduction for power plants

In 2019, the complete modification transformation for Datang Toston 600MW unit was completed, upon which the heat rate reached 7,764 kJ/kWh, lower than the design value and 417 kJ/kWh lower than the value before transformation, and the coal consumption decreased by 15g to 305g, lower than the requirements on national action plan for coal power saving and emission reduction upgrade.

Compared with the design value, the heat rate of the unit decreased by 15.2%, and the coal consumption decreased by 15g to 305g. Calculated at 2.62 tonnes of carbon dioxide, 8.5kg of sulfur dioxide and 7.4 kg of nitrogen oxides produced by each tonne of standard coal, a medium-sized 50 MW solar-thermal power plant can reduce emissions of approximately 110,000 tonnes of carbon dioxide, approximately 300 tonnes of sulfur dioxide and approximately 200 tonnes of nitrogen oxides.



### Transformation of emission reduction for environmental protection facilities

Dongfang Electric completed the transformation for 100% of the emission reduction facilities of a CFB boiler as part of a model project. By now, the boiler conversion has already been applied to the environmental protection market. The independently developed and designed

technology can reduce the emission of sulfur dioxide by 100% and the emission of nitrogen oxides by 50%.

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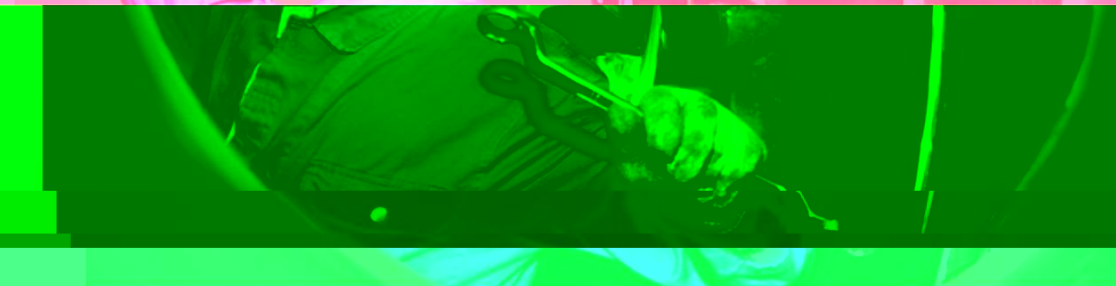
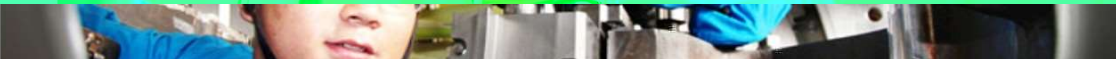
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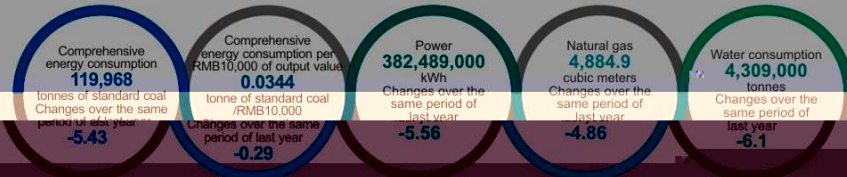


## Use of Resources

### Continuous drop of total energy consumption

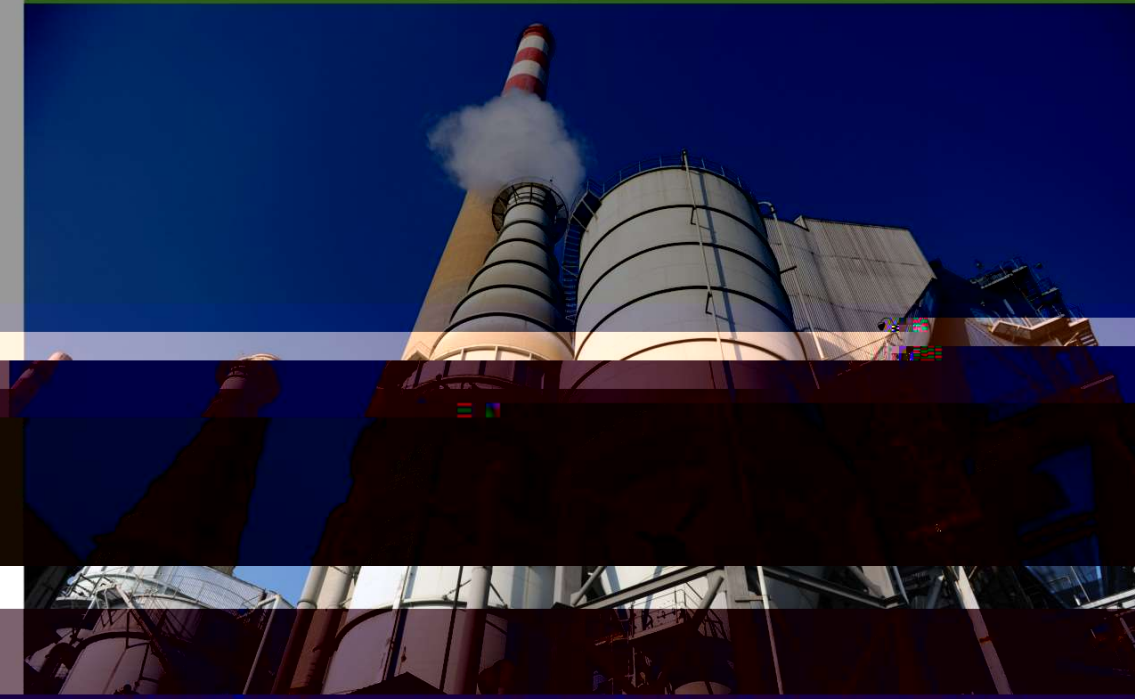
With the stress placed on control of total energy consumption, the relevant management methods of energy management system were applied to identify main energy applications, improve management scheme, and continuously strengthen the management and control of key energy consumers and energy consumption equipment. Intensified management and control were implemented for non-productive energy consumption including lighting, air conditioning and standby equipment, and the measures for rational use of energy were fixed and effectively implemented. In addition, coordinated management has been strengthened to proactively popularize energy-saving technologies and methods from the perspectives of optimization of production organization, process design, equipment operating efficiency, etc.

### Total energy consumption in 2016



### Strengthen the rational use of water

Specify check and labeling for mist valve of air cooler and clear requirements on the use management of air cooler to urge users to strengthen management of air cooler; a circulating water management system was also prepared to intensify circulating water management; leakage detection was conducted by areas for prompt governance of leakage and routine inspections were reinforced to reduce water loss.



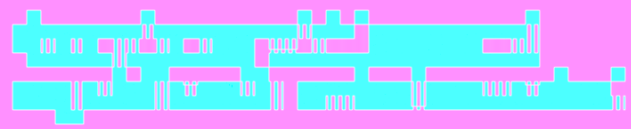
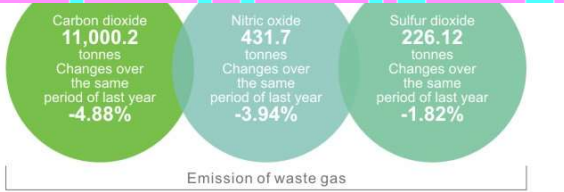


Table 10: The 10 largest fully owned or controlled subsidiaries' CO<sub>2</sub> emissions by the indirect method for the reporting period (tCO<sub>2</sub>e)

Rank	2019	2018
1	1,000	1,000
2	800	800
3	600	600
4	500	500
5	400	400
6	300	300
7	200	200
8	150	150
9	100	100
10	80	80



# OPENNESS

Ride b&r wave to further open up  
Reinforce branding by living up to responsibilities overseas

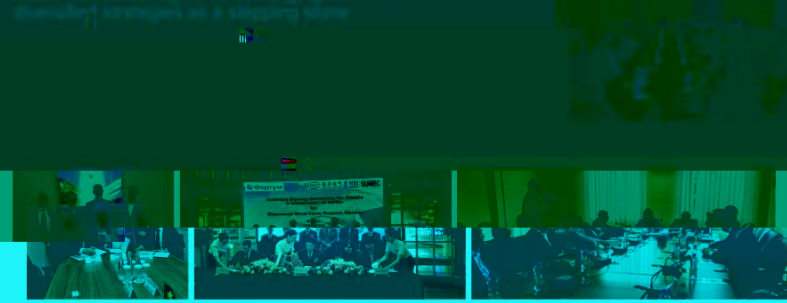
## Boost the structure upgrading and establish the specific marketing strategies for different regions all over the world

### Optimize the market layout and make new achievements in the traditional market

In 2016, DEC made its debut in providing hydro power equipment to Indonesia under an equipment supply contract for 2x56MW Jatigede hydro power plant. In Indonesia, DEC also signed an EPC contract for KALTENG 2x100MW thermal power plant, the equipment supply contracts for turbine of 1x125MW S4 combined cycle unit and the boilers (including auxiliary systems) of Pajala 2x660MW thermal power plant in Bengal.



### Make a breakthrough in the emerging market with the



### Dedicated to the advanced technology research to take the lead in the market competition

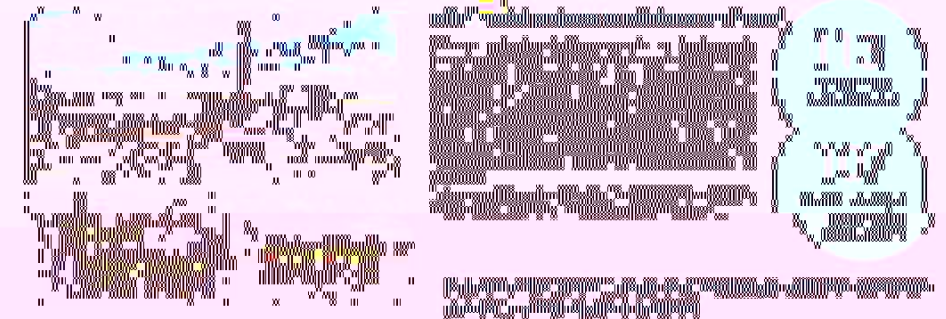
Themed at cleanness and efficiency, DEC developed independent technologies of thermal power, hydro power, wind power with high parameters and efficiency. In order to compete in international markets, DEC chose to strengthen cooperation with international energy technical alliances to drive the studies on cutting-edge subjects and participate in the setting of the industrial standards. For instance, the STANRI thermal power plant in Bosnia and Herzegovina is adopting the world advanced technology of 300MW CFB Boiler burning High Moisture and Low Calorific Value Lignite with independent intellectual property rights. Meanwhile, the Swedish BLAIKEN wind power project phase III&IV, already reaching the preliminary conditions for turning-over to the client, used the mixed blades deicing technology pioneered in China. DEC also supplied the hydro equipment for Brazil Jerry hydro power plant with the world largest bulb type hydro unit.



# openness

## Broaden the business models and widen the cooperation fields

## Enhance the brand value and enlarge the international influence



During the 16th Western China International Fair, 35 journalists from 32 African and South African countries visited DEC and had a deepened understanding of our company, thus contributing to strengthen the exchanges and the cooperation among countries.

### Fulfill our social responsibilities to further enhance our reputations in overseas market

We took a role in the local activities such as road construction, schooling and poverty alleviation, medical assistance, and maintained good public relations with the local government. In Vietnam, in support of the poverty alleviation and schooling for Trà Vinh Province, DEC donated hundreds of millions of Vietnamese dong to help those homeless people to build houses and purchase clothes and other daily items, and to provide basic living assistance to the elderly people living alone.



# Blend into the local and be a responsible corporate citizen

## More local recruiting

DEC takes the initiatives in implementing the local recruiting in the countries and regions where the projects are located. By the end of 2016, the number of foreign employees employed in overseas projects totaled 322, with a year-on-year growth of 32%. Spreading in the countries such as India, Pakistan, Indonesia, Vietnam, Bosnia and Herzegovina, Sweden and other countries, these foreign employees mainly takes the positions related to the technology, management, and administration. All these enable DEC to better execute the projects, blend into the local, provide solution to local employees, thus to activate its accomplishment of the social responsibilities.

Prime Minister Hailemariam Desalegn Awarding GIBE III Plaque to DEC



DEC Supporting Local Education

While implementing the contract, the GIBE III Project Department of DEC also fulfilled its social responsibilities and made prominent contributions to local development.

Local employment: The Project Department insisted to employ local people for positions except partial managements and senior technicians. Up to December 2016, GIBE III Project Department of DEC had 10 Chinese permanent expatriates on site, 25 local employees, 60 Chinese permanent expatriates from installation subcontractor, while 200 local employees hired by installation subcontractor – local employees were over 2 times of Chinese expatriates. The lots of job opportunities have been improving greatly the locals' life quality.

Local Procurement: The Project Department insisted to procure supplies and

services in Ethiopia as long as possible, which contributed to the local economic development. Funds and materials were 100% locally sourced since work equipment and materials for construction locally produced the most amount, which contributed significantly to local economy and social security.

Local Education: GIBE III is located in remote mountainous region in southern Ethiopia. Before the Project, the region had no roads connected to the outside, local people lived a primitive life with underdeveloped thought and local education resources were extremely scarce. The Project Department investigated several local primary schools around the site, learned about their difficulties in education and living and offered help to them for years constantly. On December 21, 2016, the Project Department visited a primary



DEC Supporting Local Education

# SHARING

## TARGETED POVERTY ALLEVIATION

### Targeted Poverty Alleviation

Since the launch of the "targeted poverty alleviation", DEC has been regarding poverty alleviation as top priority among tasks concerning people's livelihood. It earnestly takes practical measures such as sponsoring projects and industry development to help impoverished people cast off poverty as soon as possible.

#### Ji County, Shanxi Province – industry-based poverty reduction

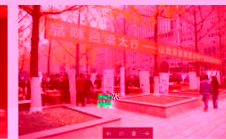
The Company donated RMB500,000 to Ji County, which was stricken by a rarely-seen hail damage, for the development of local apple planting.

It energetically mobilized the subordinate enterprises to procure apples, local specialties and other agricultural and sideline products produced in Ji County as corporate benefits and in staff group purchase. In 2016, the purchase amount of over RMB3.5 million in aggregate was recorded in this regard.

The Company cooperated with 11 designated aiding central units stationed in Shanxi Province to plan out with concerted efforts the "to savor Lu Liang and Tai Hang, to jointly aid the underprivileged through crowd funding" themed joint promotion event of the aiding central units stationed in Shanxi Province.



The online trade fair of agricultural and special local products of Lu Liang



Savoring Lu Liangsu and Tai Hang –introduction of agricultural and special local products from poverty stricken areas in Shanxi



Prices inquiry of Zou Lei, the Chairman



It launched 5 11percent exhibitions in the headquarters and three major subsidiaries to facilitate the entry in

Sharing

## Public benefits for the community

### Zhaojie County, Sichuan Province -- education-oriented poverty alleviation



Donating to the DEC Hope Primary School on an ongoing basis. In 2016, the Company made monetary and material contributions at an aggregated amount of RMB56,700 to the DEC Hope Primary School.

It continued to provide the scholarship of RMB100,000 and educational grants of RMB200,000 for more than 600 impoverished students in Zhaojie County, aiming to help 1,000 students in minority regions to finish school against difficulties.

The Company contributed RMB200,000 for the maintenance and renewal of the dilapidated building and school premises of the Central School of Hagan Town so as to ensure the safety of educational buildings, which benefited more than 700 students in school.

It donated RMB200,000 for the construction of the street lighting projects in Pushi Town, thus addressing the lighting requirements for the night activities of more than 300 households.

### Bangtang County, Sichuan Province -- livelihood-oriented poverty alleviation

### DEC Public Open Day

The Company carried out dissemination activity on intelligent manufacturing knowledge and received approximately 600 Grade Two students and teachers from Chengdu No.7 High School. The opening to the public and school-to-enterprise interactions facilitated the effective



The 2016 DEC Public Open Day -- dissemination activity on intelligent manufacturing knowledge

### Love dedication and warmth delivery

Caring for left-behind children and impoverished students, the Company organized affectionate events such as the "Golden Autumn on 10 October" fund donation and student aids and the "aiding





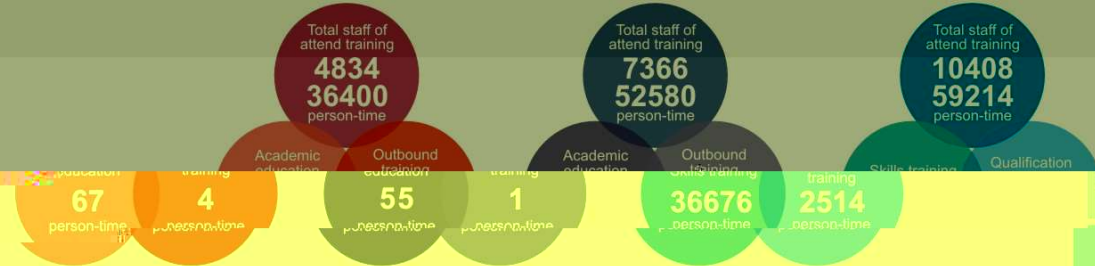
Occupational health and safety



Following the rules on production safety responsibility that both CPC committees and governments are held accountable, and that officials take responsibility for workplace safety in performing their duties, we made efforts to see that those who fail to uphold safety standards are held accountable, we improved and implemented the system of accountability and management level by level.

In 2016, safety input is about RMB84,700,000.

Incentives and trainings



Occupational health We arranged  
 Emergency management We revised



The "Bring safety to enterprises" themed documentary TV program on the game of safety skills, led by the Office of Security Commission under the Sichuan Provincial Government, was produced in DEC.

Rehearsal of responsive rescue for electric shock

Strictly following the laws leads to a harmony and win-win of the employment engagement

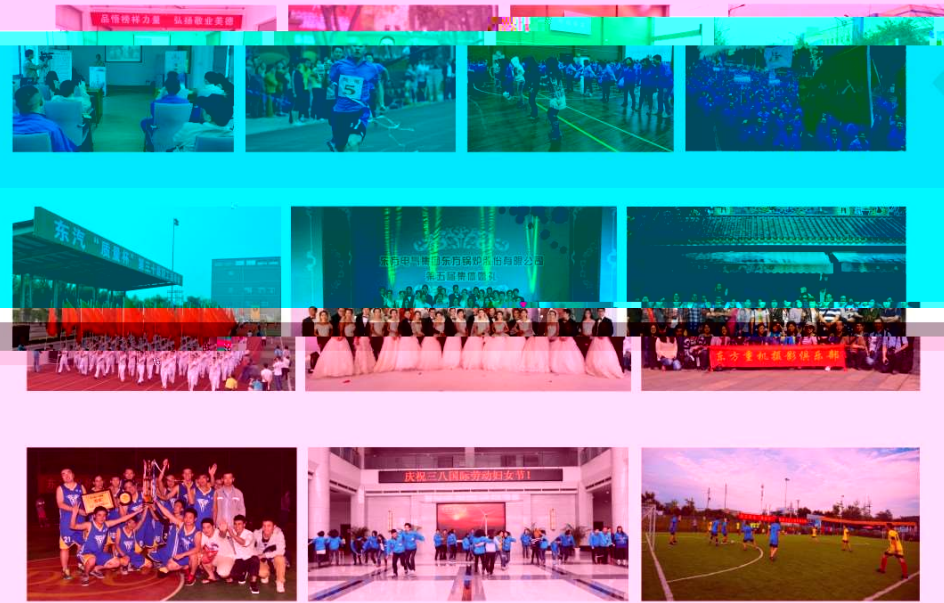
To comply with relevant laws and regulations, we and our employees participated in social insurance, and paid social insurance premiums and housing funds in accordance with the law. In accordance with the laws, we signed the labor contracts or employment agreement with our employees, and revoked the labor contracts for those departing staff, and made economic compensations for those meeting certain stipulations according to the law, thus representing and safeguarding the legitimate rights and interests of laborers so as to ensure that the employees enjoy a harmonious working environment and fulfill labor obligations.



2016 annual meeting for safety production      Fire emergency rescue rehearsal      Safety training for special operators

Create an atmosphere of harmonious culture

Adhering to the core value of "Build for harmony among the society, the company and the staff", we created a good cultural environment for the young staff. We organized a variety of entertainment and sports activities, enriched their leisure lives and aroused their enthusiasm for work and life.



Solicitude and aids for employees in difficulties

Visiting employees in exceptional poverty and with critical illness as well as the bereaved families of employees up to **5000+** persons during the New Year Holiday and the Spring Festival

2000+ persons including occupational disease carriers, employees suffering from work injuries and model workers for the whole year.



## Looking into 2017, a well-drawn blueprint is guiding us #10



2016年，面对复杂严峻的国内外经济形势，公司深入贯彻落实党的十八大、十八届五中全会和中央经济工作会议精神，紧紧围绕“稳增长、调结构、促改革、防风险”的工作主线，坚持稳中求进、改革创新，着力稳增长、调结构、促改革、防风险，各项工作取得积极成效。全年实现营业收入1,012.18亿元，同比增长10.2%；利润总额102.18亿元，同比增长10.2%；归属于上市公司股东的净利润72.18亿元，同比增长10.2%。公司各项业务保持稳健发展，经营质量持续提升，为股东创造了良好的回报。

面对复杂严峻的国内外经济形势，公司深入贯彻落实党的十八大、十八届五中全会和中央经济工作会议精神，紧紧围绕“稳增长、调结构、促改革、防风险”的工作主线，坚持稳中求进、改革创新，着力稳增长、调结构、促改革、防风险，各项工作取得积极成效。全年实现营业收入1,012.18亿元，同比增长10.2%；利润总额102.18亿元，同比增长10.2%；归属于上市公司股东的净利润72.18亿元，同比增长10.2%。公司各项业务保持稳健发展，经营质量持续提升，为股东创造了良好的回报。

be committed to seizing every opportunity to vigorously expand market based on the goal-oriented discipline in order to accomplish the comprehensive plan of 2017 and reform and development tasks in each stage:

stick to and improve the strict governance of the SOEs of the Party to strengthen Party discipline.

Guided by the 12th Five-Year Plan of the CPC, we will continue to adhere to the Party's basic line, and strive to achieve the Party's 18th National Congress and the 18th Central Committee's 5th Plenary Session's