

Content / 目录

Part I	Agenda/会议议程	P5
Part II	Co-hosts and Organizer Overviews / 主办单位介绍.....	P15
Part III	Speaker Biographies / 演讲人介绍.....	P25
Part IV	Presentations / 演讲文稿	
	US EPC experience and case studies.....	P41
	美国合同能源管理项目经验及案例分享	
	Speaker: Clay NESLER , VP of Corporation Sustainability, Johnson Control	
	演讲者: Clay Nesler , 江森自控可持续发展业务全球副总裁	
	China EPC Industry Overview.....	P48
	中国节能服务产业及合同能源管理状况介绍	
	Speaker: Lin ZHU , Deputy Secretary General of EMCA	
	演讲者: 朱霖 , 中国节能协会节能产业委员会秘书长	
	IFC China Energy Efficiency Finance Program (CHUEE) Promotes Energy Performance Contracting	
	IFC CHUEE 中国能效融资项目助推融资合同能源管理	
	Speaker: Dianjun ZHANG , Operation office of IFC Operations Officer of IFC of World Bank Group, Senior Engineer	
	演讲者: 张殿军 , 世界银行集团国际金融公司项目官员,高级工程师	
Part VI	Registered Attendee List / 注册参会人员名单.....	P59

Agenda

会议议程

**U.S.-China Standards and Conformity Assessment Cooperation Program
(SCACP)**

The United States Trade and Development Agency (USTDA)

**U.S. - China Energy Performance Contracting (EPC)
Workshop**

Date/Venue:

Conference Room 103, China Hall of Science and Technology

No.3 Fuxing Road, Beijing, China

July 28, 2015

Co-Hosts:

US China Energy Cooperation Program (ECP)

ESCO Committee of China Energy Conservation Association
(EMCA)

American National Standards Institute (ANSI)

Supporting Agencies:

National Development and Reform Commission (NDRC)

US Trade and Development Agency (USTDA)

US Department of State (USDOS)

US Department of Energy (USDOE)

Agenda

TIME	TOPIC/SPEAKER
08:30 - 09:00	Registration
	Morning Session Host: Mr. Zhu Lin, Deputy Secretary General of EMCA
09:00 - 09:15	Opening Remarks NDRC Senior Official (TBC) Ms. Verinda Fike, China Country Manager, US Trade and Development Agency Ms. Abigail Watrous, Senior Policy Advisor, Energy Efficiency and Renewable Energy Office, US Department of Energy USDOS (TBC)
09:15 - 10:00	Keynote Presentation 1.U.S. Energy Performance Contracting Experience and Case Studies Speaker: Mr. Clay Nesler, Co-chair of ECP/Energy Financing and Investment Working Group (EFIWG) & VP of Corporate Sustainability of Johnson Control
	2. China EPC Industry Overview Speaker: Mr. Zhu Lin, Deputy Secretary General of EMCA
	3.IFC China Energy Efficiency Finance Program (CHUEE) Promotes Energy Performance Contracting Speaker: Mr. Dianjun Zhang, Operations Officer of IFC of World Bank Group, Senior Engineer of IFC
10:00 -11:00	Dialogue on EPC innovation Panel Host: Mr. Clay Nesler, Co-chair of ECP/Energy Financing and Investment Working Group (EFIWG) & VP of Corporate Sustainability of Johnson Control
	Panelists (in random orders): - Mr. Jinghao Jiang, Department of Resource Conservation and Environmental Protection, NDRC - Ms. Abigail Watrous, Senior Policy Advisor, Energy Efficiency and Renewable Energy Office, US Department of Energy - Dr. Sha Yu, Scientist of Pacific Northwest National Lab - Mr. Xiaodong Zhang, General Manager of Broad Energy Service Group - Mr. Jia Hu, General Manager of Guangzhou Clear Way - Project owner (TBC)
11:00 -11:15	Tea Break
11:15-12:15	Dialogue on EPC Project Financing Panel Host: Mr. Kenny Liu, Executive Director of ECP
	Panelists (in random orders): - Mr. Rui Li, Director of Department of 结构性融资处 of Pufa Bank - Mr. Dianjun Zhang, Operations Officer of IFC of World Bank Group, Se

	nior Engineer of IFC • Mr. Jianxuan Hou, General Manager of Environment Department of Zhongguancun Leasing Co. • Mr. Stephen Wu, Partner of Frontier Investment & Development Partners • Mr. Jie Zhou, China Engineering Business Director, the Hartford Steam Boiler Inspection and Insurance Company • Dr. Bo Chen, Co-founder of iGreenBank
12:30 -14:00	Buffet Lunch
	Afternoon Session Host: Mr. Fang Xu, ANSI China Chief Representative
14:00-14:15	EPC Pilot Projects Application Overview Ms. Wangxia Yu, Head of International Cooperation Department of EMCA
14:15 -16:30	ECP projects/showcases meeting (target 4-5 projects) Note: 15 minutes project/showcase intro plus 10 minutes Q&A EPC showcase sharing/project intro 1 and Q&AUS Side EPC showcase sharing/project intro 2 and Q&A China Side EPC showcase sharing/project intro 3 and Q&A China Side Tea Break (15:15-15:30) EPC showcase sharing/project intro 4 and Q&A US Side EPC showcase sharing/project intro 5 and Q&A China Side
16:30-16:45	Closing Remarks China Side (TBC) Mr. Jay Biggs, Commercial Officer, US Embassy Commerce Service of US Department of Commerce

China Hall of Science and Technology (Red “A” marked in map below)

Address: No.3 Fuxing Road, Haidian District, Beijing 100004, China

Tel: 86.10.6851 8822



美国贸易开发署(USTDA)
中国-美国标准与合格评定合作项目(SCACP)

中美合同能源管理研讨会

日期 / 地点:

2015 年 7 月 28 日

中国科技会堂

北京海淀区复兴路 3 号

主办单位:

中美能源合作项目

中国节能协会节能服务产业委员会

美国国家标准协会

指导单位:

中国国家发展和改革委员会

美国贸易发展署

美国国务院

美国能源部

会议日程

时间	主题/发言人
08:30 -09:00	签到
	上午会议主持人：中国节能协会节能服务产业委员会副秘书长朱霖
09:00-09:15	开幕致辞 国家发改委环资领导 美国贸易发展署中国区负责人费慧琳女士 美国能源部能效和可再生能源办公室研究员 Abigail Watrous
09:15 -10:00	主题演讲： 1.美国合同能源管理项目经验及案例分享 演讲人：中美能源合作项目能源与金融投资工作组联合主席 江森自控可持续发展业务全球副总裁 Clay Nesler
	2.中国节能服务产业及合同能源管理现状介绍 演讲人：中国节能协会节能服务产业委员会副秘书长朱霖
	3.IFC CHUEE中国能效融资项目助推融资合同能源管理 演讲人：世界银行集团国际金融公司项目官员,高级工程师 张殿军
10:00 -11:00	专题对话：合同能源管理项目模式创新 主持人： 中美能源合作项目能源与金融投资工作组联席主席、江森自控可持续发展业务全球副总裁 Clay Nesler
	对话嘉宾（排名不分先后）： 国家发展与改革委员会资源节约和环境保护司节能处蒋靖浩 美国能源部能效和可再生能源办公室高级政策研究员 Abigail Watrous 美国西北太平洋实验室科学家余莎 远大能源利用管理有限公司总经理张晓东 广州柯美利节能科技有限公司胡佳 NGO 或项目方单位（待定）
11:00 -11:15	茶歇
11:15-12:15	专题对话：合同能源管理项目融资创新 主持人 中美能源合作项目执行主任刘晓雨
	对话嘉宾（排名不分先后）： 浦发银行总行投行部结构性融资处处长李睿 IFC 金融机构局气候变化融资及咨询业务中国区负责人、银行业专家何懿伦 中关村科技租赁公司大环境事业部总经理侯建轩

	前沿投资基金合伙人吴小兵 美国哈佛蒸汽锅炉检验和保险公司中国区工程总监周杰 绿融（北京）科技有限公司创始人陈波
12:30 -14:00	自助午餐
	下午会议主持人：美国国家标准协会中国首席代表许方
14:00-14:15	中美合同能源管理示范项目申报要求与征集进展介绍 中国节能协会节能服务产业委员会国际交流与合作部副部长禹网霞
14:15 -16:30	合同能源管理项目案例分享： （每个案例介绍 15 分钟+问答 10 分钟） 合同能源管理项目介绍与经验分享 1&问答美方 合同能源管理项目介绍与经验分享 2&问答中方 合同能源管理项目介绍与经验分享 3&问答中方 茶歇（15:15-15:30） 合同能源管理项目介绍与经验分享 4&问答美方 合同能源管理项目介绍与经验分享 5&问答中方
16:30-16:45	闭幕致辞 国家发展与改革委员会资源节约和环境保护司节能处蒋靖浩 美国驻华使馆商务处商务官员毕子介

中国科技会堂 (红点处为会议酒店位置)

地址: 北京市海淀区复兴路3号

电话: (010) 6851 8822



Co-Hosts and Organizers Overview

主办单位介绍



U.S.-China Standards and Conformance Cooperation Program

Sponsored by the U.S. Trade Development Agency (USTDA) and coordinated by the American National Standards Institute (ANSI), the **U.S.-China Standards and Conformance Cooperation Program (SCCP)** provides a forum through which U.S. and Chinese industry and government representatives can:

- Cooperate on issues relating to standards, conformity assessment, and technical regulations;
- Foster the relationships necessary to facilitate U.S.-China technical exchange on standards, conformity assessment, and technical regulations; and
- Exchange up-to-date information on the latest issues and developments relating to standards, conformity assessment, and technical regulations.

Beginning in 2013, ANSI will coordinate 20 workshops over a 3-year period in China under the SCCP. The workshops will cover a wide range of sectors, as proposed by interested U.S. private-sector organizations. Workshop topics will be chosen in coordination with relevant industry associations, ANSI, and USTDA.

To learn more about the U.S.-China SCCP or to express interest in sponsoring or participating in a workshop, please visit our website at:

www.standardsportal.org/us-chinasccp

FOR MORE INFORMATION

Ms. Madeleine McDougall
Program Manager
American National Standards
Institute (ANSI)
1899 L St. NW – Eleventh Floor
Washington, DC 20036

T: 202.331.3624

F: 202.293.9287

E: us-chinasccp@ansi.org



美中标准与合格评定合作项目

由美国贸易发展署 (USTDA) 提供资助、美国国家标准协会 (ANSI) 负责协调的美中标准与合格评定合作项目 (SCCP) 在以下几个方面为美国和中国相关行业和政府代表提供了一个论坛：

- 在标准、合格评定以及技术法规等领域的合作；
- 为促进美中在标准、合格评定以及技术法规等领域的技术交流建立必要的联系；
- 及时交流关于标准、合格评定以及技术法规等领域的最新议题和发展情况的相关信息

根据 SCCP 项目规定，从 2013 年开始的三年内，ANSI 将在中国协调举办20场研讨会。根据美国私营业界相关组织的建议，研讨会内容将覆盖不同的行业和领域。研讨会的主题将由相关行业组织、ANSI 以及 USTDA 协调选定。

欲了解该项目的更多情况或有意赞助或参与该项目，请访问下列网站：

www.standardsportal.org/us-chinasccp

了解其他信息，请联系

Ms. Madeleine McDougall

项目经理

美国国家标准协会 (ANSI)

1899 L St. NW – Eleventh Floor

Washington, DC 20036

T: 202.331.3624

F: 202.293.9287

E: us-chinasccp@ansi.org



The US-China Energy Cooperation Program (ECP)

The US-China Energy Cooperation Program (ECP) is the commercial implementing arm of US-China clean energy collaboration. Founded in September 2009 by 24 US companies, ECP is the only private sector-led nongovernmental organization dedicated to clean energy business development, market expansion, foreign direct investment and job creation in both the United States and China. With official support of the US and Chinese governments, ECP's public-private platform empowers member companies to become part of a total solution industry consortium to deliver transformative business development outcomes that require a collective and coordinated effort. Members join ECP through working groups (WGs) to form industry value chains. Within each working group, members establish a sector development road map for the short-, medium- and long-term. Through this process, each working group identifies annual business development objectives and concrete initiatives for implementation.

In the course of five years, ECP's working group platform has increased its membership to over 40 companies, including Chinese firms, and partnered with numerous organizations to achieve the following outcomes:

- Establish new industries and markets.
- Influence regulatory policy.
- Serve as the industry voice in bilateral government dialogue.
- Facilitate commercial deals.

Mission: Transform the US and China's 'traditional energy' way of life by generating sustained clean energy business and economic growth.

ECP, the commercial implementing arm of US-China clean energy collaboration, facilitates and supports clean energy

- Job Creation
- Intellectual Property Rights Protection
- Market Access & Sector Development
- Foreign Direct Investment



中美能源合作项目（ECP）

ECP 的使命：中美能源合作项目（ECP）肩负着中美两国间清洁能源领域广泛合作的商业执行使命。作为由企业出资运营并管理的机构，ECP 于 2009 年 9 月由多家美国企业发起成立，致力于在中美两国推动清洁能源领域相关的产业开发、市场开拓、境外投资等商业工作。

ECP 不可比拟的独特优势来源于中、美两国政府在国家元首、中央和联邦政府部委以及地方政府等各个级别的正式承认以及大力支持。

美国商务部、能源部和美国贸易发展署与中国国家能源局、商务部、以及签署了双边五部门为 ECP 提供正式支持的合作谅解备忘录，这五个部门作为 ECP 日常工作政府支持部门的工作框架。

2009 年，美国总统巴拉克·奥巴马对中国进行的首次国事访问期间，在与中国国家主席胡锦涛发布的联合声明中，强调了 ECP 在中、美两国清洁能源合作中扮演的重要角色。

接下来在 2011 年胡主席对美国进行的国事回访中，18 家 ECP 的成员公司同中方的企业合作伙伴签订了商业合约。在 2012 年中国国家副主席习近平对美国进行的正式访问中，8 家 ECP 成员公司同中方合作伙伴签订了商业合约。

通过两国政府对 ECP 的正式承认和支持，ECP 作为一个政府和企业间的伙伴关系平台，为成员公司及其商业伙伴提供动力，通过全方位解决方案产业联盟的组建和运行，推动必须经由集体性的和协调性的努力才能实现的商业发展成果的落实。成员公司通过参与有关工作组来组成不同的产业价值链。在每个工作组之下，各成员公司共同为工作组的相关产业设立短期、中期以及长期的产业开发路线图。在这一工作的过程中，每个工作组就每年的相关工作，确立年度商业发展目标，并辅以切实的工作计划，推动实施。

ECP 目前有十个行业工作组：

清洁煤炭 (CC)

清洁交通和燃料 (CTF)

分布式能源冷热电三联供 (DECHP)

节能建筑与设计 (EEBD)

能源金融与投资 (EFI)

工业能源效率 (IEE)

核能 (NP)

可再生能源 (RE)

页岩气 (SHG)

智能电网 (SG)

经过五年多的工作，ECP 已经发展成为了 40 家世界性企业的共同平台。通过同各种各样的合作伙伴关系，致力于在以下诸多工作上有所建树：

- 推进新的行业以及市场的形成
- 寻找并明确新商机
- 协助相关行业政策以及法规的制定
- 推动中美间的外国直接投资发展



American National Standards Institute (ANSI)

As the voice of the U.S. standards and conformity assessment system, the American National Standards Institute (ANSI) empowers its members and constituents to strengthen the U.S. marketplace position in the global economy while helping to assure the safety and health of consumers and the protection of the environment.

The Institute oversees the creation, promulgation and use of thousands of norms and guidelines that directly impact businesses in nearly every sector: from acoustical devices to construction equipment, from dairy and livestock production to energy distribution, and many more. ANSI is also actively engaged in accrediting programs that assess conformance to standards – including globally-recognized cross-sector programs such as the ISO 9000 (quality) and ISO 14000 (environmental) management systems.

ANSI has served in its capacity as administrator and coordinator of the United States private sector voluntary standardization system for more than 90 years. Founded in 1918 by five engineering societies and three government agencies, the Institute remains a private, nonprofit membership organization supported by a diverse constituency of private and public sector organizations.

Throughout its history, ANSI has maintained as its primary goal the enhancement of global competitiveness of U.S. business and the American quality of life by promoting and facilitating voluntary consensus standards and conformity assessment systems and promoting their integrity. The Institute represents the interests of its nearly 1,000 companies, organization, government agency, institutional and international members through its office in New York City, and its headquarters in Washington, D.C.



美国国家标准协会（ANSI）

American National Standards Institute（ANSI——美国国家标准协会）是由公司、政府和其他成员组成的自愿组织，负责协商与标准有关的活动，审议美国国家标准，并努力提高美国在国际标准化组织中的地位。ANSI 是 IEC 和 ISO 的 5 个常任理事成员之一，也是 4 个理事局成员之一，参加 79% 的 ISO/TC 的活动，参加 89% 的 IEC/TC 活动。ANSI 是泛美技术标准委员会（COPANT）和太平洋地区标准会议（PASC）的成员。

美国国家标准学会（American National Standards Institute: ANSI）成立于 1918 年。当时，美国的许多企业和专业技术团体，已开始了标准化工作，但因彼此间没有协调，存在不少矛盾和问题。为了进一步提高效率，数百个科技学会、协会组织和团体，均认为有必要成立一个专门的标准化机构，并制订统一的通用标准。1918 年，美国材料试验协会（ASTM）、与美国机械工程师协会（ASME）、美国矿业与冶金工程师协会（ASMME）、美国土木工程师协会（ASCE）、美国电气工程师协会（AIEE）等组织，共同成立了美国工程标准委员会（AESC）。美国政府的三个部（商务部、陆军部、海军部）也参与了该委员会的筹备工作。1928 年，美国工程标准委员会改组为美国标准学会（ASA）。为致力于国际标准化事业和消费品方面的标准化，1966 年 8 月，又改组为美利坚合众国标准学会（USASI）。1969 年 10 月 6 日改成现名：美国国家标准学会（ANSI）。

美国国家标准学会是非赢利性质的民间标准化组织，是美国国家标准化活动的中心，许多美国标准化学协会的标准制修订都同它进行联合，ANSI 批准标准成为美国国家标准，但它本身不制定标准，标准是由相应的标准化团体和技术团体及行业协会和自愿将标准送交给 ANSI 批准的组织来制定，同时 ANSI 起到了联邦政府和民间的标准系统之间的协调作用，指导全国标准化活动，ANSI 遵循自愿性、公开性、透明性、协商一致性的原则，采用 3 种方式制定、审批 ANSI 标准。

ANSI 现有工业学、协会等团体会员约 200 个，公司（企业）会员约 1400 个。领导机构是由主席、副主席及 50 名高级业务代表组成的董事会，行使领导权。董事会闭会期间，由执行委员会行使职权，执行委员会下设标准评审委员会，由 15 人组成。总部设在纽约，卫星办公室设在华盛顿。



ESCO Committee of China Energy Conservation Association (EMCA)

The ESCO Committee of China Energy Conservation Association (EMCA) is a national industry association for Chinese energy service companies (ESCOs). With the support of China National Development and Reform Committee (NDRC) and Ministry of Finance (MOF), the World Bank (WB) and the Global Environment Facility (GEF), EMCA was officially registered in the Ministry of Civil Affairs in 2003.

As a non-profit organization, EMCA is dedicated to be a bridge between the government and private entities, a window for international cooperation, to fully promote the Energy Performance Contracting (EPC) mechanism, support the growth of ESCOs and to facilitate the sustainable development of the ESCO industry. By the end of 2014, EMCA has more than 1000 member companies.

中国节能协会节能服务产业委员会（EMCA）是在国家发改委、财政部、世界银行和全球环境基金支持下成立的全国节能服务公司（ESCO）的行业组织，于 2003 年在民政部注册成立。

EMCA 致力于搭建节能服务企业和政府之间的桥梁，建立全国节能服务行业公共服务平台，成为国内外交流合作的窗口，全力推广合同能源管理机制，通过扶持专业化节能服务公司成长，促进节能服务产业持续发展。截至 2014 年年底，EMCA 的会员单位超过 1000 家。

Speaker Biographies

演讲人介绍

Verinda FIKE

Country Manager, East Asia Region

Verinda Fike currently serves as a Country Manager in the East Asia Region for the U.S. Trade and Development Agency (USTDA). In this capacity, Ms. Fike is responsible for business development, project preparation and evaluation, and supervision of USTDA activities in the region. She also leads the agency's Electricity Transmission and Distribution Sector Team.



Ms. Fike has travelled and worked in over 40 countries and has managed projects in Asia, Africa, the Middle East, and Europe. Prior to joining USTDA, Ms. Fike consulted U.S. private sector and USAID overseas missions on creating effective public-private partnerships in developing and emerging economies. She also spent three years in China managing patient relations and marketing for several women's health clinics.

Ms. Fike holds a Master of Science in Foreign Service and a Master of Public Policy from Georgetown University, as well as a B.A. from the University of Colorado in International Affairs and Mandarin Chinese.

Clay NESLER

Vice President, Corporate Sustainability|
Johnson Controls

Clay Nesler is the Vice President, Corporate Sustainability for Johnson Controls. In this role, he leads the company's global environmental sustainability council and is responsible for environment and sustainability practices across the company's global manufacturing operations. Since joining Johnson Controls in 1983, Clay has held a variety of leadership positions in research, product development, innovation, marketing and strategy in both the United States and Europe.



Nesler serves on the board of American Council for an Energy Efficient Economy and is a sustainable buildings track advisor to the Clinton Global Initiative. Clay currently serves on the Industrial Advisory Board of the US-China Clean Energy Research Center and is co-chair of the Energy Financing and Investment Working Group in the US-China Energy Cooperation Program. He also helped establish the UN Sustainable Energy for All Building Efficiency Accelerator and created the Johnson Controls Institute for Building Efficiency which has recently been integrated within the World Resources Institute Ross Center for Sustainable Cities.

Nesler received BS and MS degrees in Mechanical Engineering from the University of Illinois at Urbana-Champaign and is a co-inventor on twelve patents. He is a winner of the 2005 Corenet Global Innovator's Award, the 2012 VERGE 25 award and received a 2015 Distinguished

Alumnus Award from the University of Illinois at Urbana-Champaign Department of Mechanical Science and Engineering.

Clay NESLER

江森自控可持续发展业务全球副总裁

Clay Nesler, 现任江森自控可持续发展业务全球副总裁, 领导公司的全球环境可持续发展委员会, 并负责公司全球制造业务的环境可持续发展实践。自 1983 年加入江森自控以来, 曾在美国和欧洲的多个部门任领导职务, 其中包括研究、产品开发、创新、市场营销及策略。

Nesler 是美国能效经济理事会的成员, 在克林顿全球倡议中担任可持续发展建筑顾问, 目前还是中美清洁能源研究中心下属工业咨询委员会的一员, 同时担任中美能源合作项目能源金融与投资工作组联合主席一职。**Clay** 帮助设立了联合国人人享有可持续能源计划中的建筑效率加速器, 并成立江森自控建筑效率研究所。该所于近日被并入世界资源研究所罗斯中心的可持续发展城市。

Nesler 毕业于伊利诺伊大学厄巴纳-香槟分校, 获机械工程学士及研究生学位, 发明 12 项专利; 曾获 2005 年 Corenet 全球创新奖, 2012 年 VERGE 25 奖项, 于 2015 年荣获伊利诺伊大学厄巴纳-香槟分校机械工程系所颁发的杰出校友奖。

Lin ZHU

Deputy Secretary General of EMCA

From Aug. 1999 to Jul. 2003, worked for the office of “World Bank/GEF China energy conservation project”, attended the promotion and popularization of “energy performance contracting”, managed specified account of GEF grant for the three pilot ESCOs in China, familiar with the management, procurement, payment proceeds of World Bank project and operation proceed of energy conservation company;



From Jul. 2003 to Apr.2004, worked for the EMCo Development and Service Group, attended the works of “energy performance contracting” popularization and the foundation of EMCA;

From April 2004 to Now, worked for the ESCO Committee of China Energy Conservation Association (EMCA), former Department Chief of Training dept., now as the vice Secretary-General, Department Chief of Financing Service Department, responsible for the setup and implement the “Financing Service platform for China ESCO Industry”, key member of the expert team to research the national level financing support policy for the ESCO industry. Know the present status and obstacles for the financing of ESCO. Familiar with the diversified possible financing channels and modes for ESCO and EE projects. Take part in the design the special financing product of many famous commercial banks and some other financial institutions.

The government enlisted her opinion for the formation of some energy conservation policies, such as: “The views of implementing the Energy Performance Contracting to enhance the energy conservation service industry development”, “The Interim Administration Regulation on Financial Incentives of Energy Performance Contracting.

朱 霖

中国节能协会节能服务产业委员会副秘书长

1999 年 8 月~2003 年 7 月，“世界银行/全球环境基金（GEF） 中国节能促进项目”办公室，参与合同能源管理概念的引入和推广，负责示范节能服务公司 GEF 赠款专用账户管理工作，熟悉世界银行项目管理、采购、支付程序及节能服务公司的运作流程。

2003 年 7 月~2004 年 4 月，EMCo 开发服务小组，参与合同能源管理概念推广及协会筹备成立工作；

2004 年 4 月~至今，中国节能协会节能服务产业委员会（EMCA），历任培训部部长，现任融资服务部部长，副秘书长。负责 EMCA 打造的合同能源管理培训体系各类型培训教材的编写与开发，并担任部分内容的授课讲师；完成（或参与完成）数份节能服务产业发展战略及公司运作专题研究报告的编写。为政府制定《关于加快推行合同能源管理促进节能服务产业发展的意见》、《合同能源管理财政奖励资金管理暂行办法》等文件的出台以及财政奖励项目的评审提供专家支持；参与《合同能源管理》一书的编写工作，并担任编写组组长。

合同能源管理融资和财税政策方面的专家，参与国家级节能服务产业金融支持政策研究，全面负责“中国节能服务产业投融资服务平台”的搭建和运作，了解节能服务产业融资现状和障碍、熟悉节能减排项目各种可行融投资模式和渠道，参与多家金融投资机构节能减排相关专业金融产品设计及对接。

Dianjun ZHANG

Operations Officer of IFC of World Bank Group, Senior Engineer

Mr. Zhang is Operations Officer of International Finance Corporation, and running China Sustainable Energy Finance Program, and a famous expert with 25 years experiences in energy efficiency field. He has delivered advisory services to Industrial Bank, Shanghai Pudong Development Bank, Bank of Beijing, Bank of Jiangsu, and XacBank, etc., over 10 commercial banks for energy efficiency finance and green lending. He had worked in Beijing District Heating Group for 7 years from 1990, then he had 10 years energy business development and project implementation in Poyry Energy Ltd of Finland, and then joined British IT Power Group as the Chief Representative for China business operations. He, as an individual Consultant, had provided consulting services to World Bank Group, Asian Development Bank, and UNIDO and PE Funds for their energy efficiency programs. He has working experience over 10 countries.



张殿军

世界银行集团国际金融公司项目官员,高级工程师

张殿军先生是国际金融公司中国节能减排融资项目官员,他在节能减排领域拥有 25 年的工作经验,是节能业内知名技术专家,先后为兴业银行、浦发银行、北京银行、江苏银行、蒙古国哈萨银行等十多家中外商业银行提供能效融资与绿色信贷咨询服务。张先生曾在北京热力集团工作 7 年,此后,在芬兰贝利能源工程咨询公司工作 10 年。曾任英国可再生能源有限公司中国区首席代表。张先生曾作为独立咨询师,先后为为世界银行集团、亚洲开发银行、联合国工业发展组织等机构提供技术咨询服务,他具有在多个国家的工作经验。

Sha YU

Senior Research Scientist, Pacific Northwest National Laboratory

Sha Yu is a senior research scientist at the Pacific Northwest National Laboratory. Her research focuses on developing and implementing energy efficiency and clean energy policies in developing countries such as China, Russia, India, and Vietnam. She worked with Chinese cities to improve energy efficiency as well as energy planning in industry and buildings sectors. She has also worked on the integrated assessment modeling in industrial, building, and transportation sectors and is leading the development of the 31-province model embedded in the Global Change Assessment Model (GCAM-China); the modeling tool helps countries to analyze the impact of economic, demographic, and social development on energy supply and demand in the near and long terms. Sha Yu is also developing black carbon emissions inventory and mitigation measures in the Russian Arctic. Prior to joining PNNL, she worked on the environmental and social programs for the Beijing Olympic Games; she also worked on education and water projects in India focusing on social equity and development. Sha has over 40 peer-reviewed publications.



余莎

高级研究科学家, 美国能源部太平洋西北国家实验室

余莎是美国能源部太平洋西北国家实验室的高级研究科学家。她的主要研究领域在制定和实施能效和清洁能源政策, 城市低碳可持续发展对策, 以及应用综合评估模型对未来能源和温室气体排放进行预测和情景分析, 对区域和部门能源需求、温室气体排放控制对策、以及环境对策进行评价。独立完成或合作完成研究报告学术论文 40 多篇。目前, 她主导全球变化综合评估模型中国模型的开发。

Xiaodong ZHANG

General Manager — BROAD ENERGY SERVICE CO. LTD

Vice President — BROAD GROUP

Xiaodong Zhang, Party member, the vice president of Broad Group as well



as the founder of Broad Energy Service Co., Ltd with the Bachelor of Economics and the Master of Business Administration.

Mr. Zhang joined Broad Group in 1997 and he has been committed to the promotion of non-electric central air-conditioning industry and energy conservation & emission reduction. He has gained rich experiences and cultivated a large number of talents in different fields. As the promoter of the Chinese Distributed Energy Alliance, he also holds several social posts as vice director of the Energy-saving Service Committee of the Chinese Energy-saving Association and the lecturer of the central government purchasing center. Mr. Zhang had engaged in strategic marketing management for a large-scale enterprise and been the general manager in a gas company for over ten years.

Mr. Zhang is specialized in the fields of building energy-saving, air quality, distributed energy system, energy service, etc., and he is also experienced in enterprise strategy, operating management and market promotion.

Mr. Zhang will spare no effort to participate in various energy-saving social activities for environmental protection.

Individual Achievement

1. Participated in the research & development of BROAD non-electric chiller.
2. Founded BROAD ENERGY SERVICE CO. LTD with specific business model for Energy Performance Contracting (EPC).
3. Participated in the research & development of Distributed Energy System (DES). Broad Energy Service Co. Ltd owns the national patents for Combined Cooling Heating and Power (CCHP) system which has been listed in the National Independent Innovation Industry Catalogue.
4. Top 10 "Business Pioneer" entrepreneur of Zhongguancun.
5. Person of the year 2011 in China Energy Conservation Service Industry.
6. 2014 Annual China Energy Conservation Service Industry outstanding entrepreneurs,
7. CPPCC member of Haidian District in Beijing.
8. CPAFFC Vice President of Haidian District in Beijing.
9. Business mentor at University of International Business and Economics.
10. Specialist of China Energy Saving Site(CES).
11. Frequently participated in activities such as US-China Energy Efficiency Forum, The Global Cleantech Summit, meeting of the China-US Strategic and Economic Dialogue etc., in addition, giving out speeches on behalf of China energy conservation service enterprises during these meetings.

Project Achievement

1. Operating & managing EPC projects covering over 50 million square meters (Top 1 in China).
2. As the general manager, succeeded in guarantee the safe & smooth running of the distributed energy system for 256 pavilions in 2010 Shanghai Expo.
3. Changsha Huanghua International Airport project.
4. Moonbay project.
5. Huishan new town project.
6. Aerospace base project.
7. Guomen CBD project.
8. Global partner of 2014 Qingdao World Horticultural Expo.
9. Energy provider of 2014 Nanjing Youth Olympic Games.
10. Yanan new town project.

Honors of Broad Energy Service

1. National High-tech Enterprise.
2. Zhongguancun One-ten-hundred Billion Revenue Cultivate Enterprise.
3. Zhongguancun National Independent Innovation Demonstration Zone Core Area Creative Key Enterprise.
4. The First National Registered Energy Service Company.
5. Compilation Unit of the First EPC National Standard GB, T24915- 2010 《General Principles of Energy Performance Contracting Technology》.
6. China Strategic Partner of the World Alliance of Distributed Energy (WADE).
7. Brand enterprise in China Energy Service Industry.
8. The EPC pioneer in Chinese central air-conditioning industry.

张晓东

远大科技集团副总裁，远大能源利用管理有限公司总经理

公司创始人。远大能源利用管理有限公司，低碳城市能源运营服务商，提供冷热电联产运营服务、区域冷热电联产 PPP，通过合同能源管理机制推动项目设计节能、运行节能，是中国供冷面积最大的能源服务公司（服务面积超过 5000 万 m²），拥有包括分布式能源在内多项专利的国家高新技术企业、中关村高新技术企业，是中国节能服务第一品牌。

远大节能服务从一幢建筑到一个城市，曾高质量地保障上海世博会，开创了苏州中新工业区、延安新区、南京青奥会、长沙黄花机场、青岛世园会、北京园博会等具有重大国际影响的城市节能减排项目。

被评为中关村十大“创业先锋”企业家，获选 2011 年度中国节能年度人物、2014 年度中国节能服务产业优秀企业家、中国节能网节能专家，北京海淀区政协委员、海淀对外友协副会长，对外经贸大学创业导师。多次参与中美能效论坛、全球清洁技术峰会、中美战略对话会议等活动并代表中国节能服务企业演讲。

以创新而正直的性格不遗余力地参与推动各项利于环保的节能减排社会活动。

Jia HU

Athens Olympics ten-metre platform Gold Medalist, Renmin University of China Business major, Zhongshan University PE investment minor.

Currently the chairman of Clearway, engaged in energy conservation and new energy industry for 6 years, containing rich experiences in operating and innovative ideas, well versed in EPC's many different operational models and financial, business, banking operations and management. He has abundant customer resources with good organizational and management skills. Under him, Clearway created a comprehensive energy service, energy information and energy financing chain. He is dedicated to the green energy industry's development and innovation, allowing users to benefit the most.



胡佳

雅典奥运会十米台跳水冠军，中国人民大学工商管理专业，辅修中山大学 PE 投资。

现任广州柯美利节能科技有限公司董事长，从事节能减排、新能源行业 6 年，具有丰富的行业操作经验和创新理念，精通合同能源管理多种商业模式的运用，熟知金融业务、融资公司、银行的业务流程及管理要求，拥有丰富的客户资源，具有极强的组织和管理能力。在其带领下，柯美利建立了综合能源服务、能源信息化管理和能源金融服务三位一体的服务链条。致力于绿色能源行业的发展与创新，使用户得到最大的能源红利。

Kenny LIU

Kenny Liu has over 10 years experience in climate change and cleantech investment area.



As the Executive Director of US-China Energy Cooperation Program (ECP), Kenny heads the team to facilitate the establishment of an active and healthy ecosystem in clean energy and sustainability on this well-known cross-border platform. Prior to ECP, Kenny works as a cleantech expert in Asia Pacific Pilot Climate Technology Finance Center of Asian Development Bank in Manila. He works together with various stakeholders of cleantech industry to facilitate private sector investment especially venture capital investment into climate technologies in developing countries in Asia. Before joining ADB, Kenny worked as Associate Director of Edmond de Rothschild Private Equity Fund China and Venture Partner of Fuel Capital. He was in charge of investment activities in cleantech areas. He has participated in over 20 deals execution process. As an expert of cleantech industry, Kenny has contributed over 150 deal pipelines to the fund and participated in the RMB fund-raising process in 2011 with Rothschild family. Prior to Rothschild, Kenny served as Chief Representative and China Country Manager of Cleantech Group, a world leading cleantech industry intelligence network and consulting company with the headquarter in US. From 2008 to 2010, he has accumulated massive experience and network in cleantech innovation and investment market in both US and China. He also successfully organized China Cleantech Forum in 2009 and 2010. He participated and contributed a lot to the consulting projects with Wal-Mart in North America and Sino-Singapore Eco-city in Tianjin China. Before joining Cleantech Group, he had participated in many climate change related projects including carbon footprint calculation project with UNDP in New York, Africa Agriculture Insurance project with World Bank and IRI (International Research Institute of Climate and Society) and African Dust Impact project with NOAA. In 2011, he has led his fund and one of its portfolio companies win the rewards of “China Best Cleantech Partner Fund 2011” and “China Best Renewable Energy Enterprise 2011”.

Mr. Liu holds a Master degree of Climate and Society from Columbia University and Double Bachelor degrees in Atmospheric Physics and Economy from Peking University.

刘晓雨

北京大学大气物理与经济学双学士，美国哥伦比亚大学气候与社会学硕士，美国迈阿密大学气象学硕士，美国气象学会会员，美国纽约科学院会员。有近十五年的气候变化与清洁技术领域投资的相关经验。

现任中美能源合作项目主任，带领团队在整个著名的中美可持续发展与绿色产业交流的平台促进整个中国清洁能源产业生态的发展。在加入中美能源合作项目之前，他就任亚洲开发银行清洁技术国际专家顾问，参与亚太气候技术金融示范中心项目，通过与政府、金融机构和清洁技术企业的合作，设计创新型政策工具和金融工具来促进针对气候变化相关技术领域的投资，尤其是风险投资。他还曾任中国斐然资本投资合伙人，法国爱德蒙罗斯柴尔德中国基金联席董事，负责绿色科技方向投资，参与了超过 20 个项目。他还曾任美国清洁技术产业投资集团中国区首席代表，对美国和中国清洁技术行业有深入的了解和丰富的人脉资源。曾经为沃尔玛公司北美绿色产业链和天津中新生态城项目提供过战略咨询服务，成功组织过 2009 和 2010 年中国清洁技术产业投资论坛。在美国学习和工作期间，曾经参与过联合国计划开发署（UNDP）纽约总部碳足迹计量项目，世界银行和美国国际气候与社会研究中心（International Research Institute of Climate and Society）的非洲农业气候险项目和美国国家航天航空局（NOAA）非洲沙尘研究项目。2011 年任职基金和主投项目曾获“中国年度最佳清洁技术产业合作伙伴基金”和“中国年度最佳新能源企业”称号。

Rui Li

Doctor in Economics from East China Normal University , Senior economist, CPV.



Dr. Li got enrolled into Shanghai Pudong Development Bank in June 1998 with a breath of experiences in Project finance and credit management. At present she holds the position of section chief in Structure Finance of Investment Banking Department of Shanghai Pudong Development Bank, and also services as vice - office administrator in the Green Finance Division of China Banking Association. She is currently in charge of Green Credit, Carbon Finance, Environment Finance, and Green PE in Shanghai Pudong Development Bank. In the lead of her, the company actively carries out integrated financial innovation services, vigorously develops green finance, and adheres to the low-carbon-bank development strategy. Their goal is to provide high-quality, all-round comprehensive green finance services and establish a leading green bank in China.

李睿

华东师范大学经济学博士，高级经济师、中国注册资产评估师

1998 年 6 月进入上海浦东发展银行总行工作，拥有 17 年丰富的商业银行项目融资、信贷管理等经验。现任上海浦东发展银行总行投资银行部结构性融资处主管，同时担任中国银行业协会绿色信贷专业委员会办公室副主任，目前负责浦发银行绿色信贷、碳金融、环保金融、绿色 PE 等绿色金融业务，在其带领下，浦发银行作为低碳银行的践行者，始终坚持绿色金融发展战略，积极探索绿色金融模式创新，致力成为业内绿色金融业务的领跑者，打造中国绿色金融市场全流程、全方位的绿色金融服务商。

Helen HE

Financial Institutions Group Sustainability and Climate Business
Program Manager/Banking Specialist



Helen joined the IFC China Energy Efficiency Finance Program (CHUEE) team as a Banking Specialist in 2012 and is now in charge of IFC's Sustainability and Climate Business in China, leading the China team to render green finance and carbon trade related advisory services to the government, financial institutions and enterprises. Helen has extensive experience in business development, project management and product innovation. In addition, she has also made significant contributions to IFC's sustainable energy financing and green building projects in China and Mongolia. Before joining the IFC, Helen had 14 years of commercial banking experience in commercial lending, retail branch management, and client relationship management. She's worked in regional management roles for Citigroup, Bank of America and East West Bank in San Francisco for many years.

何懿伦

IFC 金融机构局气候变化融资及咨询业务中国区负责人/银行业专家

何懿伦女士于 2012 年作为银行业专家加入 IFC 中国节能减排融资项目 CHUEE 团队，现任金融机构局气候变化融资及咨询业务中国区负责人，带领中国团队为政府、金融机构及企业提供绿色融资和碳交易相关咨询服务，具有丰富的业务拓展和项目管理经验，对于服务产品创新深的心得。此外，她也深入参与到 IFC 中国和蒙古国的可持续能源金融和绿色建筑等项目。加入 IFC 之前，何懿伦女士在美国银行业有着 14 年的从业经验，涉及领域包括商业信贷、零售分行管理、客户关系管理等，曾在美国花旗银行、美洲银行及华美银行担任管理职位多年。

Jianxuan HOU

Chief Director of Energy Conservation and Environment Protection
Business Division of ZhongguancunSci-Tech Lease Company.,Ltd.



With rich experience in financial industry, Hou is specially an expert in the application of financial lease. Hou devoted himself to the financial planning of the Energy Conservation and Environment Protection industry since 2013 and has provided hundreds of companies with customized financial schemes, risk control measures and financial support over RMB 3 billion.

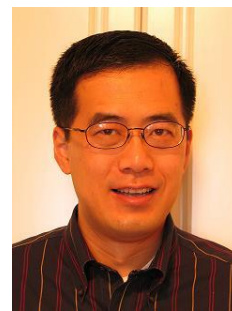
侯建轩

中关村科技租赁有限公司--大环境（节能环保）事业部总经理

具有多年的金融行业从业经历，专长于融资租赁工具运用，于 2013 年从事节能环保行业融资筹划，为数百家节能环保企业提供量身订做的融资方案、风险控制措施及三十余亿元的资金支持！

Stephen Xiaobing WU

MBA – International Finance with 20 years of experience in US, China, Singapore and Thailand with responsibilities for North America, South America, Asia Pacific and Southeast Asia. Proven leadership in managing leasing, captive financing, start-up business initiatives and project development in emerging markets for 3 Fortune 500 companies (Caterpillar, Ingersoll-Rand, GE) and 2 private concerns. Hands-on experience in managing banking relationship and various corporate finance functions, as well as setting up captive financing support in emerging markets. Proficient in cash management functions, financial merchandizing and financial analysis for operational benchmarking and capital expenditures.



1986 – 1990

University of International Business and Economics
Beijing, China

1995 – 1997

University of Illinois at Urbana-Champaign
Champaign, IL, USA
MBA - International Finance

吴小兵

先后在 3 家世界 500 强企业（卡特比勒、英格索兰、通用电气）和 2 家私营企业厂商融资及业务拓展领域供职，拥有开拓新兴市场并领导建立融资租赁平台的成功经验；在构建融资租赁促销模式、企业资金运作及系统管理、分销商财务支持和信用风险管理方面有 20 年的工作经验；曾于美国、中国、新加坡和泰国工作，负责北美、南美、亚太区、东南亚的业务；工商管理硕士，主修国际金融。

1986 年 – 1990 年

北京对外经济贸易大学

1995 年 – 1997 年

美国伊利诺伊州立大学香槟本部校区 工商管理硕士 – 主修国际金融

Jie ZHOU

Head of Loss Control Services, China, HSB

Joining HSB in October 2013, Mr. Zhou carries extensive working experiences from over 15-years of loss prevention/commercial property insurance works in a number of countries. Through years of site loss prevention engineering and management works in the previous company (FM Global) since 1997, Mr. Zhou carries rich experience including loss

prevention/risk management works for a broad range of industries including high hazard occupancies such as semiconductor, pulp & paper, power plants and molten metal; loss prevention consultancy works for mega projects, as well as thorough understanding on NFPA, FM Global and Chinese fire protection/construction standards. Mr. Zhou also has experience in the areas of petrochemical plants during his career.

Mr. Zhou's experience prior to joining HSB also included years of Commercial Property Insurance underwriting/operations works in the United Kingdom and China, as well as managerial experiences in China.

Mr. Zhou is based in Shanghai, China.

周杰

哈特福德锅炉保险及检测公司 (HSB) 中国工程总监

周杰于 2013 年 10 月加入 HSB。周杰先生具备在工程防损和企业财产保险领域超过 20 年的，在多个国家直接从事防损工程咨询及财产保险核保的广泛工作经验。

在加入 HSB 公司以前，周杰于 1997 年加入国际著名专业财产保险公司 FM Global。在 FM Global 中国区担任工程师和管理工作期间，积累了全面的，涵盖多个高风险领域的企业财产防损和风险管理的工作经验，包括半导体，纸浆及造纸，电厂，及冶炼行业。他同时参与和领导了许多大型工业建设项目的防损咨询服务工作，对国际通行消防/建筑规范，如 NFPA 和 FM 具备深入了解和运用经验。

同时，周先生还具备对大型企业财产保险保险管理和核保的直接工作经验。

Fang Xu

Chief Representative

American National Standards Institute China Office

Xu Fang has been working with American National Standards Institute (ANSI) as the Chief Representative of ANSI China Office since 2012. In this position, he has primary responsibility for overall liaison of ANSI's activities with Chinese government agencies, standard development organizations and various industry groups.



Prior to working with ANSI, Mr. Xu served for American Forest & Paper (AF&PA) China Office as the main contact point for US government, industry and Chinese government for all of aspect of AF&PA China Program. As the representative of US forest industry, he worked with Chinese Ministry of Housing and Urban Rural Development (MoHURD) and State Administration of Forestry on developing and revising a serial of codes and standards pertaining to design, construction and inspection of wood constructions. He has made numerous presentations among Chinese developers, design professionals, importers and

consumers and introduced applications of US wood products. Prior to joining in AF&PA, Mr. Xu worked with an engineering firm as the Chief Structural Engineer for more than 13 years.

Mr. Xu holds his Bachelor of Engineering degree from Tongji University.

许方先生自 2012 年起担任美国国家标准协会(ANSI)中国代表处的首席代表，负责 ANSI 在中国的相关工作和业务。在此之前，许先生于 1999 年起担任美国林业及纸业协会中国代表处首席代表，负责美国林产品的贸易政策以及市场推广。在此期间，许先生作为美国林产工业的代表，参与制订了中国数本关于木结构建筑设计、施工、验收以及产品的标准和法规的编写工作，为中国木结构建筑标准的应用和发展起了积极的作用。许先生毕业于同济大学结构工程专业，在加入美国林业及纸业协会之前，曾从事十多年的建筑工程设计与咨询业务，撰写过多篇学术论文。

Jay Biggs

Mr. Jay Biggs is a Commercial Officer in the U.S. Foreign Commercial Service office in Beijing, China. As a Commercial Officer, Mr. Biggs provides guidance for U.S. companies interested in exporting their products or services to the booming Chinese market



Prior to joining the Commercial Service, Mr. Biggs served as a Trade Analyst in the U.S. Department of Commerce's Office of Health and Consumer Goods, where he analyzed regulatory policies for importing medical devices into various Asian countries and advised U.S. firms on market access issues. Mr. Biggs served as U.S. Co-chair of the U.S. – China JCCT Medical Device Task Force, and led several policy related delegations to China and South Korea.

Mr. Biggs served as a Trade Analyst in the Department of Commerce's Office of the Chinese Economic Area and the Office of Japan. In these positions, Mr. Biggs analyzed regulatory policies and advised U.S. firms on market access issues in various sectors, including: energy, housing and environmental products, trade finance and healthcare sectors.

In 2008 – 2009, Mr. Biggs was a Mansfield Fellow in Tokyo, Japan. During this period, Mr. Biggs spent 6 months in Japan's Ministry of Economy Trade and Industry (METI) studying Japan's industrial promotion strategies, and spent month in a Diet (Japanese legislature) member's office. He also spent 4 months in Japan's Ministry of Health Labour and Welfare studying Japan's healthcare regulatory system, and spent one month in the Japanese Cabinet Office.

Mr. Biggs has Masters Degrees from The American University in Washington D.C. and from Ritsumeikan University in Kyoto Japan.

毕子介先生，任职美国驻大使馆商务官员，为有意向蓬勃发展的出口产品或服务的美国企业提供指引。

在就任商务处前，毕子介先生是美国商务部卫生和消费品办公室的贸易分析师，分析向亚洲各国出口医疗器械的监管政策，并在市场准入问题上向美国企业提供咨询。毕先生还联合出任美中商业贸易联合委员会医疗器械特别任务主席，并曾率多个政策相关的代表团到访中国和韩国。

毕子介先生还曾担任美国商务部中国经济区和日本办事处的贸易分析师。任职期间，毕先生对监管政策进行了分析，并为美国企业在能源、住房、环保清洁产品、贸易金融和医疗保健行业等领域的市场准入问题提供咨询。

2008 年–2009 年，毕子介先生获美国曼斯菲尔德基金支持留驻东京。在此期间，毕先生在日本经济产业省（METI）对日本的产业振兴战略进行了为期 6 个月的研究，并在国会（日本立法机关）成员办公室工作了一个月。他还在日本厚生劳动省对日本的医疗监管系统进行了为期四个月的研究，在日本内阁办公室也工作了一个月。

毕子介先生拥有华盛顿特区美国大学和日本京都立命馆大学的硕士学位。

Presentations

演讲文稿

U.S. Energy Performance Contracting Experience and Case Studies



Clay Nesler
VP, Corporate Sustainability
Johnson Controls
Milwaukee, WI USA
clay.g.nesler@jci.com
28 July 2015



EPC Pilot Project Criteria

- Integrated approach that will retrofit at least three systems and reduce energy consumption by at least:
 - Industrial Facility / Plant: 30% on average across the affected systems
 - Commercial / Public Building: 25% of the entire building's energy use
- Utilizes public-private financing models, innovative contracting structures and rigorous measurement & verification (M&V) methods.

U.S. Energy Performance Contracting Experience and Case Studies 美国合同能源管理经验与案例分析



Clay Nesler
VP, Corporate Sustainability
Johnson Controls
Milwaukee, WI USA
clay.g.nesler@jci.com
28 July 2015



EPC Pilot Project Criteria EPC示范项目标准

- 通过综合解决方案，整改至少3个系统并降低能耗；
 - 工业设施/工厂：被改造的系统能耗平均降低30%
 - 商业/公共楼宇：整体建筑能耗降低25%
- 运用公私融资模式，创新承包结构以及严格的测量与检验方法

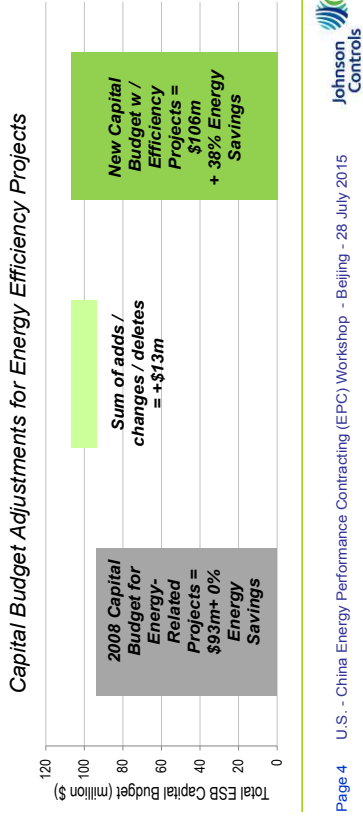
Expand Scope - Empire State Building

“The goal with ESB has been to define intelligent choices which will either save money, spend the same money more efficiently, or spend additional sums for which there is reasonable payback through savings. Addressing these investments correctly will create a competitive advantage for ownership through lower costs and better work environment for tenants. Succeeding in these efforts will make a replicable model real for others to follow.”

- Anthony E. Malkin

Demonstrating the Business Case

With a \$500 million capital improvement program underway, ownership decided to re-evaluate certain projects with cost-effective energy efficiency and sustainability opportunities in mind.



Expand Scope - Empire State Building

扩大范围 – 帝国大厦

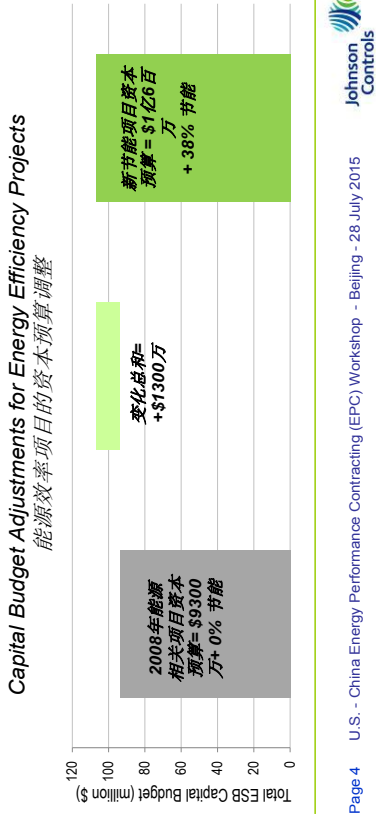
“帝国大厦的目标是做出明智的选择，要么节省成本，要么更有效的花同样的钱，要么花同样的钱但通过节能合理的回本。如果能处理好这些投资问题，就能为业主创造竞争优势，以更低成本为租户打造更舒适的环境。这些努力的成功，使我们成为可供他人学习和复制的模范项目。”

- Anthony E. Malkin

Demonstrating the Business Case

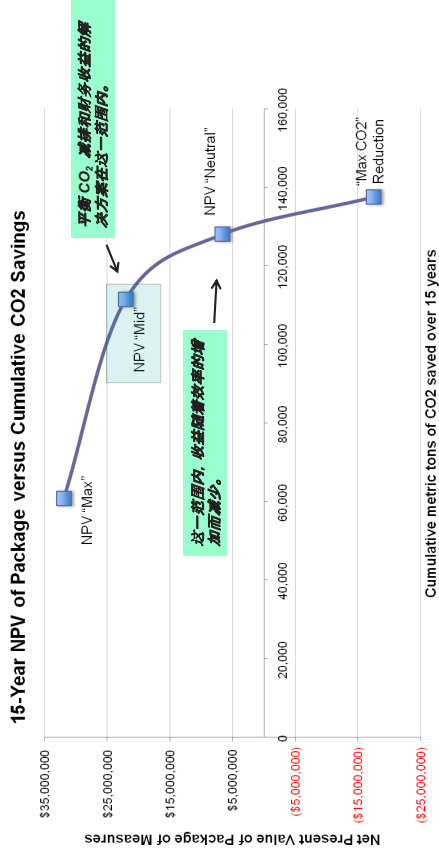
商业案例演示

在一个5亿投资的改进计划中，业主决定重新评估某些项目，计划以低成本提高效率，增加可持续发展的机会。



Balancing Financial & Carbon Impacts

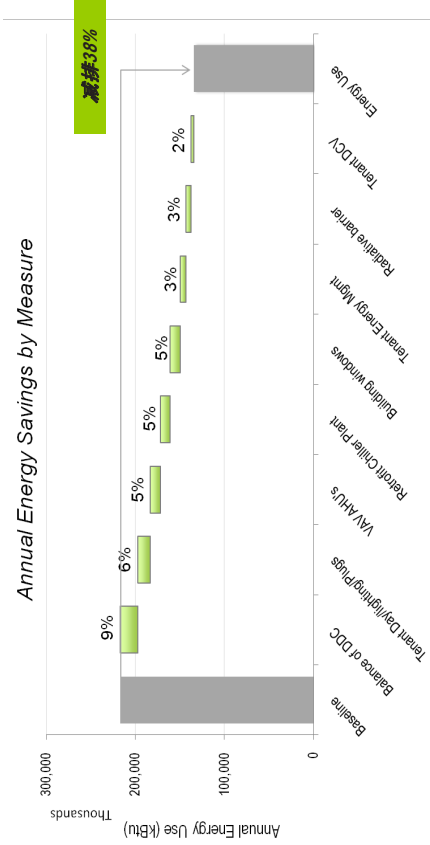
平衡财务与碳污染



Page 5 U.S. - China Energy Performance Contracting (EPC) Workshop - Beijing - 28 July 2015 Johnson Controls

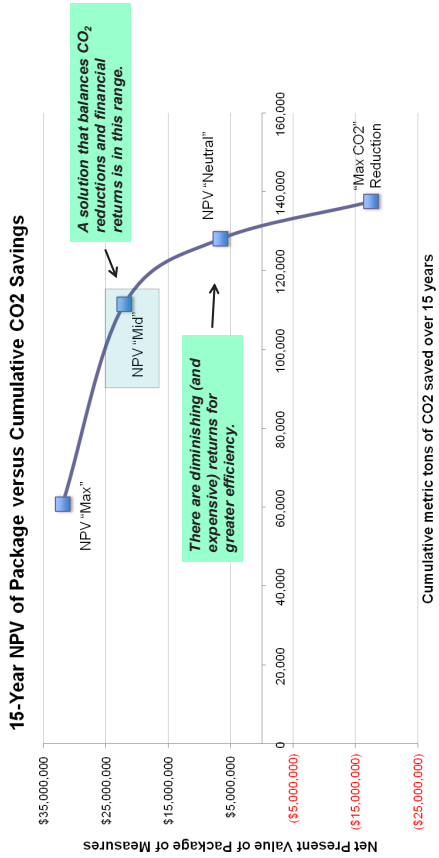
Eight Measures Result in 38% Reduction

减排38%的八个监测结果



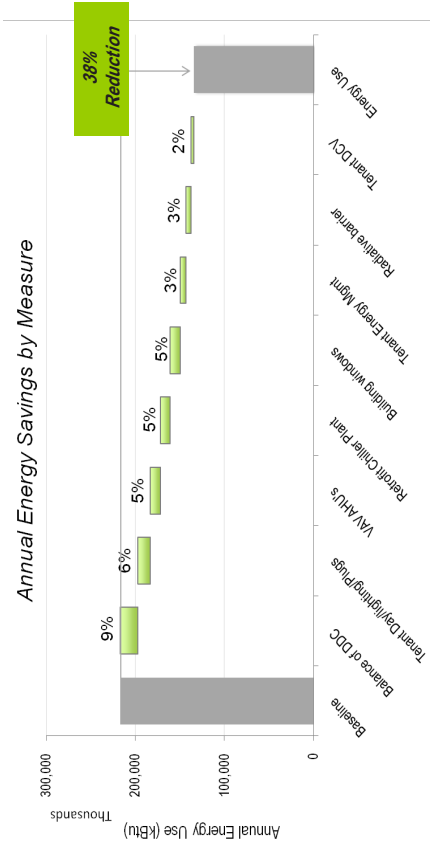
Page 6 U.S. - China Energy Performance Contracting (EPC) Workshop - Beijing - 28 July 2015 Johnson Controls

Balancing Financial & Carbon Impacts



Page 5 U.S. - China Energy Performance Contracting (EPC) Workshop - Beijing - 28 July 2015 Johnson Controls

Eight Measures Result in 38% Reduction



Page 6 U.S. - China Energy Performance Contracting (EPC) Workshop - Beijing - 28 July 2015 Johnson Controls



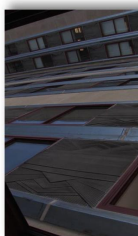
Radiative Barriers



Tenant Day-lighting/Plug-Load:



Chiller Plant Retrofitted



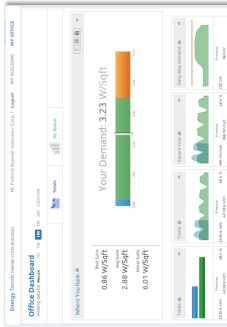
Window Remanufacturing



VAV Air-Handling Units Demand-Controlled Ventilation



DDC Controls/Wireless Sensing



Tenant Energy Management

Project Results

\$4.4 million
annual energy cost savings

Top 25%
of commercial buildings in efficiency

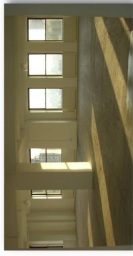
38%
energy reduced annually

3.1 years
payback incremental cost

105,000
metric tons carbon emissions saved
over next 15 years



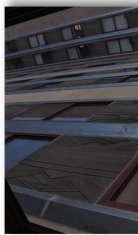
辐射屏障



租户日光照明/插头负载



制冷设备改造



窗户再制造

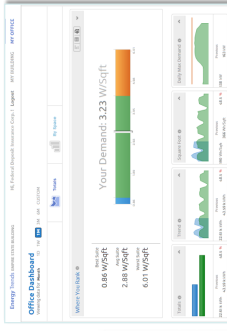


VAV 空气处理机组

需求控制的通风设备



DDC 控制/ 无线传感



租户能源管理

Project Results 项目结果

每年能源消耗节省
\$440万

所有商业楼宇中效率排名
前25%

每年节能
38%

成本回收期
3.1年

未来15年减少碳排放
105,000公吨



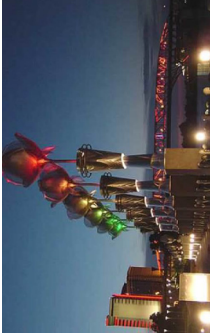
Increase Scale – State of Hawaii Airports

- 12 Airports
- Lighting, HVAC, Controls, Water (75,000 lighting fixtures)
- Renewable energy (9,100 solar panels/2.6 MW)
- 20 year Energy Savings Performance Contract
- 400 local jobs, while adding more than \$670 million in economic development
- 43,000 metric tons of CO2 saved annually
- \$518M savings over 20 years



Keeping Score – City of Shreveport, LA

- 20-year Energy Performance Contract for 33 Municipal Buildings
 - Shreveport's submission to US EPA for the 8-Hour Ozone Standard under the National Ambient Air Quality (NAAQ) Standards
- Scope of Improvements
 - Lighting Systems
 - Mechanical Systems
 - Control Systems
 - Water Conservation
- Measurement & Verification
 - Retrofit Isolation (pre-retrofit/post-retrofit/ annual sampled inspections)
 - Whole Building (utility bill/ meter-based analysis)
 - Monthly Tracking, Quarterly Reporting, Annual Reconciliation



Increase Scale – State of Hawaii Airports

扩大规模 – 夏威夷机场

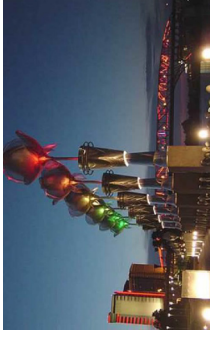
- 12个机场
- 照明, 暖通空调, 自控, 节水 (75,000个照明器材)
- 可再生能源 (9100个光伏板/2.6兆瓦)
- 20年能源合同管理
- 增加400个就业岗位, 6亿7千万经济增量
- 每年减少43,000公吨CO2排放
- 20年间节省\$5.18亿



Keeping Score – City of Shreveport, LA

保持标准 – 科罗拉多州什里夫波特市

- 与33座市政大楼签署20年合同能源管理
 - 什里夫波特市服从美国环境保护局国家空气质量 (NAAQ) 标准下的8小时臭氧标准
- 改进范围
 - 照明系统
 - 机械系统
 - 自控系统
 - 节水系统
- 测量与检验
 - 改造隔离 (改造前/改造后/抽样年检)
 - 建筑物整体 (物业账单/仪表分析)
 - 每月追踪, 季度报告, 年度调整



ESCO models impact Scope, Scale & Financing

United States

Guaranteed Energy Savings
Third-party Financed
Longer Terms (10 – 25 years)
On-going Savings Verification
Bundled Efficiency Measures
EE, RE and DG in a single project
Standard Contracts with Financing

China

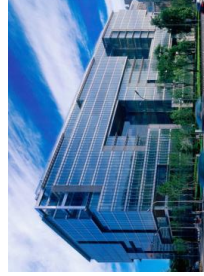
Shared Energy Savings
ESCO Financed
Shorter Terms (2-5 years)
One-time Verification
Single Technology Measures
EE, RE and DG in different projects
Standard Contracts, No Financing

Page 11 U.S. - China Energy Performance Contracting (EPC) Workshop - Beijing - 28 July 2015



Beijing Chemsunny World Trade Center

- Office owned by China Sino-Chemical Corp
 - Occupancy area 200,000 m²
- Guaranteed Energy Savings Model
 - Contracted period of 1 year
 - Customers pay 85% of project fee after project completion and the remaining 15% when the actual savings are verified by an independent third party
- Facilities Improvement Measures
 - Retrofit chiller with VSD, VSD on water pump and cooling tower fan
 - Retrofit AHU (VSD and backward curve fans), fresh air AHU retrofit, heat recovery for fresh air unit, Chilled and hot water reset, air balancing, VAV units
 - BAS system upgrade, energy management system
 - LED lighting



Page 12 U.S. - China Energy Performance Contracting (EPC) Workshop - Beijing - 28 July 2015



ESCO models impact Scope, Scale & Financing ESCO模式的影响范围, 规模, 及融资

美国

节能担保
第三方提供资金
长期 (10-25年)
持续的节能检验
附赠能效测量
EE, RE 和 DG 在同一项目中
标准合同以及融资

中国

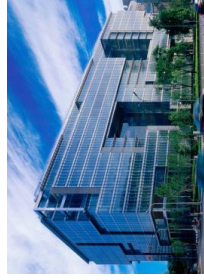
节能共享
ESCO提供资金
周期更短 (2-5年)
一次性检验
单一技术测量
EE, RE 和 DG 在不同项目中
标准合同, 无融资

Page 11 U.S. - China Energy Performance Contracting (EPC) Workshop - Beijing - 28 July 2015



Beijing Chemsunny World Trade Center 北京凯晨世贸中心

- 业主为中国化工总公司
 - 占地面积 200,000 平方米
- 节能担保模式
 - 合同期限一年
 - 客户在项目完成后支付85%的项目费用, 在独立的第三方检验实际节能后支付剩下15%的费用。
- 设施改进措施
 - 运用VSD技术改造冷却装置, 将VSD运用在抽水泵、冷却塔风机
 - 改造AHU (VSD以及反向曲线风扇), 新风AHU, 热回收新风处理机组, 冷热水重置, 风量平衡, 以及VAV机组
 - BAS系统升级, 能源管理系统
 - LED 照明



Page 12 U.S. - China Energy Performance Contracting (EPC) Workshop - Beijing - 28 July 2015



Summary

- Significant opportunity for EPC to make a bigger impact in both the U.S. and China
 - Expand Scope
 - Increase Scale
 - Keep Score
- Under-served market segments exist in both countries
 - U.S. Private Sector Commercial & Industrial
 - China Public Sector
- Innovative contracting models combining elements of China and U.S. approaches show promise

Summary 总结

- EPC在中美都将产生更大影响
 - 扩大范围
 - 扩大规模
 - 保持标准
- 两国市场供不应求
 - 美国私营商业及工业市场
 - 中国国营市场
- 创新承包模式与包含中美元素的方法相结合前景可观

The Development and the Future Perspective of China Energy Conservation Service Industry 中国节能服务产业的发展 and 前景

Zhu Lin

朱霖

Vice Secretary-General, Chief of Financing Dept.

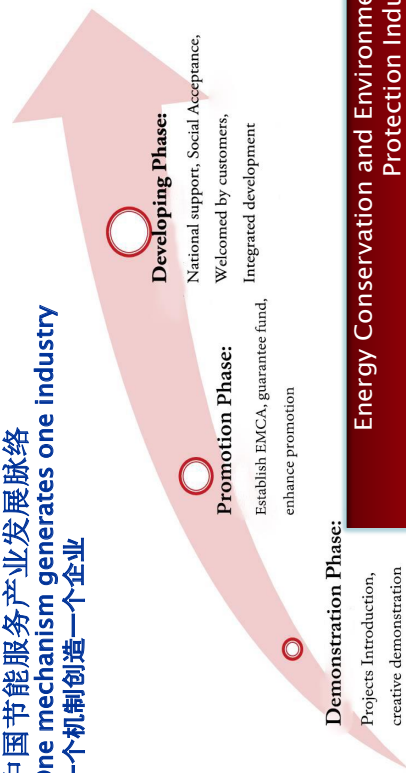
副秘书长，融资部部长

EMCA Committee of China Energy Conservation Association (EMCA)

中国节能协会节能服务产业委员会

The Development of China ESCO Industry

中国节能服务产业发展脉络
One mechanism generates one industry
一个机制创造一个企业



Energy Conservation and Environmental Protection Industry

节能环保产业
—the priority of strategic emerging industries
—the new pillar industry

节能环保产业
优先战略产业
新支柱产业

01 Origin of ESCO Industry in China
中国节能服务产业起源

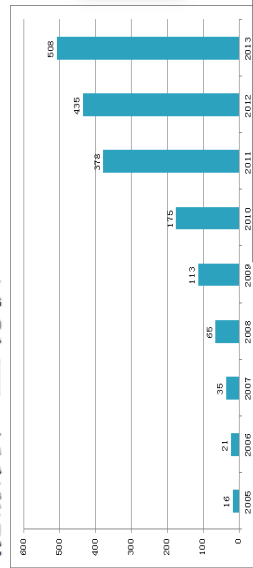
02 Current Status of ESCO industry
节能服务产业现状

03 National ESCO public service platform
中国节能服务产业公共服务平台

04 Future trend of China ESCO industry
中国节能服务产业的未来

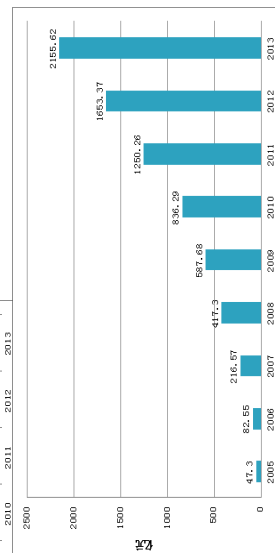
CONTENTS 目录

The current status of ESCO Industry 节能服务产业现状



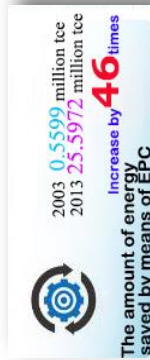
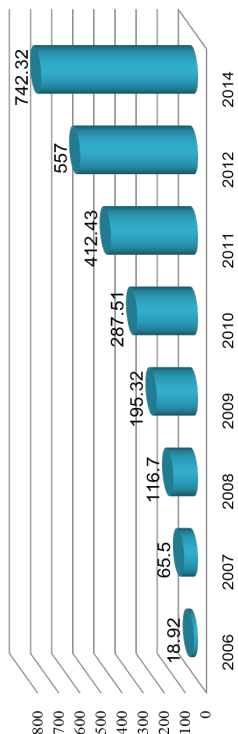
2003 1.767 billion yuan
2013 215.562 billion yuan
Gross Output in
Energy Saving Industry
Increase by 122 times

2005 16 thousand
2013 508 thousand
Employees of
energy service industry
Increase by 32 times



The current status of ESCO Industry 节能服务产业现状

EMCA



Ten-Year Numbers 十年数据

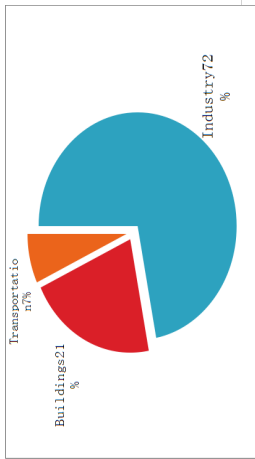
EMCA



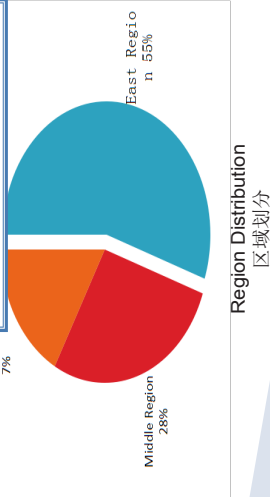
The Characteristics of ESCO Industry 节能服务产业特点

EMCA

- Industrial Sector remains to be the initiative to stimulate the development
- The industries and their locations are widely distributed
- Technology strengths makes ESCOs grow more rapidly
- More branded energy conservation service enterprises rapidly
- 更多有品牌的节能服务公司



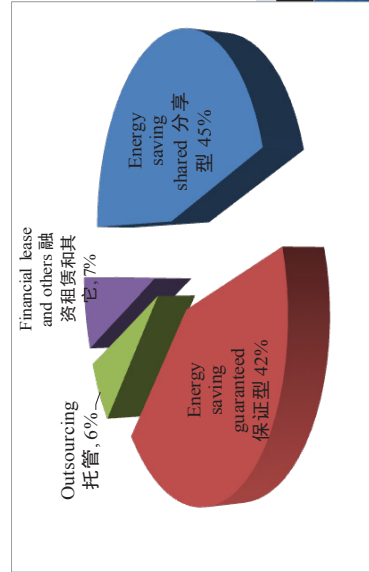
Industry distribution
领域划分



Region Distribution
区域划分

The Characteristics of ESCO Industry 节能服务产业特点

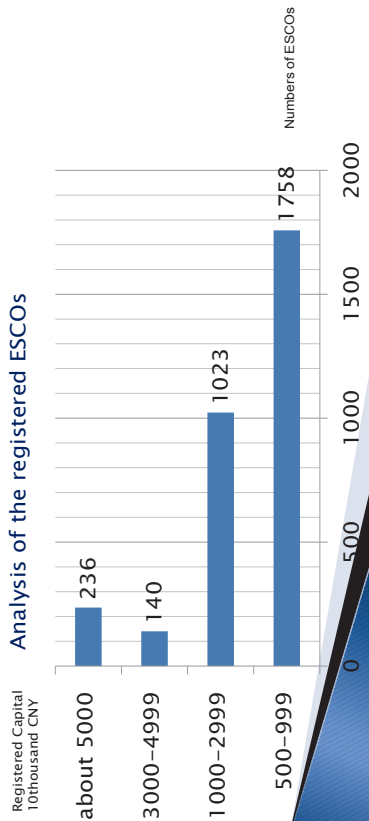
- Rapid Growth of EPC with Different Models
- 多模式的快速增长



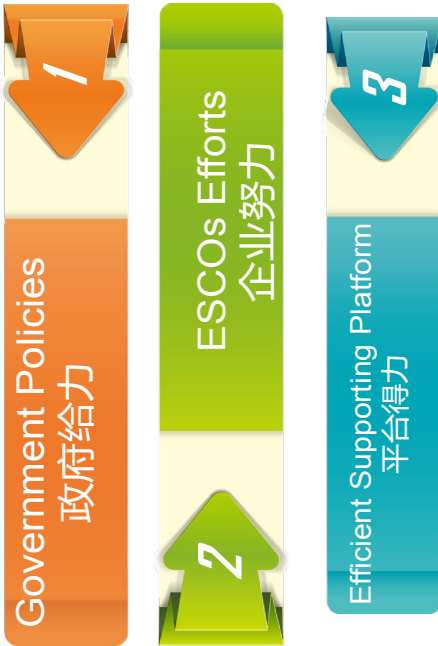
Registered Capital 注册资本金

According to the analysis of the 3157 ESCOs registered with NDRC, the total registered capital is 51 billion CNY, meaning the average registered capital is 16155.2 thousand CNY. 中国国家发展改革委的数据显示, 有3157家能源服务公司, 510亿元注册资金, 平均每家企业有16615.52万元。

Analysis of the registered ESCOs



Three key points of the industry development 产业发展的重点

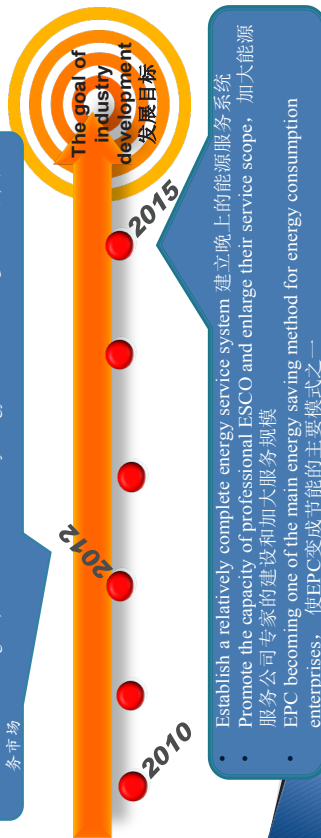


Government Supportive Policies 政策支持政策

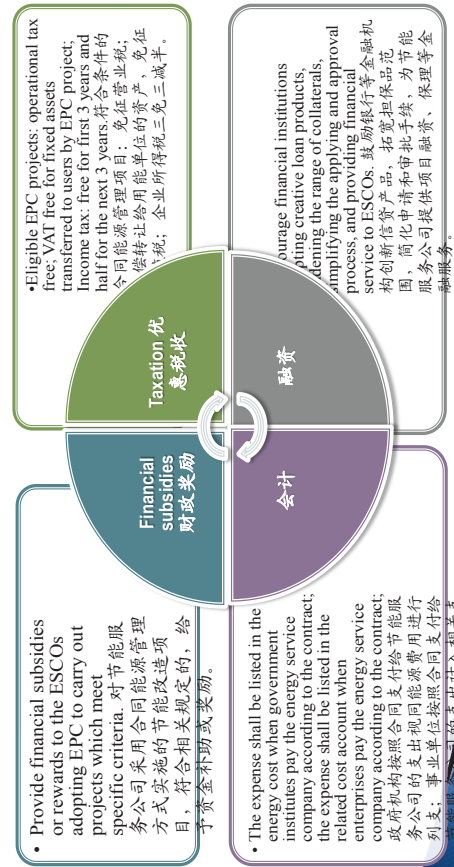
- National Development and Reform Commission (NDRC), Ministry of Finance, State Administration of Taxation (SAT) and People's Bank of China released "Opinions on Accelerating the Promotion of Energy Performance Contracting and the Development of the Energy Conservation Service Industry".

国家发展改革委、财政部、国家税务总局和中国人民银行发布了“加快推进节能减排服务产业发展的意见”。

- Support and train a group of professional ESCOs, 支持和培训能源服务公司专家
- Grow a large number of integrated ESCOs, 大量提升能源服务公司的数量
- Establish an energetic, distinctive and orderly energy service market, 建立活跃的节能服务市场



Supportive Policy——4 main policies 支持政策——4大政策



“Energy Conservation Emission Reduction Subsidies Provisional Measure” 《节能减排补助资金管理暂行办法》

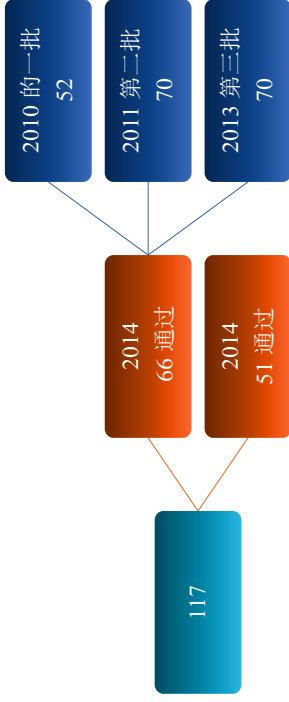
- Ministry of Finance published on 12th May 2015
- 财政部印发, 2015年5月12日。
- The second article states, subsidies support related to energy conservation emission reduction is called the energy conservation emission reduction subsidies.
- 第二条 本办法所称节能减排补助资金, 是指通过中央财政预算安排, 用于支持节能减排方面的专项资金。
- Fourth article the main scopes of energy conservation emission reduction subsidies:
 - (1) **Innovative methods for energy conservation emission reduction**;
 - (2) Basic designs for energy conservation emission reduction;
 - (3) Comprehensive energy conservation emission reduction models;
 - (4) **Important sector, industry, location for energy conservation emission reduction**;
 - (5) **Important technology for energy conservation emission reduction development and retrofit**;
 - (6) Other State Council approved related item.
- 第四条 节能减排补助资金重点支持范围:
 - (一) **节能减排体制机制创新**;
 - (二) 节能减排基础能力及公共平台建设;
 - (三) 节能减排财政政策综合示范;
 - (四) **重点领域、重点行业、重点地区节能减排**;
 - (五) **重点关键节能减排技术推广和改造升级**;
 - (六) 其他经国务院批准的有关事项。

“Energy Conservation Emission Reduction Subsidies Provisional Measure” 《节能减排补助资金管理暂行办法》

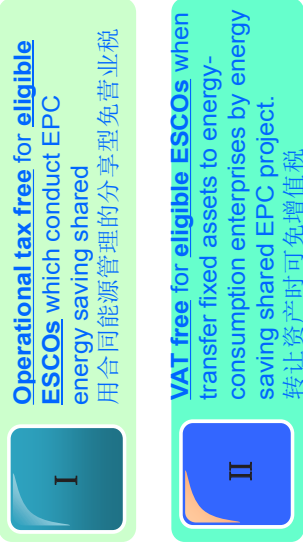
- Fifth Article states energy conservation emission reduction subsidies allocation depends on the type, target, investment, energy saving capacity and resources for a multitude of reasons, **mainly using grant, award for encouragement and true calculations for realistic methods**. The reward is based on effects of energy saving emission reduction, based on calculation projects to use pay pre-emptively then calculate method.
- 第五条 节能减排补助资金分配结合节能减排工作性质、目标、投资成本、节能减排效果以及能源资源综合利用水平等因素, **主要采用补助、贴息和据实结算等方式**。以奖代补主要根据节能减排工作绩效分配; 据实结算项目主要采用先预拨、后清算的资金拨付方式。
- Twelfth article “MoF NDRC published ‘Energy saving technology subsidies measure’ notice”. “MoF MIIT NEA published ‘phase out of incandescent light bulbs measure’ notice”. “MoF MIIT published ‘Enterprise energy management project subsidies measures’ notice”. “MoF NDRC published ‘EPC subsidies measures’ notice”. “MoF published ‘season buildings retrofit subsidies measures’ notice”.
- 第十二条 本办法自发布之日起施行。《财政部 国家发展改革委关于印发<节能技术改造财政奖励资金管理暂行办法>的通知》(财建〔2011〕367号)、《财政部 工业和信息化部 国家能源局关于印发<淘汰落后产能中央财政奖励资金管理暂行办法>的通知》(财建〔2011〕180号)、《财政部 工业和信息化部 国家能源局关于印发<工业企业能源管理中心建设示范项目财政补助资金管理暂行办法>的通知》(财建〔2009〕647号)、《财政部 国家发展改革委关于印发<合同能源管理财政奖励资金管理暂行办法>的通知》(财建〔2010〕249号)、《财政部关于印发<夏热冬冷地区既有建筑节能改造补助资金管理暂行办法>的通知》(财建〔2012〕148号)同时废止。

Ministry of Industry and Information Technology ESCO Recommendation Task 工信部推荐能源服务公司

Recommending ESCOs to Industry and IT sectors
推荐的节能服务产业和IT领域



Preferential Taxation Policies for ESCOs 优惠税收政策



VAT、Operational tax

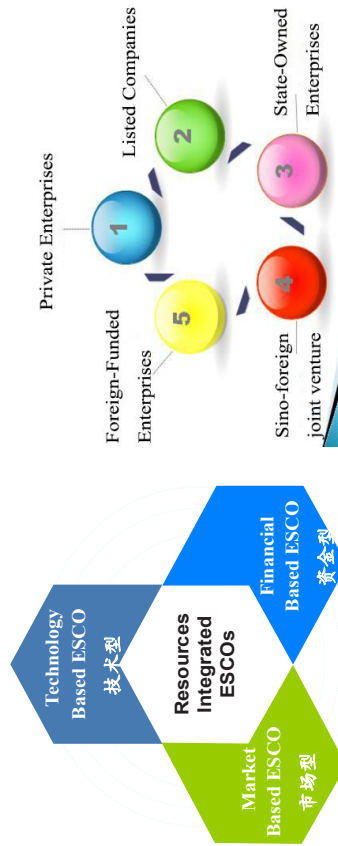
Preferential Taxation Policies for ESCOs 优惠税收政策

III

For the energy saving shared EPC projects conducted by eligible ESCOs which meet the related regulation of corporate income tax, from the first year of obtaining revenue, the projects will benefit from free income tax for first 3 years and a reduction of half of the income tax for the next 3 years. 用合同能源管理分享型可免所得税3年，下三年交一半的所得税。

Corporate Income Tax

ESCOs Efforts 企业努力



Types of ESCOs

《Energy Performance Contracting Guidebook》 《合同能源管理技术通则》

(GB/T24915-2010)

Published: 9th August 2010

发布时间: 2010年8月9日

Implementation: 1st January 2011

实施时间: 2011年1月1日起

Our nation's EPC standard

我国合同能源管理的首个国家标准

Recommended standard, subsidies and tax related.

推荐性标准，但与财政奖励和税收优惠挂钩

Participation of Large SOE and Foreign Enterprises 大型国企和外企的加入

State-Owned Enterprises including PetroChina, Sinopec, CNOOC, China Shenhua Energy, Southern Power Grid, State Grid Corporation of China, CGNPC, China Power Investment Corporation, Bao Steel, Anshan Iron and Steel, SINOCHEN, NCEPU, China Recourses, Datang Corporation and so on set up professional ESCOs. 中石油、中石化、中海油、神华集团、南方电网、国家电网、中广核、中电投、宝钢、鞍钢、中化、华电、华润、大唐等国有大型企业在其内部组建专业化的节能服务公司。



Carrier Asia and Shanghai Electric co-funded professional ESCO



Efficient Supporting Platform

- ESCO Committee of China Energy Conservation Association (EMCA) 中国节能协会节能服务产业委员会

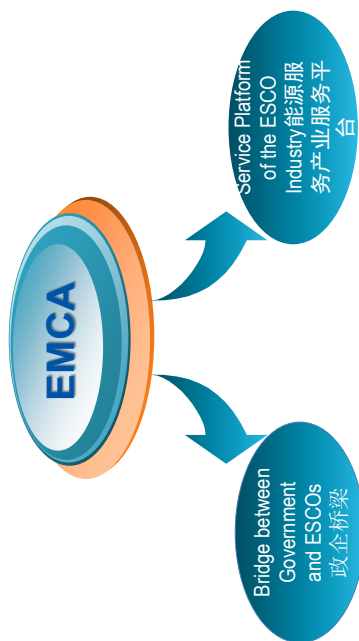
- EMCA was officially registered in the Ministry of Civil Affairs on 13 Nov. 2003. 在2003年成立。

It is the implementing agency of the ESCOs Service Component of WB/GEF China Energy Conservation Project aiming at promoting EPC mechanism and developing ESCO industry in China. 在世行、环球国际基金的支持下成立，推进合同能源管理机制在中国

- The foundation of EMCA marks the start of promotion period of EPC in China.



EMCA 's Tasks EMCA 的任务



EMCA

Our mission 我们的宗旨



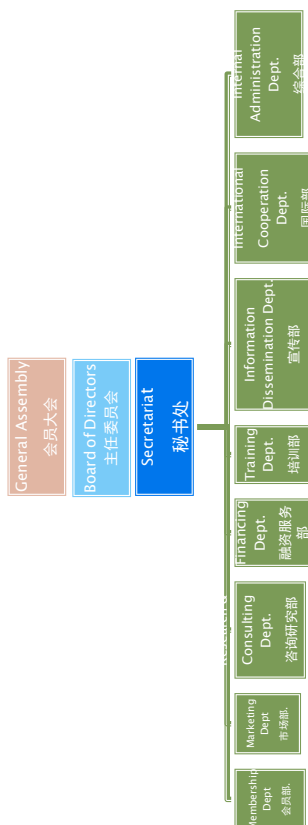
Our members 我们的会员



ESCO Service Platforms EMCA Public Service Platforms



EMCA'S TEAM



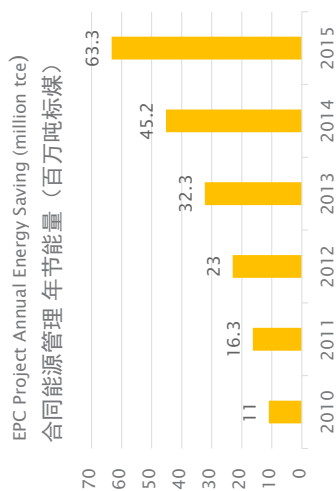
Future trends 未来趋势

The 12th Five-Year Energy Saving and Environmental Protection Plan 12五节能环保计划

By the end of 2015, China ESCO industry will reach:
在2015年底:

- Total Revenue: CNY 300 billion
● 总产量: 3000亿元
- Energy-saving: 60 million tce
● 节能: 6千万标煤

The total revenue for energy-saving and environmental protection will reach: CNY 45000 billion
总节能环保产量4.5万亿元

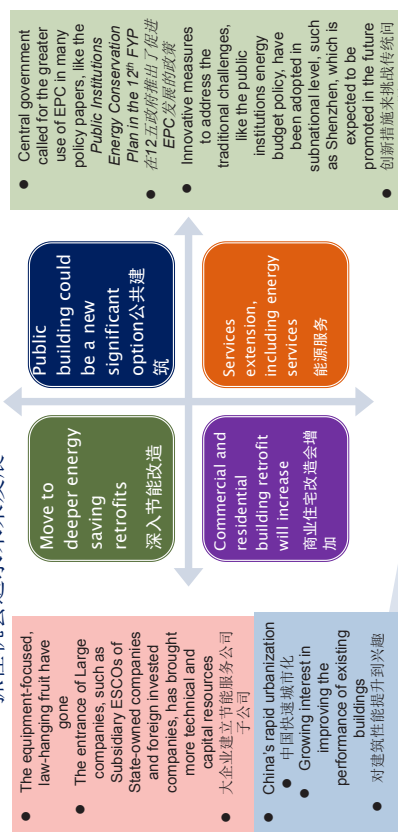


Exchange Cooperation Platform—Brand Events 交流合作平台——品牌活动

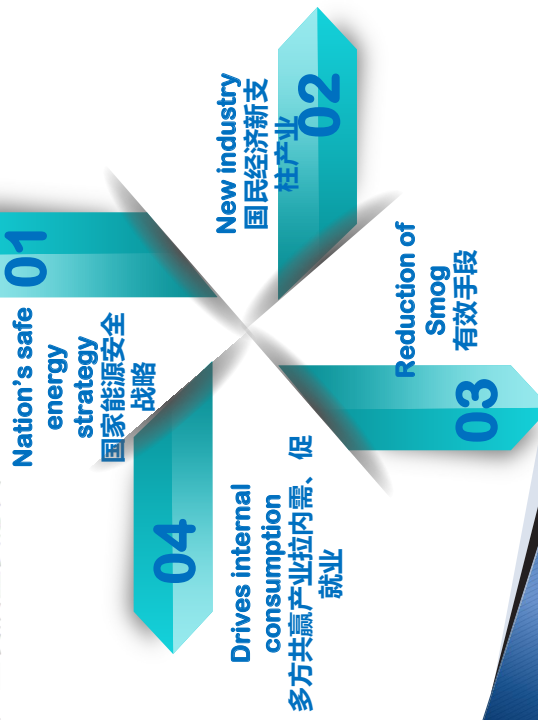


New opportunities 新机遇

Seize opportunities to pursue future development 抓住机会追求未来发展



Importance of Industry Development 产业发展重要意义



EMCA

Thank you! 谢谢

Zhu Lin

朱霖

Vice Secretary-General

副秘书长

ESCO Committee of China Energy Conservation Association (EMCA)

中国节能协会节能服务产业委员会

Address: Room 520, Sinochem Building A2 Fuxingmenwai Dajie, Beijing China

地址: 中国北京, 复兴门外大街, 中化大厦 A2, 520室

Telephone/电话: +8610-63600181

Email/邮箱: zl@emca.cn

www.emca.cn

Energy Service Market Is Promising 节能服务市场的未来

EMCA

2015:

- Implementing energy efficiency planning and EPC projects, will save over 22 million tce.
- 实施能效领跑者计划和合同能源管理工程, 将形成节能能力2200万吨标准煤。
- Service industry will reach 47% of the economy with new industries reaching 8%, energy conservation environmental protection output will be 4.5 trillion yuan.
- 服务业增加值占国内生产总值比重达到47%, 战新产业占国内生产总值比重达8%, 节能环保产业总产值达到4.5万亿元, 成为国民经济新的支柱产业

2016~2020:

- Higher energy consumption as well as carbon emissions will further push the innovation in the ESCO industry.
- 能源消费总量和碳排放总量控制将形成倒逼机制, 进一步为能源服务创造市场。
- Projected growth during the 13th 5 year plan to be 15-20%, reaching an output of 600 billion yuan.
- 预计十三五期间, 节能服务产业依然保持15—20%的高位增长, 将会带来超6000亿综合总产值。

Registered Attendee List

注册参会人员名单

Company	Name	Title	E-Mail
JCI 江森自控	Clay Nesler	VP of Corporate Sustainability of JCI	Clay.G.Nesler@jci.com
JCI 江森自控	Michelle Bai 白路	China Strategy and Business Development Director, JCI China	Michelle.Bai@jci.com
JCI 江森自控	Jian Chen 陈健	Account Manager, Northern, Building Efficiency Business, JCI China 区大客户经理	jian.chen@jci.com
Honeywell 霍尼韦尔	Gavin JIN(DL) 金峰	Manager of Government Relations-China 政府事务经理	gavin.jin@honeywell.com
United Technologies 联合技术	Dandan Wang 王丹丹	UTC-BIS team 美国联合技术 BIS 团队	—
GE 通用电气	Waldo Wu	Supplier Sustainable Development Manager (SRG) - Asia Global Operations, Environment, Health & Safety	waldo.wu@ge.com
GE 通用电气	Pegasus Chen 陈樹凡	Asia Strategic Deal Manager GE Lighting 亚洲区战略市场经理	Pegasus.Chen@ge.com
Caterpillar 卡特彼勒	Bill Wang 王学刚	GA Manager 政府事务经理	Wang_Bill@cat.com
BrightSource Energy	Yvonne Huang 黄芸	General Manger of China 总经理	yhuang@brightsourceenergy.com
BrightSource Energy	Teresa Gong	Deputy Director of Business Development, China	tgong@brightsourceenergy.com
DOE 美国能源部	Nicholas Carlson	Deputy Director 能源办公室副主任	carlsonnx@state.gov
DOE 美国能源部	Sun Liang 孙亮	Renewable and Energy Efficiency Specialist 可再生能源和能效分析师	sunlx@state.gov
DOE 美国能源部	Robert Sandoli	能效和可再生能源办公室国际 合作项目主任	—

DOE 美国能源部	Abbie		—
DOC 美国商务部	Grace Cao 曹玥	Senior Commercial Specialist 高级商务专员	yue.cao@trade.gov
DOC 美国商务部	Jay Biggs 毕子介	Commercial officer 商务官员	—
DOS 美国国务院	Ruth Ku	Energy Officer of Office of Electricity and Energy Efficiency	KuRC@state.gov
Pacific Northwest National Laboratory (PNNL) 西北太平洋国家实验室	Meredydd Evans		m.evans@pnnl.gov
PNNL 西北太平洋国家实验室	Yu Sha 余莎	Scientist 科学家	sha.yu@pnnl.gov
PNNL 西北太平洋国家实验室	Wenjing Shi		wenjing.shi@pnnl.gov
LBNL 劳伦斯伯克利国家实验室	Shen Bo 沈波		boshen@lbl.gov
ECP 中美能源合作项目	Kenny Liu 刘晓雨	Executive Director 主任	—
ECP 中美能源合作项目	Ma Li 马莉	Senior Program Officer 资深项目专员	
ECP 中美能源合作项目	Lucinda Liu 刘宇辉	Operations Officer 运营经理	
ECP 中美能源合作项目	Tracy Li 李修齐	assistant	
NDRC 国家发改委环资司	Jinghao Jiang 蒋靖浩		
EMCA 中国节能协会节能服务产业委员会	Daohong Wu 吴道洪	Director General 主任	—
EMCA 中国节能协会节能服务产业委员会	Ming Zhao 赵明	Deputy Director General & Secretary General 秘书长、副主任	—
EMCA 中国节能协会节能服务产业委员会	Lin Zhu 朱霖	Deputy Secretary General 副秘书长兼融资部部长	—
EMCA 中国节能协会节能服务产业委员会	Qingju Li 李清举	副秘书长兼市场部部长	—
EMCA 中国节能协会节能服务产业委员会	Wangxia Yu 禹网霞	Head of International Cooperation Department 国际部副部长	—
EMCA 中国节能协会节能服务产业委员会	Zhaojie Geng 耿兆劼	International Cooperation 国际部	—

世纪微熵科技有限公司	Jianfeng Zhou 周剑锋	GM 总经理	—
广州智光电气	Haiyan Liu 刘海燕	DGM 副总经理	—
广州柯美利科技有限公司	Jia Hu 胡佳	GM 总经理	—
北京乐普四方方圆股份有限公司	Gang Li 李刚	DGM 副总经理	—
Broad Energy Service 远大能效利用公司	Xiaodong Zhang 张晓东	GM 总经理	—
国电龙源节能技术有限公司	Yulin Qin 秦玉林	Director of General Administration 办公室主任	—
深圳市嘉力达实业有限公司	Haijian Li 李海建	GM 总经理	—
上海普天能源科技有限公司	Xiao Xu 徐骁	工程师	—
National Energy conservation Center 国家节能中心	Gang Qin 秦刚	Director of Beijing Office 北京办主任	—
北京市大成律师事务所	Sheng Xin 辛升	Division Director 处长	
CQC 中国质量认证中心	Zhiqin Zhang 张志勤	Lawyer 律师	
国网节能服务有限公司	Shaoshan Xu 徐少山	Division Director 处长	
Shanghai Pufa Development Bank (SPDB) 浦发银行	Guangzhi Zhao 赵广志	Senior Manager 高级经理	
Bank of Beijing 北京银行	Wei Wang 王伟	Senior Manager 高级经理	
Bank of Beijing 北京银行	Peilong Li 李培龙	Senior Manager 高级经理	
Zhongguancun Science-Tech Leasing Co.,ltd 中关村租赁	Jianxuan Hou 侯建轩	Energy Environment Department Manager 大能源环境事业部总经理	
融世华	Lei shi 时雷	Financing Manager 财务部经理	

