Sustainable Energy Business Districts in China (SEBIZ)

中国可持续能源商务区

Renewable Energy Industries Forum

June 3, 2015

Jonathan Whelan, Director of Operations, Optony

U.S. DEPARTMENT OF ENERGY

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Sustainable Energy Business Districts in China
中国可持续能源商务区

The Sustainable Energy Business Districts (SEBIZ) program is helping to address China's urban energy needs and GHGs at the city level by leveraging a successful public-private partnership model in targeted Chinese cities. This program is funded and supported by the U.S. Department of Energy.
可持续能源商务区(SEBIZ)项目，通过在中国特定城市公共机构和私营部门的成功合作，解决中国城市发展面临的能源需求和温室气体排放问题。项目的部分资金由美国能源部资助，普尼太阳能具体负责实施。

Project Goals项目目标

- Establish an innovative framework for distributed EERE project development
  创立新型市场框架机制，以推动分布式“节能与新能源”项目大规模实施
- Enhance business opportunities for US & China EERE companies
  为中美两国“节能与新能源”行业的公司开拓新的市场机遇
- Create an actionable clean energy policy implementation tool for cities
  为中国城市创建可操作的的公共政策部署工具
- Accelerate demonstration of building- and district-level clean energy technologies
  加速适于商业楼宇、商务区的“节能与新能源”技术的示范和部署

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Team & Partners

可再生能源商务区工作组和合作伙伴

U.S. DEPARTMENT OF ENERGY

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武进国家高新技术产业开发区
WUJIN NATIONAL HI-TECH INDUSTRIAL ZONE

PEKING UNIVERSITY 1898

国开东方
CHINA DEVELOPMENT ORIENT

中华人民共和国国家发展和改革委员会
National Development and Reform Commission

U.S. COMMERCIAL SERVICE
United States of America
Department of Commerce

China|U.S. Energy Efficiency Alliance | 中美能效聯盟

BERKELEY LAB
Lawrence Berkeley National Laboratory

DEPARTMENT OF COMMERCE UNITED STATES OF AMERICA
INTERNATIONAL TRADE ADMINISTRATION

NREL
NATIONAL RENEWABLE ENERGY LABORATORY

Joint Venture
SILICON VALLEY NETWORK

中国SD CHINA
国际太阳能十项全能竞赛

WORLD RESOURCES INSTITUTE

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PROJECT HIGHLIGHTS
项目重点

"Our experience with the SEBIZ program was very helpful. ***By participating in the SEBIZ program*** *with support from Optony, we saved amounts of efforts and time to set up these introduction meetings with those potential customers.* ***We expect to generate business opportunities in the near future*** *and will continue to explore more possibilities with Optony.* ***The US Department of Energy's vision and support of the SEBIZ program is appreciated****."*

-Mr. Pegasus Chen, Asia Vertical Strategic Marketing Manager, GE Lighting

2 Chinese Business Districts
两个中国商业区域
46 Facilities Evaluated
46个设备评估
91 Stakeholder Meetings
91次股东会议

31% Net Energy
Reduction Potential
31%净能源减少潜力

Request for Qualifications
申请资格
DoC EE Trade Mission
DoC EE贸易代表团

*"我们在SEBIZ项目中获得的经验非常有用。**通过参与Optony支持的SEBIZ项目，我们省下大量的精力和**时间来举行面向潜在用户的介绍会。**我们希望在不久的将来能有更多的商业机会并**继续与Optony **一道探索更多合作的可能性。感**谢美国能源部的期望及SEBIZ项目的支持。"*

- Pegasus Chen, 亚洲垂直战略市场经理，GE照明

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PROJECT HIGHLIGHTS
项目重点

*"**Participating in the SEBIZ program** and the U.S. Energy Efficiency Business Development Mission to China has been very helpful in **promoting clean energy communication and collaboration between China Development Orient and America's leading clean energy companies**. Optony has carefully identified qualified vendors with appropriate clean energy solutions for our Green Dragon Lake project through the SEBIZ program. **This lays the foundation for low-carbon planning and integrated deployment of renewable energy, clean transportation, and green building construction** for the Green Dragon Lake Business District."*

-Mr. WANG Xifu, Inspector General, Corporate Planning, China Development Orient

15 US and CN Vendors Engaged
15个中美供应商
5 MOUs in Progress
5个进行中的谅解备忘录

2 LED Retrofits Complete
2个LED改造已经完成
High Potential For Add'l Projects
多个可能的延伸项目

*"**参与SEBIZ**项目以及美国能源效率事业发展任务对**提升国开**东方与美国领军清洁能源**公司在清**洁能源方面的交流与合作很有帮助。通过SEBIZ项目，Optony 仔细挑选出有资质的供应商参与制订我们青龙湖项目的清洁能源解决方案。 这为青龙湖区域的低碳规划，可再生能源利用，清洁交通，绿色建筑奠定了基础"*

-Mr. WANG Xifu, 合作规划总监，国开东方

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Sustainable Energy Business Districts in China
可再生能源商务区在中国

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IDENTIFYING EERE OPPORTUNITIES
确定EERE的机遇

Recruit Commercial Building Owners to Participate	招募商业建筑所有者参与
Perform Energy Audits and Benchmarking	完成能源审计与标杆学习
Data Analysis and Opportunity Identification	数据分析与机会鉴定
Draft Energy Action Reports With Recommendations	撰写能源活动建议报告书
Issue RFQ on Behalf of Participating Businesses	颁布代表参与企业的RFQ
Identify “Green Team” of Qualified Solution Providers	指定合适的方案制订者的“绿色队伍”
Vendors Perform Site Assessments and Submit Proposals	评估供应商执行地点以及上交计划书
Commercial Building Owners Deploy EERE Technologies	商业建筑所有者的EERE技术布置
Project Commissioning	项目委托

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IDENTIFYING EERE OPPORTUNITIES
确定EERE的机遇

国开东方
CHINA DEVELOPMENT ORIENT

- Review & Discuss District Design Plans
- Conduct EERE Technology Research
- Identify EERE Technologies To Incorporate Into Design
- Draft Green Dragon Lake Sustainable Energy Planning Report
- Issue RFQ on Behalf of Project Developer
- Identify "Green Team" of Qualified Solution Providers
- Vendors Meet with CDO and Sign MOUs for Future Cooperation
- CDO Integrates Technologies Into Design-Build Plans

国开东方
CHINA DEVELOPMENT ORIENT

- 综述并讨论区域设计规划
- 实施EERE技术研究
- 确定含设计的EERE技术
- 撰写青龙湖可持续能源规划报告
- 颁布代表项目开发者的RFQ
- 指定合适的方案制订者的"绿色队伍"
- 召开CDO参加的供应商会议并签署未来合作备忘录
- 建筑设计规划中CDO技术的应用

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Wujin National Hi-Tech Industrial Zone
江苏省武进国家高新技术产业开发区

Summary of work performed to date
已完成的工作

Energy audits at 11 sites with 8,500,000 ft^2 floor area 涉及11个地方，共46栋商业建筑，合计830,000平米

¥14 million in annual gross savings and ¥4 million in solar incentives每年节省1千万开销费，并获取1千万的太阳能财政补贴

16 million kWh annual electricity savings representing 31% reduction每年节省1600万度电，相当节电率达到31%

13,500 tCO_2 annual carbon savings每年减排二氧化碳13,500吨

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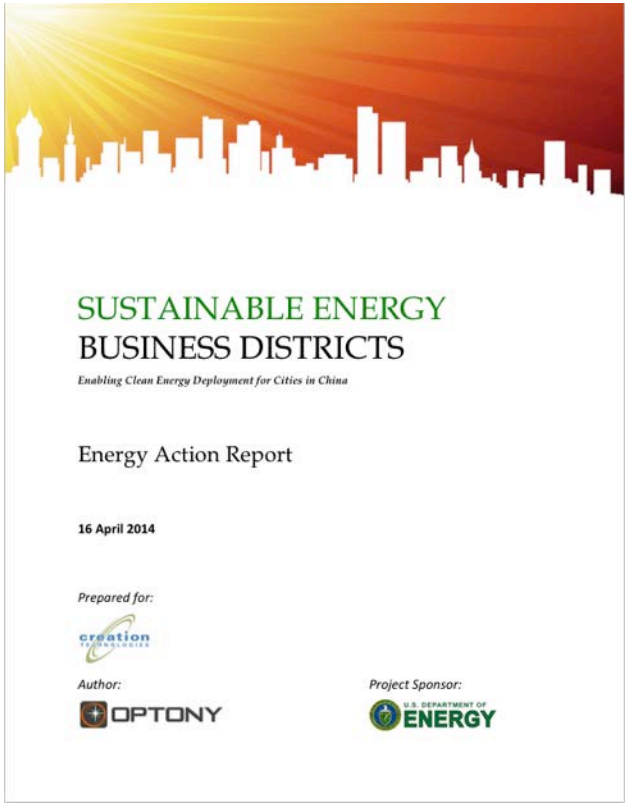
武进国家高新技术产业开发区
WUJIN NATIONAL HI-TECH INDUSTRIAL ZONE

IDENTIFIED EERE PROJECT OPPORTUNITIES 确定的EERE项目机会

BUSINESS TYPE 商业类型	FLOOR AREA 楼层面积	OWNERSHIP STRUCTURE 所有权结构	SOLAR PV	LEDs	BEMS	EVs
Shopping mall 购物中心	1,589,000 ft²	Owner-occupied 所有者	1,850 kW	✓	✓	✓
Hotel宾馆	581,000 ft²	Owner-occupied	185 kW	☒	☒	✓
Manufacturing 生产厂	2,185,000 ft²	Tenant-occupied	3,011 kW	2014!	✓	✓
Office towers 办公楼	1,962,000 ft²	Tenant-occupied 租赁	☒	✓	✓	✓
Shopping mall 观物中心	744,500 ft²	Tenant-occupied	☒	2014!	✓	✓
School campus 学校校园	709,000 ft²	Owner-occupied	398 kW	✓	✓	✓
Manufacturing 生产商	81,000 ft²	Tenant-occupied	156 kW	✓	✓	✓
Manufacturing	90,500 ft²	Owner-occupied	165 kW	✓	✓	✓
Manufacturing	622,000 ft²	Owner-occupied	1,000 kW	✓	✓	✓
Manufacturing	130,000 ft²	Tenant-occupied	509 kW	✓	✓	✓
Manufacturing	260,000 ft²	Owner-occupied	30 kW	✓	✓	✓

✓ = opportunity identified 确定的机会

✓☒ = no opportunity 无机会


SUSTAINABLE ENERGY
BUSINESS DISTRICTS
Enabling Clean Energy Deployment for Cities in China

Energy Action Report

16 April 2014

Prepared for:

Author: OPTONY

Project Sponsor: U.S. DEPARTMENT OF ENERGY

Energy Action Reports presented to each commercial building owner in Chinese.

提供给每个商业建筑拥有者的能源活动报告(中文)

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己完成的工作摘要

Reviewed urban development plans for future multi-billion dollar world-class convention capital and business district

总结了未来数十亿美元世界级都市与商业区域城市发展规划

Conducted comprehensive EERE building technology research for incorporation into design & construction phases

引领有意义的EERE建筑技术的研究走向设计建造阶段

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己完成的工作摘要

Drafted Green Dragon Lake Sustainable Energy Planning Report for China Development Orient to guide future EERE technology deployment

为国中东方撰写了青龙湖可持续能源规划报告以指导未来EERE技术的布置

Facilitated buyer-vendor matchmaking between China Development Orient & leading EERE vendors

推动了国中东方与EERE带头供应商之前的采购方－供应商对接

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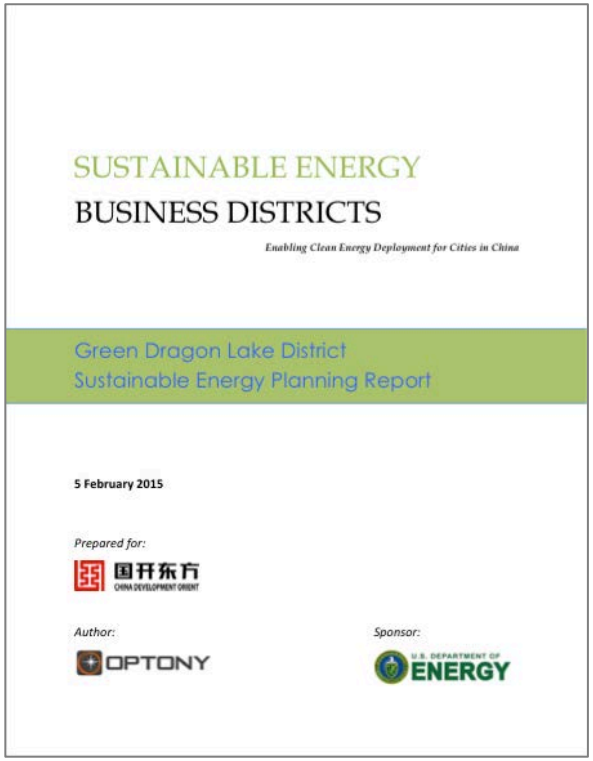
EXPECTED EERE PROJECT OPPORTUNITIES
期待EERE项目机会

CATEGORY 分类	TECHNOLOGY 技术
Energy Efficiency and Demand Side Management 能源效率与需求侧管理	• LED light bulbs and tube lighting LED灯泡与灯管照明 • Light tubes for daylighting 白天照明灯管 • Absorption chillers 吸入式制冷 • Radiant floor heating 辐射式地暖 • Building energy management systems 建筑能源管理系统 • Building automation systems with sensor technologies 传感技术的建筑自动化系统 • Demand response 需求管理
Distributed Energy Generation and Storage 分式布能源发电与储能	• Solar PV for rooftops 屋顶太阳有 • Solar PV for carports with electric vehicle charging station integration 太阳能发电与电动汽车充电站车库的综合 • Solar water heating C/CHP, potentially integrated into district energy system 太阳能热水热电联产与区域能源系统的综合 • Distributed wind turbines 分布式风力发电 • Geothermal heat pumps 地热管道 • Energy Storage 储能
Electric Vehicles 电动汽车	• Electric vehicle charging stations 电动汽车充电站 • Electric vehicle charging with solar carport integration 电动汽车充电站与太阳能车库的综合


SUSTAINABLE ENERGY
BUSINESS DISTRICTS
Enabling Clean Energy Deployment for Cities in China

Green Dragon Lake District
Sustainable Energy Planning Report

5 February 2015

Prepared for:
国开东方 CHINA DEVELOPMENT ORIENT

Author:
OPTONY

Sponsor:
U.S. DEPARTMENT OF ENERGY

Available at:
www.cleanenergyroadmap.com

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BUYER-VENDOR MATCHMAKING
采购方与供应商的对接

- Request for Qualifications (RFQ) issued for Chinese and US firms to offer solutions for identified EERE opportunities
- 为中美公司颁发的RFQ为确定EERE的机会提供解决方案
- Qualified respondents and participants on Dept. of Commerce trade mission were invited to present solutions to Business District participants
- 商贸部有资质的反馈与参与者被邀请来为商业区域参与者提供解决方案
- Meetings were scheduled and well-attended – and effective!
- 会议有时间表，很多人参加一高效的

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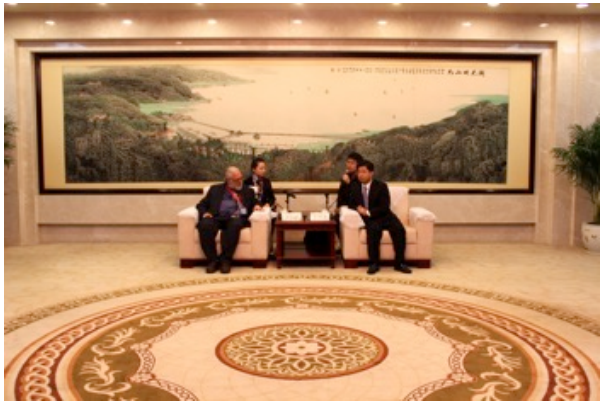
RESULTS
结论

- ✓ 15 Vendors Actively Involved
- ✓ 15个供应商积极参与
- ✓ 10 Follow-Up Vendor Site Visits
- ✓ 接下来10个供应商的实地参观
- ✓ 5 MOUs Signed or In Progress
- ✓ 5个已签定或进行中的备忘录
- ✓ 2 LED & 1 EV Retrofit Complete
- ✓ 2个LED和1个EV项目改造完成
- ✓ 13,500 tCO_2 Annual Carbon Reduction Potential Identified
- ✓ 年二氧化碳排放减少13500吨潜力的确认

LESSONS LEARNED
经验学习

- Portfolio approach to EERE project development was well received due to significant time and costs savings and broad impact potential.
- EERE项目开发的投资组合方法因其能显著减少时间和损耗并有广阔前途，已经得到广泛认可
- Full RFP process doesn't exist in China as in the US, but there is interest in vetted, high-quality vendors with global expertise.
- 和美国一样，完整的RFP过程在中国还没有，全球公司中高质量供应商对此很感兴趣
- Buyer-vendor matchmaking was valuable, as buyers could easily access qualified solution providers with minimal effort, while vendors reduced time, effort and risk associated with customer acquisition.
- 采购方－供应商对接很重要，因为采购方很容易与解决方案提供者取得联系，同时供应商能在满足用户需求的同时减少时间精力及风险
- Establishing SEBIZ staff as trusted, independent 3rd party experts with DOE support was critical to ensuring participant comfort with model.
- 组建由可信的独立的第三方专家组成的，DOE支持的SEBIZ工作团队对确保参与者愉快工作很重要



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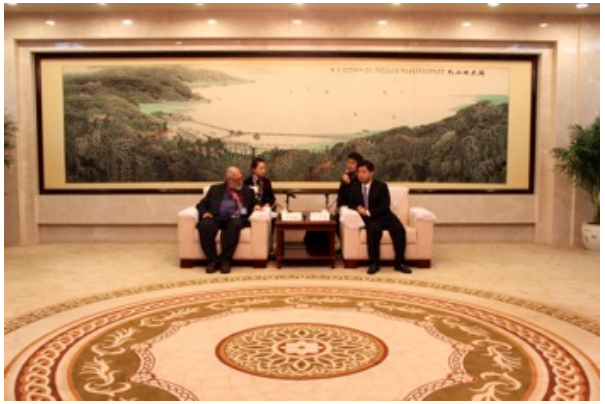
LESSONS LEARNED
经验学习

- Financing not as big a barrier as previously thought.
- 资金问题不再象以前一样形成大的障碍
  - China ESCO/EPC sector has quickly emerged
  - 中国ESCO/EPC部门已经很快出现
  - Vendors responded with own financing (shared savings)
  - 供应商已经用自己的资金作出回应(分享储蓄金)
  - Businesses preferred to finance with existing banking partners
  - 企业更愿意由银行合作伙伴提供资金
- Financial savings must be significant to drive decisive action, and incentives are helping to stimulate activity.
- 资金节省一定能显著促进决策行为，动机有助于刺激行动
- Increased support needed from local & national governments (both from the US and China) in order to accelerate participation and actions.
- 为了加速参与与行为，需要当地以及国家政府(中美双方)增加支持力度
- There is significant interest in the market for SEBIZ to scale up.
- 市场对SEBIZ扩大规模有浓厚的兴趣



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POLICY & PROGRAM RESOURCES
政策与项目资源

www.cleanenergyroadmap.com

REPLICATION 复制

- Smart city & EERE policy framework 智慧城市与EERE政策框架
- Roadmap tool available to cities 可获得的城市道路图工具
- Global best practice resource library 全球最好的实践资源图书馆
- 15 California cities adopting similar approach to sustainable energy planning 15个加州城市应用类似的方法制订可持续能源规划

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Thank You
谢谢

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