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JUCCCE and City Level Energy Efficiency

Joint US-China Cooperation on Clean Energy

Presented by
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June 5, 2008

ADB Conference- City Level Energy Efficiency

- The pressures of China's urbanization
- Mayoral levers to deploy energy efficiency in different stages of city development
- JUCCCE: How are we working to solve the problem in China?



1 billion people in Chinese cities by 2030

McKinsey

Mass migration of 350M people (=USA)

50,000 new skyscrapers (=10 Mannhattans)

2 Mannhattans in new floor space each year

Compete for water, food, energy

Unsanitary living 5 m deaths/yr ww, > half children)

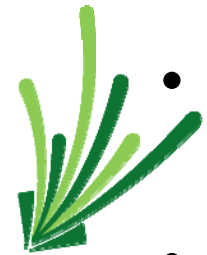
Epidemics (flu, measles, hand foot & mouth)

Malnutrition

WE MUST BUILD ECO-CITIES

Drastic Consequences for Mayors

- Conflict: more people, more money-> more energy use
- Un-harmonious society due to rising prices
- Rising energy costs increase operating costs and affect GDP growth
- Energy blackouts affect create work disruptions
- Environmental and health risks from pollution
- Career-threatening



China's Mayors

The key to greening China

- Central government has quickly become one of the most progressive in setting energy policies (China Energy Law draft, national plan on climate change, shopping bags)
- Over 680 official cities (800+ according to McKinsey)
- Mayors in charge of local deployment
- Mayors motivated to get on the green bandwagon- 11th 5 year plan, amended Energy Conservation Law, career boost
- 5 year typical term
- Want solutions they can implement quickly, bundled with resources
- Eager for organizational support and leadership development



Mayoral Levers

to increase use of clean and efficient energy locally

- ~~Energy Supplier~~
- Regulatory Control
- Procurement
- Advocacy/education
- R & D/ policy research
- Landowner/developer/operator



Chinese Mayoral Levers Applied to Energy

Example city-level programs

Regulatory Control	Advocacy/ education	Procurement	Landowner/ developer/ operator
<ul style="list-style-type: none">• Enforcement• Land use controls<ul style="list-style-type: none">• Height of structures affects wind• Proximity affects solar access• Building codes set renewable energy mix• Streamline approval process• Waive fees• Power plant emission standards• Power plant siting	<ul style="list-style-type: none">• Create a distinct energy strategy• Help consumers understand the benefits of green energy use• Provide info on local suppliers/ installers• Provide info on technologies• Provide access to financing• Serve as a role model for the country	<ul style="list-style-type: none">• Require use of renewable fuel for city fleet vehicles• Require renewable electricity supply for city buildings• Demand aggregation for bulk pricing	<ul style="list-style-type: none">• Local government buildings as showcases• Engage sustainability experts• Technology decisions• Building design decisions• Operating practice
		R & D/ policy research	
		<ul style="list-style-type: none">• Local energy policy research• Cleantech development parks	



Mayor's Project Prioritization

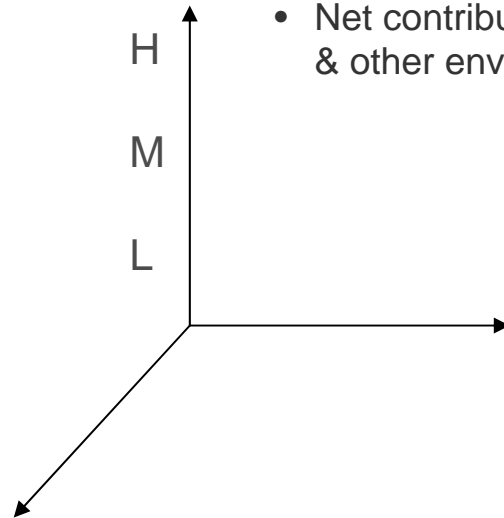
SMART (Specific, Measurable, Attainable, Realistic, Timely)

1 Feasibility

- <5 yr milestone
- Under Mayoral control
- Access to funding
- External uncertainties e.g. policy, immaturity of technology

2 Energy Impact

- Net contribution to energy intensity
- Net contribution to long term energy supply/demand balance
- Net contribution to address emission & other environmental challenges



3 Comparative Fit

- Fit with city's stage of development
- Local resources
- Organizational capability to deploy



Stages of China's City Development

Example appropriate city-level efficiency programs

Industrializing (Yunnan)

- Raise fines and strictly enforce
- Solar thermal subsidies
- Invest in solar farms
- CHP/district heating
- Integrated industrial parks
- Bulk purchase of energy efficient appliance
- Introduce zero-net energy low income homes
- Land use for mass-transit, bicycle, pedestrian

Transforming (Wuhan)

- Raise fines and strictly enforce
- Audit gov't buildings
- JUCCE residential lighting conversion program
- Industrial training programs
- Incentivize industrial solar roofs
- Recruit and enable ESCOs
- Local energy efficiency classes for building professionals and property managers


Modern (Shanghai)

- Raise fines and strictly enforce
- Vocational training for energy workforce
- Subsidize energy audits
- LED traffic lights
- Waste to fuel
- Discount licenses for hybrids
- Incentivize taxi and fleet conversion to clean power

Net Zero Energy low income housing



Earthquake resistant
for Sichuan rebuild!



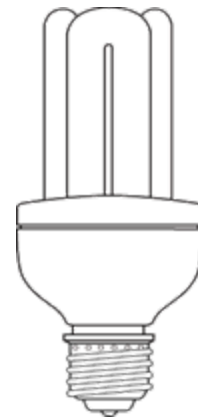
	\$/ square foot	Utility bill/ year	Tons CO₂/ year
Net Zero Energy housing	\$150	\$0	0
Conventional building	\$200	\$1,950	9

Lighting Consumes 20% of Global Electricity

JUCCCE + Citi + GE Lightbulb Giveaway

Compact Fluorescent vs. Incandescent

With the same Lumen Output

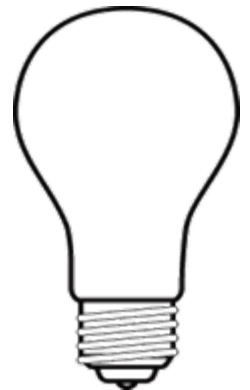


9W = 40W

13W = 60W

18W = 75W

25W = 100W



JUCCCE Mayoral Training Course

Chinese Mayors- Key to the Greening of China

- Working with Ministry of Construction to scale learning across key channel
- Goal: provide turnkey solutions for Mayors
- Bilingual case studies for city-level clean and efficient energy use
- Taps into JUCCCE network of advisors for content
- Link products and services vendor database
- Explain funding options
- Success metrics



How Can Groups Work With JUCCCE on Mayoral Training?

- Submit city-level case studies that highlight your products and services
- Sponsor the Mayoral Training program
- Host an overseas trip for Mayors



JUCCCE accelerates the greening of China

Joint US-China Cooperation on Clean Energy

- Non-profit, NGO focused on China
- Brings international expertise and technologies to China
- Comprehensive roadmap (Educate, collaborate, deploy)
- A premier hub of multisector partners working together on a China solution
- Programs (smart grid, online project matchmaker)
 - Scale across China thru key channels
 - Build local capability
 - Economically replicable
- Led by industry executives



Resources

- Peggy Liu, Chairperson, peggyliu@jucce.com, Shanghai
- www.jucce.com
- *Climate Protection Manual for Cities* by Natural Capitalism Solutions
- *Assessment of policy instruments for reducing greenhouse gas emissions from buildings*, Report for the UNEP-Sustainable Buildings and Construction Initiative, Central European University
- *Urban Energy Transition: From Fossil Fuels to Renewable Energy* (P Droege, ed.) “Renewable energy policymaking in New York and London”, Stephen A. Hammer, PhD, Center for Energy, Marine Transportation, and Public Policy, Columbia University. Elsevier Press, Oxford (ISBN 978-0-08-045341-5)

