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# Local and Provincial Renewable Energy Development Session



# Moderator

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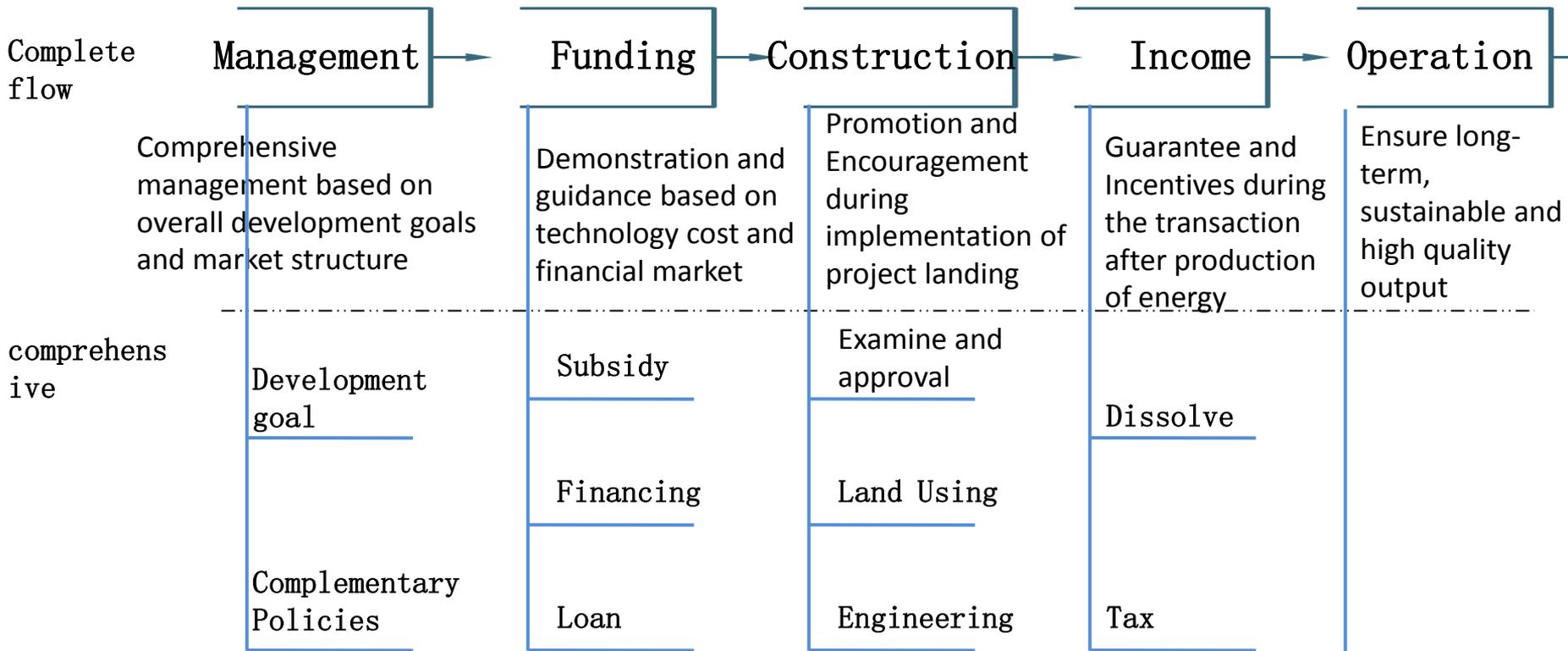
Main Accomplishments:

- Government overall New Energy Planning: 11 cities out of 81 new energy cities
- Participated in new energy technology and industry research designated by central-government: Planning the Establishment of “New Energy, New Urban, New Life”
- New Energy Exchange Projects Landing: Participated in organizing “Solar Decathlon of China”, Comparative study of new energy cities in China and US, attended Global Green Growth Forum in Demark with China NEA in 2014, follow-up research and project landing
- Financial support: participated in preparation of “New Energy Urban Development Fund” supported by China Development Bank Capital

# Comparative study of new energy cities in China and US



- “Comparative study of new energy cities in China and US” is the third activity of 2014-2015 working plan of the “US-China Renewable Energy Partner Project
- We collected city construction cases of China and US and developed a comprehensive management system framework





# Excellent City Case Studies—Goal

管理		资金			建设			收入		运营
目标	政策	补贴	融资	贷款	审批	用地	工程	消纳	税收	

- New Jersey: RE share - 22.5% in 2021. Power company' s solar quota is 2.05% in 2014 and 4.1% in 2028.
- San Francisco: RE share - 33% around 2020 for California, 100% in 2020 for San Francisco (including SRECs)
- Hawaii: RE share - 20% around 2020, compulsory tasks for public utility companies
- Xiuzhou: RE - 315,000 tce by the end of 2015, RE share - 10.05% by the end of 2015
- Hefei: RE - 1.1306 Mtce by the end of 2015, RE share 6.61% by the end of 2015
- Turpan: RE substitutes 6000 tce/yr by 2015, RE share - 33%
- Texas: RE substitute 520,000 tce, RE share - 8%

◆ Even in the US, cities' RE goals are significantly different with each other because of population, economy, energy consumption and geographical location.

◆ In general, better the economy, higher the electricity price and higher the tertiary industry share, higher the RE share goal. Smaller the population and lower the energy consumption, higher the RE share goal.

# Excellent City Case Studies—Policy

管理		资金			建设			收入		运营
目标	政策	补贴	融资	贷款	审批	用地	工程	消纳	税收	

- San Francisco: 1) adjust tariff 2) Promote PV through feed-in tariff, virtual net metering and community solar or green energy leasing policies
- Hawaii: 1) Establish energy fundamental framework and management organization; 2) Published a series of long-term comprehensive energy plan to provide funding for solar and wind resources evaluation research and for thermal and solar demonstration project; 3) Hawaiian Ocean Science and Technology (HOST) science park
- Texas and Hefei: 1) Establish a series of implementation document; 2) organizational guarantee; 3) Texas: talent training and development special fund; 4) Hefei: power from PV power plant deducting energy saving target.
- Xiuzhou: 1) Unify ideological understanding, planning, rooftop resources, local monitoring and management, maintenance and supporting policies 2) require local cities to promote PV power generation application and storage; 3) Establish management system and promote mechanism innovation; 4) Explore and improve PV policy integration of technology, industry and talents.

◆Seriousness of policy: US cities' new energy policies are generally laws, which provide strong guarantee for new energy policy implementation. Chinese' cities new energy policies are mainly implementation plans, which have weaker guarantee

◆Systematics of policy: US cities' new energy policies have their own system, but Chinese cities have limited policies targeting at new energy application. Many cities in China have started to explore overall and comprehensive management plans.

◆Operability of policy: US cities' laws are specific enough to involve specific policies and have strong operability, which provide great convenience for new energy policy implementation

# Excellent City Case Studies—Funding



管理		资金			建设			收入		运营
目标	政策	补贴	融资	贷款	审批	用地	工程	消纳	税收	

➤ San Francisco: 1) federal subsidies; 2) clients have RECs; 3) authorized third-party ownership; 4) time-of-use power price; 5) district energy integration (district solar power energy)

➤ New Jersey: 1) federal subsidies; 2) electric discount and energy competition act (EDECA): subsidies vary from 0.15\$/W to 5\$/W depends on products. For those using New Jersey manufactured power generation equipment, there will be an extra 0.25 \$/W subsidies. From 2001 to 2007, 170 million dollars were used to subsidize 40 MW installed capacity.

➤ Hawaii: 1) "electricity subsidy"; 2) feed-in tariff 3) energy efficiency and renewable energy subsidy (solar hot water);

➤ Texas: "electricity subsidy"; He Fei: subsidies for electricity subsidy program, PV poverty alleviation, household distributed PV project, accurate financing to support construction of PV power stations at village level.

➤ Xiuzhou: 1) form four-level policy supporting system - national, provincial, city and district level

◆ There are a variety of ways of PV subsidies in the US. Each kind of PV projects achieve its profits through its own business model. As of subsidy coverage, there are not only national wide (prophase subsidy), but also many more regional and dispersive subsidies that directly target at consumers (e.g. projects targeting at small system or some specific type of projects). As of sources of subsidy, some are direct fiscal subsidy, some are specific charitable fund, some are financing through bonds and bills, some are indirect support through tax exemption.

◆ China has unified financial subsidy standards at national, provincial and city level. Fundings come from fiscal fundings at

# Excellent City Case Studies—Construction



北京大學工學院

管理		资金			建设			收入		运营
目标	政策	补贴	融资	贷款	审批	用地	工程	消纳	税收	

- New Jersey: 1) develop brown zones. Provide preferential policies for non-new electric metering PV projects that are built on contaminated land and landfill places. Policies include SREC eligibility and higher subsidies. 2) home solar rights
- San Francisco: 1) San Francisco Environmental Protection Agency established San Francisco energy map, through which users can learn the rooftop potential of the city and evaluate its economy. The map also provide guidance on system installation. 2) home solar rights. 3) Installed solar power on municipal buildings in 2004
- Hawaii: region price map: region price map: online tool includes a address searching map, which could show level of distributed power plants through the ratio of minimum load over peak load. The tool can provide initial guidance for clients considering installing and connecting to the grid and for contractors
- Hefei established supplemental notice on accelerating PV application: 1) coordinate rooftop resources; 2) normalize PV project siting and layout PV projects reasonably. Apply differential land using based on real utilization of the land.

◆ For land using, both US and China emphasize the utilization of abandoned lands. Because of regulations on land property, more issues are involved for abandoned land use.

◆ For rooftop resources utilization, US cities lay on informational and legal methods and have more guarantee for rooftop resources

# Excellent City Case Studies—Income



北京大学工学院

➤New Jersey and San Francisco: 1) federal tax exemption; 2) green tariff; 3) tax return; 4) When house owner invests in solar system, New Jersey State exempt its housing sales and using taxes. State government also establish laws to exempt local property tax for RE systems that satisfy onsite power, heating, cooling or normal energy demand. 5) CA state applies 100% property tax exemption for solar systems. CA also exempt tax for system accessories, such as storage equipments. CA also has business tax exemption for agricultural solar system and its advanced power transmission technology. San Francisco exempts income tax for clean energy tech companies (less than 100 employees) for over 10 years.

➤Hawaii: 1) federal tax exemption; 2) RE revenue tax exemption: wind system: 20% exemption of its cost, solar and PV: 35% exemption of its cost

➤Texas: 1) three-year exemption and three-year half; 2) tax credit offset

管理		资金			建设			收入		运营
目标	政策	补贴	融资	贷款	审批	用地	工程	消纳	税收	

◆For US cities, there are tax exemption and tax returns, including directly exemption, accelerated depreciation, corporate income tax exemption and personal income tax exemption (Power sale revenue from individual users distributed PV system and PV industry employees income tax)

◆For Chinese cities, current tax applications rather simple. Preference policy focuses on production side. There still lacks policies on consumption side. Currently there is no taxation preference policies available for individual investors.

# Excellent City Case Studies—Operation

管 理		资 金			建 设			收 入		运 营
目标	政策	补贴	融资	贷款	审批	用地	工程	消纳	税收	

➤Xiuzhou: Jaixing Xiuhu Development and Investment company, owned by Xiuzhou state-owned assets supervision and administration commission, provides PV power plants with O&M and electricity bills services and charge 0.02RMB/kWh as O&M fund.

➤ Hefei: Encourage designating professional companies to manage rooftop and integrated photoelectric technology PV power plants, and provide 0.02 RMB/kWh subsidies to the management companies

➤New Jersey: 1) bond PPA mixed financing model : public organizations publish consulting plans to issue low-profit bonds. Then use the money to pay private contractors who construct, own and operate public property projects. Contractors or developers pay rent to public organizations.

◆ Currently, China has started third-party O&M exploration, especially for rooftop distributed energy system. Under the electricity reform, more innovative models are expected to come up in this area.

# Decision-making recommendation

1. Scientific macro management: clear rewarding and punishment system targeting at goal accomplishment, flexible adjustment capability reflecting policy intension, pooling the wisdom and efforts of different stakeholders
2. Targeted financial support: policy-oriented, technology foresight, market leverage
3. Highly efficient approval process: trim approval processes, reduce siting difficulties, perfect research costs
4. All-around taxation regulation: cover whole supply chain, reflect policy intention
5. Professionalized operation: continuous follow-up, rewarding system, create models

# Follow-up Plan



1. Continue to improve the “PV Management Panorama” . Together with case studies, expand the panorama to “New Energy Management Panorama” and analyze more cities’ construction and management practices.
2. Apply this study to cities’ 13<sup>th</sup> Five-year New Energy Plan and provide whole process monitor, research and intellectual support for China’ s new energy demonstration city construction.



Thanks for your attention!

THANKS FOR YOUR ATTENTION!



第四届中美可再生能源产业论坛

## 地方与省市可再生能源发展分论坛



# 主持人简介



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主要经历及成果：

- ▶政府新能源总体规划：完成81个新能源城市中的11个
- ▶参与中央部委委托的新能源技术、产业研究项目：《“新能源、新城镇、新生活”创建计划》
- ▶新能源交流项目落地：参与组织“中国国际太阳能十项全能竞赛Solar Decathlon of China”、《中美新能源城市对比研究》、2014年随国家能源局参加丹麦Global Green Growth Forum，研究后续项目落地跟踪
- ▶金融支持：参与国开金融“新能源城镇发展基金”筹备工作

## 议题

议题一：中美合作新能源城市交流的进展

议题二：中国可持续能源商业区

议题三：促使城市可再生能源发展的当地政策（全球范围）

## 中方嘉宾

➤ 张家口市发展和改革委员会代表——

➤ 包头市发展和改革委员会代表——

# 中美合作新能源城市交流进展



## 目前进展

- 一、中美各确定4个和3个城市作为研究对象
- 二、系统研究七个城市新能源发展状况
- 三、完成《中国新能源城市和美国低碳能源城市发展研究》项目报告
- 四、建立国家管理部门和研究机构之间比较畅通的中美沟通渠道

## 存在的问题

- 一、缺少一个长效、稳定的新能源城市交流平台
- 二、目前对中美双方需求梳理尚不明确
- 三、研究双方如何对接，形成合作模式才刚刚开始

# 中美合作新能源城市交流进展



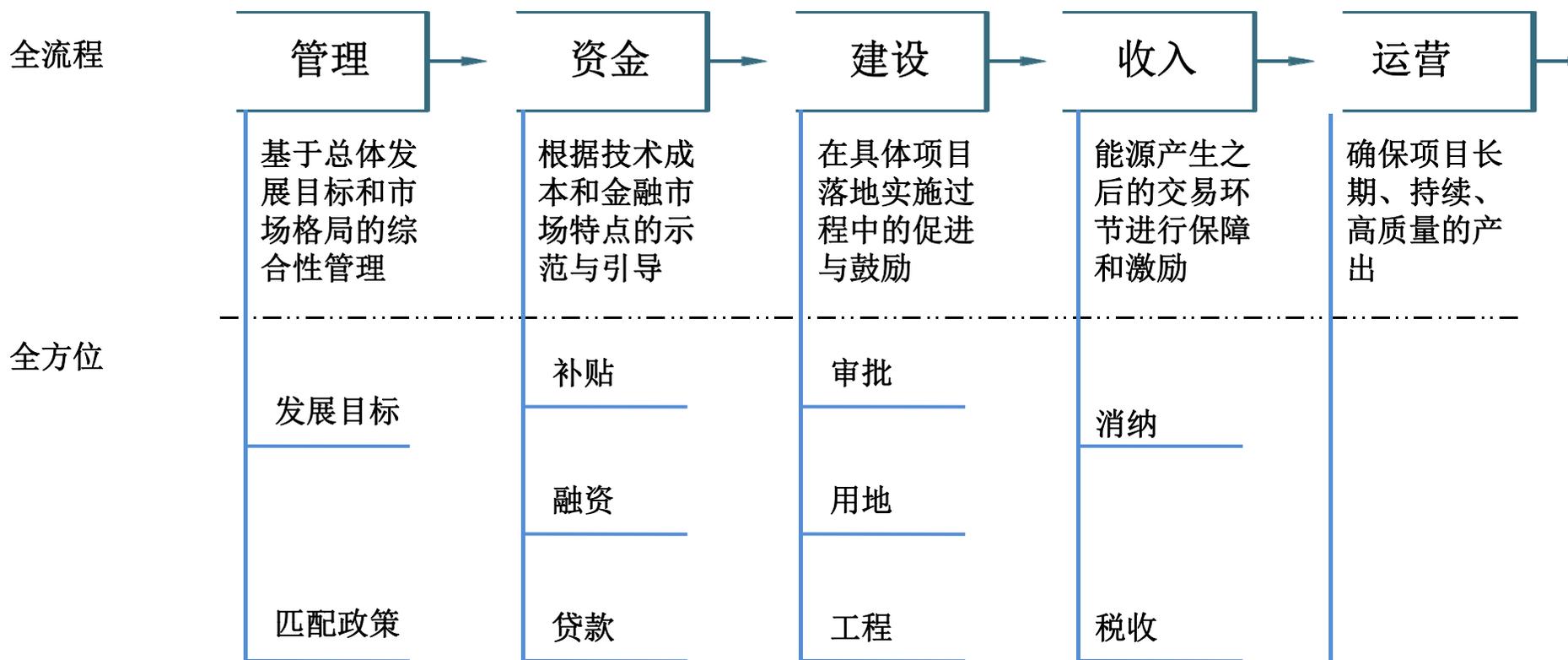
## 下一步计划

- 一、建立城市交流体系，考虑以组对组的形式开展，其中组别划分考虑多个因素，诸如资源禀赋、经济水平等
- 二、成立中美新能源城市交流小组或委员会，定期收集城市交流需求，找出可借鉴的参考和合作方式
- 三、中美城市双方互访、小型技术交流会、能力培训会等
- 四、双方合作项目，多方参与，有且不限于于城市双方或中美研究机构参与，引进技术，促进项目落地



# 中美城市新能源发展对比研究结论

- 《中美城市新能源发展对比研究》是《2014~2015中美可再生能源合作工作方案》第3项活动，我方总结收集到的所有中美城市的建设案例，总结出全面的管理体系框架





# 决策参考建议

- 一、科学化的宏观管理：针对目标完成的明确奖惩机制、体现政策意图的灵活调整能力、多方共同参与的群策群力态势。
- 二、针对性的资金支持：政策导向性、技术前瞻性、市场撬动力。
- 三、高效率的建设审批：精简审批环节、降低选址难度、全面调研成本。
- 四、全方位的税收调控：覆盖全产业链，体现政策意图。
- 五、专业化的运营模式：持续跟踪、表彰先进、打造模式。

# 后续计划

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- 一、继续完善本次研究的“光伏管理全景图”，结合后续案例，拓展到“新能源管理全景图”，以此为研究视角，剖析更多城市的建设、运营实践。
  - 二、将研究成果不断用于各城市的《十三五新能源规划》，对中国新能源示范城市建设的全过程跟踪、研究和智力支持。
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北京航空航天大学

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# 感谢聆听！

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