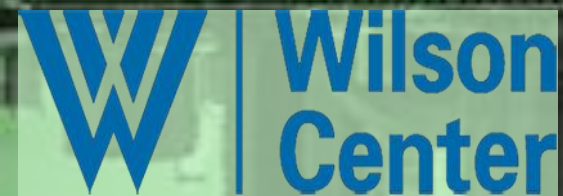


New Innovations for Green Financing in Urban China

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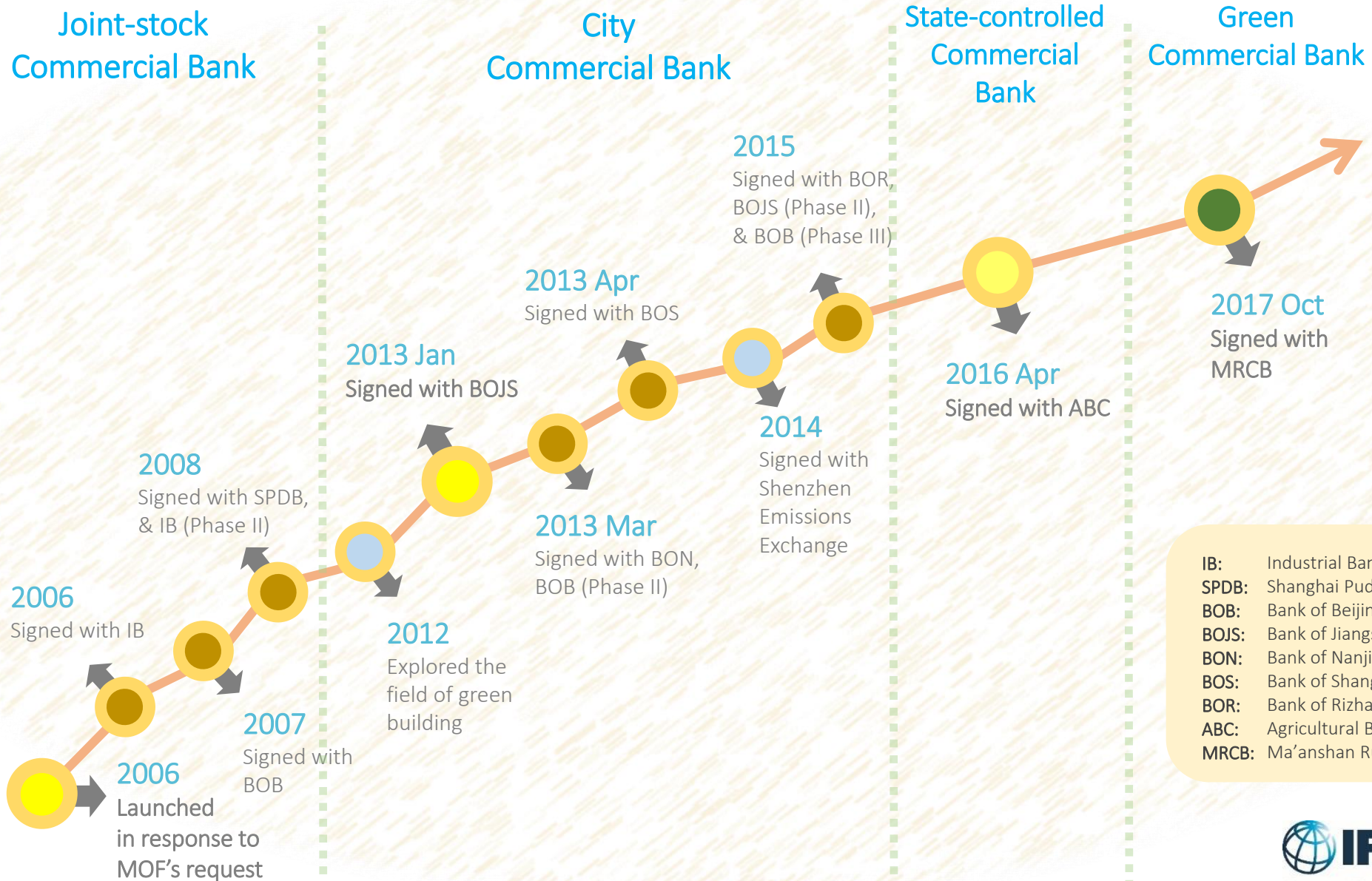


IFC GREEN Commercial bank framework



July 27, 2018

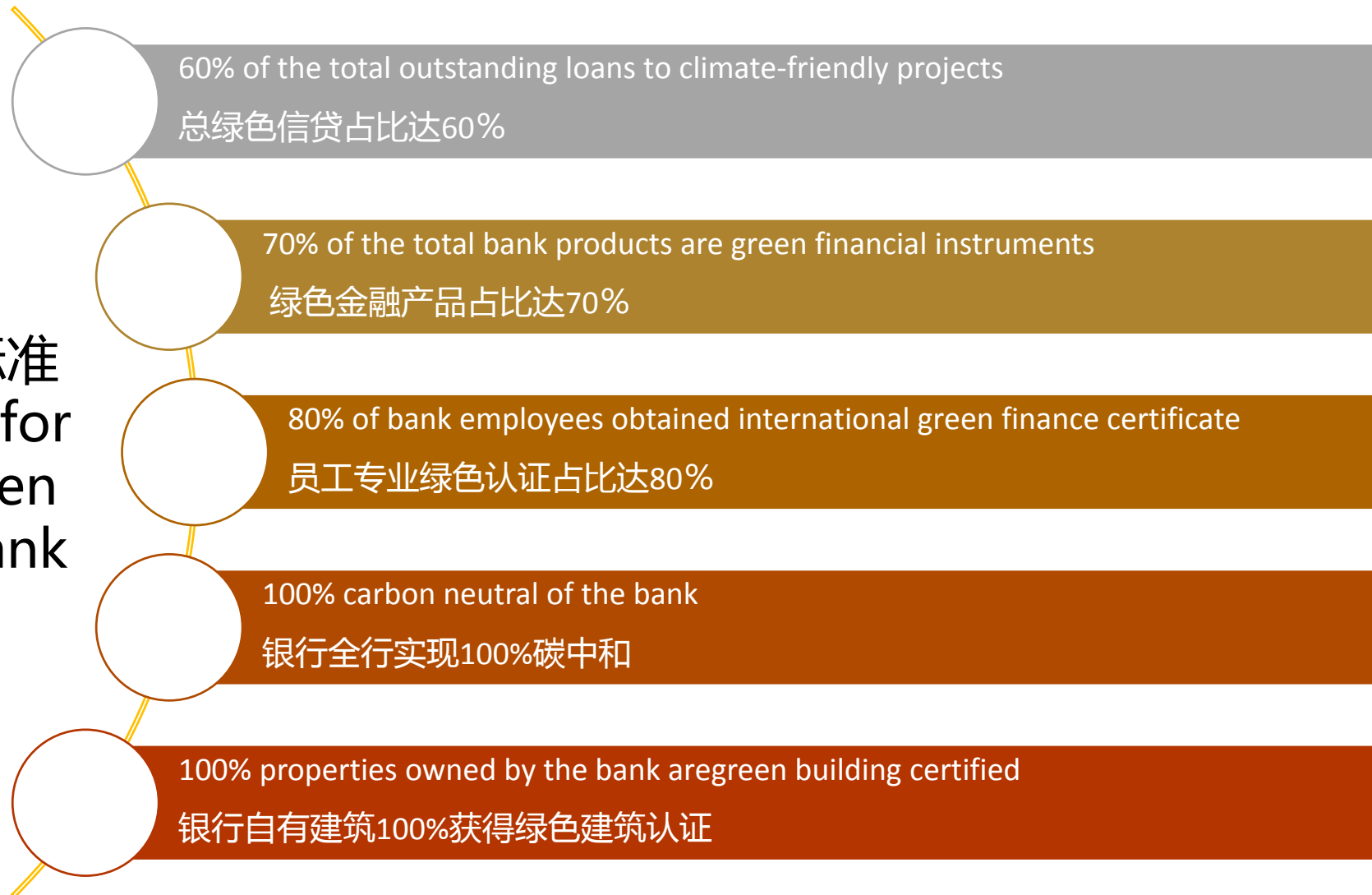
IFC China climate finance Development Path



IFC Green Commercial Bank Framework

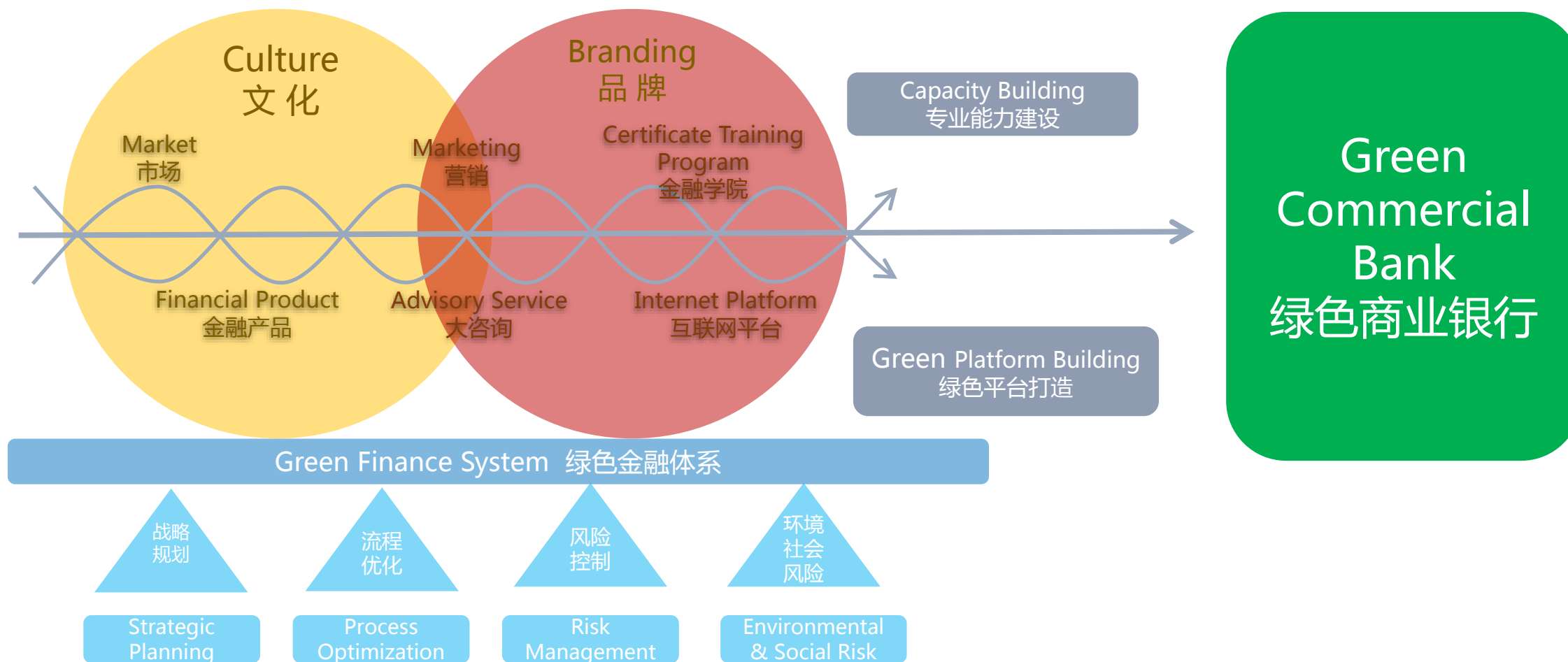
IFC 绿色商业银行框架

绿色商业银行标准 The Standards for building a Green Commercial Bank



The Implementation Framework of Green Commercial Bank

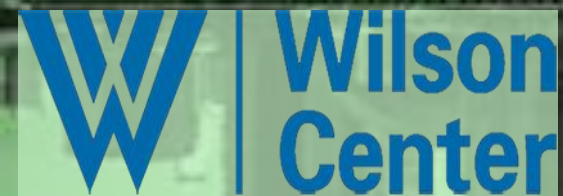
绿色商业银行实施框架



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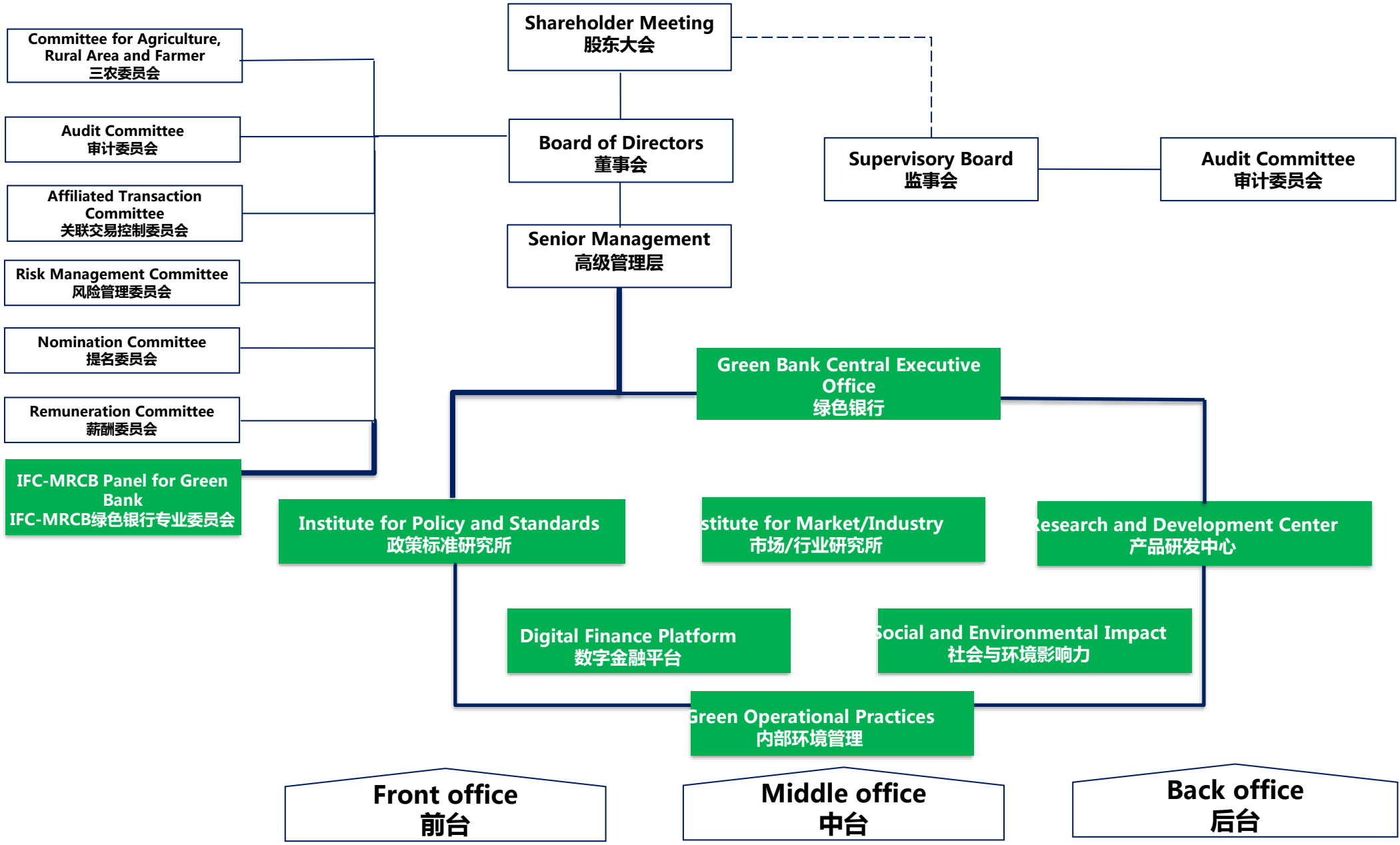


汇聚金融之力
点亮绿色中国

Green Finance Energizing Green China



马鞍山农村商业银行
MAANSHAN RURAL COMMERCIAL BANK



Two Institutes and One Center as Part of the Green Commercial Bank

两所一中心

Research and Development Center
产品研发中心

Lawrence Berkeley National Laboratory (LBNL)
美国能源部劳伦斯伯克利国家实验室 (LBNL)



Institute for Policy and Standards
政策标准研究所

Institute for Market/Industry
市场/行业研究所

School of Environment and Natural Resources,
Renmin University of China
中国人民大学环境学院



International Institute of Green Finance,
Central University of Finance and Economics
中央财经大学绿色金融国际研究院



Digital Finance Platform

数字金融平台

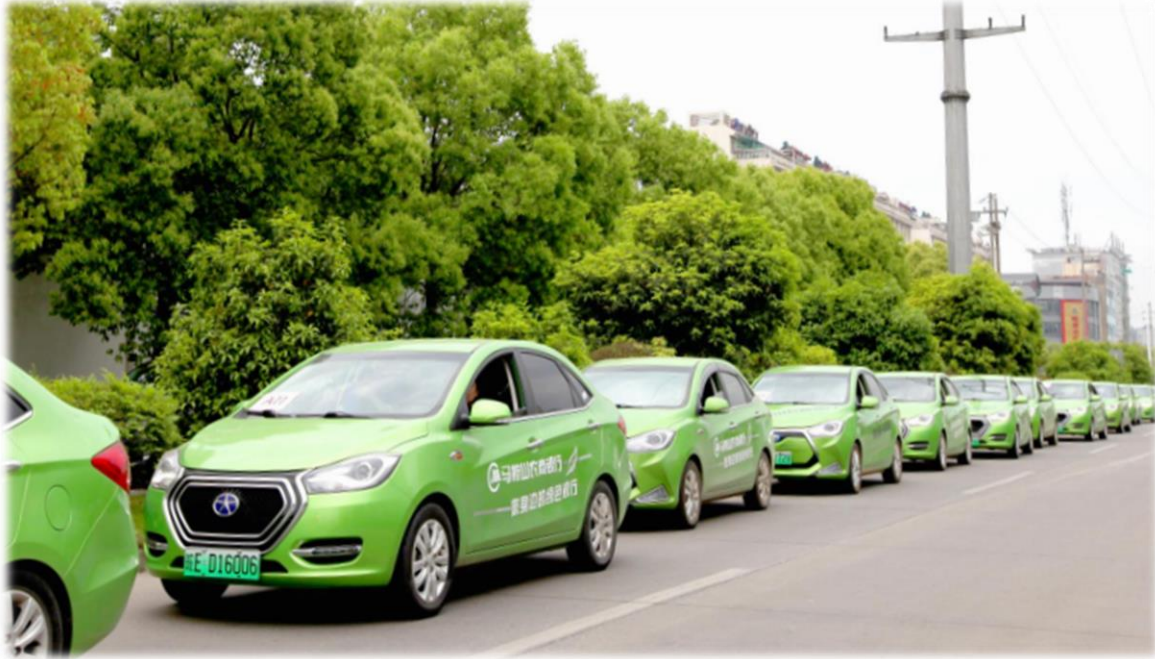


WeChat Mini app-Green Commercial Bank
微信小程序——绿色商业银行



www.green-fin.com
Comprehensive green finance information portal
综合性绿色金融信息平台——绿蜂网

Green Operational Practices 内部环境管理



MRCB have a total of 155 EVs with 162 more to be delivered. An increasing number of our employees are turning to electric vehicle for transportation.

全行绿色新能源电动车共155辆，另有162辆正在申请，新能源汽车使用占比正不断提高。

- Waste Sorting
垃圾分类
- Paperless office enabled by Ding Talk (teleconference, electronic approval procedures and digital journal), will help avoid 800kg of CO2 emissions every month
无纸化钉钉办公（电话会议、电子审批、电子日志等减少碳排放800kg/月）
- LED energy efficient lighting
LED节能灯
- Printer sharing (one printer for each floor in HQ building)
共享打印机（总部大楼按照楼层设置共享打印机）



Green Mortgage product for individual consumers

个人端
绿色住房按揭产品

How to qualify
怎样认定



Differentiated Interest Rate 差别化利率

Base rate
基础利率

+

Floating rate
浮动利率
(Energy efficiency level of the residence
住房能效水平)

A Guide to Green Consumer Loan 绿色消费贷指引

Purchase Guide for Green Home Appliance/ Furniture
绿色家电/家具购买指南



Green Lending Operations

绿色信贷

2018

- RMB1.28 billion in 25 new green loan disbursements in 2018
2018年上半年，发放绿色信贷12.76亿元，总计25笔
- RMB 2.17 billion in total outstanding green loan portfolio by end of June, 2018
截至2018年6月末，全行绿色信贷余额21.70亿元

These green loans have gone to the areas of renewable energy, water pollution prevention, green building, green agriculture, energy efficiency retrofit etc.

绿色信贷投放行业主要有：可再生资源利用、水污染控制、绿色建筑、绿色农业、节能改造等



Maanshan Rural Commercial Bank New Office Complex
Certified by Edge as Green Building
马鞍山农商银行综合办公楼获得EDGE绿色建筑认证



The First Office Building in China to Obtain IFC Edge
Certification
中国首家获得IFC EDGE绿色建筑认证的商业银行办公楼建筑

IFC Green Commercial Bank Framework

IFC 绿色商业银行框架

The Standards for building a Green Commercial Bank

绿色商业银行标准



谢谢

Thank you

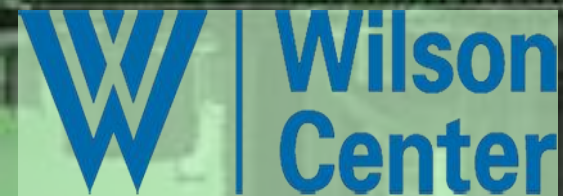


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MAANSHAN RURAL COMMERCIAL BANK

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Energy Technologies Area

Lawrence Berkeley National Laboratory

Innovative Financing Product to Scale Building Energy Efficiency

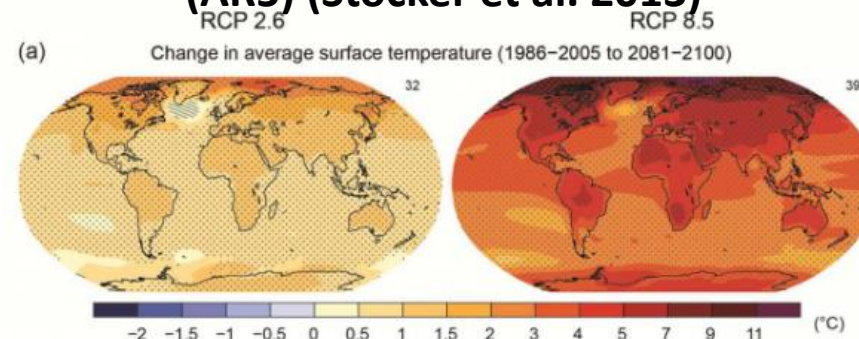
Presented by Carolyn Szum, China Energy Group,
Lawrence Berkeley National Laboratory



Global Context

- The 2015 Paris Agreement aims to keep global surface temperature rise **well below 2°Celsius (C)** above pre-industrial levels by the end of the 21st Century (UNFCCC 2017).
- A critical component of achieving mitigation goals is to **reduce energy usage in buildings, which account for over one-third of final global energy consumption** (IEA 2013).
- The International Energy Agency (IEA) estimates that limiting global temperature rise to 2 °C will require an estimated **77% reduction in total CO₂ emissions in buildings by 2050** compared to a baseline of 2012 (IEA 2013).

Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report (AR5) (Stocker et al. 2013)



Buildings Account for One-Third of Final Total Global Energy Use



What's the Problem?

- According to IEA, cumulative global investments in building EE **must reach \$13.4 trillion by 2035** to keep global surface temperature rise below 2° Celsius (C) (Rugova 2016).
- This scale exceeds the capacity of public funding and **mobilization of private capital is necessary** (IPEEC 2016).
- However, few structures exist in the market today for institutional investors to deploy capital, **resulting in the absence of EE as an asset class** (EEFIG 2015).
- In other words, **EE projects are not “developed, delivered, maintained, verified, and measured in a consistent manner”** (ICP 2017).

What is China's Opportunity?

- ◆ According to the Paulson Institute, China will require an investment of **US\$250 billion** during 13th Five Year Plan in order to scale building EE (Mo 2016).
- Approximately **80% of the required investment** must come from non-government sources (IPEEC 2016).
- Traditionally, **China has relied heavily on grants and subsidies** to advance its energy goals.
- **Innovative business models and financing mechanisms** to leverage primary and secondary market capital in China are needed.

World's First Green Commercial Bank

Ma'anshan Rural Commercial Bank (MRCB)

- Manages **US\$7.5 billion** in assets.
- The bank has adopted the following targets:
 - ◆ **60%** of the bank's total loan value is green;
 - ◆ **70%** of the financial products are green;
 - ◆ **80%** of the bank's staff are certified in green finance;
 - ◆ **100%** of the bank's portfolio of buildings are green certified;
 - ◆ Bank is **100%** carbon neutral.



MRCB – World's First Green Commercial Bank

Only **9%** of 21 major Chinese banks' total loan portfolio is for green projects (i.e., energy savings, pollution treatment, clean transport) (Xinhua 2018).

MRCB's Green Credit by Type

Energy Efficiency (EE) Loans:

1. Industrial energy and water conservation projects
2. Green transportation projects
3. Building energy efficiency and green building projects
4. Energy service projects
5. Renewable and clean energy projects
6. Overseas projects using international practices or foreign standards *[not disbursed]*

Ecological Cycle Loans:

1. Nature protection, ecological restoration and disaster prevention projects
2. Resource recycling projects
3. Environmental protection service projects
4. Green forestry development projects
5. Green agriculture development projects
6. Refuse disposal and pollution prevention projects
7. Rural and urban water projects *[not disbursed]*
8. Overseas projects using international practices or foreign standards *[not disbursed]*

Barriers to Building EE Lending in China

1. Technical Barriers

- Lack of information/asymmetric information.
- Lack of standardized protocols and tools for originating EE projects.
- Lack of technical capacity for EE.

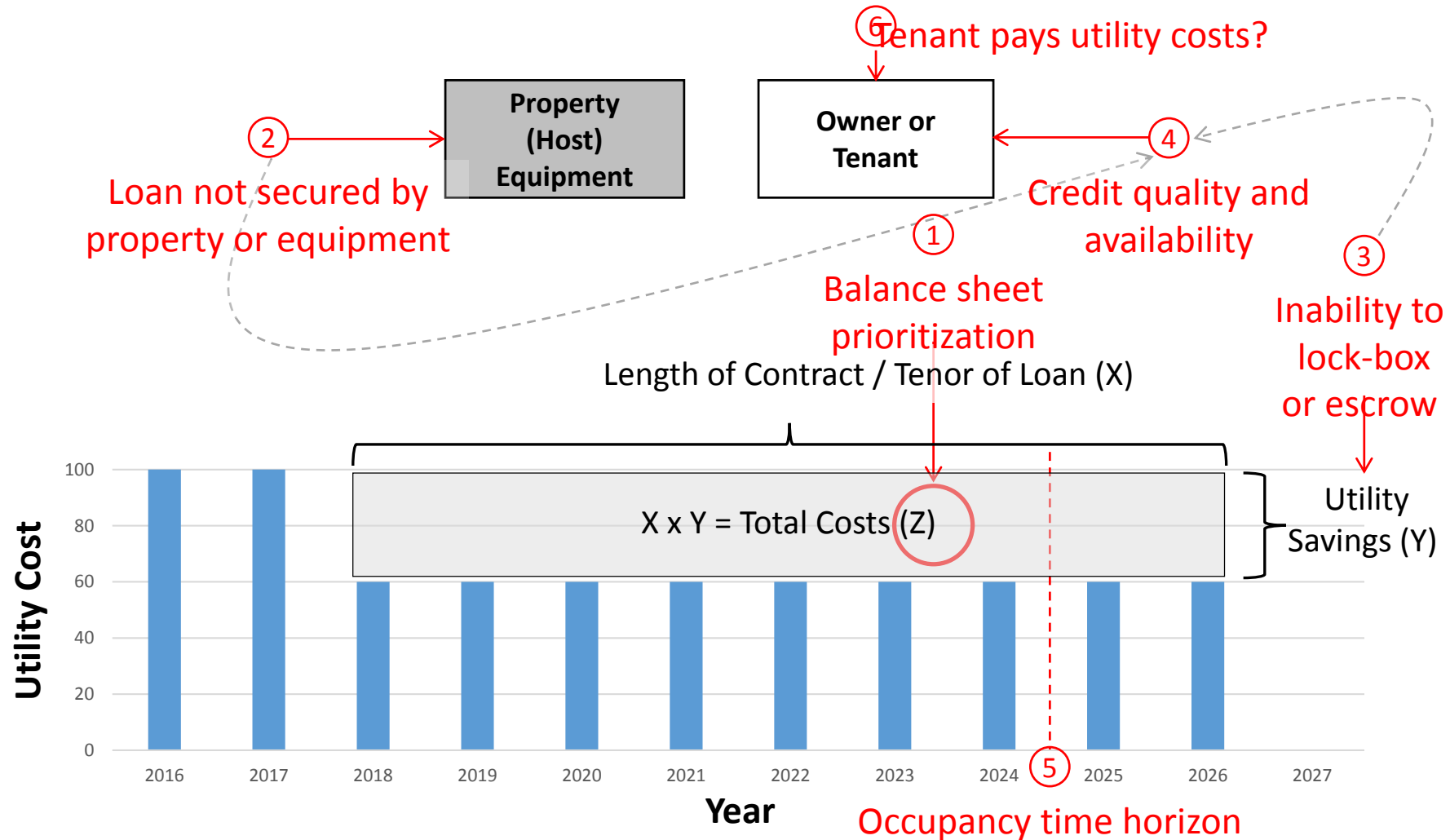
2. Credit/Market Barriers

- Balance sheet prioritization (self-finance thresholds).
- Loan not secured by property or equipment.
- Inability to “lock-box” or “escrow” future streams of cost-savings.
- Quality/availability of host credit information.
- Disconnect between occupancy time horizon in property and contract tenor.
- Split incentive (landlord/tenant).

3. Impact

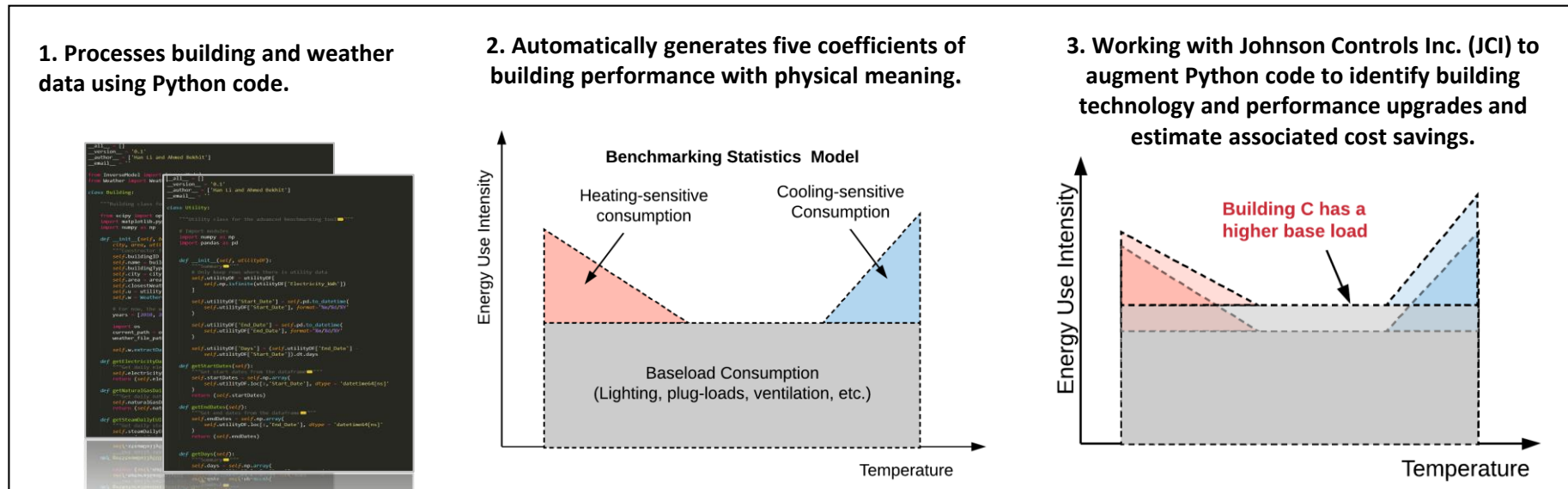
- **Three-quarters** of Chinese EE project hosts have encountered EE financing difficulty (IFC and EMCA, 98).

Credit/Market Barriers



Exploratory Solutions to Technical Barriers

- Advancing **data transparency** to expand the market for EE.
- Developing open-source **virtual assessment tools** to target cost-effective EE opportunities.
- Developing **standardized procedures for originating EE projects** which mitigate risk.



Exploratory Solutions to Credit/Market Barriers

- Partnering with banks to develop and scale **innovative EE financial products**.
- Systematically **analyzing the risk profile** of EE loans.
- Working with institutions to create **next-generation credit information products**.

April 2018 Launch: Innovative Green Financial Product



- **Green mortgage product:** MRCB launched low-interest rate mortgage product for green homes and apartments (3-Star or LEED certified).
- **Green building product:** MRCB proposing a derivative product for non-residential green buildings and mid-size corporate energy efficiency upgrades

MRCB Green Mortgage Product

- **Target client:** Buyers of green residential properties
- **Down payment required:** The same as required for traditional properties, i.e. 20% down payment required for first home purchase and 30% for second. (Whether it's first or second will be determined by housing loan(s) taken by the borrower)
- **Preferential Terms**
- **1. Preferential interest rate:** A certain preferential rate is provided based on client's ecological credit.
 - Green mortgage interest rate= base rate + floating rate
 - **The base rate** will be the same as adopted for traditional properties of the same conditions. **Differentiated interest rates are granted based on the greenness of the certified green property.** Given the going rate at MRCB, the interest rate for a traditional mortgage is 5.39%

1. Preferential Interest Rates

LEED		CGBC		IFC Edge	
Certified level	Annual IR Discount	Certified level	Annual IR Discount	Certified level	Annual IR Discount
LEED CERTIFIED	-			CERTIFIED	0.2%
LEED SILVER	0.1%	1-Star	0.1%		
LEED GOLD	0.2%	2-Star	0.2%		
LEED PLATINUM	0.3%	3-Star	0.3%		

2. Matching Consumer Line of Credit

- Borrowers of the green mortgage loan will be approved a consumer credit line 10% of the total purchase price of the green property for the payment of relevant transaction fees and the purchase of green household items, energy efficient home appliances etc.
- The purchase must be done in compliance with the **Purchase Guide for Green Home Appliances and Furniture.**
- The loan will be disbursed through entrusted payment as a way of monitoring loan purpose fulfillment.
- The loan amount is capped at RMB 500,000 with a maximum tenor of 3 years and an interest rate the same as adopted for other consumer loans currently available at MRCB.



Figure 1.
China Energy
Label



Figure 2. China
Voluntary
Energy
Efficiency Label






3. Exemption of Early Repayment Penalty

- Green mortgage borrowers will be exempt from a penalty in case of early repayment.

How Do We Leverage Secondary Market Capital for EE?

Meet the requirements of capital markets:

- Sufficient scale.
- Standardization.
- Ability to efficiently understand credit quality in many market segments.

Transaction	Sector	Type	Credit	Size	Aggregation
	MUSH	Bond	Public Investment-Grade	\$72.5mm	State properties; Multi-agency
	Corporate	Bond	Corporate Investment-Grade	\$324mm	Corporate facilities; international
	Single-Family	PACE ABS	Tax lien	\$232mm (10) \$2+b total	Pool
	Single-Family	Unsecured ABS	Unsecured	\$12.5mm	Pool
	Commercial	Efficiency Services Agreement	Two Factor Backstop?	\$14mm	Property Management

Secondary Market Examples in the United States (Citi 2017)

Thank You!

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