



# Opportunities for Improving Air Quality through Clean Transportation and Cleantech

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# iCET: INNOVATING FOR A CLEANER WORLD

The Innovation Center for Energy and Transportation (iCET), a professional think tank in the areas of clean transportation, sustainable development, and cleantech innovation, is an independent non-profit organization registered in Beijing and California. iCET's mission is to strengthen international collaboration and provide decision makers at all levels with the urgently needed innovative solutions to solve the energy, environment, and climate crises amid the fast evolving .

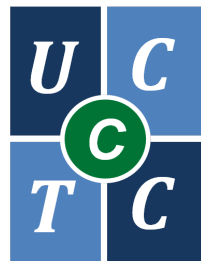


Over the years, iCET has carved out a unique reputation as a leader in promoting innovative clean energy and climate policies in China and beyond. We recognize the urgency of the environmental challenges, commit to the values and principles of innovation, sound scientific research, independence, and practicality.

We focus on transformational changes in technologies and policies, harness private-public partnership on problem solving, embrace green lifestyle and sustainable development to cherish our planet earth.



Big-Data & Sustainability  
(since 2016)  
*Live-Cycle™*



U.S.-CHINA  
CLEAN TECH CENTER  
美中清洁技术中心

Cleantech Innovation  
(since 2012)

Clean Transportation Transformation  
(since 2006)



Climate & Carbon Management  
(since 2008)



icET  
PROJECT FRAMEWORK



# ACHIEVEMENTS



- ✓ First world-class national fuel economy standards for cars and trucks
- ✓ First Energy and Climate Registry online system in China for enterprises to report carbon footprint
- ✓ First Green China Car Online Ranking System
- ✓ First EV performance ranking system
- ✓ National biofuels standards initiator and standing committee member
- ✓ Introducing California Climate Change Legislation AB32 into China
- ✓ Introducing California ZEV-credits program into China
- ✓ Introducing GHG management training to China
- ✓ Establishing US-China Clean Tech Center for the promotion of solutions transfer
- ✓ Organizing Annual Global Clean Vehicle Summit in China
- ✓ Announcing “Big Data & Sustainability Initiative” in UN Climate Summit COP21 in Paris

## DEUTSCHE BANK 2013 STUDY - CHINA: BIG BANG MEASURES TO FIGHT AIR POLLUTION

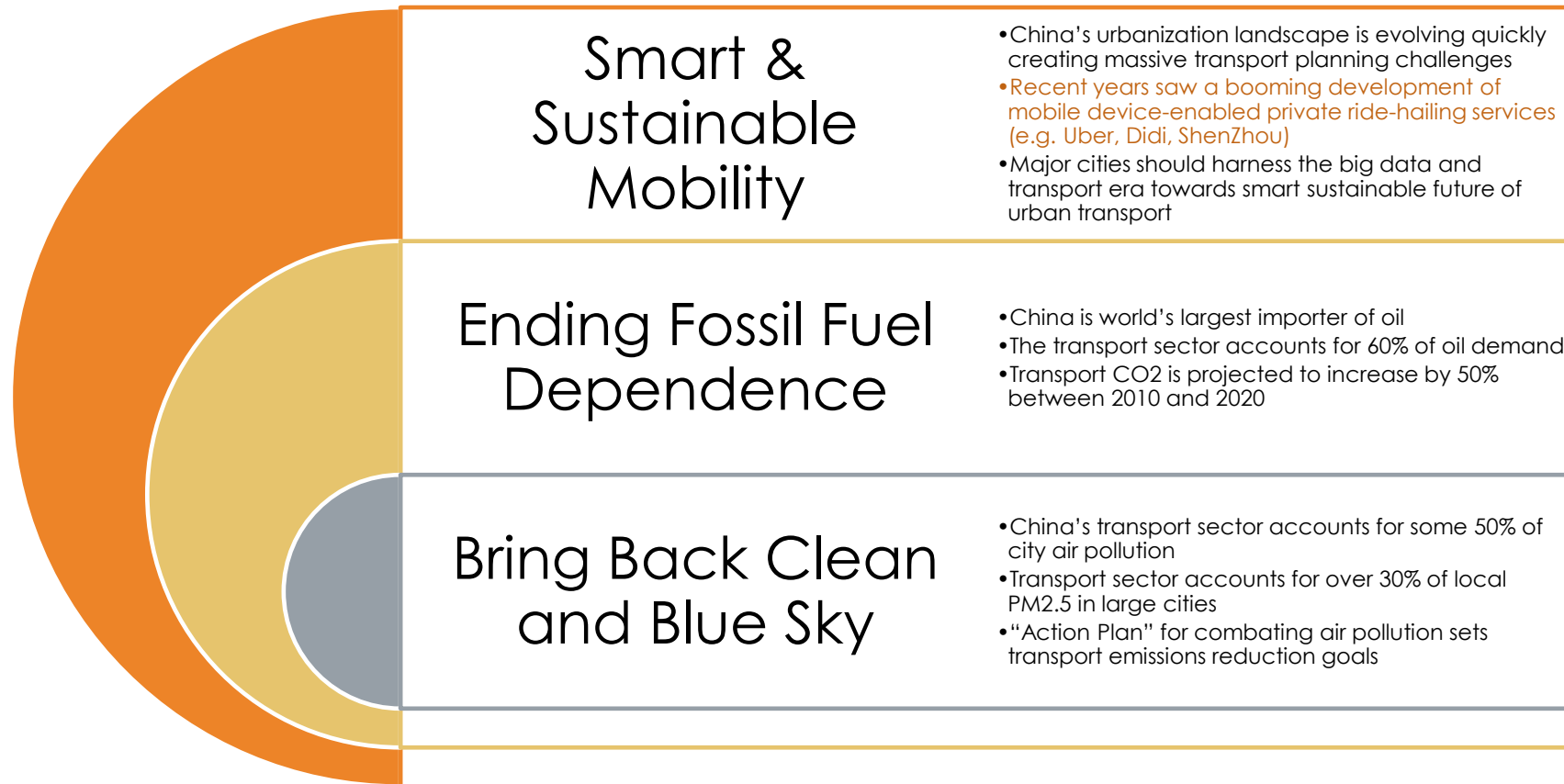
A POLICY PACKAGE THAT CAN ACHIEVE A REDUCTION IN THE ANNUAL URBAN AVERAGE PM2.5 TO 35 BY 2030, THIS PACKAGE WILL REQUIRE THE FOLLOWING CHANGES TO CURRENT POLICIES OR PLANS, AMONG OTHERS:

- Reduce the annual average coal consumption growth by half (to 2%) from the current forecast of a 4% CAGR for 2013-17, and cut coal consumption by 22% from 2017-30.
- Reduce coal-related emissions by about 70% in the coming 18 years via clean coal technologies.
- Reduce emissions per car by more than 80% by enforcing high standards for gasoline and car emission and improving fuel efficiency.
- Increase the annual growth rate of clean energies (gas, nuclear, hydro, wind and solar) by another 4ppts for 2012-20 vs the current forecast.
- Reduce the 2030 target for passenger vehicles to 250mn units from the current expectation of 400mn. This implies a reduction in annual average car sales growth to 5% during 2013-30 from 20% p.a. in the past five years.
- Increase the length of railways and subways by 60% and four-fold, respectively, from 2013-20, and further increase the length of railways and subways by 60% and 230%, respectively, from 2020-30.

# TRAFFIC EMISSIONS INCREASINGLY CONTRIBUTE TO CLIMATE CHANGE AND AIR POLLUTION

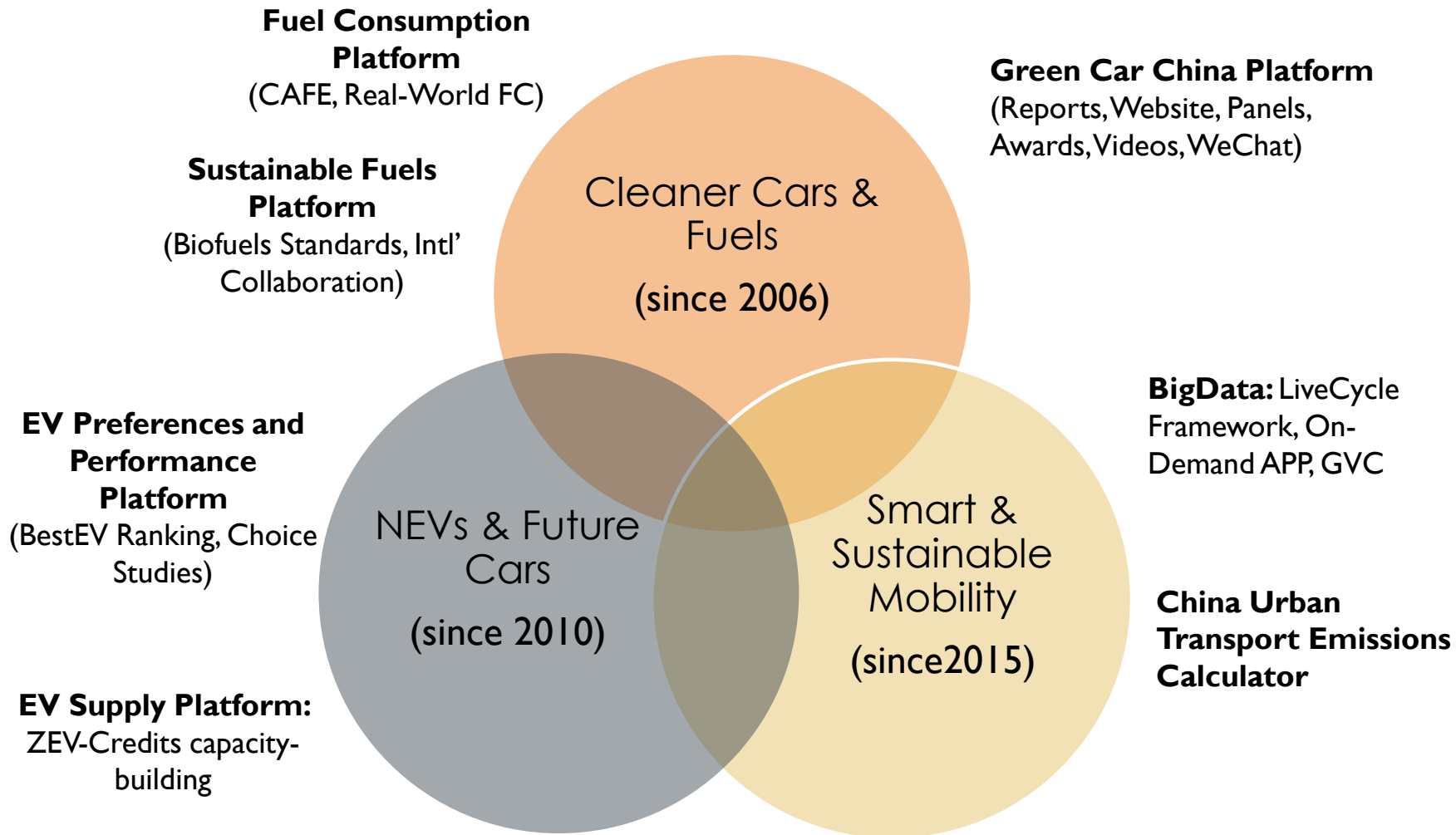
- Traffic emissions increasingly contribute to climate change and air pollution, which has become the largest peril to urban air quality and citizen's health. **Automotive energy consumption** also imposes negative influence on energy safety.
- Despite a series of policies and initiatives being put into enforcement among different countries and regions, statistics from the 2016 energy report indicate that over 50% global **nitric dioxides** can be attributed to combustion of traffic fuels.
- China has been the world largest automotive market for seven years. Traffic is not the largest air pollutant, although the **tail gas of motor vehicle** has been replacing industrial pollutant, becoming a major source of urban air pollution, especially for **haze** and excessive PM2.5.
- As a mobile pollutant, the tail gas of motor vehicle directly emits into surrounding air, impacting people's health and the environment. **Traffic congestions**, high-speed driving and frequent re-starting lead to increased energy consumption and tail gas emissions and amplifies the harmful influence of urban vehicle emissions. Therefore, traffic congestions and air pollution is more severe in big or middle-sized cities. Over 80% of passenger vehicles and over 60% of freight trucks are located in downtown areas. Road traffic emissions contribute to over 20% of PM in Shanghai and Guangzhou, and to over 30% in Beijing and more than 40% in Shenzhen.

iCET's Clean Transportation Transformation Program's (CTTP) mission is to dramatically reduce fossil energy use and carbon emissions, bring back blue sky and promote sustainable mobility through smart and intelligent decision making by consumers and decision makers enabled by sound scientific information and big data analytics. The challenges we address are three-folds:



CLEAN TRANSPORTATION  
TRANSFORMATION  
GOALS

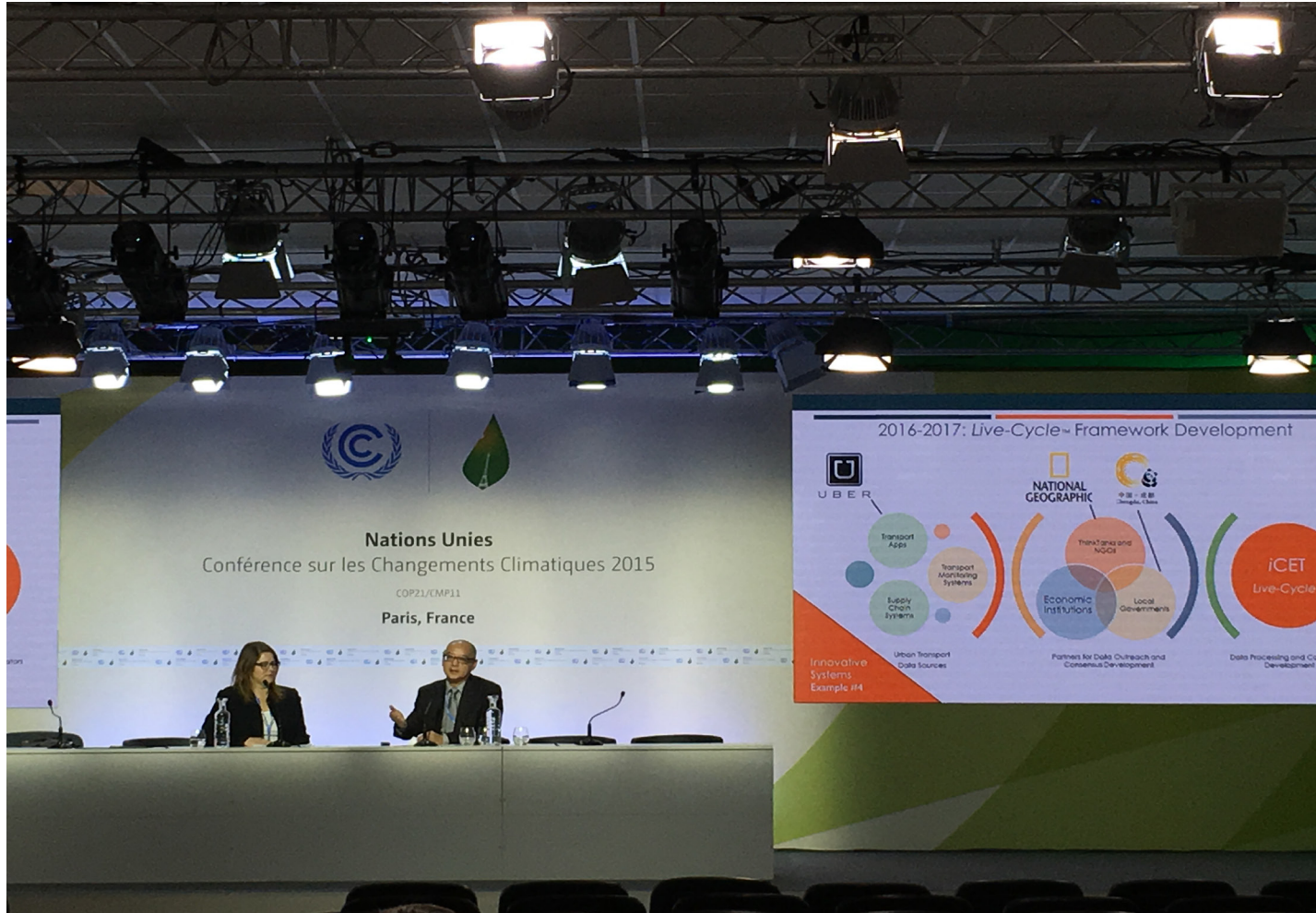
iCET employs innovative methodologies and tools to promote clean traffic systems and social development. We cooperate with our partners to introduce international experience into local settings. Key work areas are:



I. CLEAN TRANSPORTATION  
TRANSFORMATION  
PROJECT AREAS



On December 7<sup>th</sup> 2015, iCET (Innovation Center for Energy and Transportation) presented its vision for “Transportation in the Era of Big Data: Applying *Live-Cycle*<sup>TM</sup> Methodology Framework on the Development of Big Data Analytical Studies for Urban Transportation Systems” at the UN Framework Climate Change Conference (COP21) in Paris



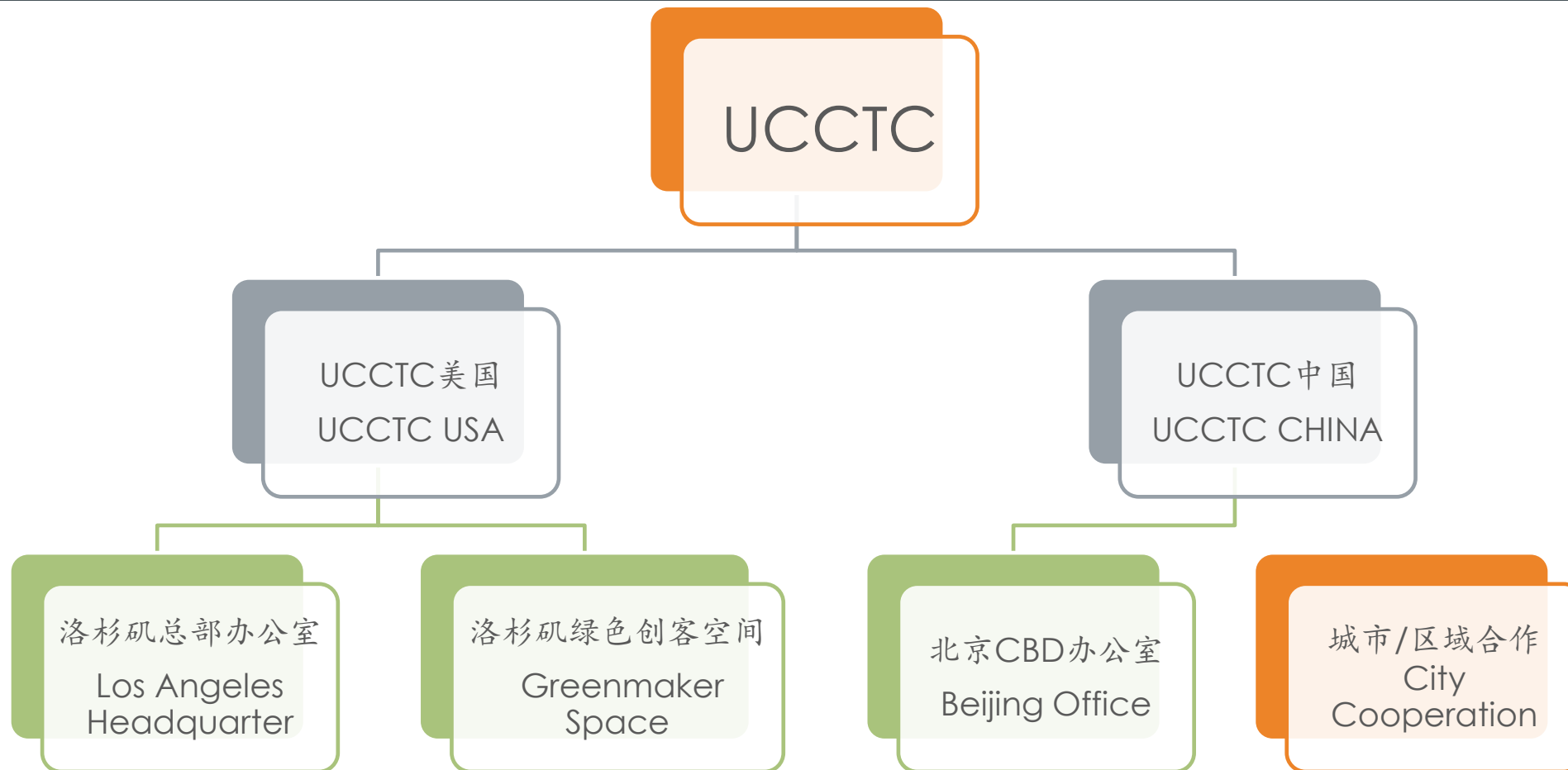
On big data, cloud computing and telematics iCET cooperates with its partners to establish a Live-Cycle, i.e. develop a comprehensive MRV-standard and a quantitative index system and set up a data research and cooperation platform under the framework of applying big data to the global value chain. With strong support from the National Geographic Society and UBER, a public-private partnership pilot project started in Chengdu.



# U.S.-CHINA CLEANTECH CENTER



# UCCTC ARCHITECTURE



# UCCTC TECHNICAL SCOPE

8 technical categories and 300 subcategories

- covering new energy, energy efficiency, clean transportation recycling, energy storage/distribution, new materials, waste/pollution treatment, monitoring and analysis.
- 3000+ U.S. frontier technologies have been collected,
- covering the full process from R&D, commercialization, to start-up and industrialization.



# UCCTC 6 AREAS OF WORK

技术银行  
Techbank

绿色创客空间  
GreenMaker SPACE

投融资服务  
Investment Advisory

城市合作  
City Partnership

企业合作  
Soft Landing

研究报告  
Research



THANK YOU

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