



2016 ANNUAL REPORT

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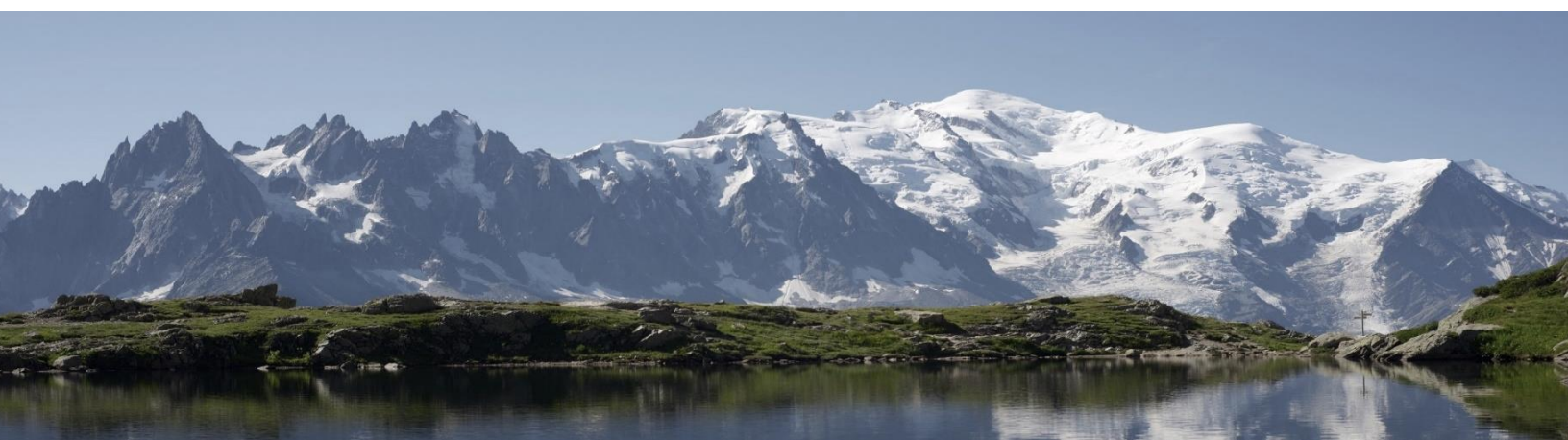
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ABOUT *i*CET

The Innovation Center for Energy and Transportation (*i*CET), 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. *i*CET's mission is to strengthen global collaboration and provide decision makers at all levels with the urgently needed innovative solutions to solve the energy, environment, and climate crises amid our fast changing world.

Over the years, *i*CET 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 environmental challenges and 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.



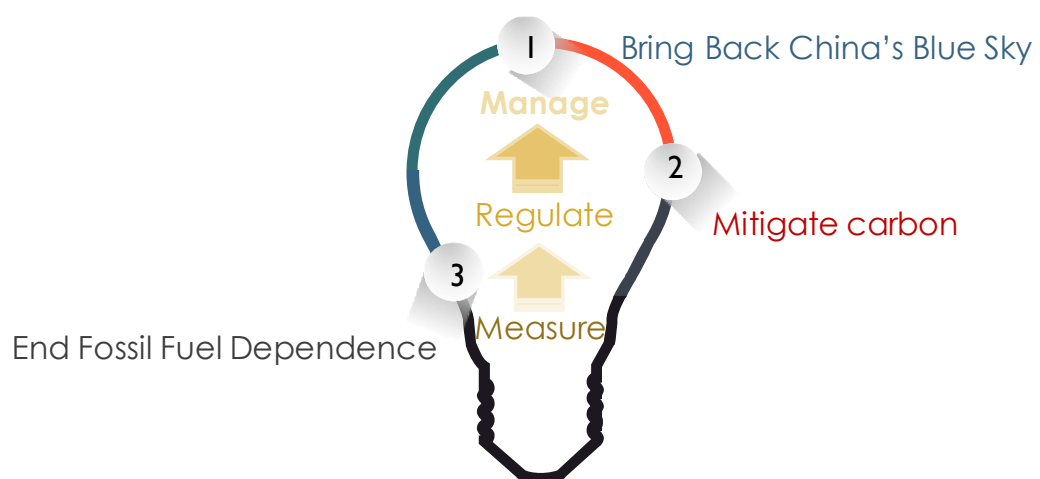
We do so through four core programs: The Clean Transportation Transformation Program (formed in 2006) aims to accelerate the transition to low-carbon and clean energy vehicles through standard and policy development, technology promotion and consumer engagement; The Climate and Carbon Management Program (formed in 2008) facilitates carbon “Measurable, Reportable and Verifiable (MRV)” Principles on the corporate and government levels through free online reporting tool and trainings; The Cleantech Innovation Program (formed in 2012) creates online and offline multi-stakeholder platforms for advancing clean technology collaboration and innovation among China, U.S., Israel and beyond; and The Big-Data & Sustainability Program is our new initiative dedicated to a Live-Cycle methodology development for jump-starting new generation of groundbreaking approaches to measure, monitor, and report greenhouse gas (GHG) emissions and criteria pollutions from diverse emission sources and industrial processes on real-time real-data basis.

All of *iCET*'s four programs are inter-connected and enable innovative policy designs and breakthrough technological solutions to control, reduce and eventually eliminate emissions with unprecedented effectiveness and efficiency.



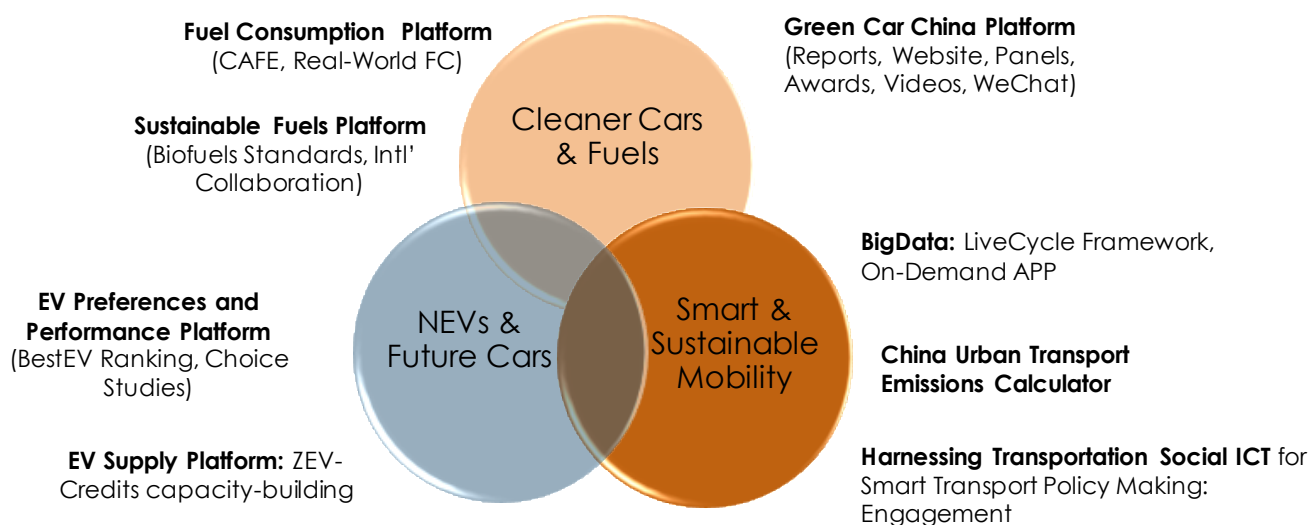
CLEAN TRANSPORTATION TRANSFORMATION PROGRAM

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 intelligent decision making by consumers and decision-makers enabled by sound scientific information and big data analytics. The triangle challenge we face and the corresponding three-phase approach we adopted involve measurement, regulation and management (MRV):





As the world's largest and fastest growing auto market and consumption base, China's shift towards cleaner means and sources of transportation has the potential to shape the future of global mobility. CTPP develops innovative tools to advance clean transportation transformation, engages multi-stakeholders to achieve shared vision, and combines the best international practices with sound scientific analyses suited to local conditions. Our key work areas are:





During 2016, CTPP enhanced its research by harnessing online mobile ICT sources (Uber data, Bear Oil App) for conducting new analyses. These analyses provided new insights into real-world real-time fuel consumptions and emissions by motor vehicles in China's mega cities. iCET also started a new qualitative research project to conduct focus-group interviews and in-vehicle surveys to better understand the rapid emerging ride-hailing network services, especially from drivers and customers' perspectives on urban fuel consumption awareness and ride-sharing options.



Smart & Sustainable
Mobility

- Novel framework development for transport mobile ICT utilization in policy decision-making
- Qualitative data-based consensus development effort (NEXT YEAR)



小熊油耗



Car-sharing &
Future Cars

- Car-sharing impacts on urban carbon emissions through qualitative studies (Driver perspective; Rider perspective – NEXT YEAR)
- Car-sharing as a study lab





In 2016, CTP's news releases and expert panel discussions enabled active and influential dissemination and exchanges of information and opinions. CTP's media outputs increased significantly from previous year through its multiple in-house channels (WeChat, website, LinkedIn, new China Green Car website). CTP also hosted EV test drives and rides during the UNEP-supported China's sustainable consumption week, organized an EV users' round-table and received TV interviews from major news media such as Beijing TV station. These activities represent a new level of consumer engagement to advance sustainable urban mobility in China. CTP's 2016 outputs are summarized in the below table:

	Social Media WeChat & Weibo & LinkedIn	Videos/Radio/TV	Media Covered Articles
2016	300+	4	50+
2015	300+	2	50+
2014	100+	2	20+



iCET CTP's work has generated significant impacts on China's policy making primarily in the following three areas:

ZEV/NEV credits

Inclusion in US-China CC Dialogue, Dec 2015 → iCET advanced this with both State Dpt¹ and NDRC

MIIT release a draft regulation, September 21 → iCET contributed via multiple reports and workshops

NDRC releases a plan, August 12 → iCET contributed via multiple reports and workshops (CBEEC)

FC Reporting

CAFC analysis by MIIT, executed by CATARC → iCET have been conducting the analysis and releasing results through experts consultation for 6 years

New FC Label draft under approval → iCET conducted a study in 2012, and communicated with CATARC in the past years

Biofuels Standards

New sustainable biofuels standard to be drafted → iCET invited to co-author the standard, after introducing concepts and building China's capacity since 2007



BIG DATA AND SUSTAINABILITY PROGRAM

Based on the background of Internet and intelligent transportation, the advent of new modes such as Internet access, green sharing and new energy vehicles have brought new opportunities for urban transport in China. In the era of informationization where the big data, cloud computing, car networking and ICT (real-time information technology) are becoming more and more popular, the limitations of lack of data and technology are gradually eliminated. Based on the "real-time / factual traffic" data, the rational formulation of the traffic and emission policy becomes possible. Smarter travel, as a concept that includes real-time messaging, smart, connected, green and shared travel, is becoming an important option for sustainable urban development.

On December 7th 2015, iCET presented its vision for "Transportation in the Era of Big Data: Applying Live-Cycle™ Methodology Framework on the Development of Big Data Analytical Studies for Urban Transportation System" at the UN Framework Climate Change Conference (COP21) in Paris, attracting broad interest from many international organizations. The plan has received support from the National Geographic Society through a grant via its Air and Water Conservation Fund in China. The emergence of "Big-Data", "Cloud-Computing" and "Vehicle Connectivity" in recent years have created new data resources and the technical capacity to capture and verify transportation activity data in real time. iCET is promoting a public-private collaboration using big-data presented as new deep visibility weapon to quantify GHG impacts on environment and economy and meet urban transportation and climate change challenges.



Some Big Data and Sustainability Program Events during 2016

On April 18, 2016, iCET was invited by the World Bank's Headquarters for Transport and Global ICT Time to present the Big Data and Sustainable Transport Project at the headquarters of the World Bank in Washington, DC. Dr. An Feng, Executive Director of iCET, introduced the project and conducted in-depth discussions with Shomik Raj Mehndiratta and others with the Chief Urban Transport Specialist of the World Bank.

On June 8, 2016, at the Sino-US summit on high-level climate in Beijing, iCET proposed an open cooperation initiative on the challenges of global climate change. The initiative aims to promote "Measurable, Reportable and Verifiable Mobile Source Emissions Measurement and Release Standards System (Mobile Source MRV)" by using transport big data to create an open platform.

On July 13, 2016, iCET was invited to attend the Eighth International Youth Summit on Energy and Climate Change and introduced the Chengdu Big Data Transportation Project at the venue of the "Low-Carbon Transport Development in China" section.

On September 9, 2016, iCET was invited to make a speech at the 2016 China Supply Chain Management (Chengdu) Forum. Dr. An Feng, Executive Director of iCET, delivered a speech titled "Mobile MRV-based Innovative and effective accountability mechanism for sustainable supply chain".

On September 21, 2016, iCET held "Roundtable Discussion on China's 2016 Fuel Economy and Municipal Emissions Assessment of Passenger Vehicles in Beijing" at Beijing. At the meeting, iCET released the "Study on Fuel Consumption and Emissions of Urban Traffic Based on ICT-Chengdu Case Summary" And other fruitful documents, participating experts also conducted a lively discussion.

In October 2016, 《Southern Weekly》 conducted exclusive reports on "Transport in the Big Data Era: Case Study on Uber in Chengdu," and conducted in-depth discussions on such issues as traffic big data, carbon emission reductions, network vehicles and vehicle exhaust emissions.



CLIMATE SMART POLICIES AND PRACTICES PROGRAM

Climate change is one of the world's greatest challenges, bringing to light the urgent need for innovative solutions. The climate crisis requires the world to rapidly deplore new technologies, reform its existing business model and foster new social responsibility from corporations and ordinary citizens. The Climate-Smart Policies and Practices focuses on innovative approaches that iCET is developing to address climate challenges: to strengthen greenhouse gas emission data management and MRV capability, and promote international collaboration on climate-smart technology innovations: China Climate Registry Establishing a robust greenhouse gas measurement, reporting and verification (MRV) mechanism is the foundation and building block for any climate policies and action plans. iCET's China Climate Registry (CCR) is the first online voluntary GHG registration and educational system (www.ChinaClimateRegistry.org) for governments, communities, and business to calculate and report their carbon inventories and footprint.

Sharing International Best Practices Conducting carbon Cap-and-Trade research and introducing California's Landmark Climate Legislation (AB32) and Transfer of Best Practices to China. Introducing California's Zero-Emission Vehicle (ZEV) Credits and Trading Mechanism and its Potential Suitability for China Introducing the innovative California ZEV-Credits program and evaluating its effectiveness through a case study of the world's leading electric automaker Tesla Motors, expert interviews, quantitative impact assessments, and extensive meta-analysis. Studying Credit Trading Mechanism for Low-Carbon Transportation Investigating credit and carbon market trading mechanism among fuel consumption standards, ZEV credits and carbon market cap-and-trade system.



CLEANTECH INNOVATION PROGRAM

As the world's largest carbon emitter, fastest growing economy, and home to many of the world's most polluted cities, China is constantly looking to collaborate with global cleantech leaders for promoting its sustainable development. In the Fall of 2012, with support from strategic partners in both China and the US, iCET created its Cleantech Innovation Program, in order to identify and promote clean technology policies, practices, and business solutions in China through global multi-stakeholder collaboration.

U.S.-China Cleantech Center

The U.S.-China Cleantech Center (UCCTC) is a joint-partnership program between iCET and the U.S. Department of Commerce dedicated to promoting U.S. clean energy and environmental protection technologies and best practices to China. UCCTC brings together leaders from top companies and the sustainability field to network, promote and seek out new clean technologies, and shape the green future.

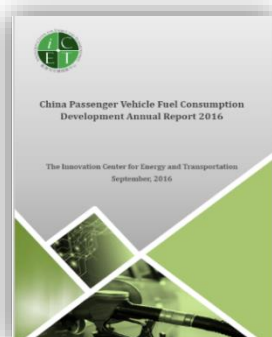
Tech Bank

We have created a Tech Bank covers 8 clean technology sectors: New Energy, Energy Efficiency, Clean Transportation, Recycling, Energy Storage/Distribution, New Materials, Waste/Pollution Treatment, Monitoring and Analysis. This online clean technology solutions platform is designed to promote deep technical cooperation between U.S. and China, and provides immediate access to the people and resources crucial in turning China's pressing energy and environmental challenges into partnership opportunities for private and public sector stakeholders.

City Partnership

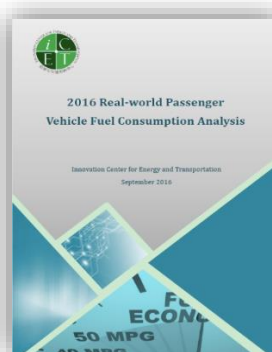
With high environmental technology demands from China, we developed strategic partnerships with several Chinese cities and business districts: Guangzhou, Tianjin, Dongying, Yixing, Changzhou, Changshu and Zhuhai to name a few. Through high level industry exchanges, capacity building workshops, and environmental protection technologies and management training, we assist city governments, local industrial insiders in improving their knowledge on clean technology, encourages the adoption of relevant policies and best practices, and promotes opportunities for commercial green technology exchange.

2016 REPORTS AND BRIEFS



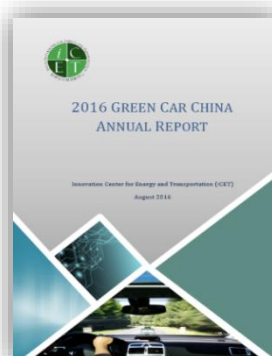
2016 China Passenger Vehicle Fuel Consumption Development Annual Report (September 2016)

Supported by the Energy Foundation, iCET's 6th CAFC report demonstrated that China's domestic average fuel consumption improved slowly from 8.16L/100km to 6.95L/100km during the last decade. The forth phase of the standard which entered force in January 2016 is aimed at a sharp fuel consumption decrease of 2L/100km over the next five years, requiring more than NEV production (calculated through the flexibility mechanism): both engine size and vehicle weight decrease, and more rigorous ICE technological improvements.



2016 Real-world Passenger Vehicle Fuel Consumption Analysis (September 2016)

Aiming to assess the gap between reported and real-world fuel consumption (FC), this study uses the reported FC data available on the MIIT's website and a bottom-up actual FC data collection App, BearOil App which includes nearly 600,000 owners and over 15 million data inputs inserted between 2008 and 2015, covering 16,000 vehicle models in 31 cities in China. By-segment, by-brand, by-model year, and by-transmission FC gaps are analyzed with simple possible reasons explanation. Last but not least, this report further highlights the need for independent and accountable third-party scrutiny of auto standards implementation status.



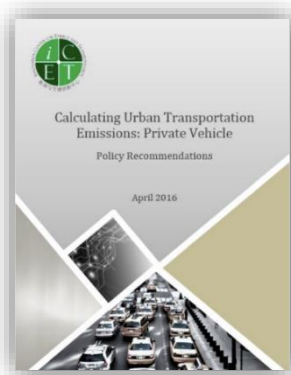
2015 Green Car China Annual Report (July 2016)

iCET's 6th Green Car China Annual Report released green rankings for 10 vehicle categories (including plug-in hybrid ranking for the first time), as well as top best-selling models' ranking. Blue Score was used to evaluate the emission level instead of Smog Index in this report. Additionally, average Green Scores and Blue Scores of the past 3 years were analyzed and compared to show the trend of vehicles' environmental performance.



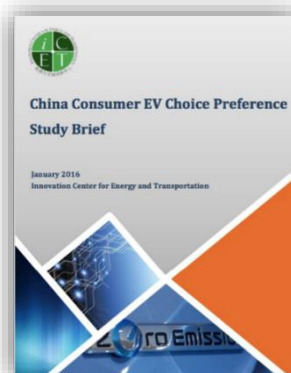
BestEV v1.0 Methodology Summary Brief (May 2016)

The BestEV v1.0 methodology summary brief is meant to provide a quick overview of the process and results of each of the BestEV methodology development stage and the final result. The brief also includes the calculation method or arriving at the BestEV's v1.0 qualitative and quantitative criteria, as well as an end results divided to vehicle cost ranges.



CUTEC (PV) v1.0 three outputs: Calculator, handbook, and Policy Recommendations Guide (April 2016)

China Urban Transportation Emissions Calculator (CUTEC) private vehicles (PV) version 1.0 is the fruit of iCET's CTPP's year of project development together with E4Tech. While designed to support urban transport decision making through the comparison of various policy impacts on local air quality and carbon emissions, as well as other related effects such as congestion, CUTEC's developed included multiple discussions and information exchanges between its developers and supported. These have been collected to comprise the CUTEC policy recommendations report aimed at summarizing project lessons and suggested next steps for improving policy-making processes. The CUTEC project was funded by the Rockefeller Brothers Fund, the UK Strategic Posternity Fund, and the Blue Moon Fund.



China Consumers' EV Choice Preference Study Brief (February 2016)

China's NEV market is set to grow rapidly for internalizing ambitious government goals, yet real market growth requires more than supply-side benefits. In order to ensure that demand expectations and preferences are being met, a better understanding of the average consumer is due. iCET have partnered with its former intern and current PhD student from Carnegie Mellon University (CMU), John Helveston, for designing a user friendly yet scientifically robust EV preferences survey that yielded instrumental results for both policy-makers and industry players.



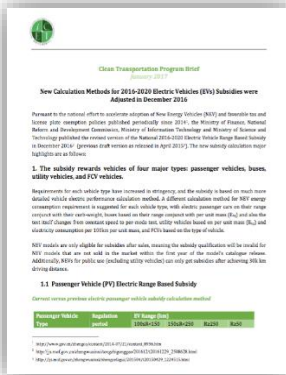
2015/2016 Global Biofuel Policy and Regulation Update Brief (November 2016)

iCET has been introducing international experience on biofuel sustainability standards and mechanisms into China since 2010, published a series related reports and hosted training sessions to educate Chinese stakeholders and support the sustainable development of China's biofuel industry. In 2016 iCET introduced an update brief on international biofuel regulations and policies.



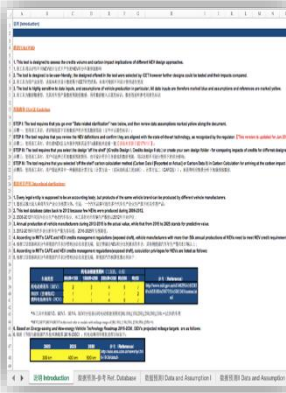
The Design of China's First EV Crowd Ranking Platform: BestEV Methodology Development Report (January 2016)

Local and national policymakers have taken steps to increasingly strengthen consumer benefits in order to accelerate NEV commercialization but despite these efforts, supply and demand of high-quality EVs has remained low. As a step to increase EV performance, BestEV aims to provide the general public and automakers with insights regarding China's EV market. This report is the first milestone of the BestEV platform: a transparent scientific methodology was developed with its basis in meta-analysis review, then in collaboration with 28 experts through the employment of the Delphi Method, and later finalized through consultation with various experienced stakeholders in a dedicated consensus development workshop.



New Calculation Methods for 2016-2020 Electric Vehicles (EVs) Subsidies were adjusted (December 2016)

Pursuant to the national effort to accelerate adoption of New Energy Vehicles (NEV) and favorable tax and license plate exemption policies published periodically since 2014, the Ministry of Finance, National Reform and Development Commission, Ministry of Information Technology and Ministry of Science and Technology published the revised version of the National 2016-2020 Electric Vehicle Range Based Subsidy in December 2016 (previous draft version as released in April 2015). The new subsidy's major highlights and calculations are provided in this useful policy brief.



NEV-credits Design Impact Tool and Case Study (December 2016)

iCET developed a tool that will support the design of a China-suited ZEV credits system, by enabling a comparison between the carbon and NEV credits impacts of different NEV credits designs. A case study that demonstrates the tool's applicability is comparing MIT's suggested design with a more Californian ZEV-credits like design. The tool design and its assumptions were consulted with key stakeholders in China.



China Light-duty Vehicle Fuel Economy Label standard and management update (October 2016)

China's "Fuel consumption label for light vehicle" (GB 22757), aimed at enhancing consumers' fuel efficiency and fuel cost saving awareness and enforced as of July 2009, underwent revisions led by the Auto Standard Research Institute, operating under China Automotive Technology and Research Center (CATRAC). The new draft standard has recently entered the Standards Administration Council (SAC) final approval process. The new label standard includes not only ICE fuel consumption information, but also NEVs electricity consumption, and emphasized the test-cycle urban FC, as introduced in this policy brief.



New Local Regulations Aimed at Guiding Car-sharing Development (October 2016)

On July 28th, 2016, China's Ministry of Transportation (MOT) released the online car network service regulation, meant to enter into implementation on Nov. 1st, 2016. As the implementation date approaches, several cities released additional local online car network service regulations. On October 8th, Beijing, Shanghai, Guangzhou and Shenzhen spontaneously released their draft regulation, aimed at further directing the types of vehicles allowed to be part of the urban online car network service. The new eligibility requirements for both driver and vehicle are outlined in this brief, as well as some of their projected implications.



2016 MAIN EVENTS



2016 China CAFC and Urban Real-World Emission Evaluation Workshop
Beijing / September 21st, 2016



Experts Roundtable on CAFC and NEV credits
Beijing / September 12th, 2016



Green Car China and BestEV Release, part of Green Consumption Week by UNEP
Beijing / August 5th, 2016



iCET hosts "Green Travel" activities and an EV test-drive event at the Beijing Auto Museum
Beijing / August 6th, 2016



"BestEV" 1st Implementation Year Summary Meeting
Beijing / June 16th, 2016



iCET holds China-US Climate Leaders Summit-Low Carbon Transportation Forum
Beijing / June 8th, 2016



iCET holds Press Conference on "Big Data and Sustainable Transportation MRV"
Beijing / June 8th, 2016



iCET holds its first China Urban Transportation Emissions Calculator workshop in Guangzhou.
Guangzhou / March 6th, 2016



iCET's BestEV engagement activity on the Earth Day in conjunction with Beijing NEV Test Drive Center opening ceremony.
Beijing / April 22nd, 2016



iCET holds a BestEV discussion through EV test drive and focus-group.
Beijing / March 8th, 2016



iCET Cleantech Team – UCCTC organizes 2016 U.S.-China Cleantech Summit.
Xuzhou / December 6th – 7th, 2016



iCET Cleantech Team – UCCTC organizes Cleantech Sub forum at the Chinaweeek.
Los Angeles / May 8th, 2016

2016 PRESENTATIONS



iCET delivers a keynote speech on China Fuel Consumption Target at 2016 China Auto Industry Development Forum.
Tianjin / September 3rd, 2016



iCET introduces China's new energy vehicle policy at the Bloomberg Future New Energy Summit.
Shanghai / November 2nd 2016



Big Data and ICT new work area and initial research outputs at the 10th anniversary of China's Ministry of Transportation's CUSTReC.
Beijing / September 19th, 2016



iCET participates in China's "2016 Green Sustainable Consumption Week" launching ceremony expert panel discussion.
Beijing / August 3rd, 2016



iCET is invited to take part in China's first Bioenergy Sustainability Standard Working Group as its sole NGO committee member.
Beijing / June 15th, 2016



iCET is invited to present iCET's ZEV-credits study highlights at the 7th Earth Temple Forum.
Beijing / June 16th, 2016



iCET presents its recent China fuel consumption gap analysis at the 9th Better Air Quality and 17th IUAPPA World Clean Air Congress.

Busan Korea / August 31st, 2016



iCET is invited to participate and share its experiences on low carbon transportation at the 8th International Youth Summit on Energy and Climate Change. Beijing / July 13th, 2016



iCET presents its analysis on US and China EV regulatory and technology at the 10th Assembly of the World Alliance of Low Carbon Cities. Chongqing / June 18th, 2016



iCET presents its EV work and make concluding remarks at the Shenzhen E-mobility Workshop. Shenzhen / March 13th, 2016



iCET presents at the 2nd Future Transportation Lab Alliance Conference. Shenzhen / January 18th, 2016



iCET reviews Beijing Science and Technology Commission 2016 funded projects. Beijing / January 10th, 2016



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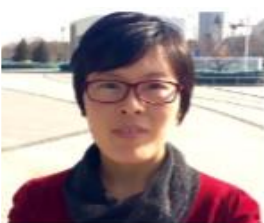
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