中国城市交通面临的挑战

在中国，新的出行方式会有助于建设可持续性城市交通吗？
New mobility services as a contribution to sustainable urban transport in China?

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可持续交通在中国
SUSTAINABLE TRANSPORT IN CHINA

Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

China's Urban Transport Challenge

Rapidly increasing need for new mobility solutions in cities

对新型城市交通出行解决方案日益迫切的需求

Urbanisation challenge 城市化挑战

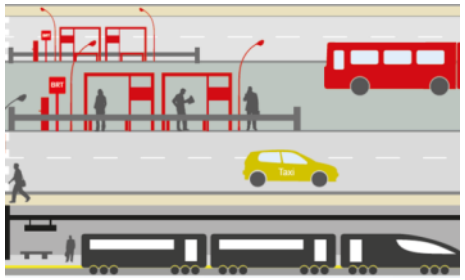
600 million people in China live in cities (54.7%).
中国目前有6亿人口在城市生活。

About **1 billion** people will live in China's cities by 2030.
到2030年中国城市人口规模大约会达到10亿人口。

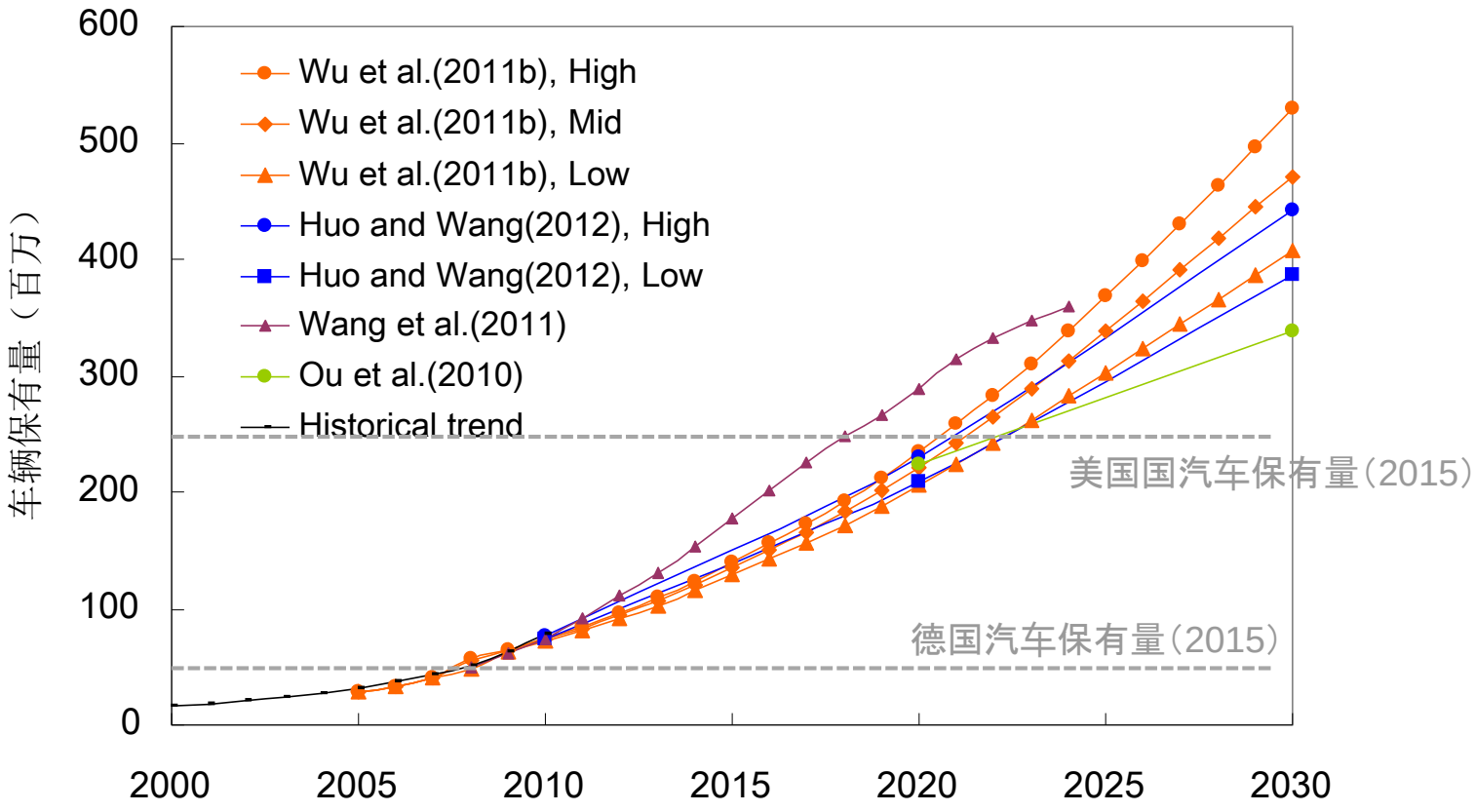
Urban transport challenge 城市交通面临的挑战

Every day **35,000 cars** are registered in China. Mostly in cities.
在中国，每天约有35000辆汽车登记上牌，其中绝大多数是在城市。

Car ownership in China: **69 cars/1000 residents**
(Beijing: 240 cars/1000 residents, Germany: 665 cars/1000 residents).
全国汽车人均保有量：69 辆/1000 人（北京：240 辆/1000 人）.



快速机动化 - 中国汽车保有量的预测(2010-2030)



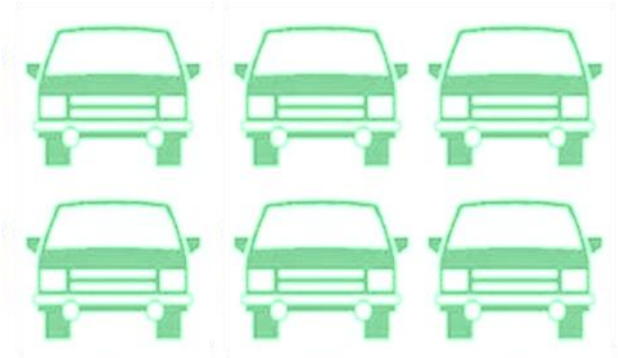
中国总的汽车保有量还将持续快速增加，预计在2020年达到2.1-2.4亿辆，在2030年达到4.1-5.3亿。 无论哪种增长预测情景，在未来的15年中国将成为汽车保有量最多的国家

Our approach

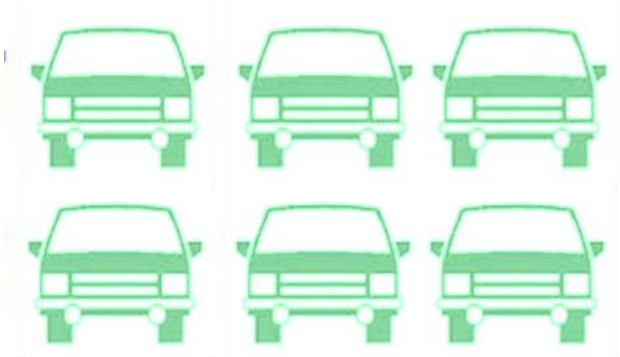
Towards Low Carbon Transport

Avoid trips and reduce trip distances

Shift modes



Improve efficiency and fuels



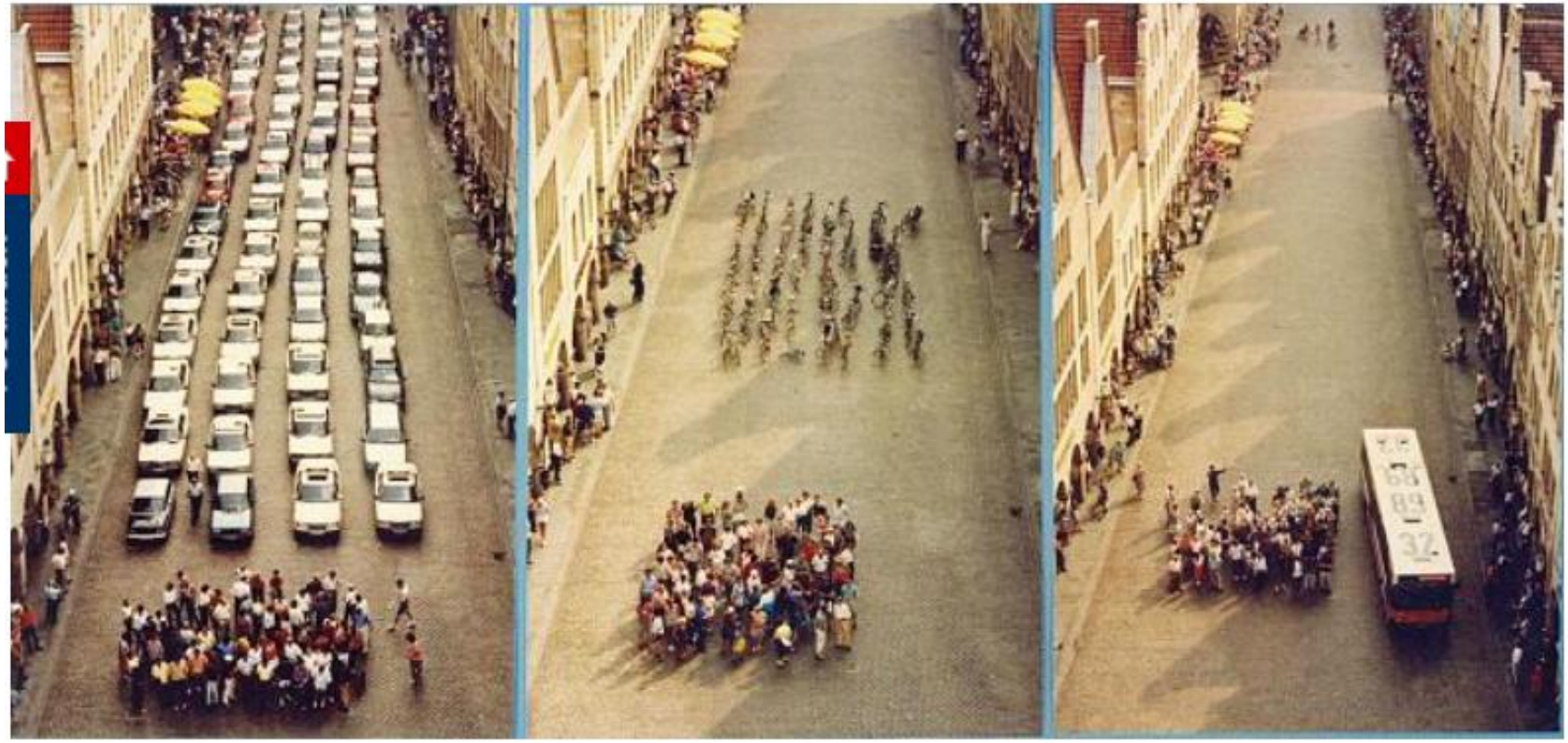
Avoid – 城市的无限扩张对环境和气候产生负面影响

Population	Urban area	Transport carbon emissions
2.5 million	4,280 km²	7.5 tonnes CO_2/person (public + private transport)

Population	Urban area	Transport carbon emissions
2.8 million	162 km²	0.7 tonnes CO_2/person (public + private transport)

Source: Dirk Messner / WBGU 2017.

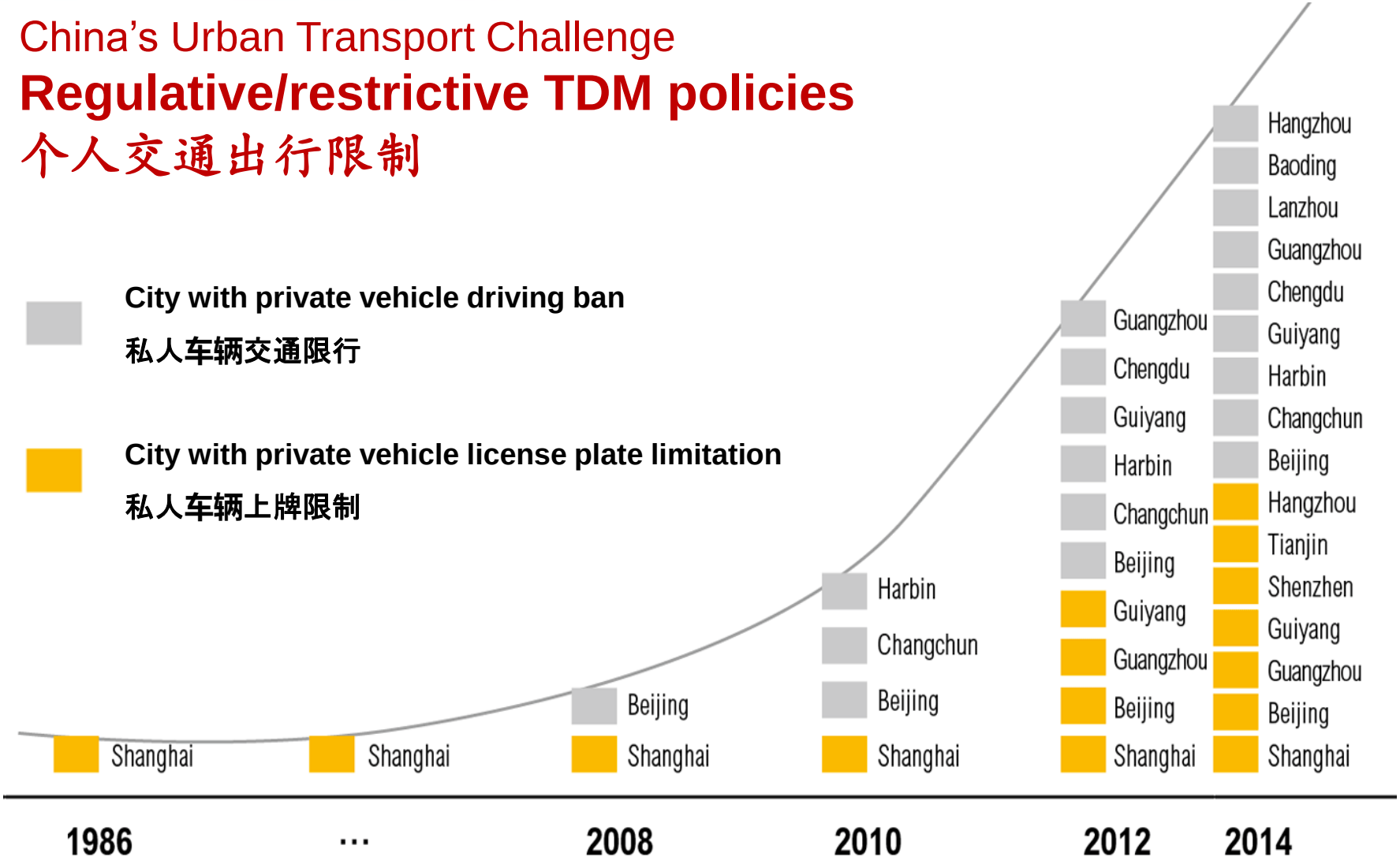
Shift – 通过市场和经济手段鼓励向高效集约方式转移



China's Urban Transport Challenge

Regulative/restrictive TDM policies

个人交通出行限制



Source: World Resources Institute (http://ow.ly/Lj733)

China's Urban Transport Challenge

Trends are reducing the value of owning a car

各种发展趋势导致购置车辆的实用价值下降

1. **Fast Urbanisation**
   快速城市化
2. **Deteriorating driving conditions**
   驾驶条件恶化
3. **High envrionmental pressure**
   环境压力增长
4. **Tight regulations**
   调控政策收紧
5. **Improving public transport**
   公共交通的发展
6. **Fast penetration of new technologies**
   新科技迅速推广

- **The value of owning and driving a car is deteriorating:** it becomes more expensive, less convenient and less safe
- **购置、驾驶私人车辆的实用价值正在下降:** 购置价格上涨，使用不便，安全性下降

- **Public transport continues to improve** with support from the government
- **公共交通事业应该在政府的支持下进一步发展。**

- **Alternative mobility trends are emerging:** there is a need to address concerns of car ownership and offer more than public transport
- **替代交通方式涌现；**需要考虑到汽车保有量方面的问题，提供公共交通以外的其他解决办法

Source: Bain & Company

Carsharing and E-Carshring in China

- **800,000+** members
- **30,000** vehicles (approx. **95 % EV**)
- Annual **growth rate** of carsharing market in China: **83.9 %**
- **Utilization rate** 2016**: 13 %**
- **90 % domestic operators**
- **Car2Go** active player in China: **119,000 users** in Chongqing

Station-Based Carsharing
固定站点汽车共享

- Cars parked on designated carsharing stations
  共享车辆需停放在指定共享服务站点。
- Round-trip usage (A to A) 适合往返行程。

30-50 Ø age of users
Ø用户年龄段

490 cities
490个城市

Ø rental period
Ø 租赁时长

2–4h/小时

Free-Floating Carsharing
自由流动式汽车共享

- Cars parked on public parking spaces within a defined service area
  共享车辆可停放在公共停车区域，但需要到指定的服务区域进行维护。
- One-way usage (A to B) 适合单程用途。

20-30 Ø age of users
Ø用户年龄段

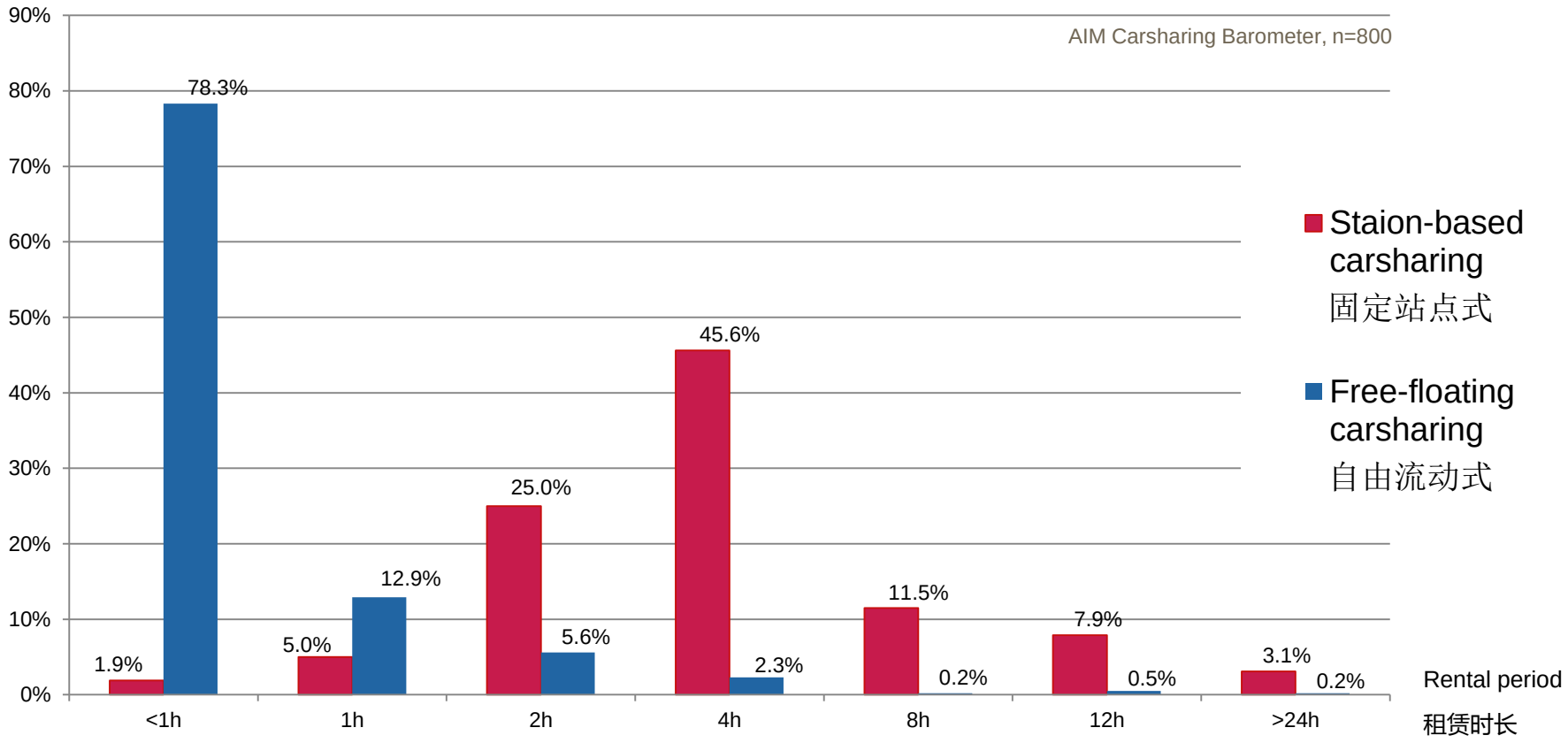
13 cities
13个城市

Ø trip distance
Ø 行驶里程

8km/公里

China's Urban Transport Challenge

Station-Based OR Free-Floating? 固定站点 还是自由流动式?



Station-Based AND Free-Floating! 两种模式同时需要！

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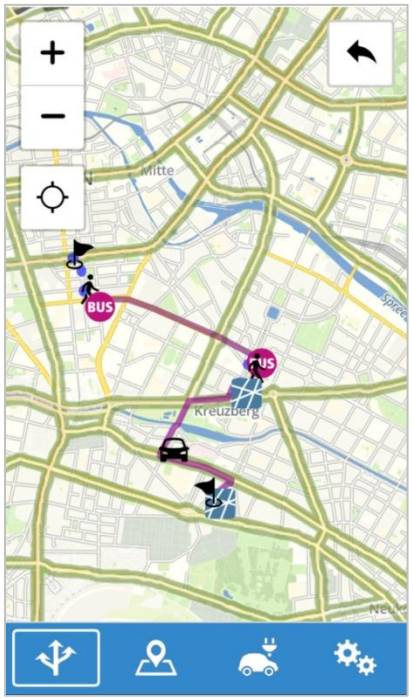
Carsharing as a Component of Multimodal Transport

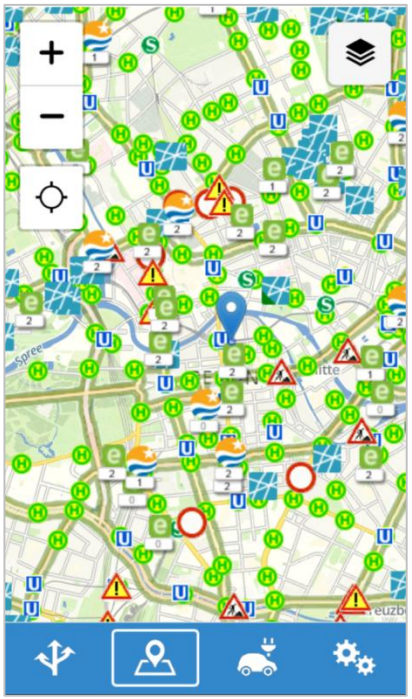
汽车共享作为多模式出行组成部分

Customer-oriented, individual routing
顾客导向型，个体路线

Transparent in-app ticketing
清晰透明的应用内售票系统



GPS navigation
GPS导航



Real-time Information
实时信息

China's Urban Transport Challenge

Moving towards smart mobility in China

向智慧出行发展

Combined Ticketing
通用票制

Real-time traffic information
实时交通信息

(E-)Carsharing

(电动)汽车共享

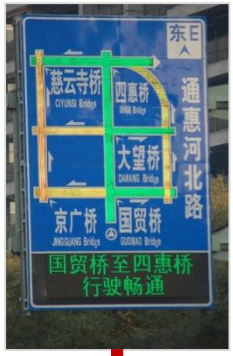
Inter- and multimodal routing 多式联运路径

China's Urban Transport Challenge

Moving towards smart mobility in China

向智慧出行发展

Combined Ticketing
通用票制



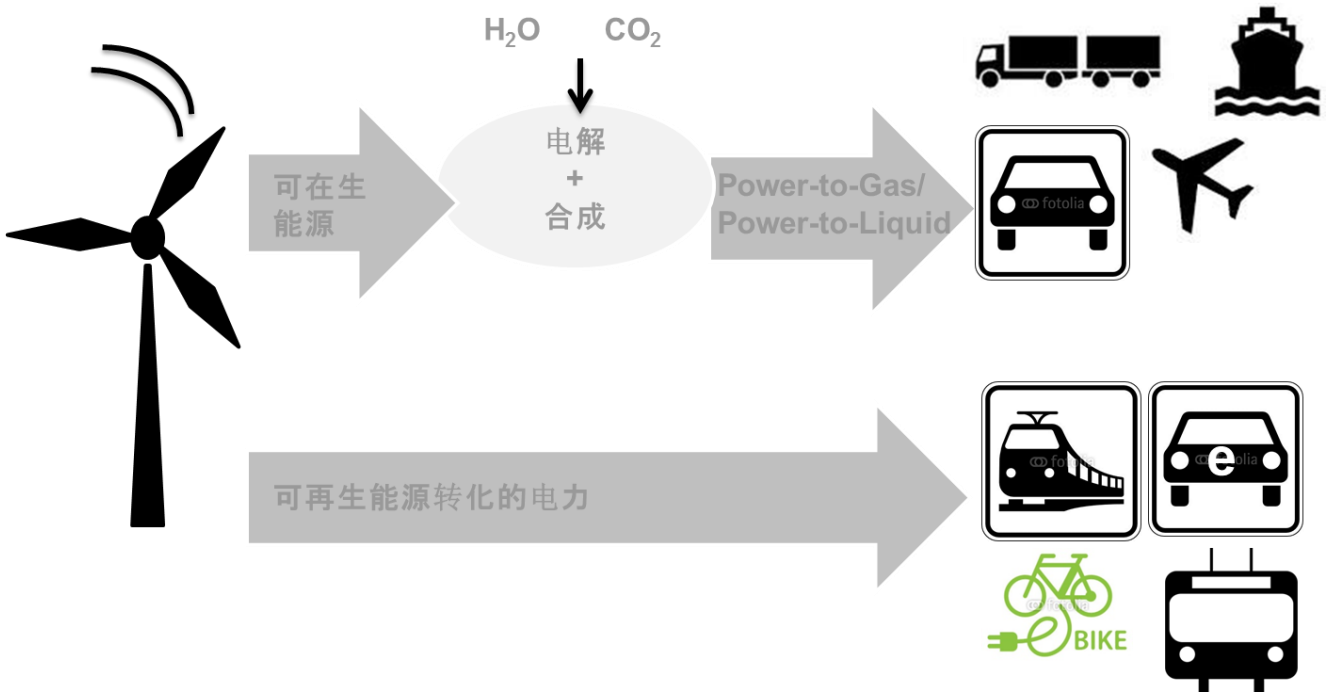
Real-time traffic information
实时交通信息

(E-)Carsharing

(电动)汽车共享

Inter- and multimodal routing 多式联运路径

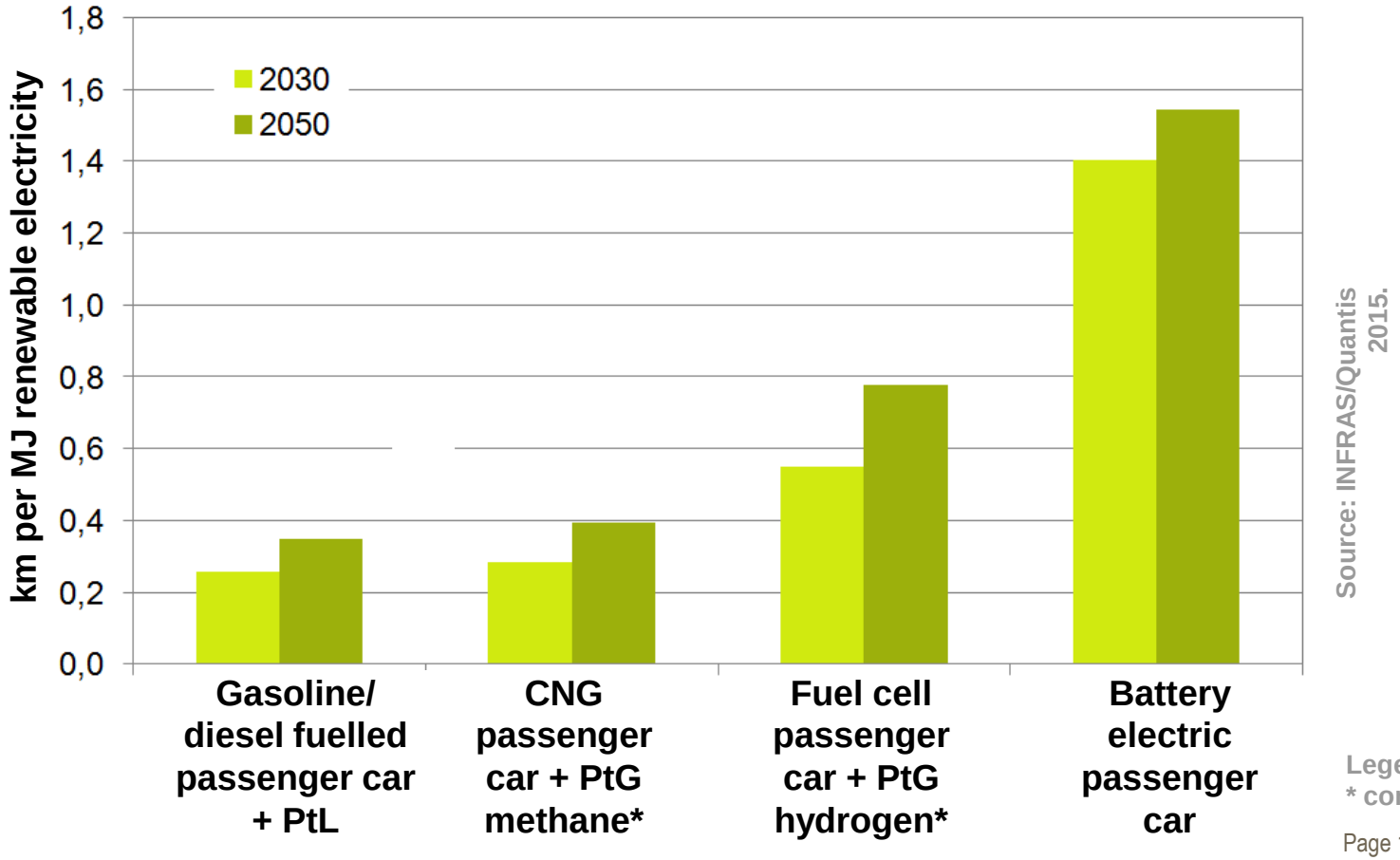
Fuels – 城市交通的能源转型



- 强化太阳能、水力、风力、生物质能等可再生能源的战略地位
- 燃料的低碳化和清洁化
- 重视能源传输、储存和转化效率、经济性

不同驱动技术的能源转化效率

- 从能效和经济角度而言，交通电动化是未来几十年的基本趋势



Legend:
* compressed.

目标：可再生能源

Well-to-Wheel CO_2 Emissions Golf TDI BlueMotion (99 g CO_2/km)

Well-to-Wheel CO_2 Emissions Golf Blue-e-Motion* with electricity generated from:

* Consumption: 18 kWh/100 km (NEDC, Test fleet Golf Blue-e-Motion)

China's Urban Transport Challenge
总结

1. New mobility concepts made **dramatic progress** over the last five years.
新的出行概念在最近五年获得**引人注目的进步**。

2. Urban environmental and **transport challenges/policies** will drive rapid business innovation which may overtake the processes in the western hemisphere.
城市的环境、**交通所面临的挑战及相关政策**会驱动商业上的高速创新，可能会超越西方的发展进度。

3. **Electrification** will play a key role in the future development of carsharing in China.
电动化将会在中国的汽车共享发展中扮演关键的角色。

4. **Parking** is one of the major challenges, especially for infrastructure dependent mobility services.
泊车是一项主要的挑战，尤其针对依赖于基础设施的出行服务。

5. Dynamic market development can overrun governmental authorities and increase the **business risk for operators**.
动态的市场发展可能会超过政府相关部门的限度，并使**运营商的业务风险**增加。

6. **How can an urban mobility scenario look like in future?**
一个合适的城市出行解决方案会是怎样的？