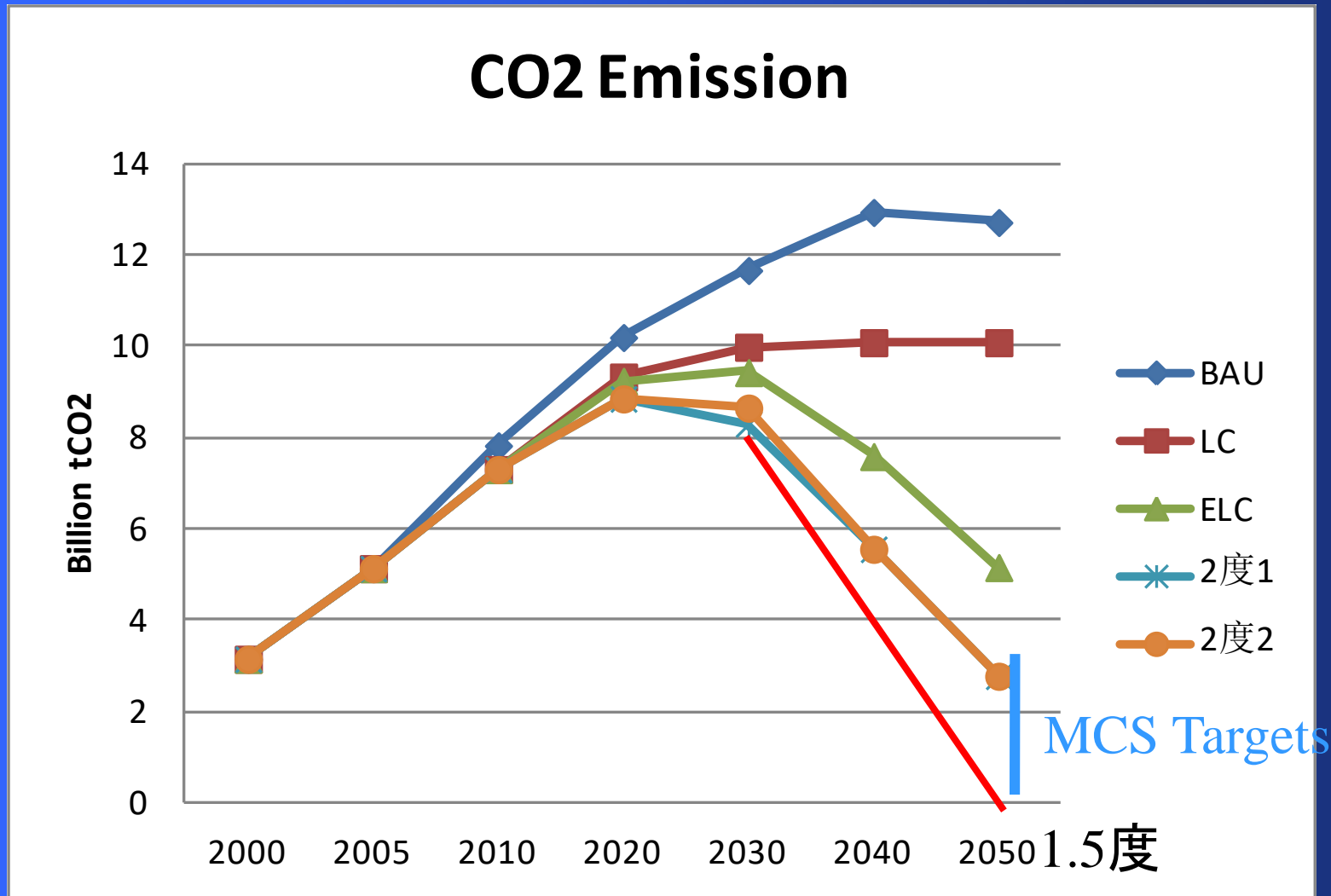


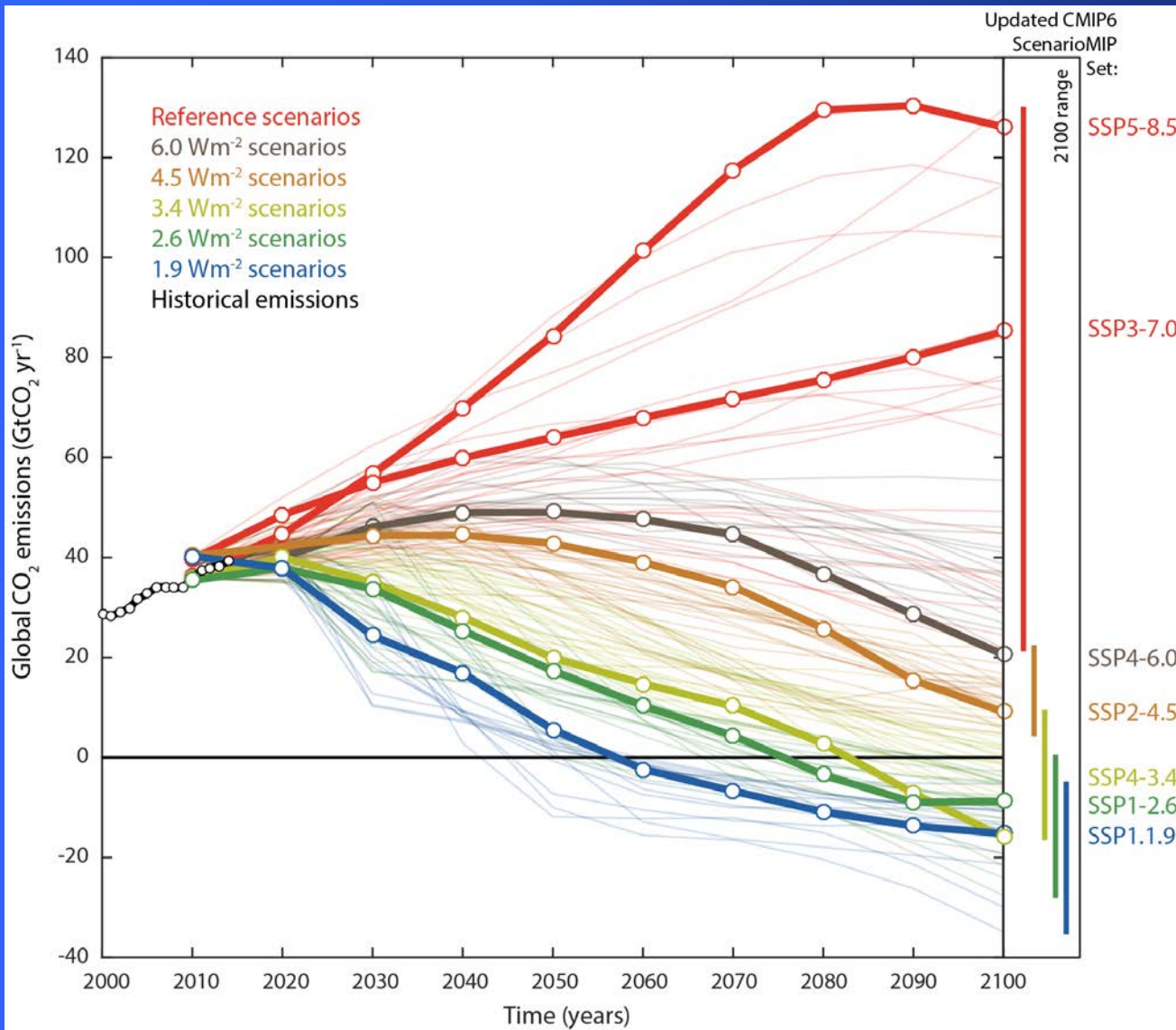
Technology Innovation and Mitigation

Jiang Kejun

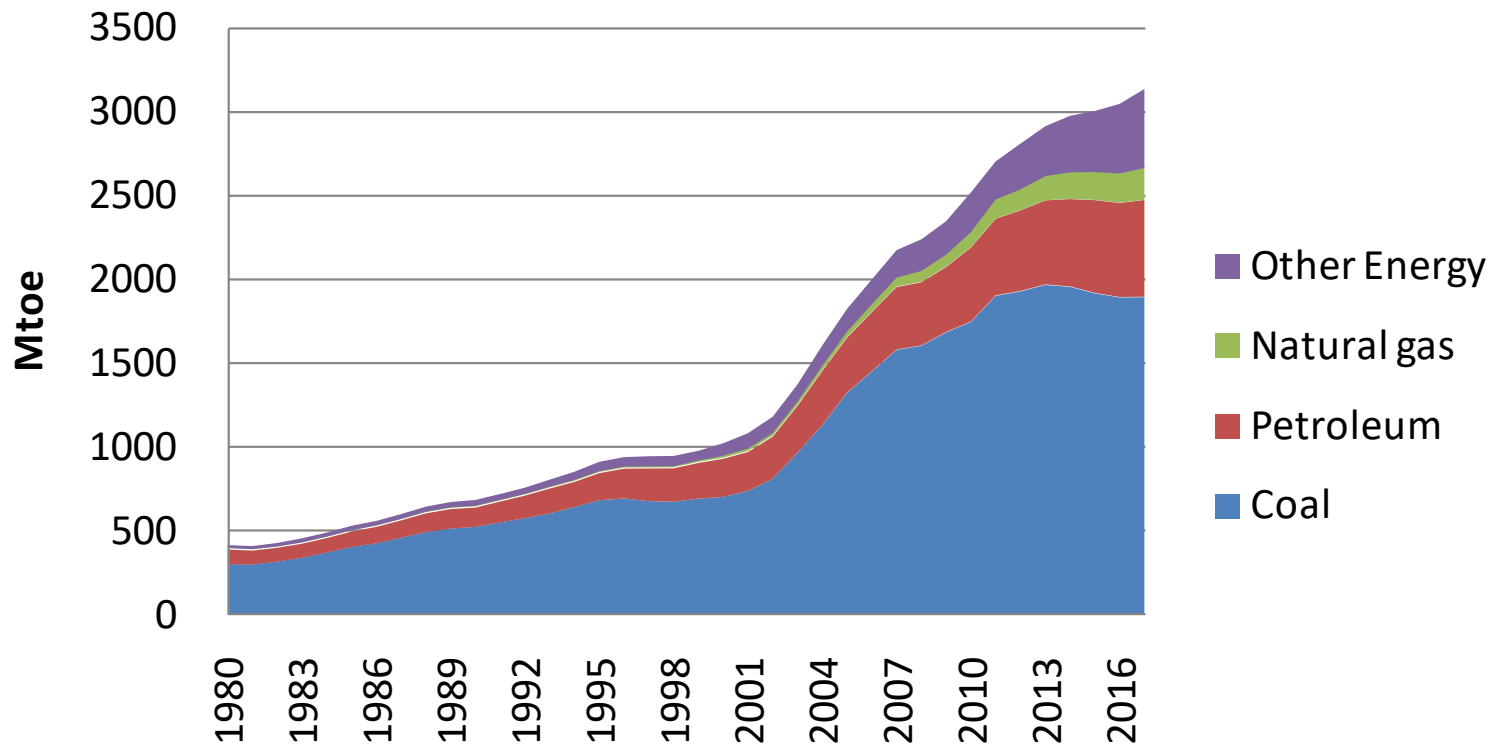
Energy Research Institute, China
LCS-RNet 11th Annual Meeting, ENEA
Headquarter

China's MCS: a proposal

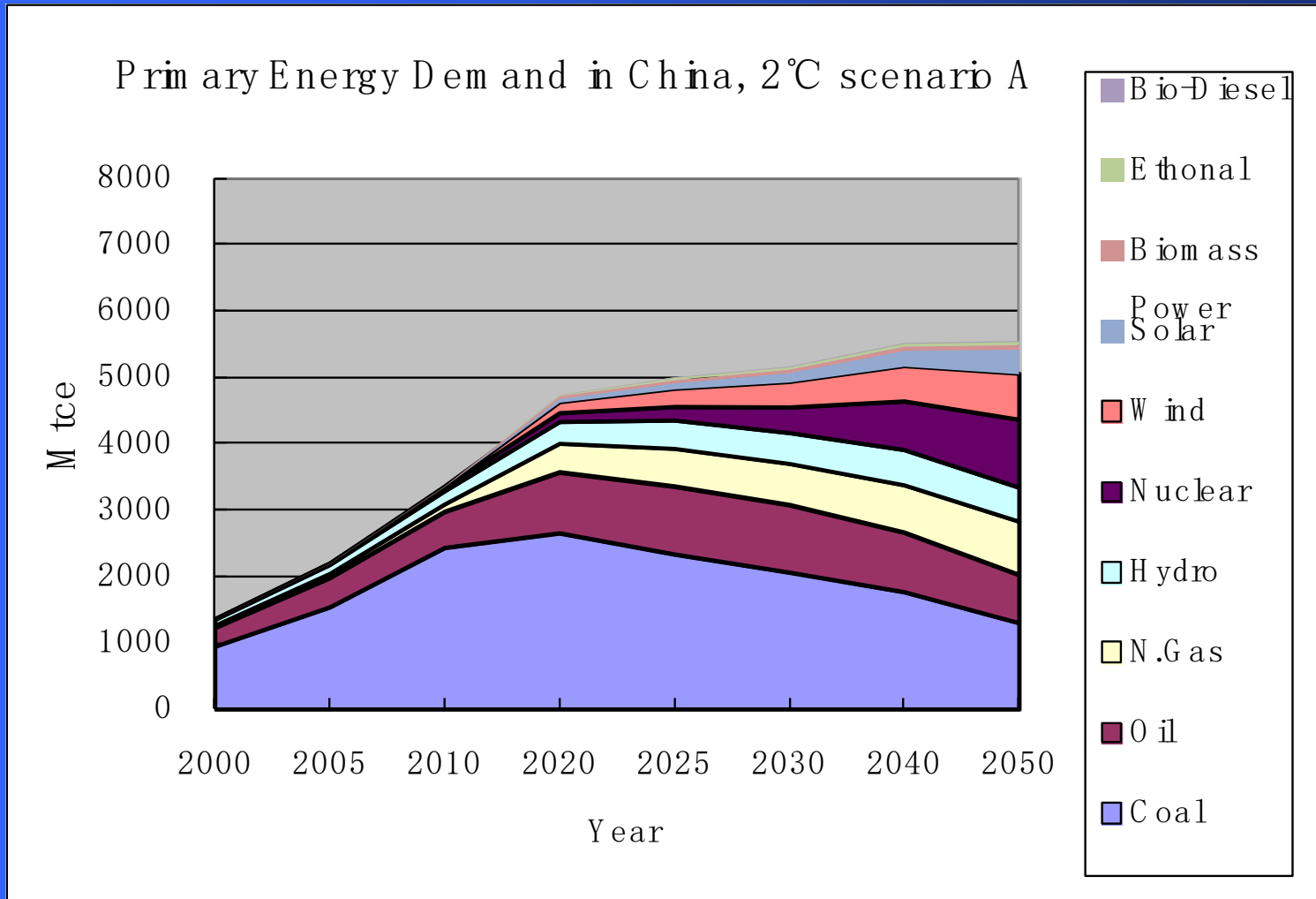




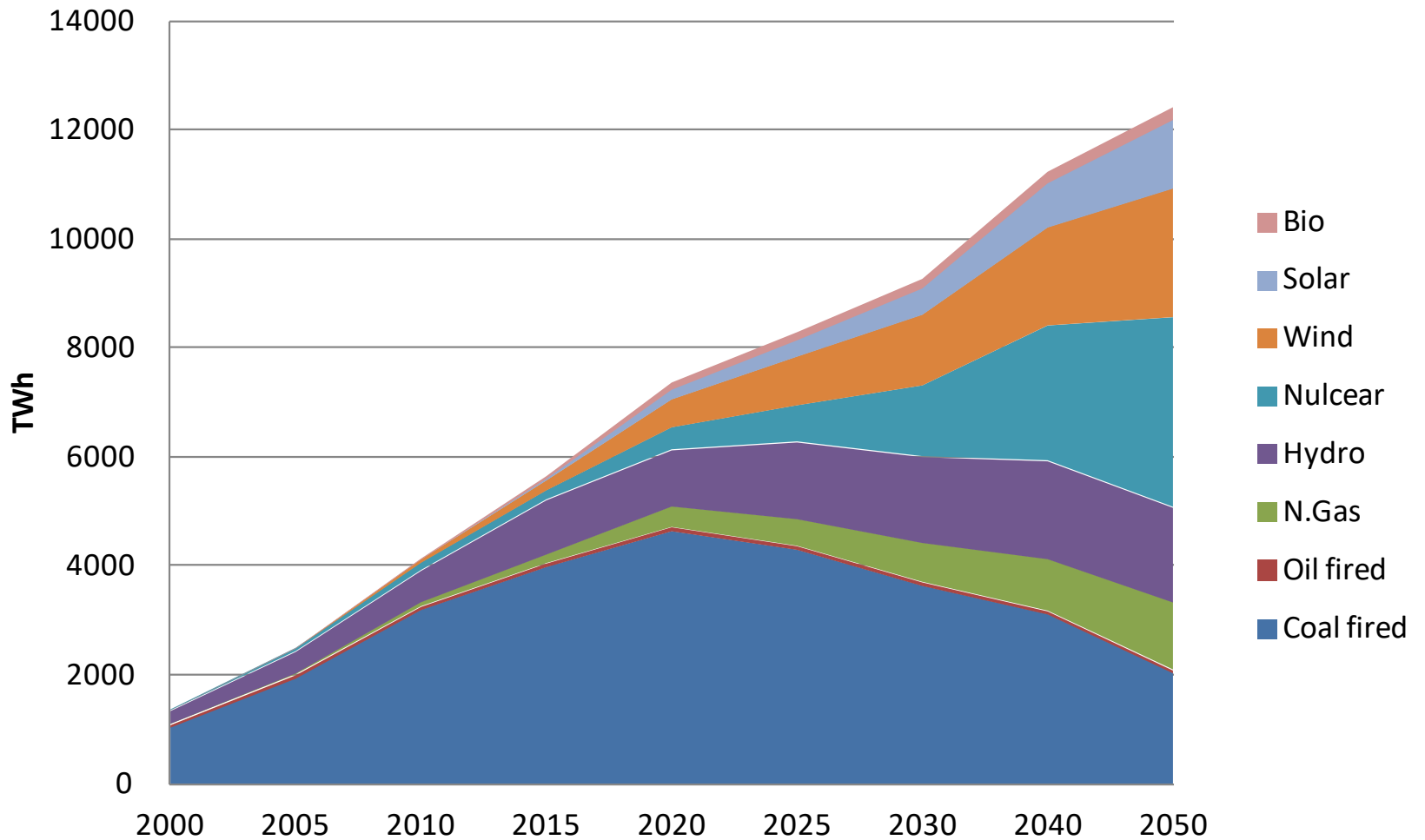
Primary Energy In China



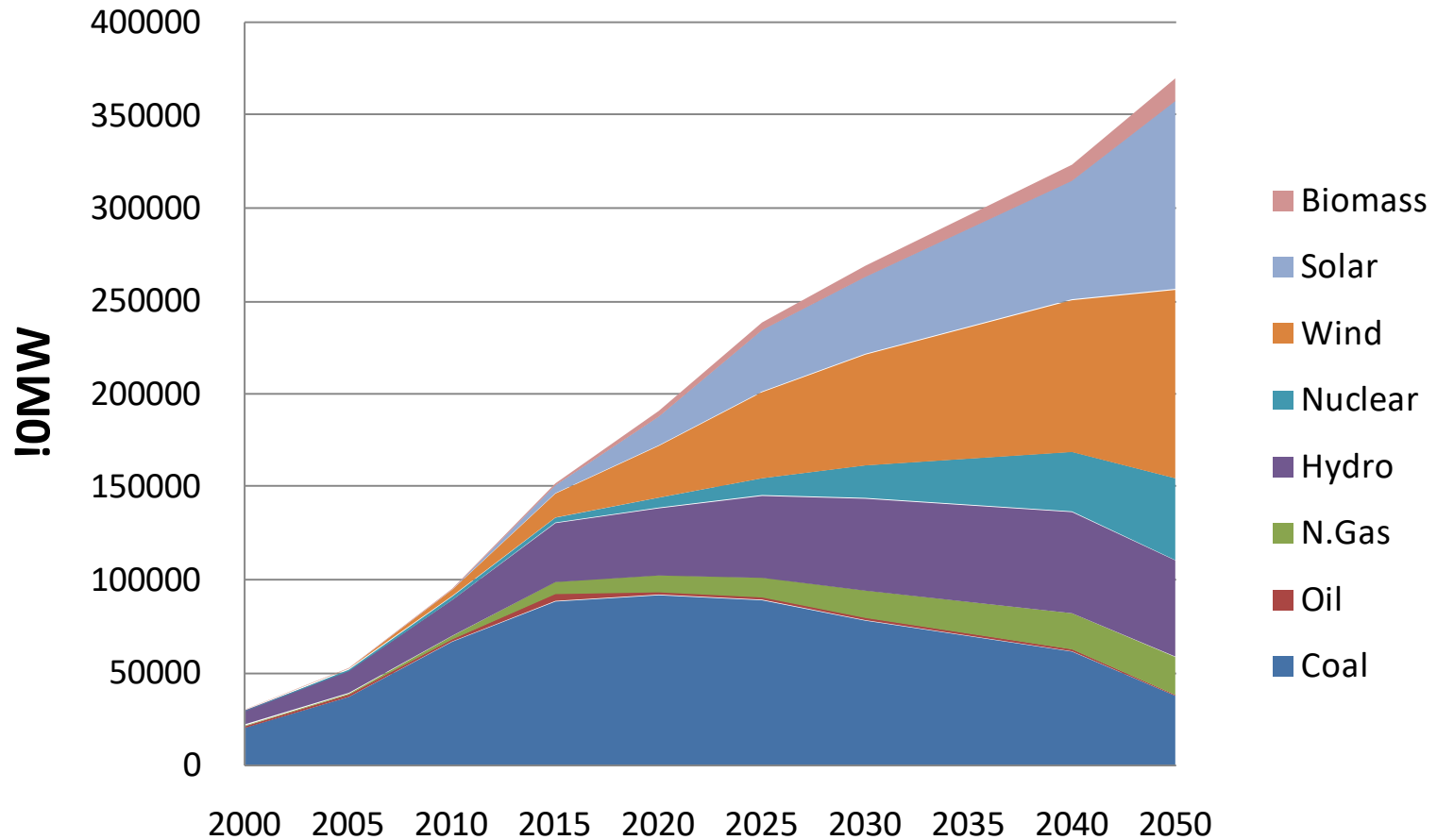
We Need Rapid Transition : Put that into 13th Five Year Plan Primary Energy Demand



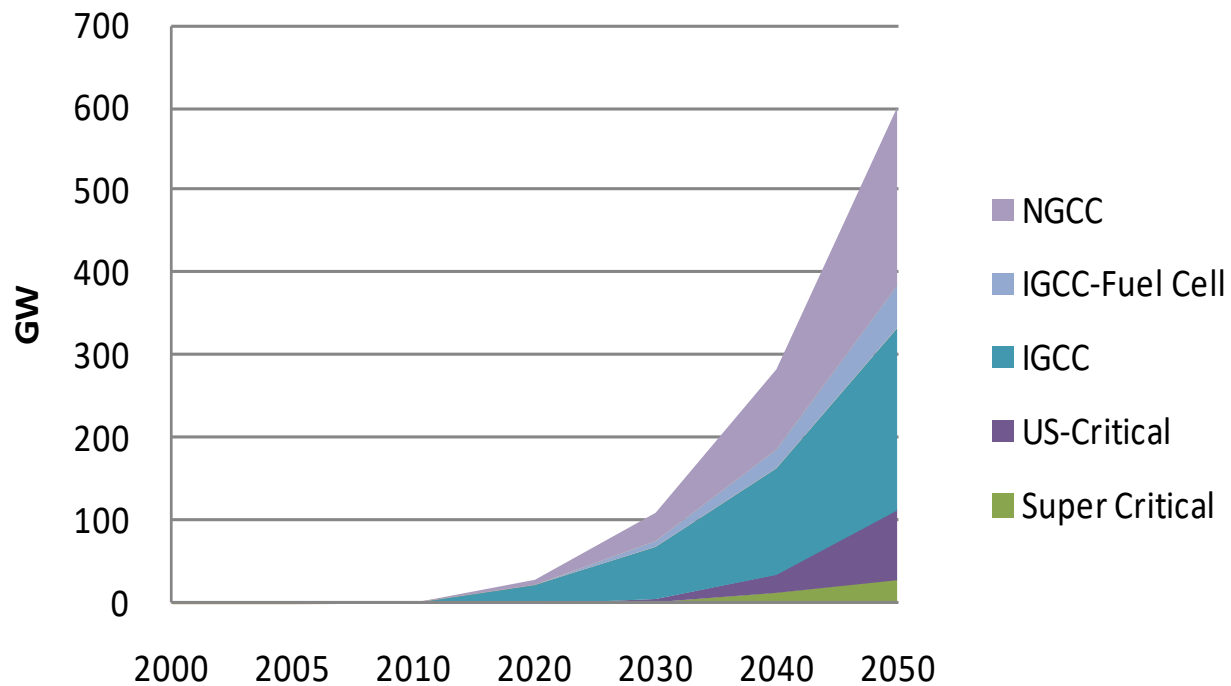
Power Generation, 2°C Scenario A



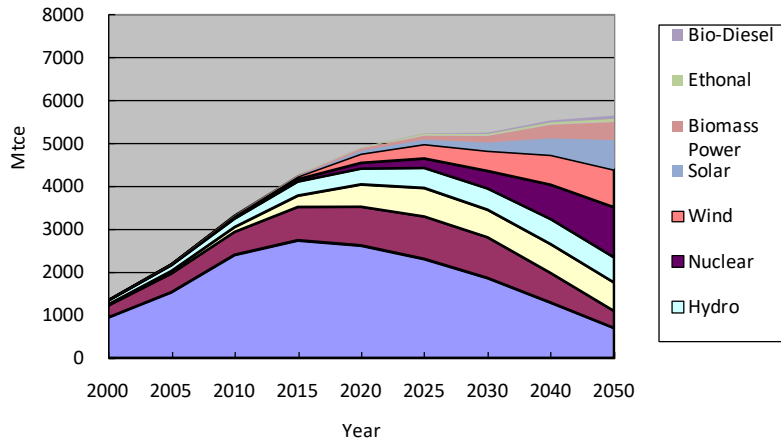
Installed Capacity, 2 °C Scenario



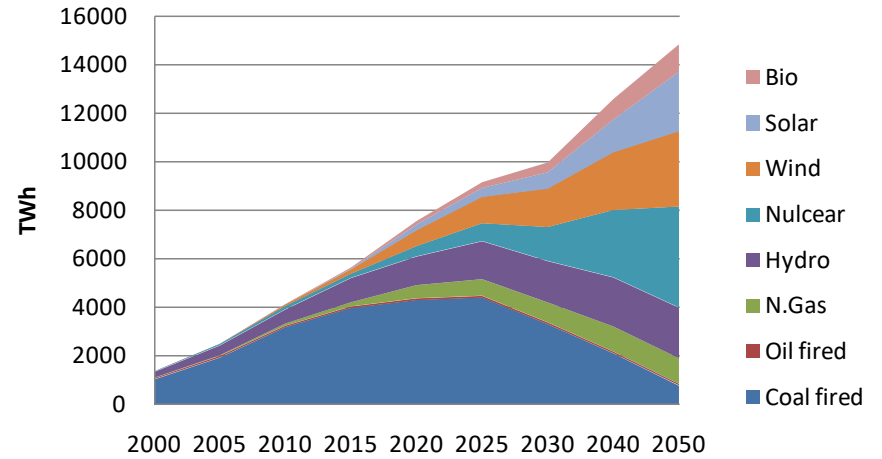
Power generation capacity with CCS



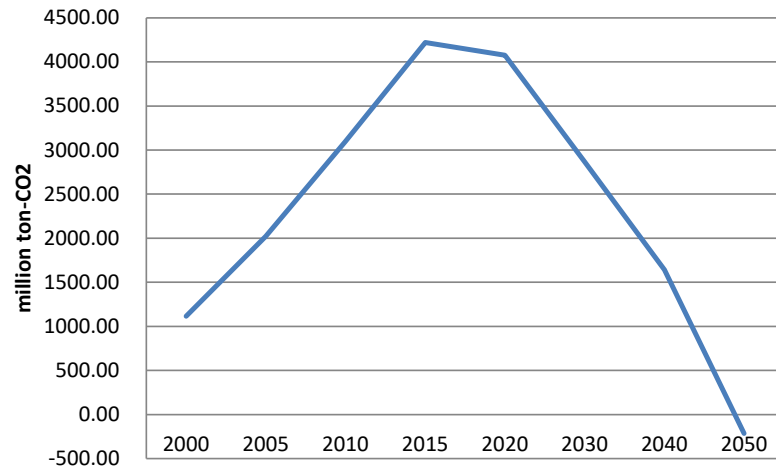
TPE, 1.5°C Scenario



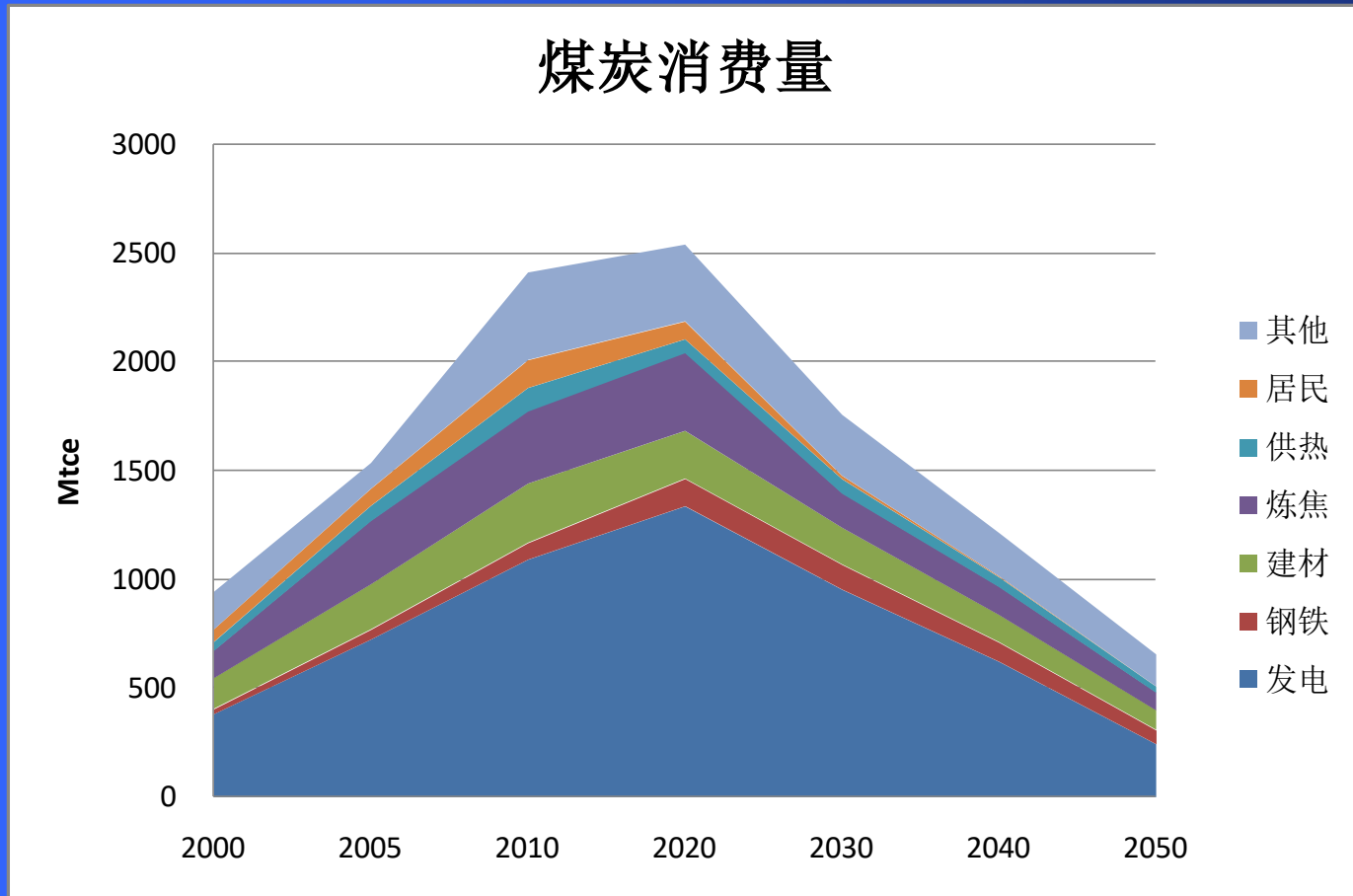
Power Generation, 1.5°C Scenario



CO2 emission in power sector

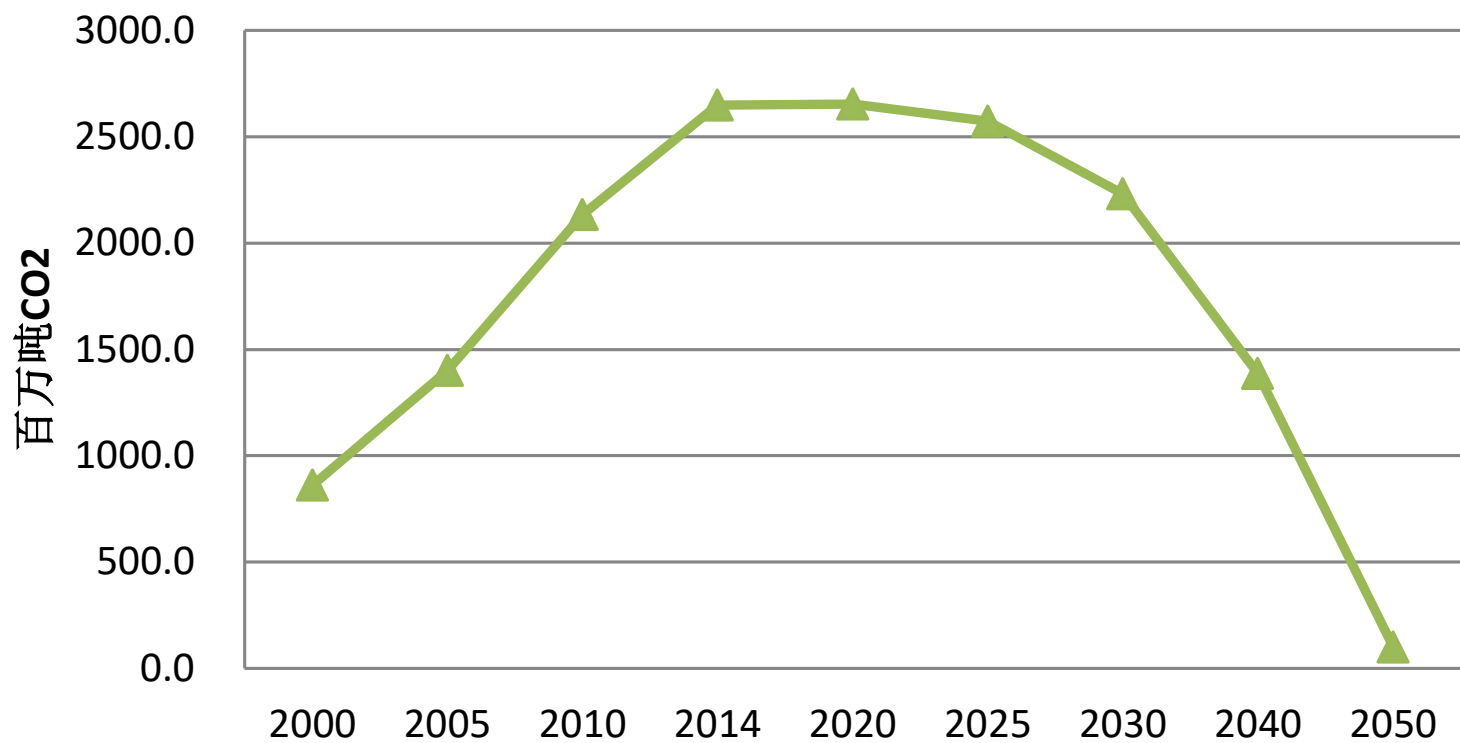


Coal demand in China



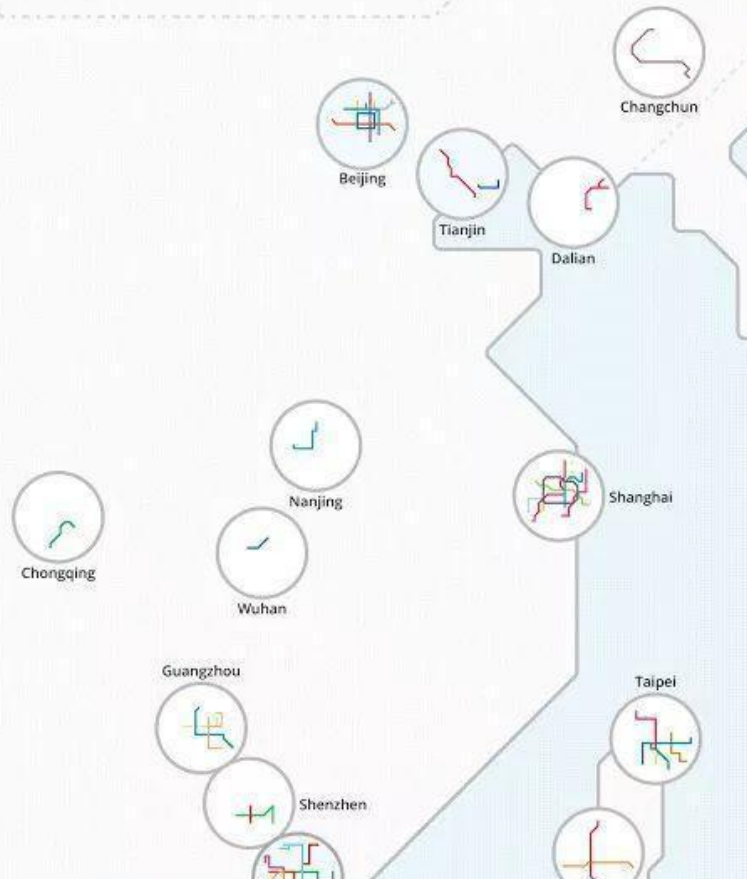
CO2 Emission, 1.5°C

CO2排放量, 1.5度情景

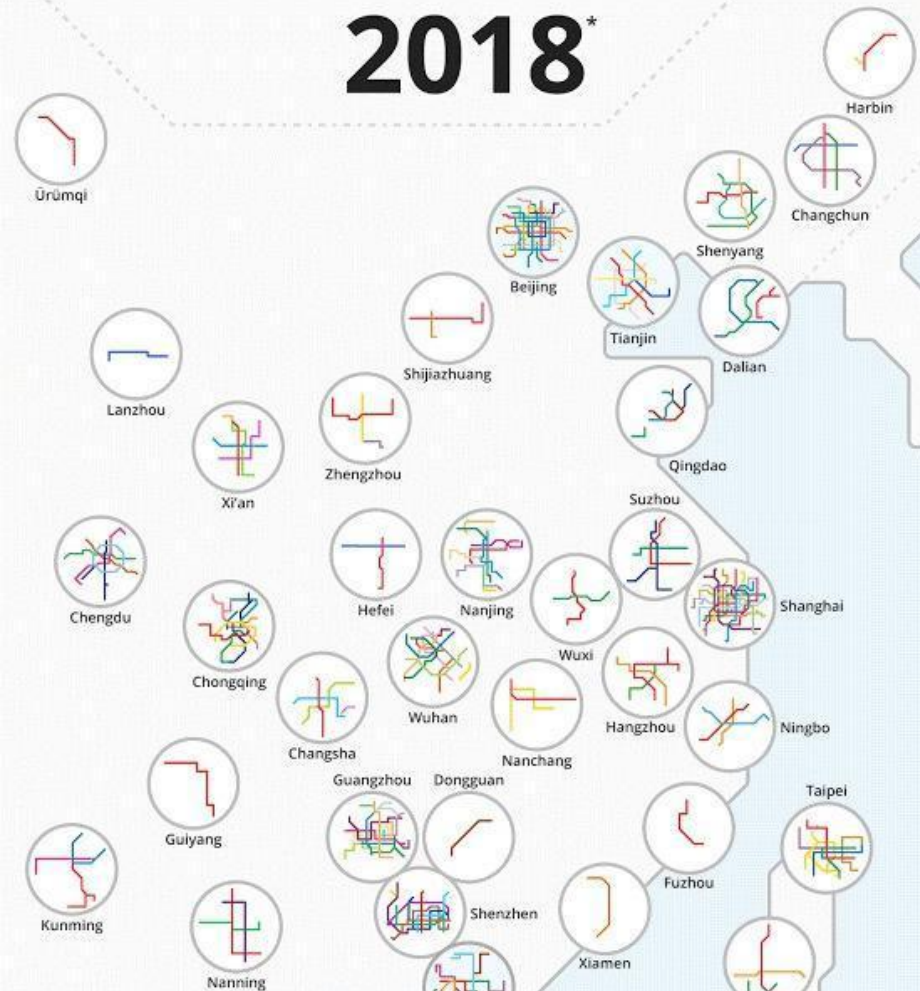


Subway Development in China

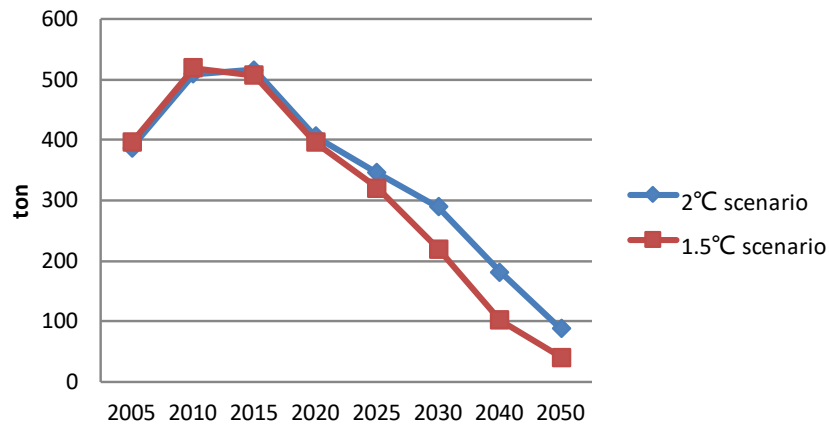
2008



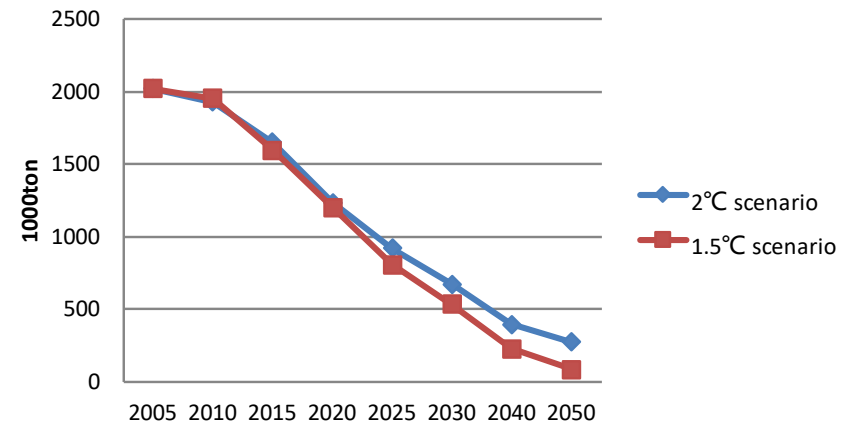
2018*



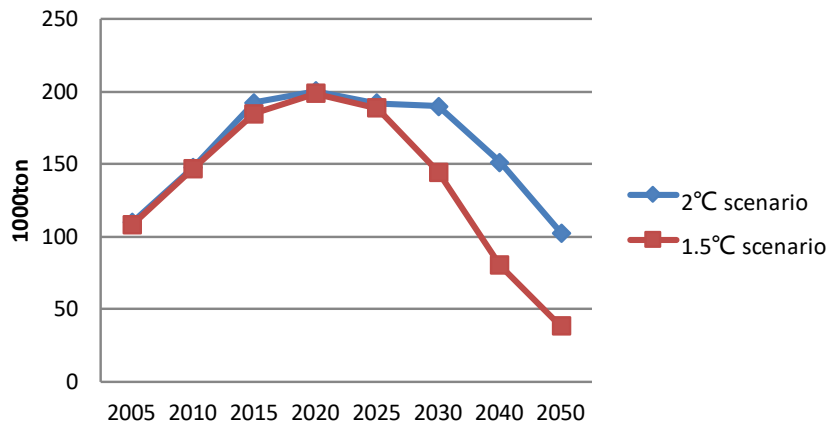
Mercury emission in China



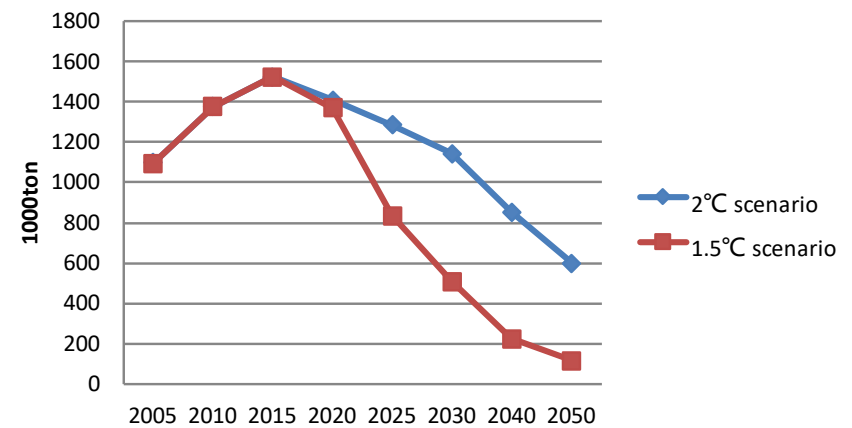
Black Carbon Emission in China

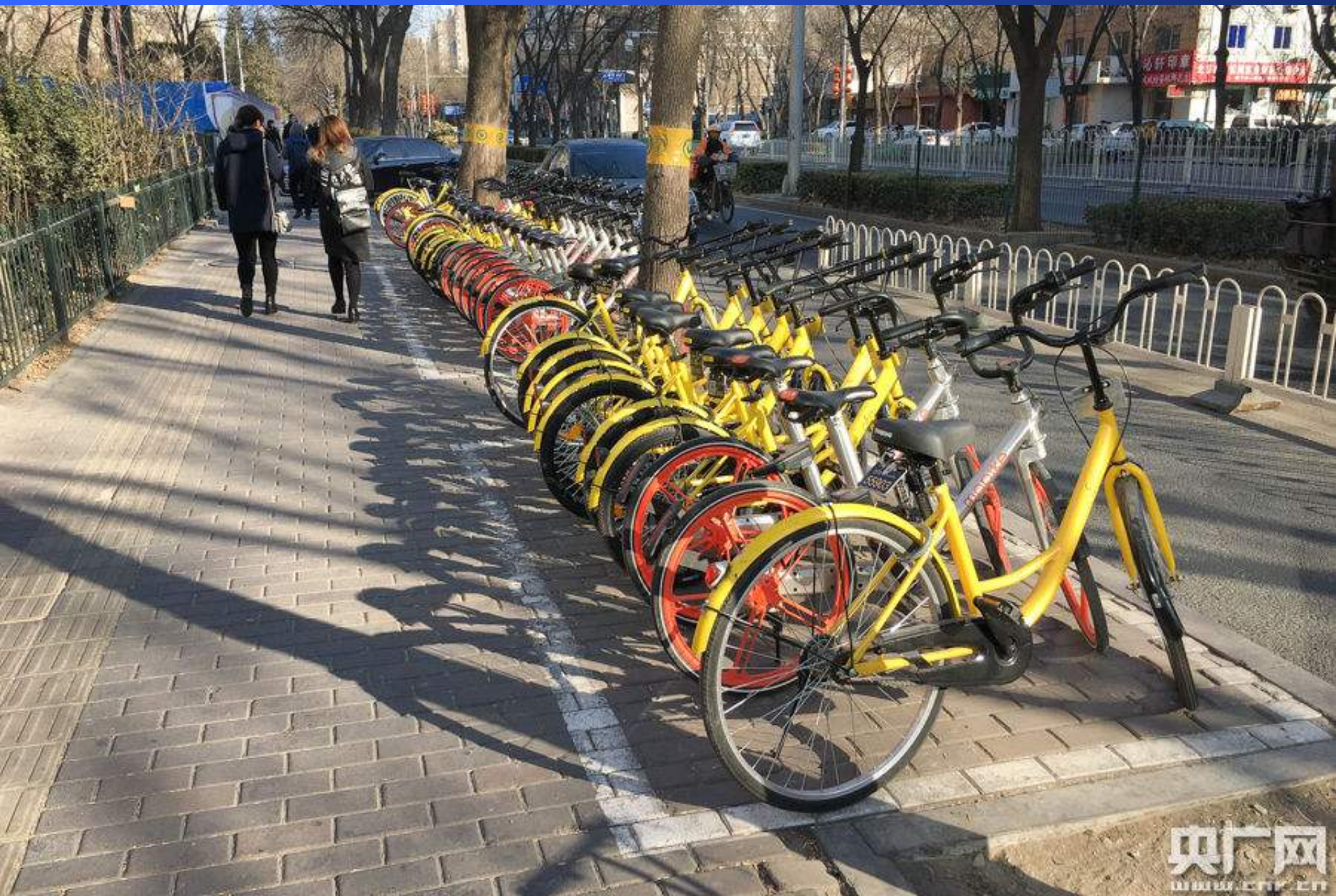


N2O Emission in China



CH4 Emission in China





By 2016, There are 260million electric bike in China



四、影响电动汽车发展的主要制约因素分析

4. Analysis Major Constraints Factors

3.3 电动汽车实现经济性的趋势分析 Trend Analysis on EVs

电动汽车与先进汽油和柴油车成本变化趋势分析					
	2006-2010	2011-2015	2016-2020	2021-2025	2026-2030
电动汽车Evs					
电池充满电时总容量kWh	16	24	48	80	112
电力销售价格 (元/kWh)	0.48	0.60	0.75	0.94	1.18
单位里程耗电量 (kWh/km)	0.18	0.13	0.08	0.08	0.07
单位里程耗电费用 (yuan/km)	0.09	0.08	0.06	0.08	0.08
电动汽车燃料成本 (yuan/car)	43200	39067	30104	37694	41299
单位电池容量成本(USD/kWh)	750	375	130	75	30
Evs车电池组成本(yuan/car)	80400	60300	41808	40200	22512
电池组寿命 (年)	3.6	5	11	22	22
电池组更换次数 (set/year)	4.1	2.8	1.4	0.7	0.7
EVs全寿期电池成本 (yuan/car)	413256	226728	99503	67938	38045
EVs全寿期电耗和电池总成本 (yuan/car)	456456	265795	129607	105632	79345
每年费用 (yuan/car)	30430	17720	8640	7042	5290
先进汽油汽车ICE					
汽油销售价格 (yuan/liter)	6.6	8.5	10.2	11.0	11.8
柴油销售价格 (yuan/liter)	6.4	8.3	9.9	10.6	11.4
单位里程耗汽油 (L/km)	0.050	0.039	0.031	0.024	0.020
单位里程耗柴油 (L/km)	0.047	0.038	0.030	0.024	0.020
全寿期行驶里程 (km)	500000	500000	500000	500000	500000
先进汽油车燃料成本 (yuan/car)	165000	167550	158356	133574	117738
先进柴油车燃料成本 (yuan/car)	150400	155333	149317	128100	114170
每年费用	11000	11170	10557	8905	7849
比较 (Evs车费用 - ICE车费用)	291456	98245	-28749	-27941	-38394

NOTE e-POWER

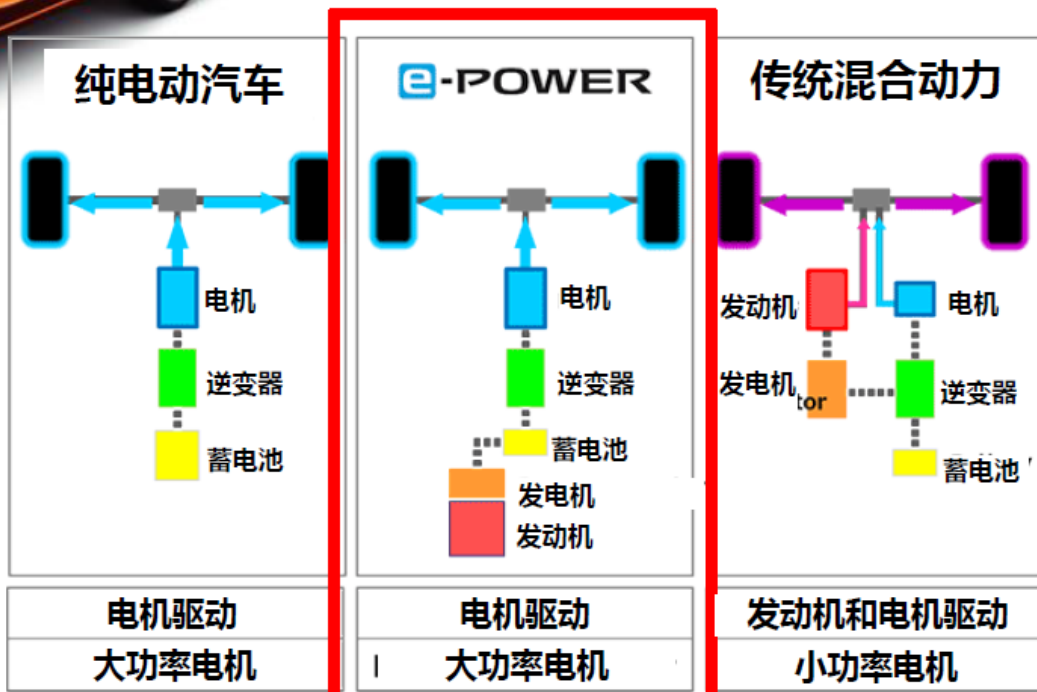


- 新型e-Power 总成
- 与EV具有较高亲和性

燃料消耗量

37.2

km/L (JC08)



New Battery for vehicles and power storage





“无油无虑 新有**0**息”

新时代国民纯电SUV **2**年全免息

续航**327-398**公里，**7.99**万起



更有万元钜惠到店领!

购车送电 百公里耗电仅



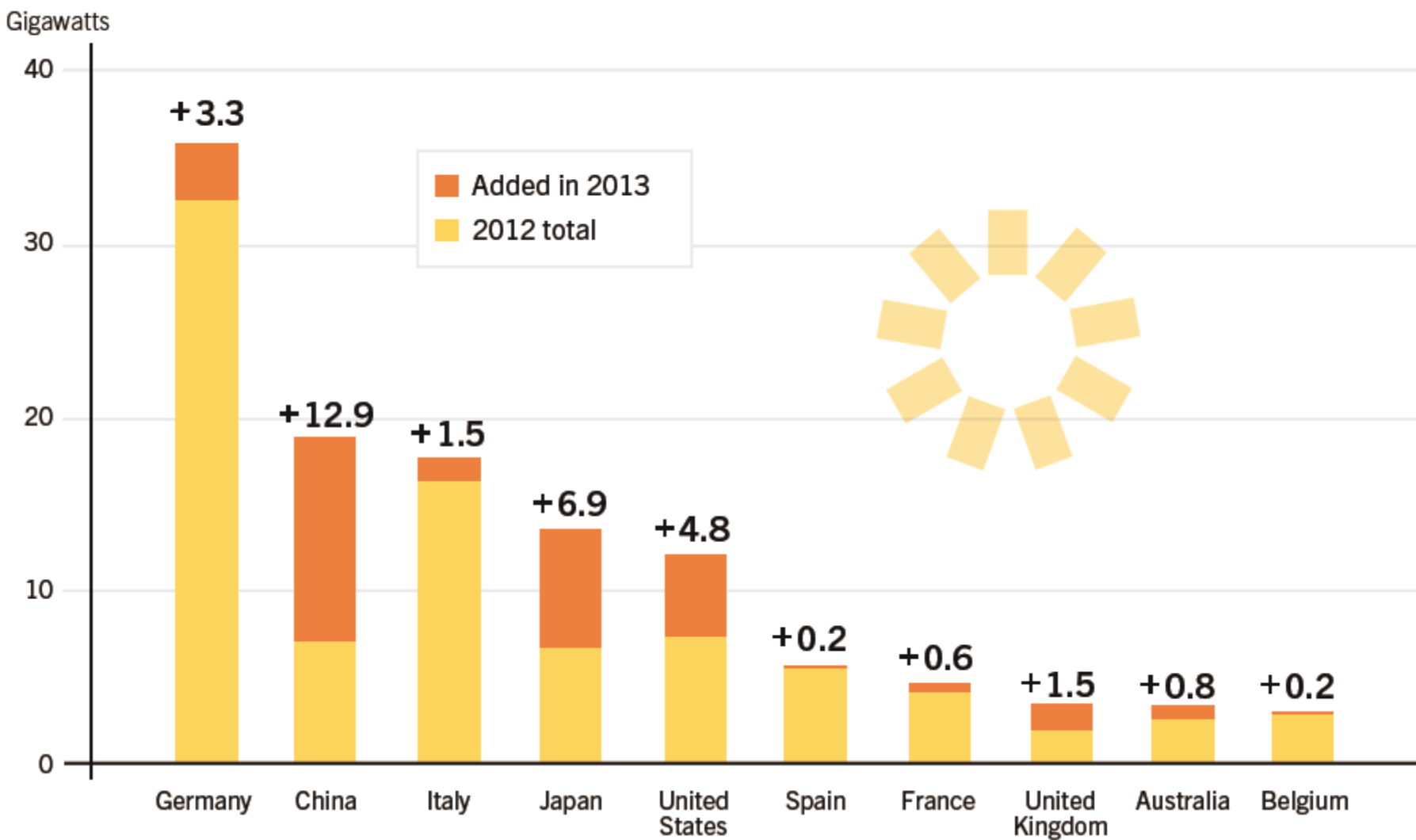
海淀区	万寿店	010-82233889
丰台区	陶坛店	010-88440855
丰台区	陶坛店	010-83528666
丰台区	科盛店	010-69289660
通州区	珠江店	010-53967058

朝阳区

昌平区

顺义区

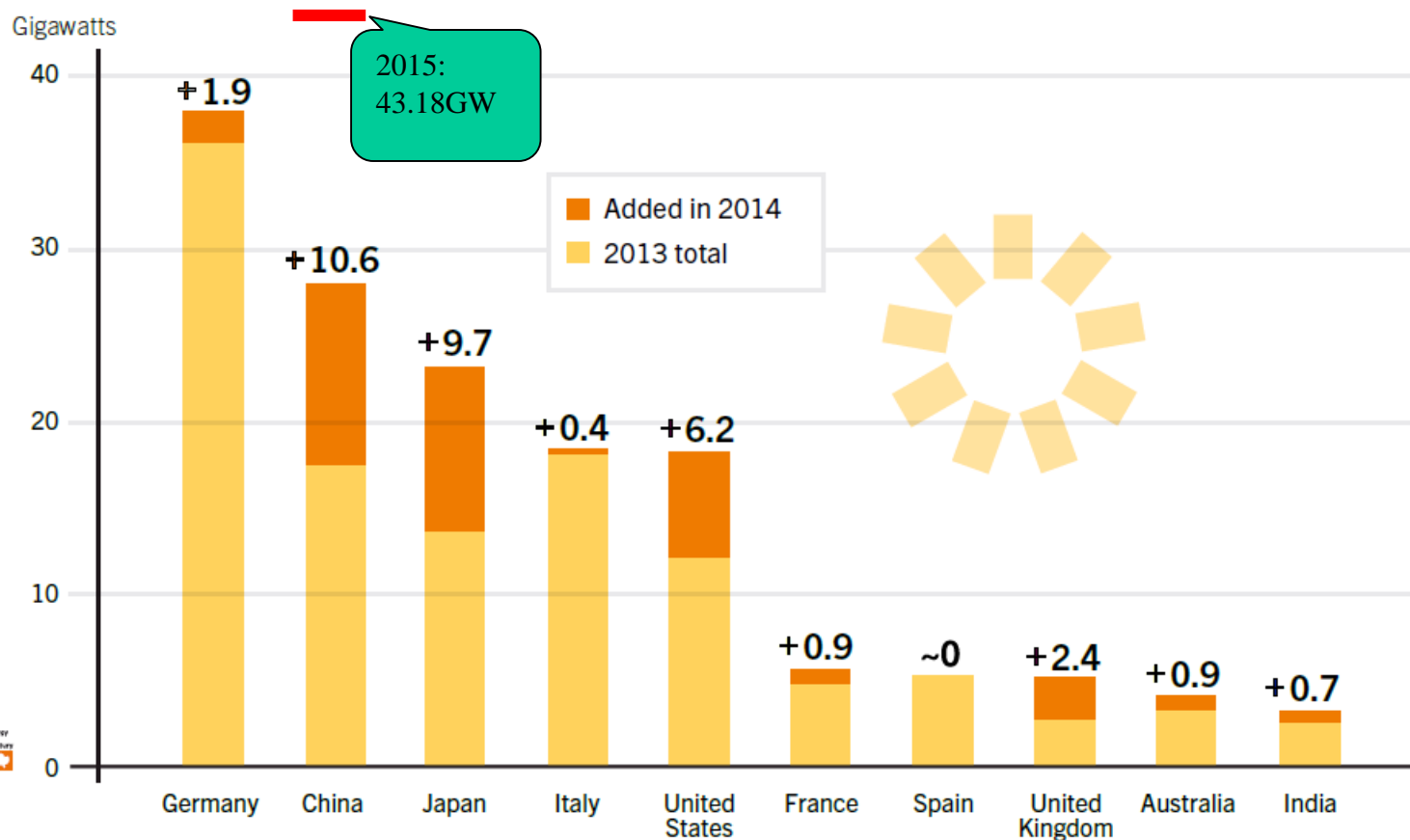
Figure 13. Solar PV Capacity and Additions, Top 10 Countries, 2013

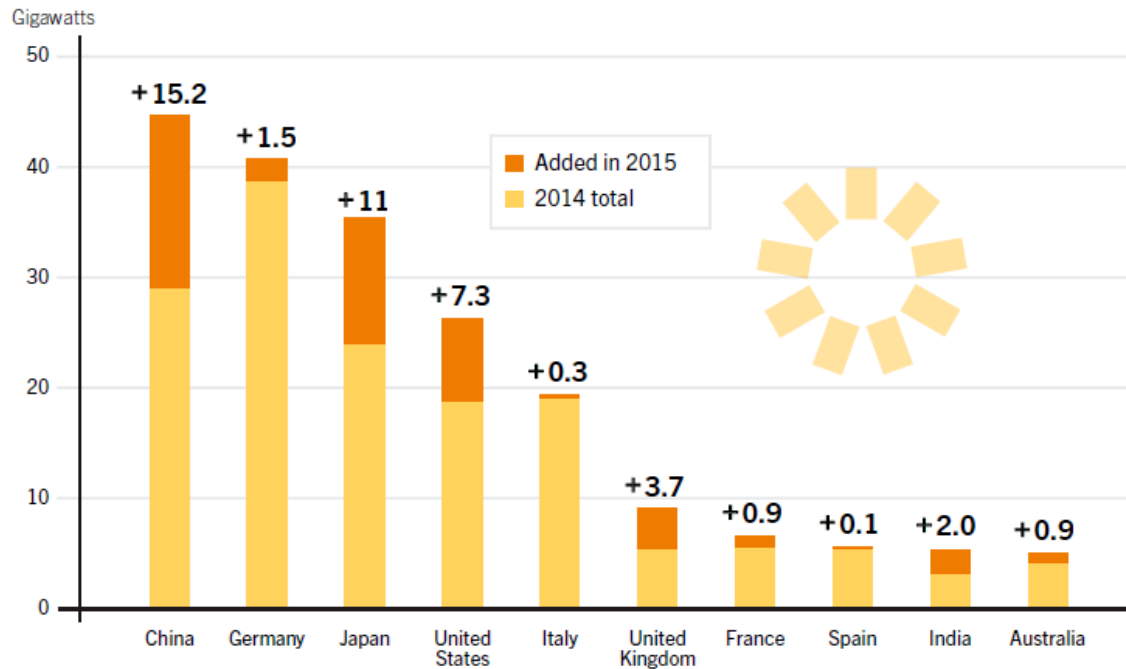




40 GW added in 2014

Solar PV Capacity and Additions, Top 10 Countries, 2014





**50 GW
ADDED IN 2015**

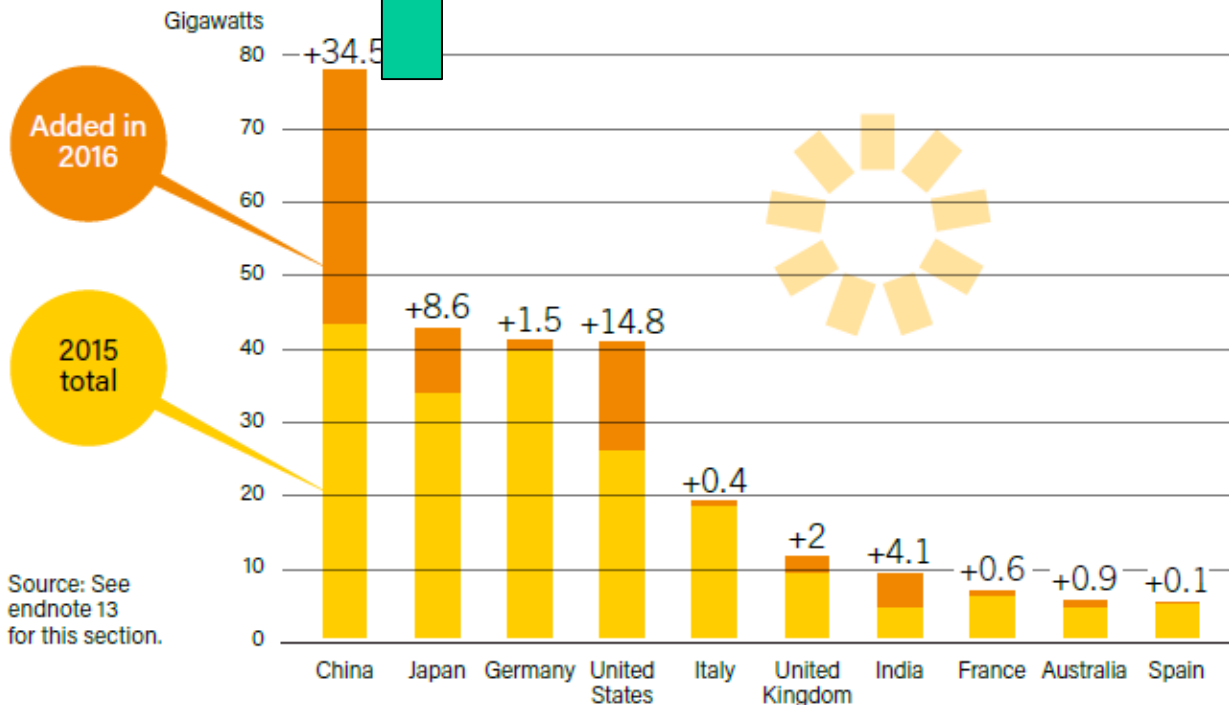
+20GW in second half 2018

+24.3GW from Jan. to June 2018

+53GW in 2017

+24.5GW from Jan. to June 2017

Figure 17. Solar PV Capacity and Additions, Top 10 Countries, 2016

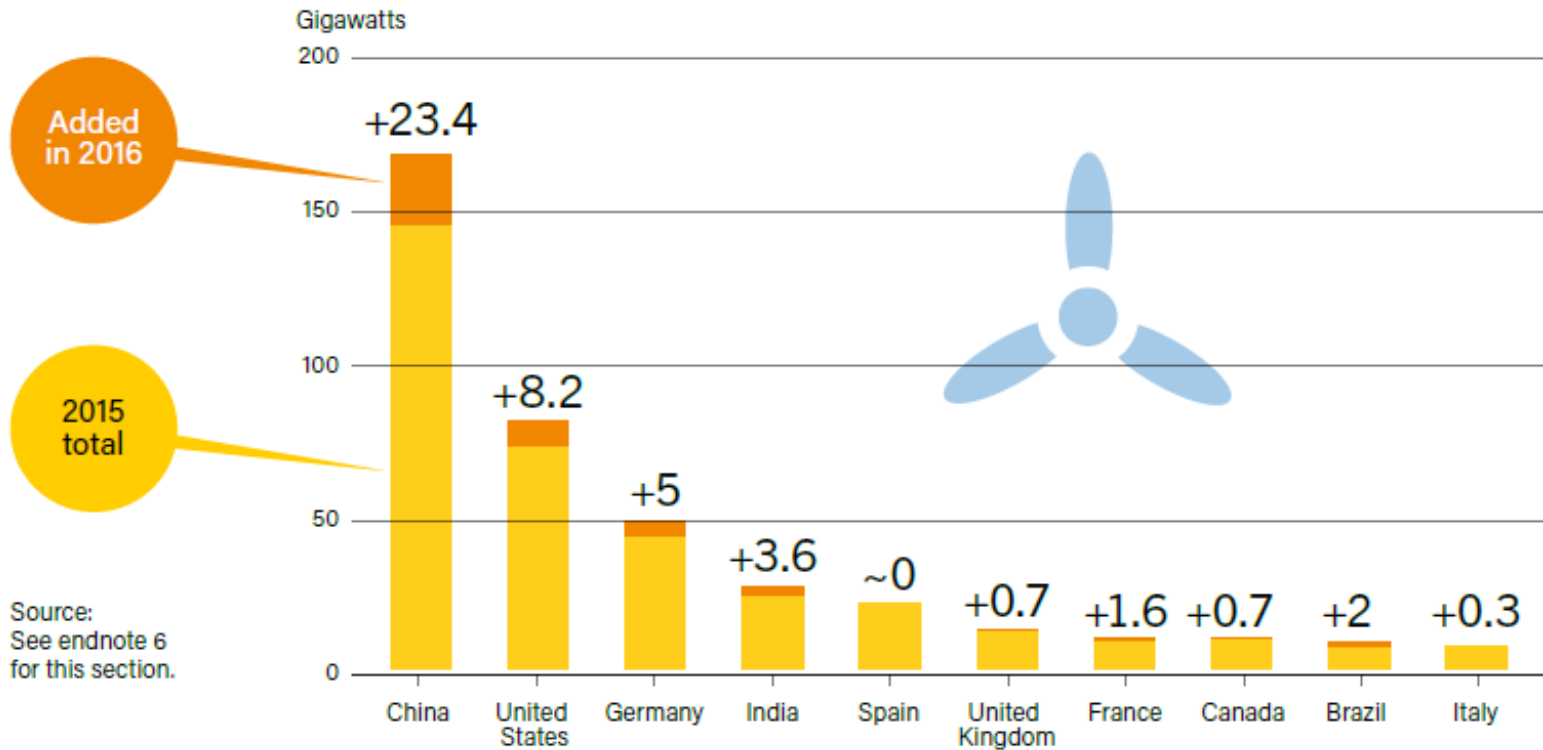


CHINA ACCOUNTED FOR
46% OF NEW CAPACITY.



Source: See endnote 13 for this section.

Figure 27. Wind Power Capacity and Additions, Top 10 Countries, 2016



Source:
See endnote 6
for this section.

Note: Germany's additions are net of decommissioning and repowering. "~0" denotes capacity additions of less than 50 MW.

NASA images show stunning progress of China's vast 850 MW Longyangxia Solar Park

2013

2017



By Aug.21, 2018, Sanmen Nuclear Unit #1, the first AP1000 in the world, made full power generation

By 2030, cost of nuclear power will be lower than coal fired power in China



表 1 我国地面光伏电站建设成本变化表

	2009	2012	2013	2015	2020	2030
初始投资价格 (元/瓦)	20	10	8~10	7.5~9	7~7.5	3~5

By 2020, power generation cost of solar PV will be lower than that of coal fired power plants in China

By 2018, power generation cost of wind is lower than that of coal fired power plants in China

End use technologies are getting to be nearly most efficient, small space for energy conservation

In the 2 and 1.5 °C scenarios, end use technologies will mainly be electricity based.

Energy efficient technologies are getting cheaper, and not much space for low efficiency ones

A 2 degree Asia: A good way to understand the global target

Scenario Analysis:

Japan

Korea

China

India

Thailand

Malaysia

Indonesia

Nepal

Vietnam

Cambodia

Laos

Philippine

