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China – Australia Carbon Market Development Expert Symposium

Supported by the UNSW International Contestable Funding Scheme
and
Australia-China Research Program on Climate Change Mitigation Policy

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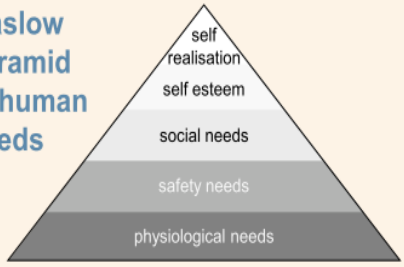
Possible energy priorities *(World Energy Council, 2010)*

Maslow pyramid of human needs



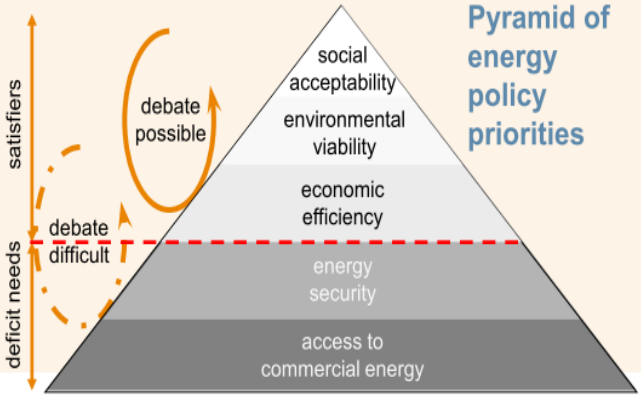
"A person who is lacking food, safety, love and esteem would most probably hunger for food more strongly than for anything else," stated the American psychologist Abraham Maslow in 1943 while formulating a theory to explain the motivational structure of a healthy person.

If Maslow were in Energy Politics…


Abraham Maslow

… he would argue that access to energy, supply security, energy costs, environmental issues and social acceptance are not subject to trade-off, but to a hierarchy: we cannot successfully address higher order needs before proposing and implementing solutions for lower order ones.

Pyramid of energy policy priorities



The elephant in the room – Climate Change

- Currently a lack of domestic and international progress, apparent loss of public and political interest and will in key jurisdictions
- … but even a dead elephant in the room is a problem
- **… and some new key jurisdictional players**

Some other key developments

"According to the China Electricity Council, China's wind power actually increased more than coal power production for the first time ever in 2012. Thermal (coal) power use grew by only 0.3% (12TWh)… In contrast, wind power expanded by 26 TWh. This rapid expansion brings the total amount of wind power in China to 100 TWh, surpassing China's 98 TWh of nuclear power."

ANNUAL INVESTMENT/ADDITIONS/PRODUCTION IN 2012 *(REN21, 2013)*

	New capacity investment	Hydropower capacity	Solar PV capacity	Wind power capacity	Solar water collector (heating) capacity[1]
1	**China**	**China**	**Germany**	**United States**	**China**
2	United States	Turkey	Italy	China	Turkey
3	Germany	Brazil/Vietnam	China	Germany	Germany
4	Japan	Russia	United States	India	India
5	Italy	Canada	Japan	United Kingdom	Brazil

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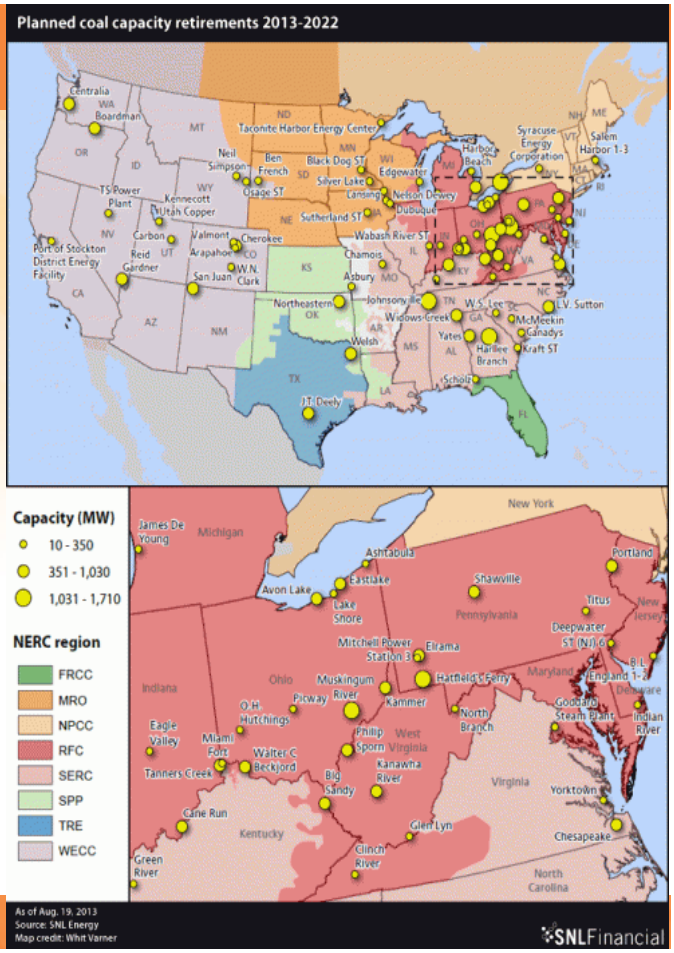
Non-climate enviro impacts also now key drivers

"China's State Council has announced that it is banning the construction of new coal-fired power plants near Beijing, Shanghai and Guangdong. The goal is to cut air pollution in the country's eastern megalopolises. The hope is that by 2017 Beijing residents will be breathing in 25% less fine particulate matter than in 2012."



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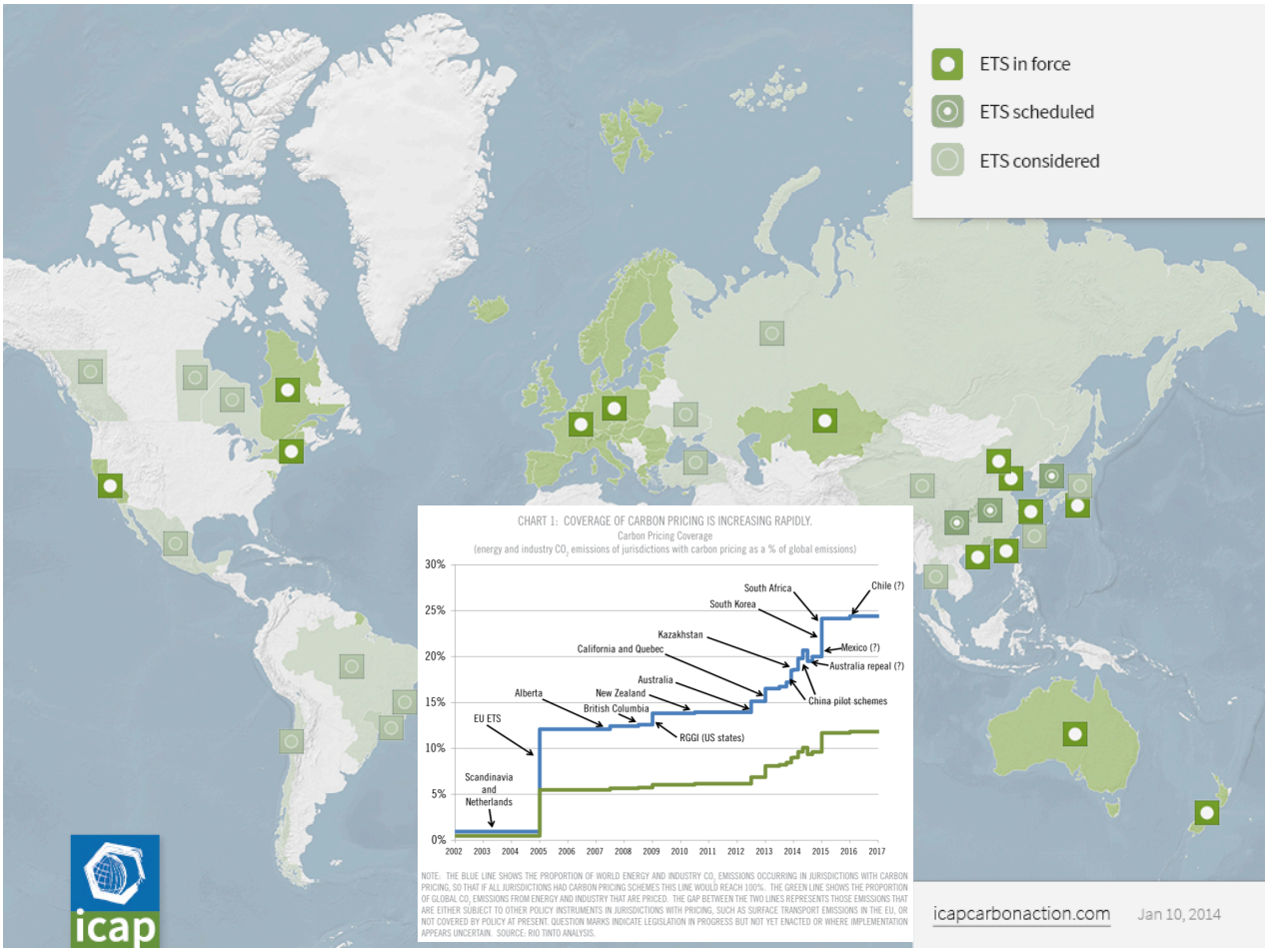
China and Australia

- Context
  - The worlds' largest greenhouse gas emitter and one of the world's largest per-capita emitters
  - One of the world's major energy importers and one of the world's major energy exporters
  - Relatively energy intensive economies
  - A currently dominant role for coal in energy provision
- Policy
  - *China* – 40-45% emission intensity reduction target for 2020
    Australia – 5+% emission reduction
  - *China* – 15% RE by 2020
    Australia – 20+% electricity
  - Australia – most recent, comprehensive ETS (+associated policy) design processes and implementation, **but where next?**
  - China – a key new player with world leading pilots



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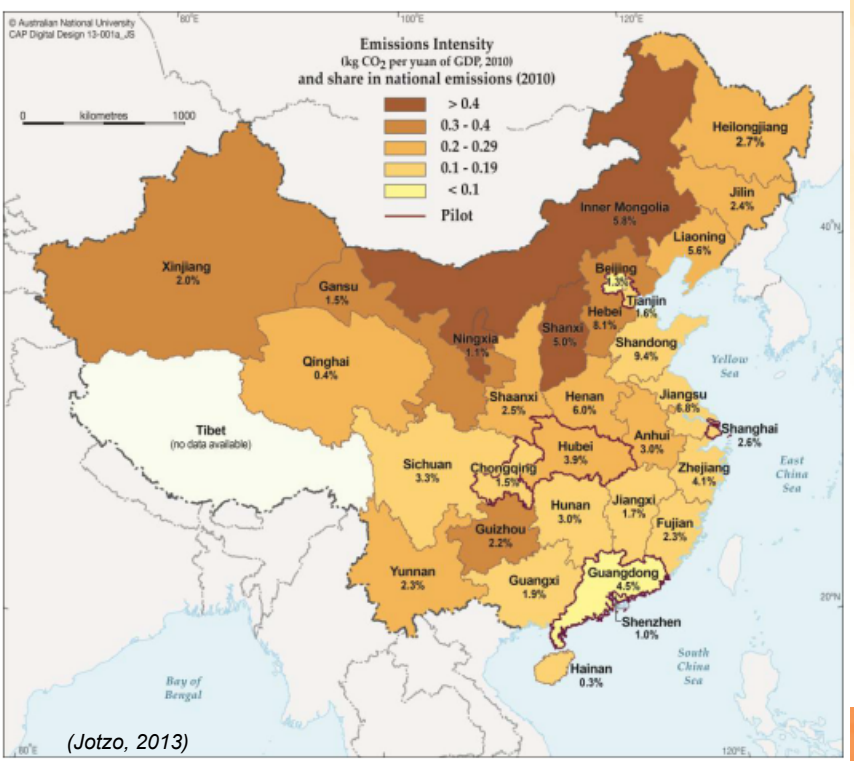
Chinese province/city ETS pilots



(Jotzo, 2013)

These are significant pilots

Statistics for pilot provinces and cities, 2010

	Population (million)	GDP (RMB billion)	GDP per capita (RMB 1000's)	Energy use (million tonnes SCE)	Energy use per capita (tonnes SCE/ person)	Carbon dioxide emission (million tonnes)	Emissions per capita (tCO2/person /year)	Emissions intensity (kgCO2/ RMB)	Electricit y use (Gwh)
Shenzhen SEZ	10	903	87	49	4.7	n.a.	n.a.	n.a.	69
Beijing	20	1182	60	70	3.5	103	5.2	87	83
Tianjin	13	781	60	68	5.3	134	10.3	172	68
Shanghai	23	1556	68	112	4.9	211	9.2	136	130
Chongqing	29	616	21	79	2.7	125	4.3	203	63
Hubei	57	1250	22	151	2.6	320	5.6	256	142
Guangdong	104	4016	39	269	2.6	444	4.3	110	406
China	1341	31234	23	3895	2.9	8146	6.1	261	4193
Pilot schemes combined	*256*	*10303*	*40*	*798*	*3.5*	*1337*	*5.2*	*130*	*960*
Pilot schemes share of national total	*19%*	*33%*		*20%*		*16%*			*23%*

(Jotzo, 2013)

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Australia-China research program on climate change mitigation policy

Partners/collaborators

- Tsinghua U
- Fudan U
- Wuhan U
- Beijing Inst Tech
- China Carbon Forum
- ANU
- UNSW
- U Melbourne

- ✓ Follows Australia-China Climate Change Forums in previous years
- ✓ Forum in Beijing later in 2014
- ✓ A range of working papers mid year

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Australia-China research program on climate change mitigation policy

Research topics

- ETS pilot schemes
  - Reasons for the design
  - Initial evaluation
  - Prospective analysis of future changes
  - Towards national carbon pricing?
- Energy sector reform
  - Role of market reform in facilitating lower emissions outcomes
  - Demand; short term supply; long term supply choices
  - Electricity sector investment
  - Energy demand trends
- Motivations/co-benefits; economic reform

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Symposium

Insights on the emissions trading pilot schemes

- Qing Tong, Tsinghua University
Beijing's ETS
- Shaozhou Qi, Wuhan University
Hubei's ETS, and design features of ETS in the Chinese context

Insights on China's renewable energy targets and progress

- Yu Wang, Tsinghua University
How Policies Narrow the Gap between Renewable Energy Actual Development and Targets in China

Discussion