

China's Commitments to Climate Mitigation: From Carbon Intensity to Carbon Neutrality

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- Zhang, Z.X. (2000), Decoupling China's Carbon Emissions Increases from Economic Growth: An Economic Analysis and Policy Implications, *World Development*, Vol. 28, No. 4, pp. 739-752.
- Zhang, Z.X. (2009), [Climate Commitments to 2050: A Roadmap for China](#), *East-West Dialogue*, No. 4, East-West Center, Honolulu.
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- Zhang, Z.X. (2011), In What Format and under What Timeframe Would China Take on Climate Commitments? A Roadmap to 2050, *International Environmental Agreements: Politics, Law and Economics*, Vol. 11, No. 3, pp. 245-259.
- Zhang, Z.X. (2011), Assessing China's Carbon Intensity Pledge for 2020: Stringency and Credibility Issues and their Implications, *Environmental Economics and Policy Studies*, Vol. 13, No. 3, pp. 219-235.
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Six Plausible Options in Ascending Order of Stringency for China (Zhang for UNDP, 1998; Zhang, *World Development*, 2000)

- Active participation in CDM as meaningful participation
- (Undefined) Demonstrable progress between the first commitment period and 2020
- Specific policies and measures (explicitly demonstrate) between the first commitment period and 2020
- **Carbon intensity around 2020**
- Sectoral emissions cap around 2020
- **Bottom line:** A combination of a targeted carbon intensity level with an emissions cap on a particular sector around 2020

China's proposed carbon intensity target in 2020 (Zhang, 2009)

- To infer potential level based on historical trend of energy saving.
 - My back-of-the-envelope calculation suggests a 42-43% cut in China's energy intensity by 2020 relative to 2005 levels.
 - With carbon-free energy meeting 7.1% of China's total energy needs in 2005 and that share mandated to be increased to 15%, this 42-43% cut in energy intensity is equivalent to a 50-51% cut in carbon intensity between 2006 and 2020, implying that there is a room for China to increase its own proposed carbon intensity reduction of 40-45% by 2020.
- Combined together, **China should aim for a 46-50% cut in its carbon intensity over the period 2006-2020.**
- This 46-50% carbon intensity reduction will lead to China's emissions reductions of 15-21% compared with its baseline levels in 2020. That will put China's absolute emissions reductions very much within the IPCC's recommended level of 15-30% below baselines.

Climate commitments for China: A roadmap to 2050 (Zhang, 2009)

- I propose that at current international climate talks China should negotiate a requirement that
 - greenhouse gas emissions in industrialized countries be cut at least by 80% by 2050 relative to their 1990 levels &
 - per capita emissions for all major countries by 2050 no more than the world's average at that time.
- At a right time, **China signals well ahead that it will take on binding absolute emission caps around 2030.**

In what format and under what timeframe would China take on climate commitments? A roadmap to 2050

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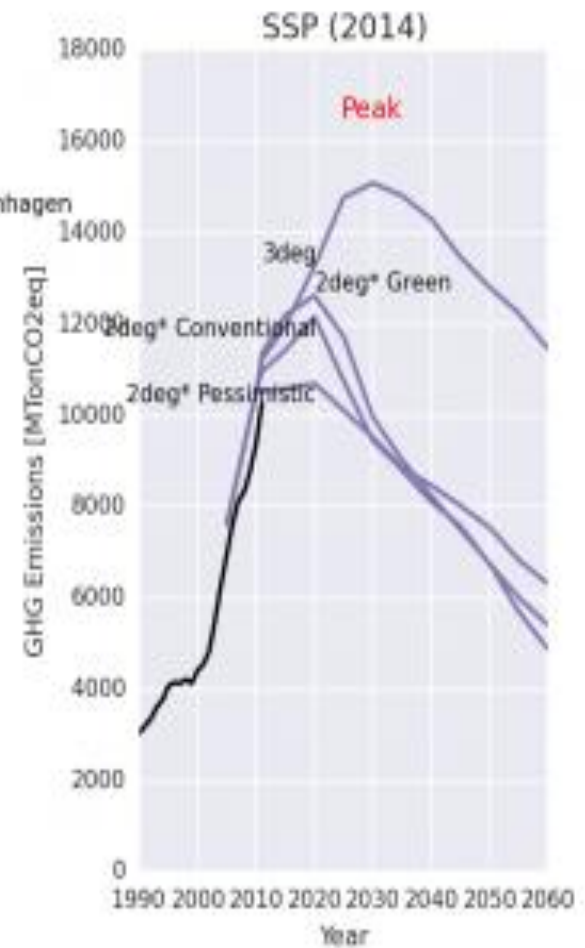
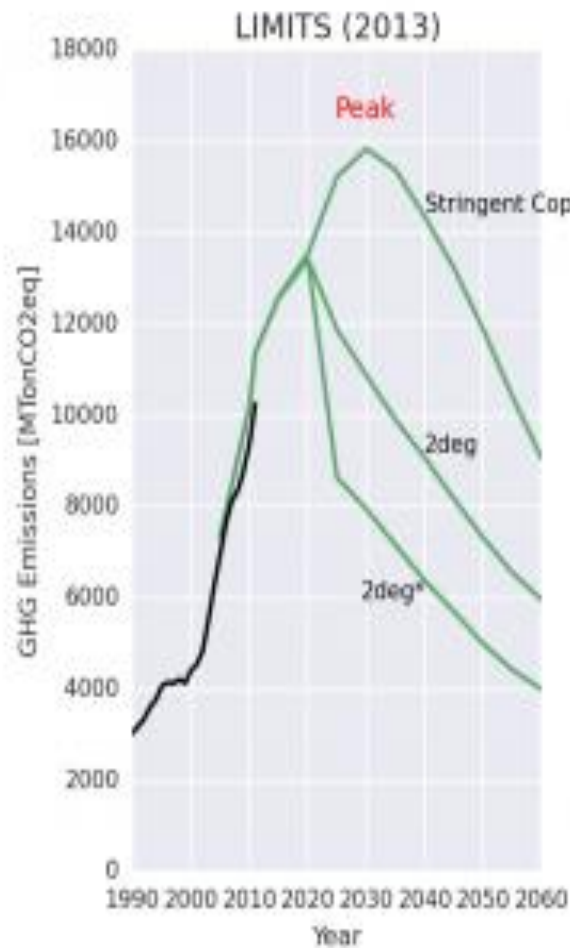
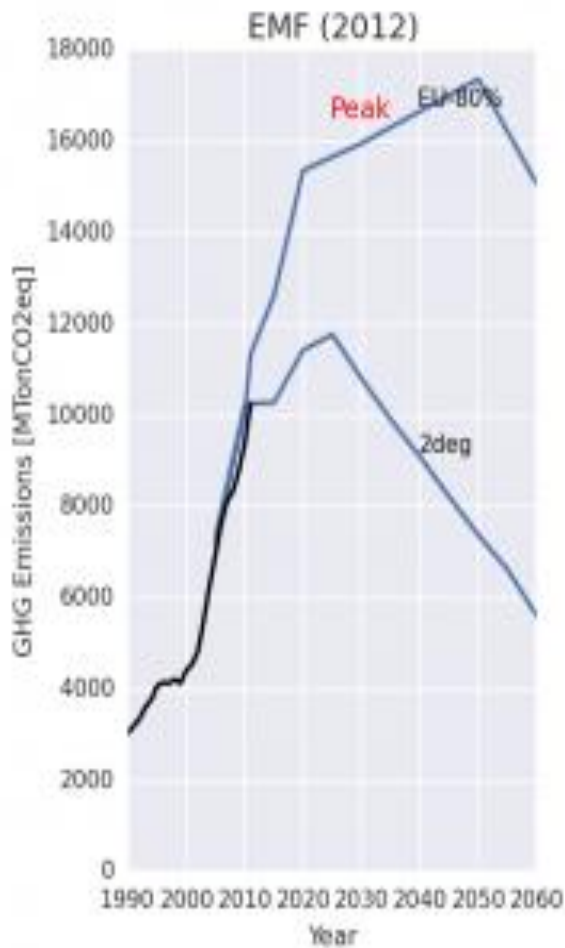
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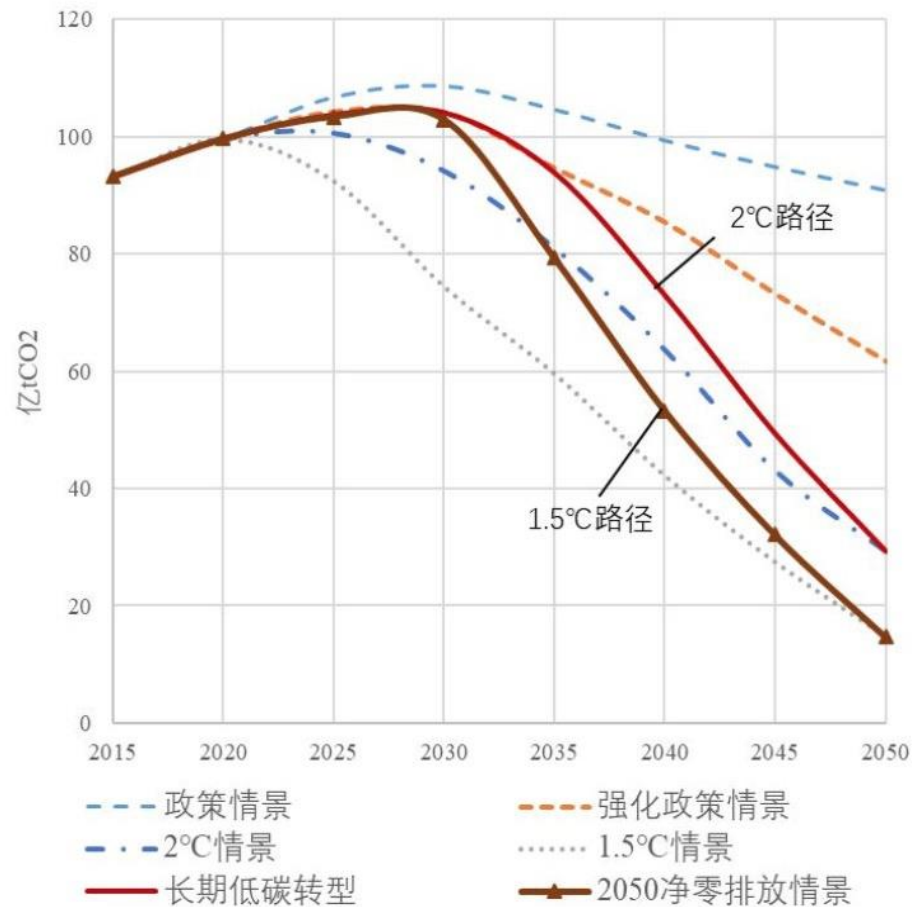
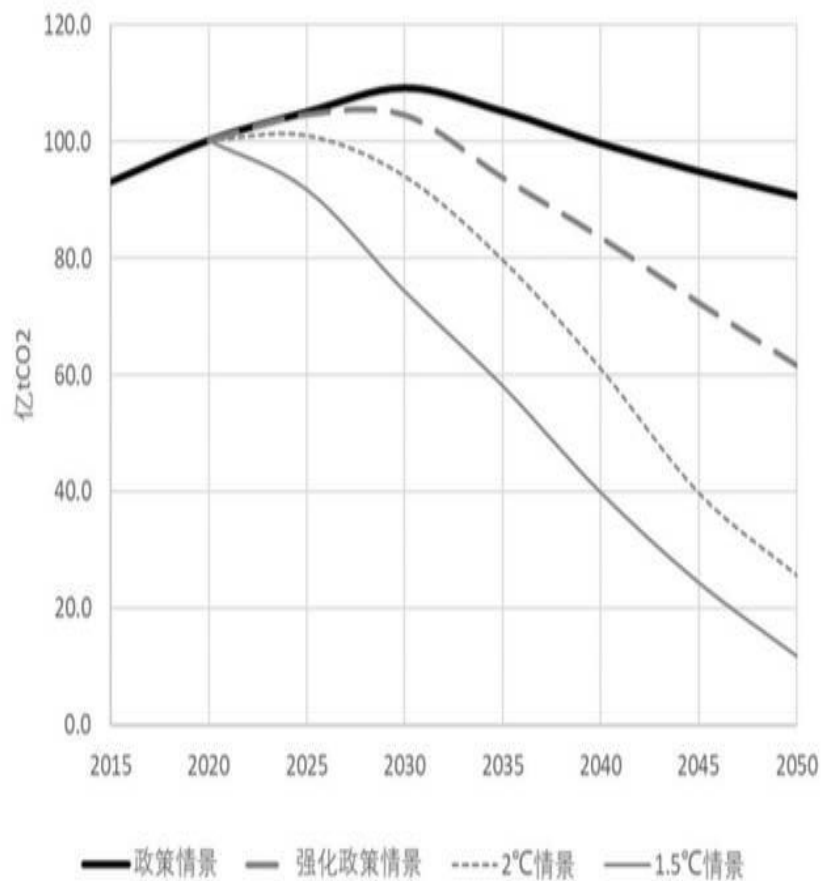
Capping China's carbon emissions around 2030 (Zhang, 2017)

- Significantly ambitious? Achievable? At what costs?
 - Relative to baseline or continued efforts
 - Whether consistent with the 2° C target?
- At what level that peak would be (BAU 12Gt; **Target below 10.5 Gt**; 10 GtCO₂ unlikely)?
- Renewable is key (**M25 《P2030**; M30=>P2025; M40=>P2020)

Scenarios of China's GHG emissions from 1990 to 2100



China's Long-term Low-carbon Emission Paths (Tsinghua University, October 2020)



感谢Thank you!



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中祥悟谭

传递经济学理论与政策、国际贸易、世贸组织、财政与税收、产业政策、经济规制、治理、全球战略、能源与环境、基础设施、创新、气候变化国际谈判、绿色低碳发展理论与政策等这些自己研究涉猎领域的文章、感悟、随笔、见闻与活动。

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