Energiewende in Germany and its implications for China 德国能源转型及其对中国的政策启示

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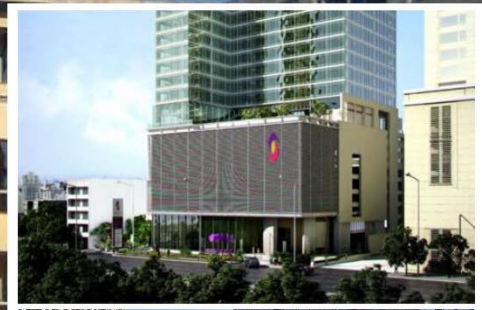
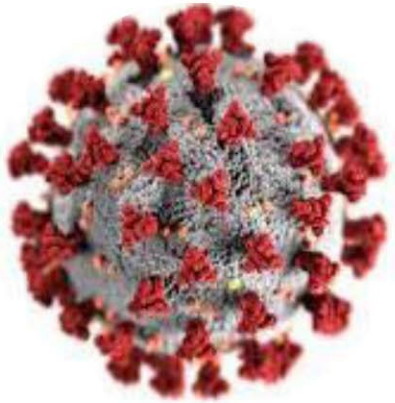


Megatrends: navigating a world of multiple disruptions 大趋势：处于多事之秋的世界

US-China trade war
中美贸易战及关系重置

War against coronavirus
新冠疫情大流行



Russo-Ukrainian War
俄乌冲突

Tech war
科技战

War on aging
in the era of urbanization
城市化叠加老龄化

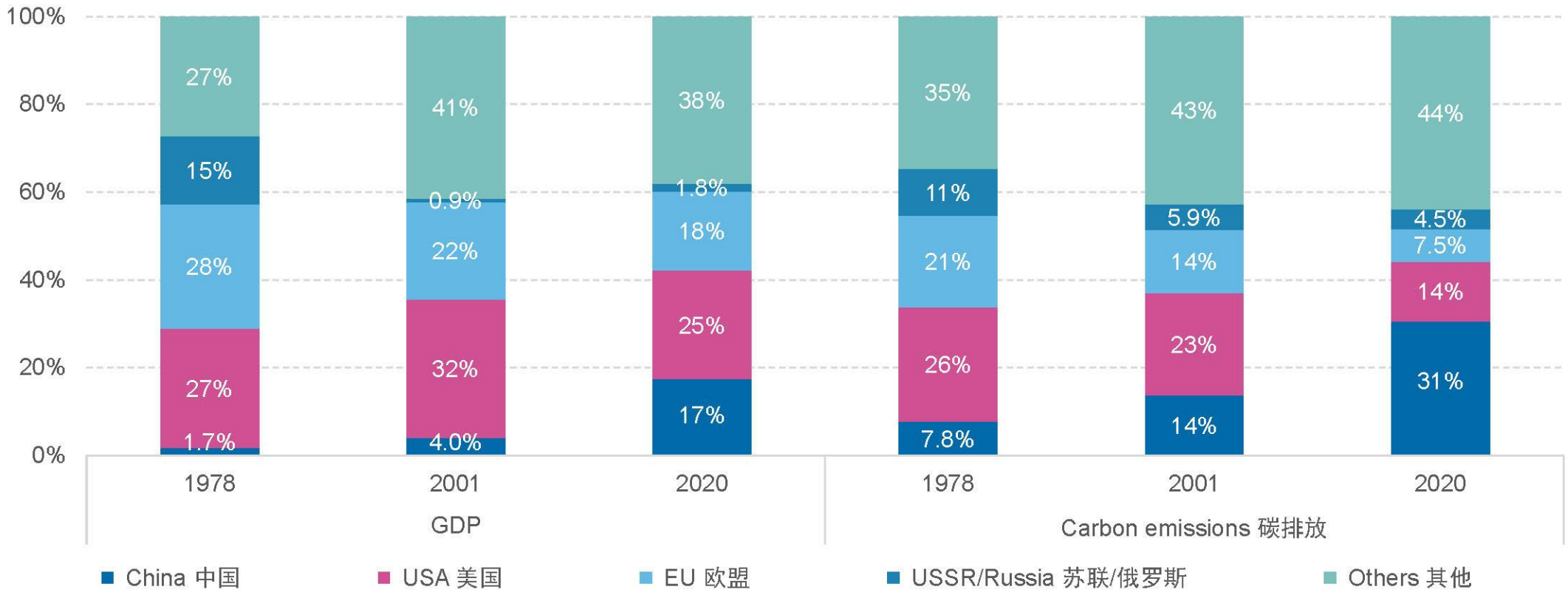
War on air pollution
蓝天保卫战

War on carbon
气候变化

Disinformation war
舆论战

Power rebalancing among key economies over time 全球主要经济体的实力变迁

全球分经济体GDP与碳排放占比演变情况
World GDP and carbon emissions by key economy



Source: Kevin Tu (2022).

Against the backdrop of rising geopolitical tensions, energy & climate collaboration among key consuming economies is beneficial for world peace. 主要能源消费经济体之间的能源与气候合作利好世界和平。

China Industrial Decarbonization and the Role of Green Hydrogen 中国工业脱碳及绿氢的作用

2021 accomplishments 成果总结

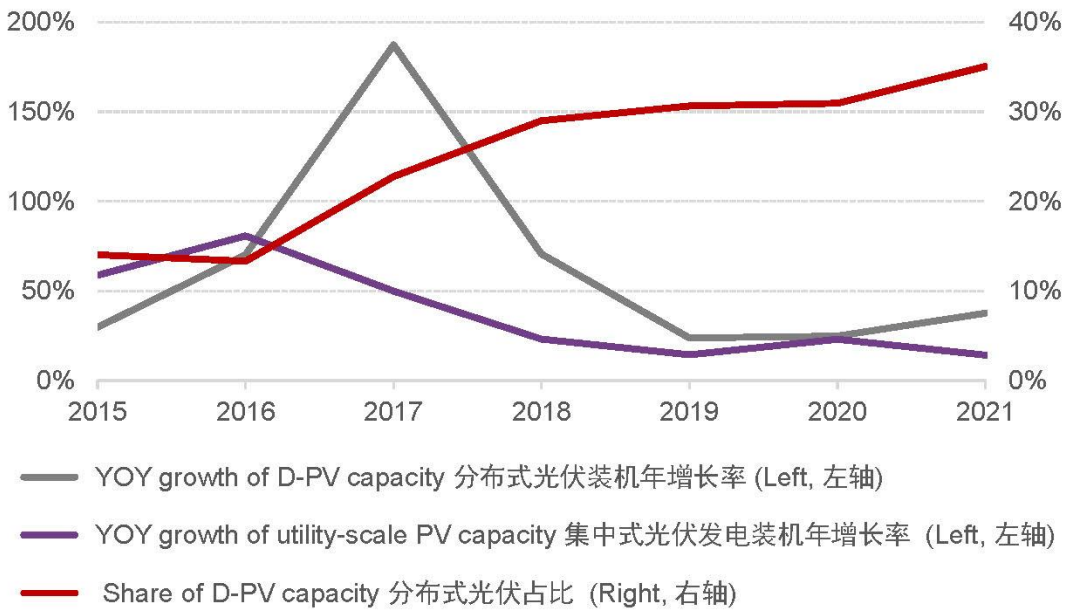
- Global Steel Transformation Tracker
  世界钢铁转型追踪表
- Europe-China Workshop on Green Hydrogen Economy 中欧绿色氢能经济研讨会

2022 outlook 年度展望

- Paper: Green Hydrogen in China and Its Role in Industrial Decarbonization
  报告：《中国绿氢现状及其在工业脱碳中的作用》
- MOU with China EV100 Hydrogen Centre
  与中国电动汽车百人会氢能分会签署合作MOU
- Looking into the best practices in Chinese steel sector decarbonization.
  中国钢铁行业脱碳最佳实践分析
- How circular economy could boost the expansion of secondary steel-making in China.
  循环经济如何促进中国再生钢铁冶炼产能扩张

Distributed energy is expected to gain new momentum during the 14th FYP period 可再生能源在“十四五”期间会加速发展

Snapshot of distributed renewables in China
中国分布式可再生能源发展一览



Source 来源: CEC 中电联, CWEA 中国风能协会

- China’s distributed renewables priority sequence: D-PV > D-wind > others 中国分布式可再生能源优先顺序：分布式光伏>分散式风电>其他

Prospects of D-PV under China’s 30.60 pledge
分布式光伏在中国30.60双碳目标下的发展前景

- Mandatory requirement of grid integration of renewables in provinces 实施省级可再生能源电力消纳责任权重考核
- Incremental renewables and feedstock fuel excluded from total energy cap 新增可再生能源和原料用能不纳入能源消费总量控制
- Large-scale deployment of roof-top D-PV for entire counties (676 counties involved) 开展整县屋顶分布式光伏发电规模化开发（涉及676个县）
- D-PV contributing to rural energy transition, and “PV+” agriculture 分布式光伏促进乡村能源绿色转型，“光伏+”服务农业发展
- Supporting D-PV deployments in areas with sizable industrial loads 支持分布式光伏在工业负荷大的地区建设

- More in-depth study on supportive mechanisms, esp. cost-benefit analysis of D-PV 加强支持政策研究，特别是对分布式光伏投入产出分析

Coal transition in key provinces is crucial to move national clean energy transition agenda forward 关键省份的煤炭转型对推动全国清洁能源转型进程至关重要

Largest coal consuming provinces: the top 5 consumed 43% of the national total
煤炭消费大省：前五大消费全国43%的煤炭

Largest coal producing provinces: the top 5 produced 80% of the national total
煤炭生产大省：前五大生产全国80%的煤炭

Shanxi and Inner Mongolia: the top 2 coal consuming and producing provinces
山西与内蒙古：同为全国最大的煤炭消费和生产省

Shanxi

Coal consumption: 13.8 EJ ≈ 2 x EU total

Coal production: 26.6 EJ ≈ OECD total

- Stagnation of coal-dependent economy
- Resource depletion
- Coal-related unemployment
- Labor emigration

山西

煤炭消费量：13.8 EJ ≈ 2 x 欧盟消费量

煤炭生产量：26.6 EJ ≈ OECD 国家总消费量

- 以煤炭产业为基础的经济缺乏动力
- 资源枯竭
- 煤炭行业就业问题
- 劳动力外流

Source: China Energy Statistical Yearbook 2020
来源：中国能源统计年鉴2020

Current work progress 当前工作进展

2020

Nov 2019
Agora visited Shanxi's key stakeholders
19年11月
Agora拜访山西关键利益相关方

May 2020
Agora visited distributed energy projects in Shandong
20年5月
Agora在山东参观分布式能源项目

2021

Sep 2021
A trilateral MOU signed at Taiyuan Energy Low-Carbon Development Forum
21年9月
太原能源低碳发展论坛上签署三方合作备忘录

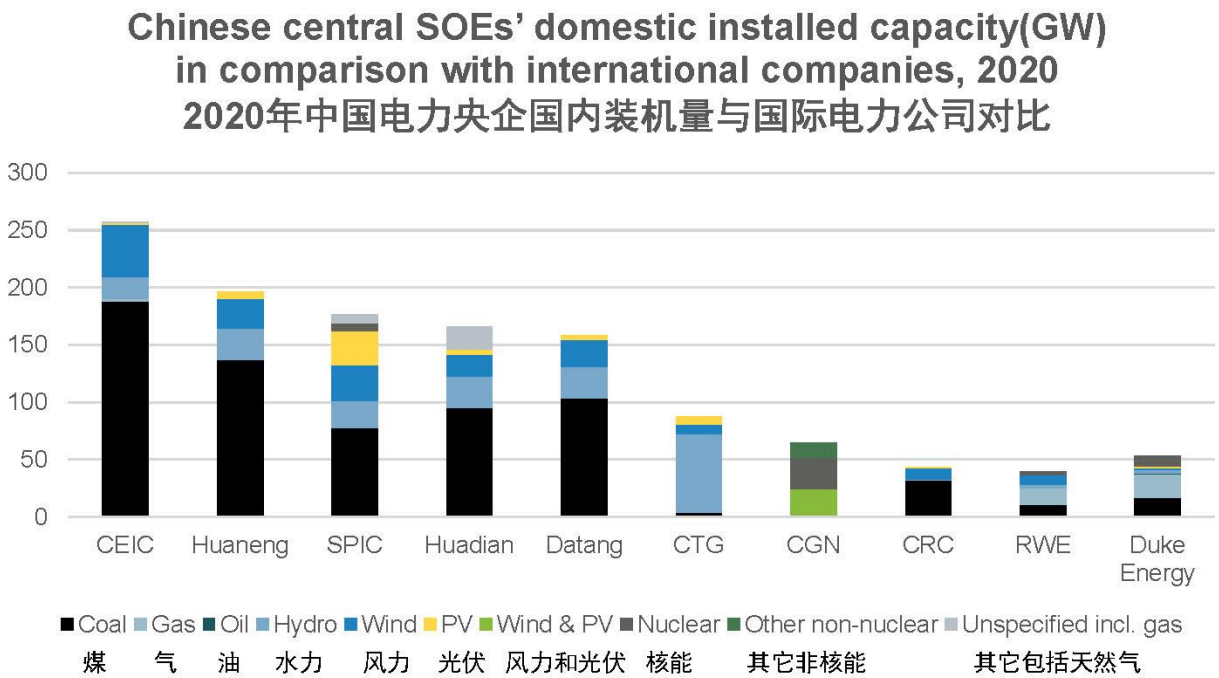
Sep-Nov 2021
Europe-China Dialogues on Coal Just Transition
21年9-11月
中欧煤炭公正转型系列对话

2022

In planning
Further studies and workshops on regional transition in more provinces
计划中
将进一步开展关于更多省份的区域转型的研究和活动

Research on China's energy corporate transition strategies, with focus on large-size central SOEs
从大体量的央企着手，研究中国能源企业转型策略

Coal phase-down is key for corporate transition 减煤是企业转型重中之重



Source 来源: Agora Energiewende (2022)

→ **Methodology 研究方法**

- Desk research on energy sector and companies via annual reports, rating reports
  各公司年报、第三方评级报告分析及行业研究
- Workshops on experience and lessons learned among European and Chinese stakeholders
  有关企业转型经验教训的中欧研讨会
- Interviews with policymakers, sector experts, corporate management and employees
  访谈政策制定者、行业专家、企业高管及员工

→ **Synergies & duplication 协同效应与经验复制**

- To forms a feedback loop for regional transition mission and serve as a reference globally
  为区域转型、其他国家企业转型提供参考
- Corporate dataset based on self-developed data entry tool to benefit research community
  Agora能源企业数据库将惠及该领域的研究社群

Concluding remarks

- History indicates that crisis often leads to profound transformation, the ongoing COVID-19 pandemic, Russo-Ukrainian War as well as other global disruptions are expected to substantially impact global clean energy transition, with short-term implications not necessarily consistent with longer-term ones.

  历史经验表明危机往往会导致深刻的变革，当前的全球新冠大流行、俄乌冲突以及其他全球性剧变预计对全球清洁能源转型带来深远影响，但短期内的冲击未必与长期性的趋势保持一致。

- Agora Energiewende, an international energy think tank, strives to collaborate with like-minded partners and transfer experience of energiewende to other parts of the world including China, and vice versa.

  Agora能源转型论坛是一家国际能源智库，我们致力于和志同道合的伙伴合作，将德国能源转型的经验介绍给包括中国在内的世界其他地区，反之亦然。

- Against the backdrop of the 50th anniversary of the establishment of diplomatic relations between Germany and China, these two countries should further strengthen their bilateral collaboration to maintain momentum of global clean energy transition and climate agenda.

  今年是中德两国建交50周年，两国应该进一步深化双边合作以推动全球清洁能源转型及气候议程。