

CCER as the new CDM:

Can international carbon trading catalyse energy transition in the Global South?

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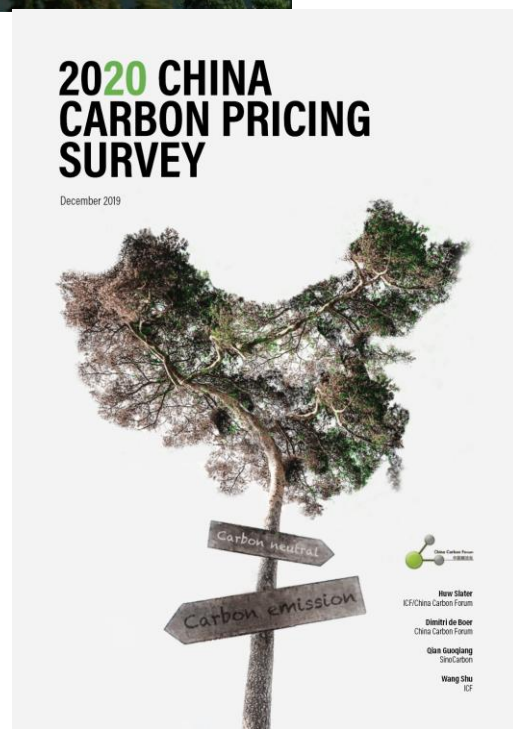
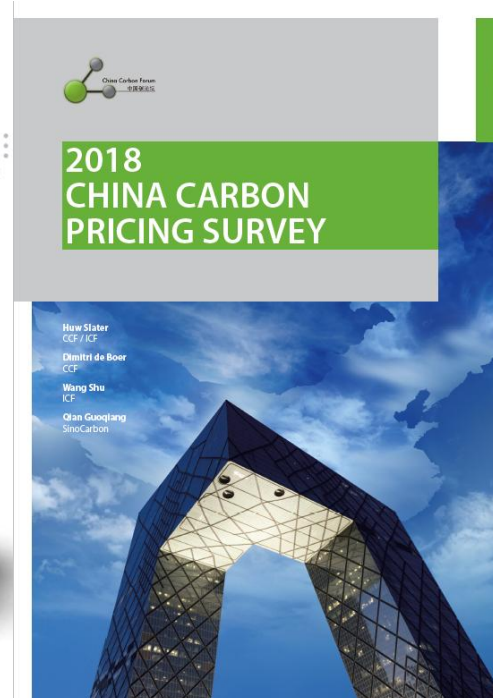
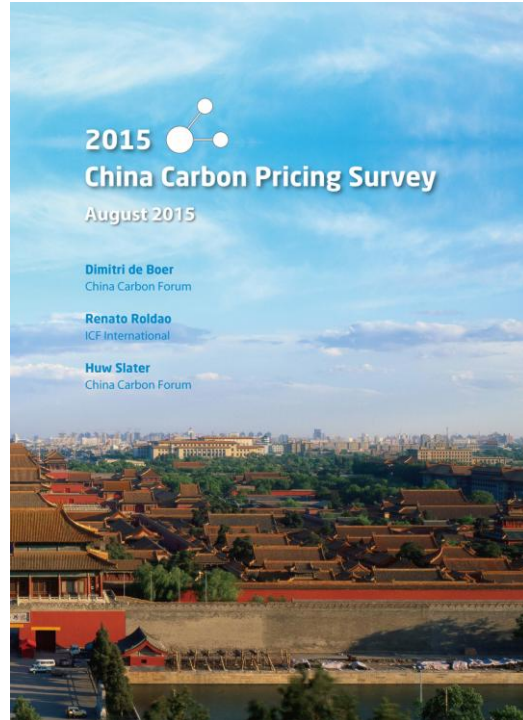


From Melbourne to Beijing...



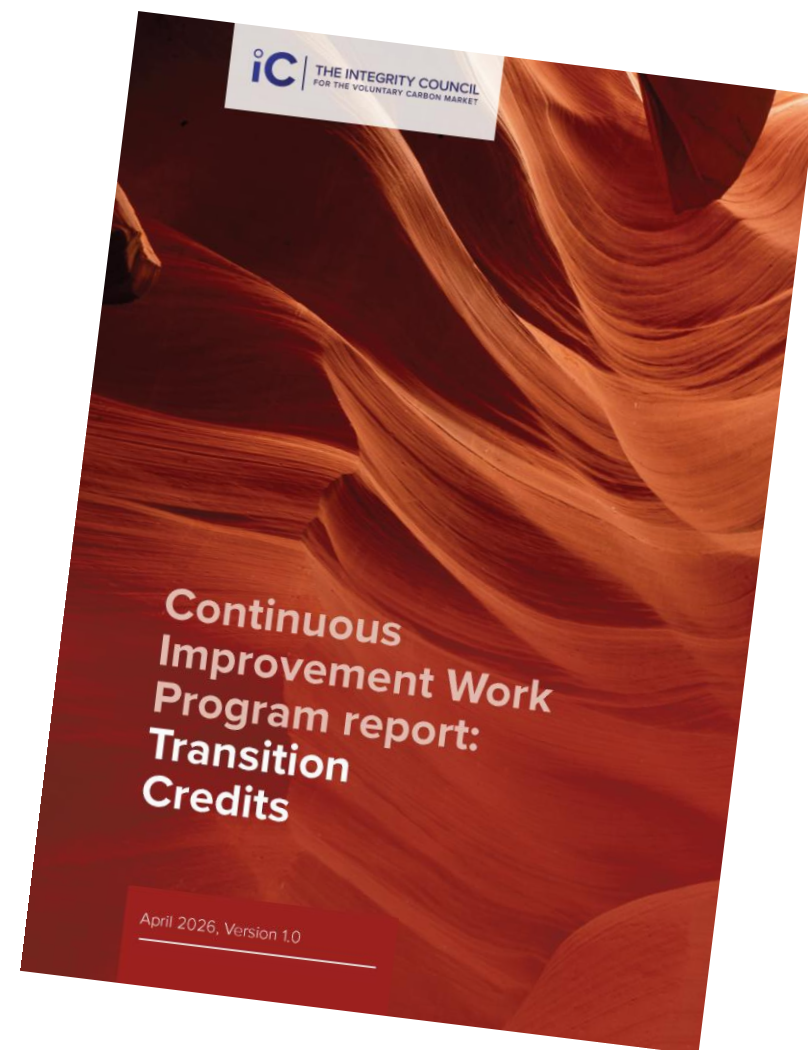




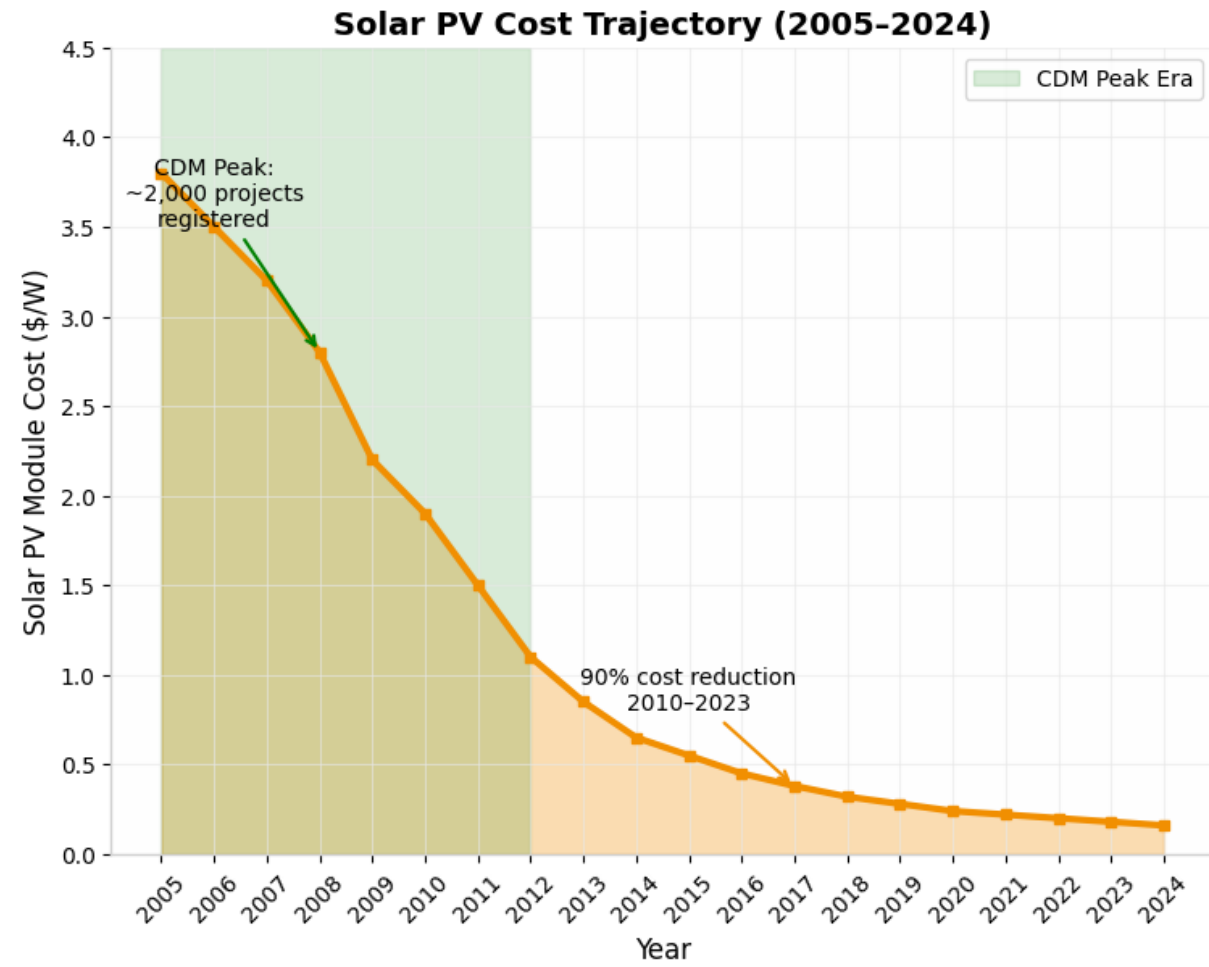
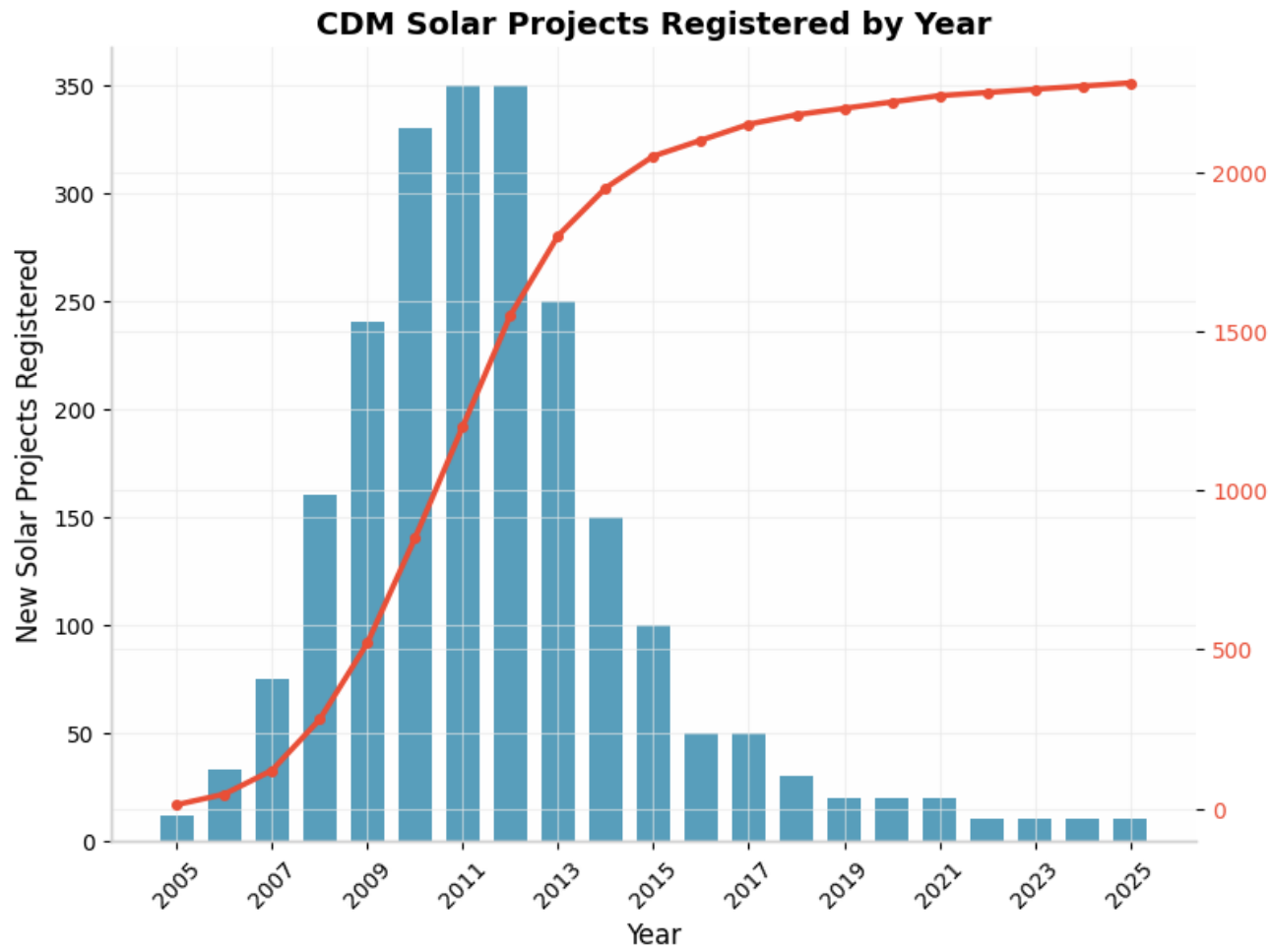




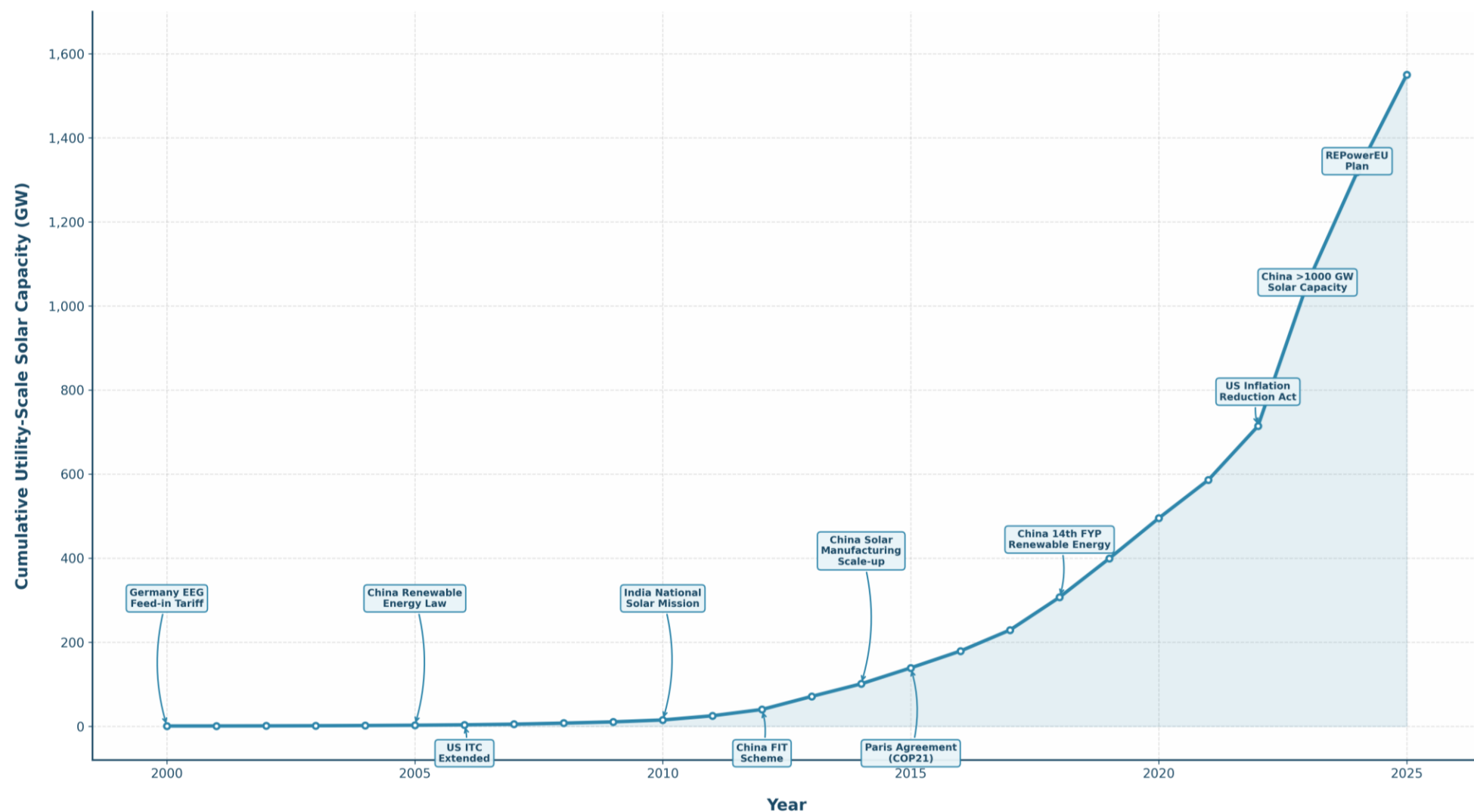




CDM: How carbon markets catalysed solar PV scale-up



Global Utility-scale Solar Power Capacity Build-out



Sources: IRENA Renewable Capacity Statistics 2026, IEA World Energy Outlook, Solar Power Europe, China NEA, SEIA

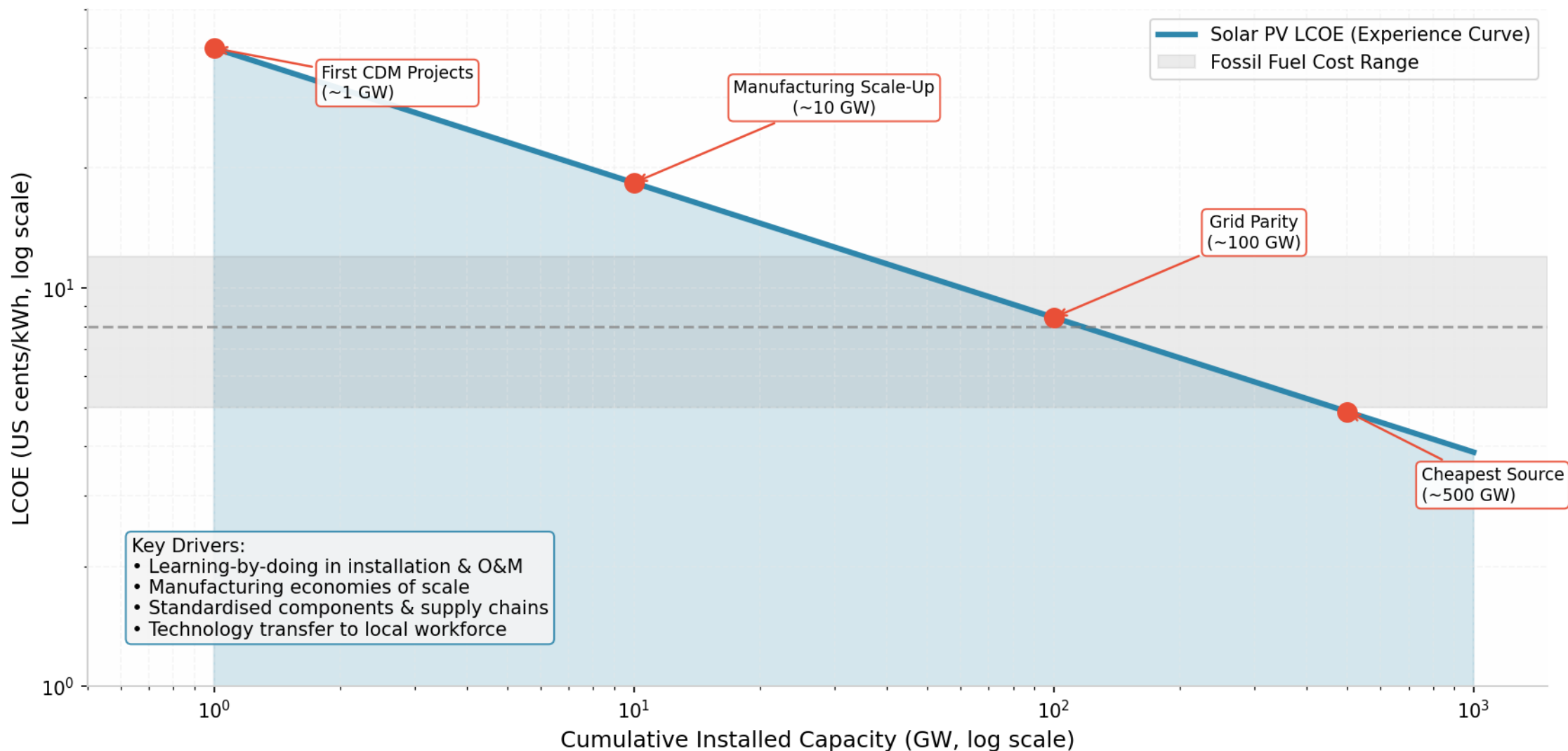


How the CDM Catalysed Solar Scale in Emerging Markets

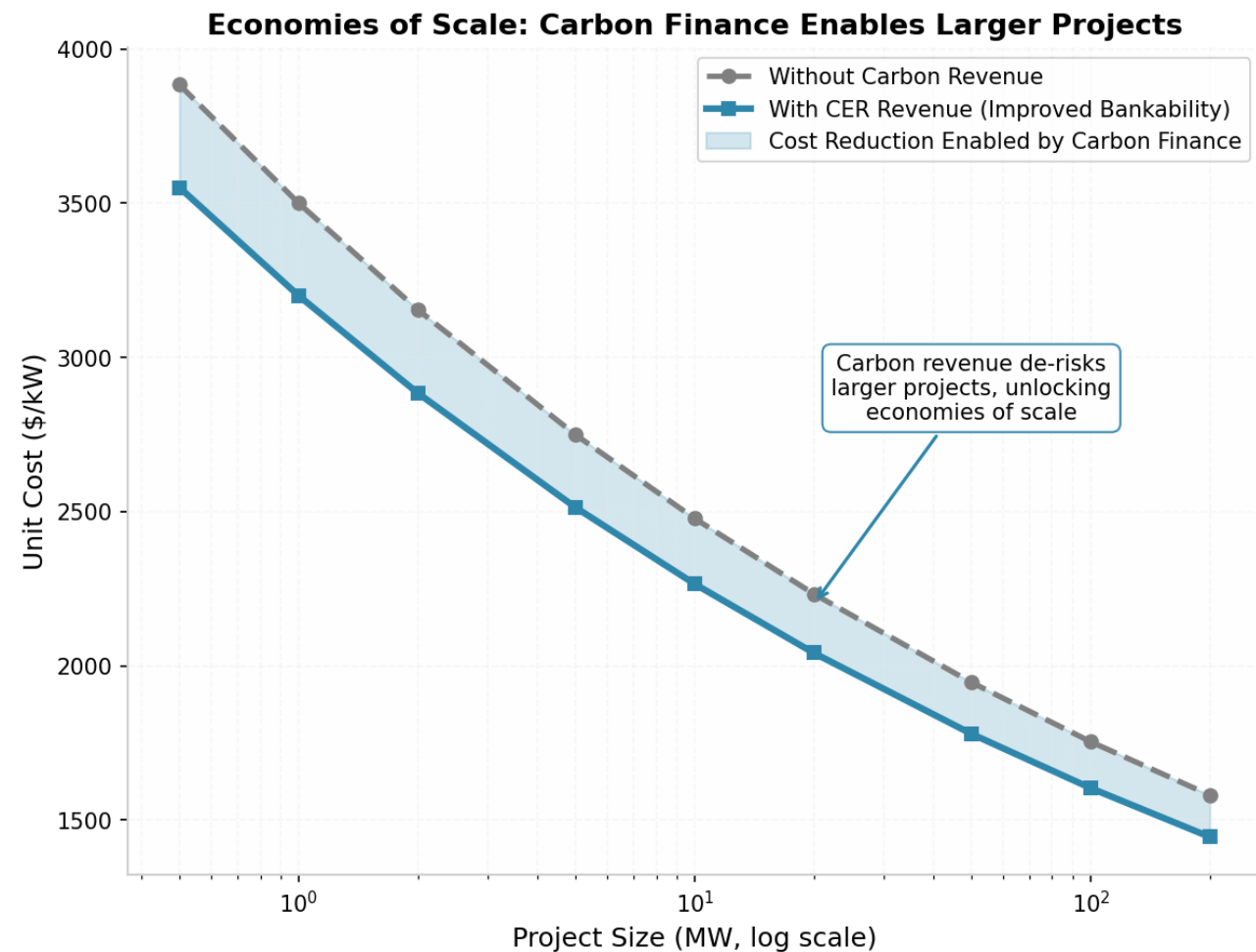
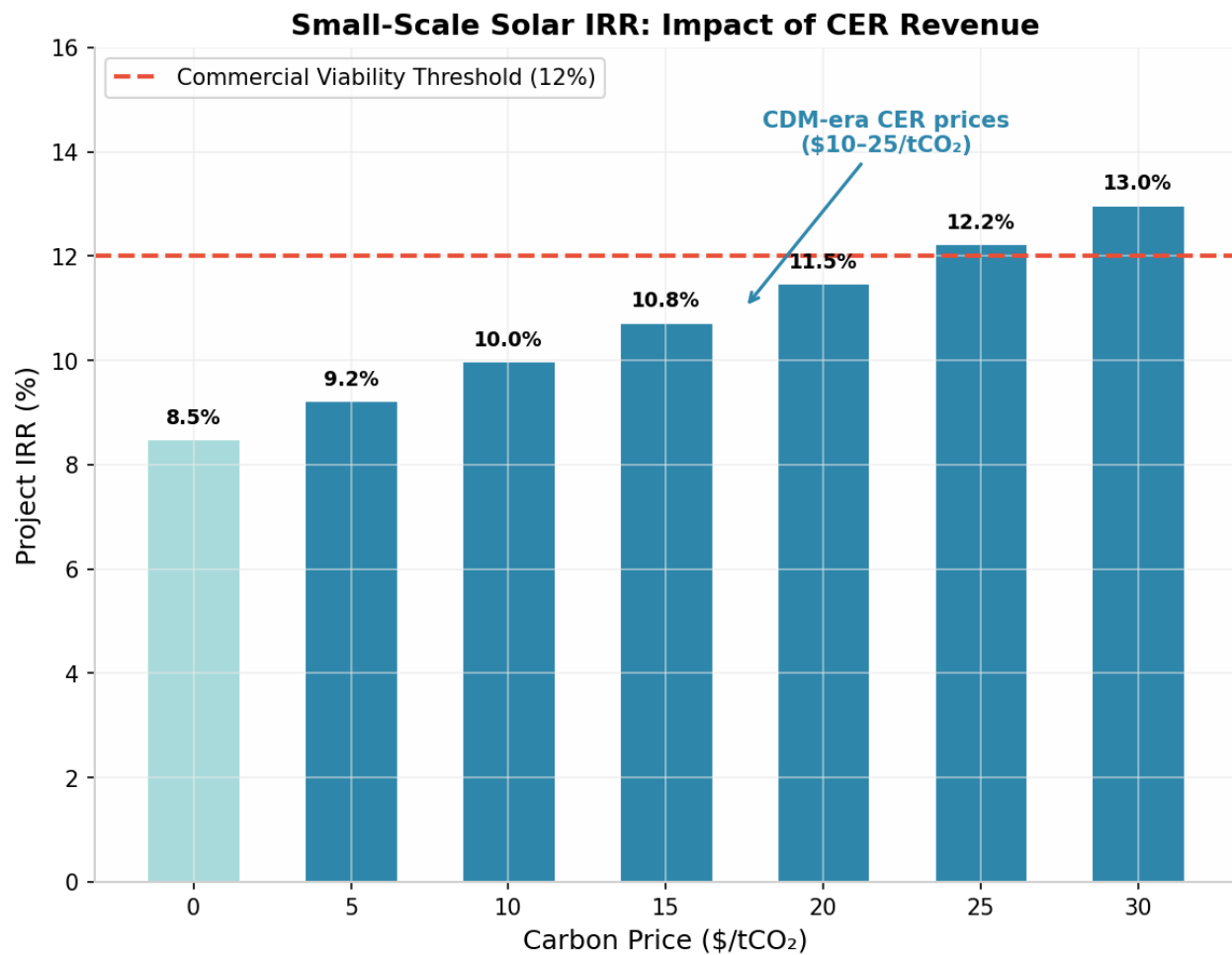
1. Created Early Demand
2. Lowered Project Risk
3. Attracted International Capital

Learning Effects: How Local Experience Drives Down LCOE

Solar PV Experience Curve: ~20.9% Cost Reduction per Doubling

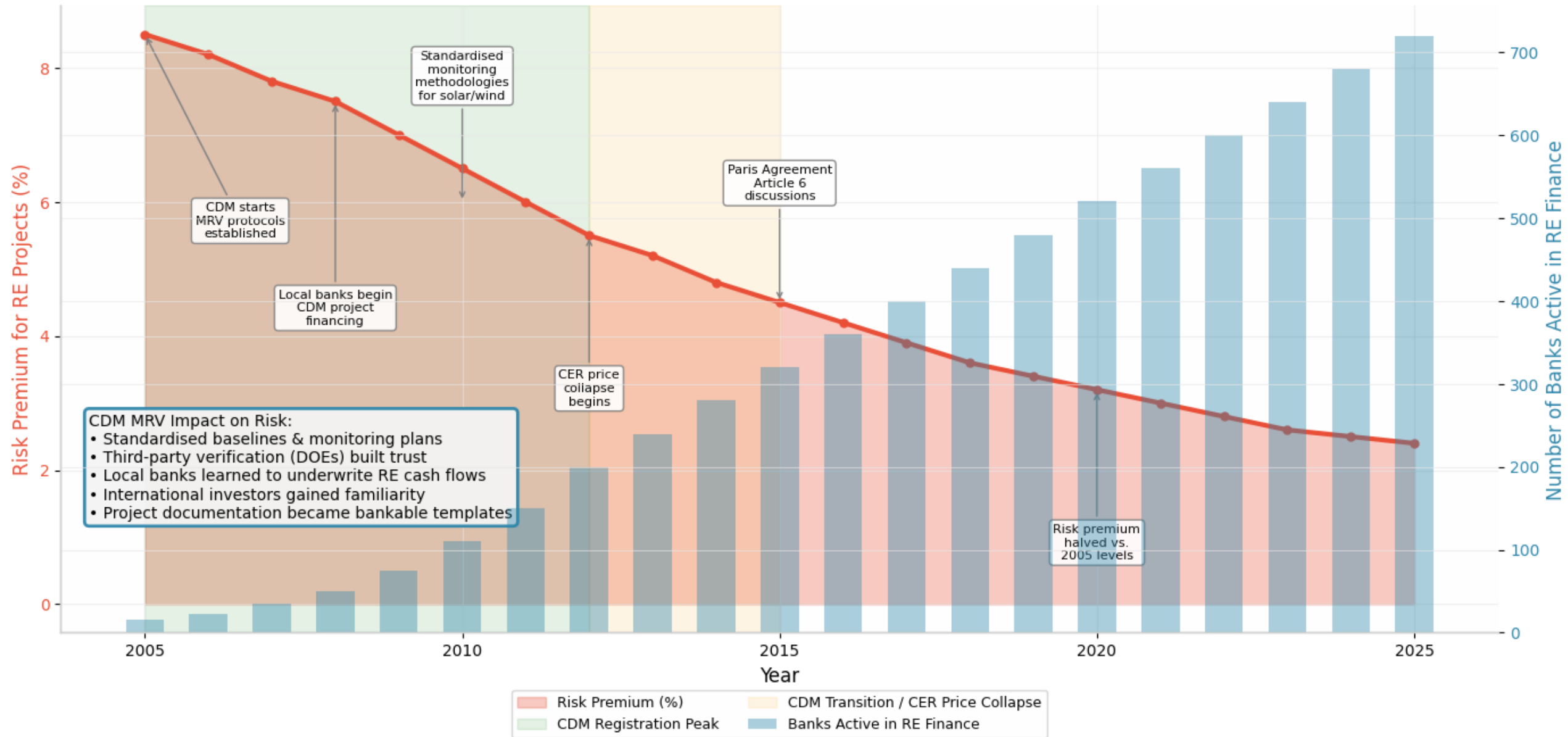


Improving IRR & Triggering Economies of Scale



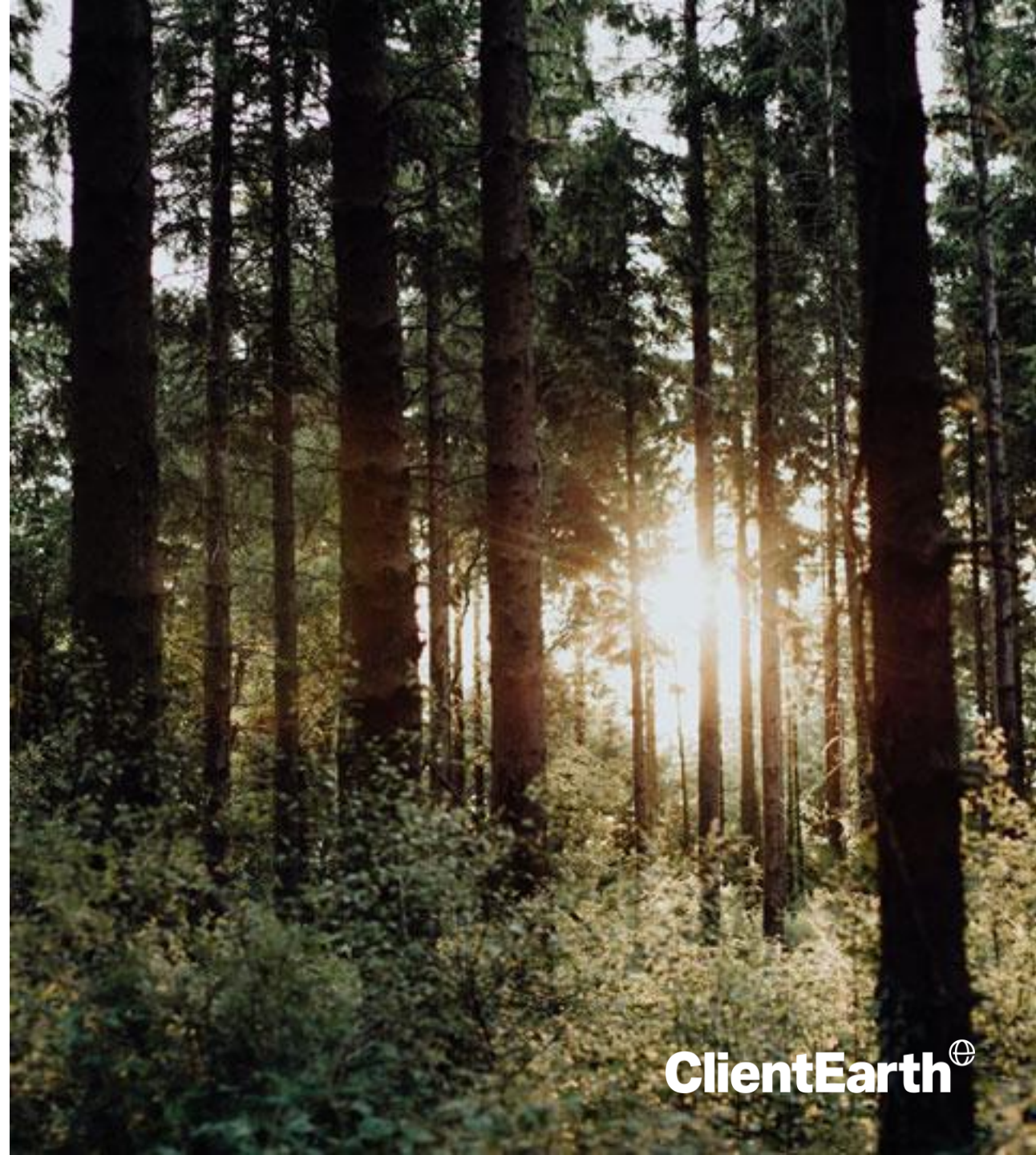
Lowering Risk Premiums — CDM MRV & Bank Confidence

CDM MRV Standardisation → Reduced Perceived Risk → More Capital Flows



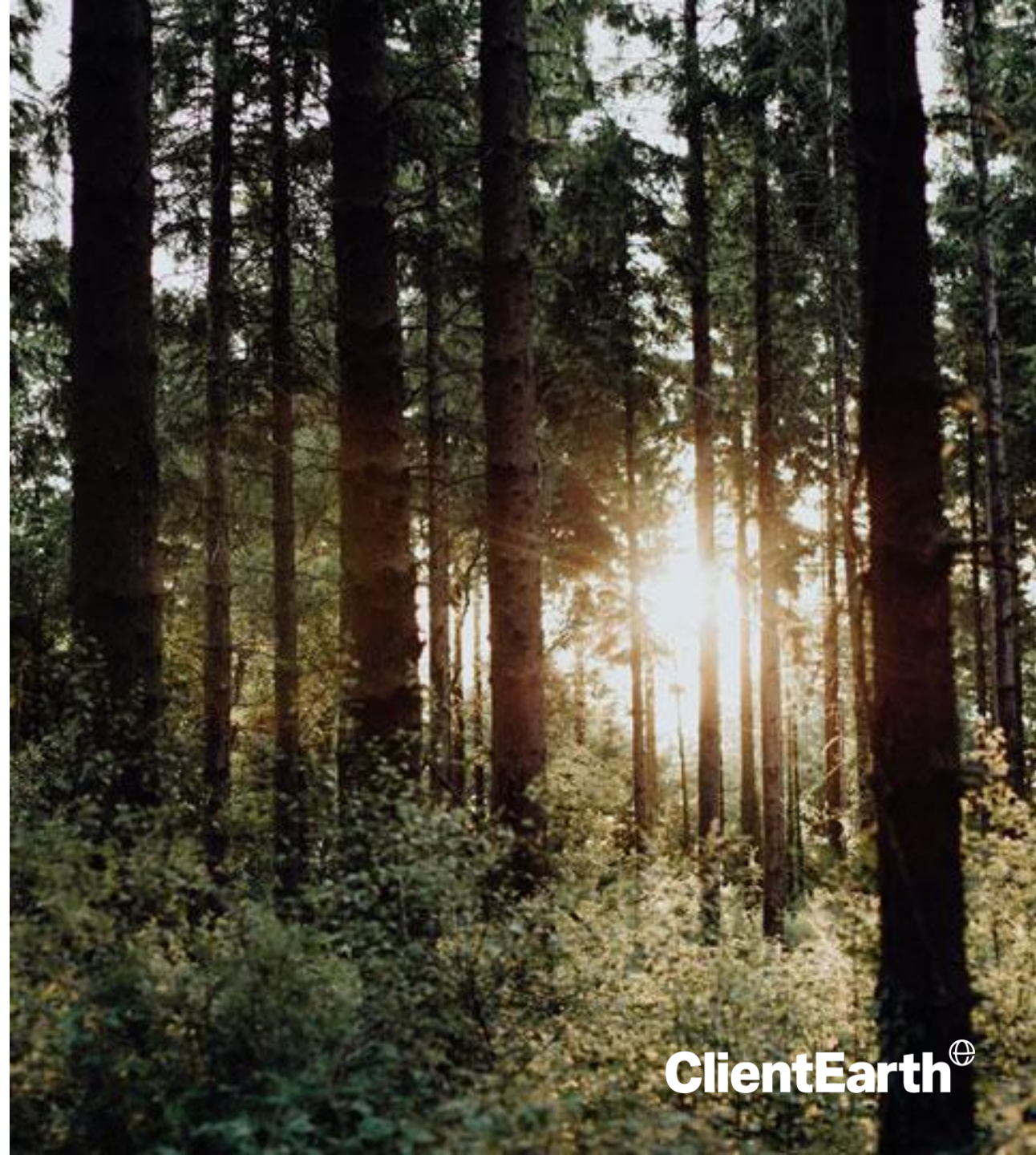
China Certified Emission Reductions (CCER)

- Issuance of CCERs started in 2014
- Trading launched in 2015
- Registration, approval of new CCER projects, and issuance of CCERs were suspended in 2017
- 2012-2017 >1,300 projects registered, inc. energy, waste disposal, agriculture, and afforestation.
- About 77 million tonnes CO₂e issued.
- By December 2022, cumulative trading of CCERs was about 450 million tonnes,
- Transaction value of about 6 bn yuan (USD 828 million).

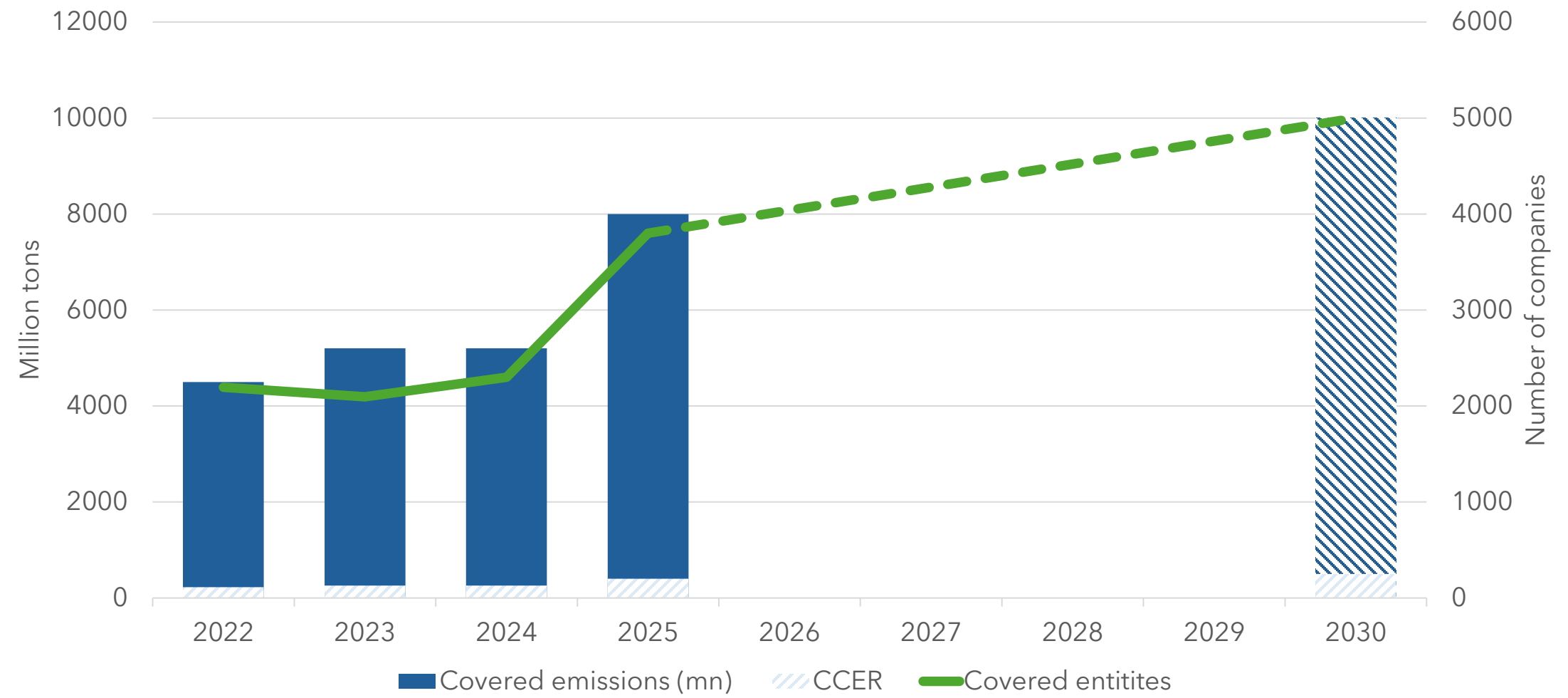


China Certified Emission Reductions (CCER)

- Second phase launched in 2024
- March 2025, first new CCERs issued
- 18 methodologies approved
- 40 projects registered
- 16 million tons CO₂e annually



National ETS Scope Expansion





全国温室气体自愿减排注册登记系统及信息平台

项目与减排量信息公开

公示中项目 公示结束项

已登记项目

公示中减排

公示结束减

已登记减排

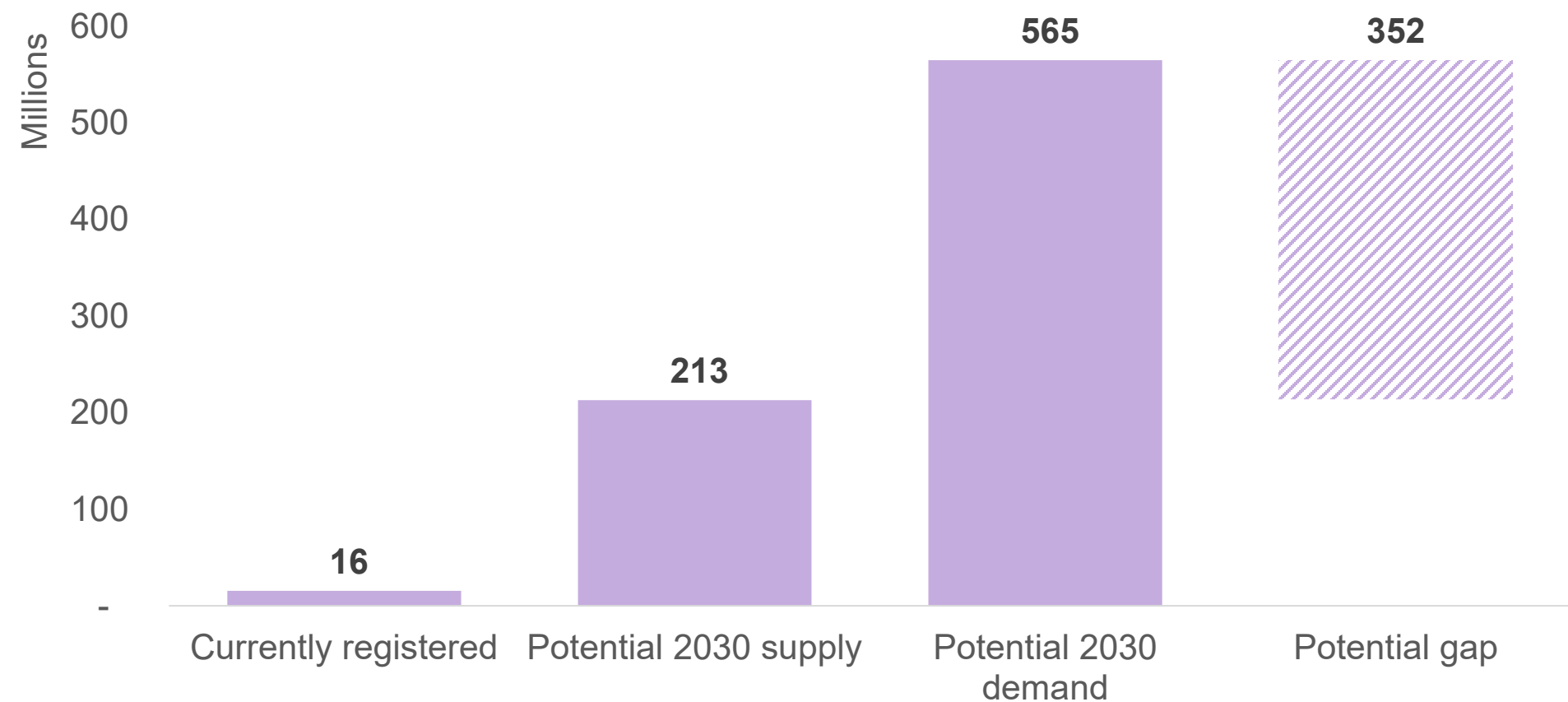
已注销项目

请输入关键字



项目名称	项目业主	所属行业领域	申请状态
龙海九龙江口红树林省级保护站/...	漳州信产大数据服务有限公司	林业和其他碳汇类型	已登记
中广核惠州港口二期PB300兆瓦...	中广核新能源（惠州）有限公司	能源产业(可再生/不可再生资源)	已登记
中广核惠州港口二期PA450兆瓦...	中广核新能源（惠州）有限公司	能源产业(可再生/不可再生资源)	已登记
金塔中光100兆瓦光热一体化发电...	金塔中光太阳能发电有限公司	能源产业(可再生/不可再生资源)	已登记
广东能源青洲海上风电公司阳江...	广东能源青洲海上风电有限公司	能源产业(可再生/不可再生资源)	已登记
红原县林业和草原局四川省阿坝...	红原县雅克农业开发有限责任公司	林业和其他碳汇类型	已登记
福建省霞浦县自然资源局霞浦县...	自然资源部第三海洋研究所	林业和其他碳汇类型	已登记
盐城国能大丰H5#206.4MW海上...	盐城国丰海上风力发电有限公司	能源产业(可再生/不可再生资源)	已登记
张家口市剪子岭等九个国有林场...	张家口塞林生态建设有限公司	林业和其他碳汇类型	已登记

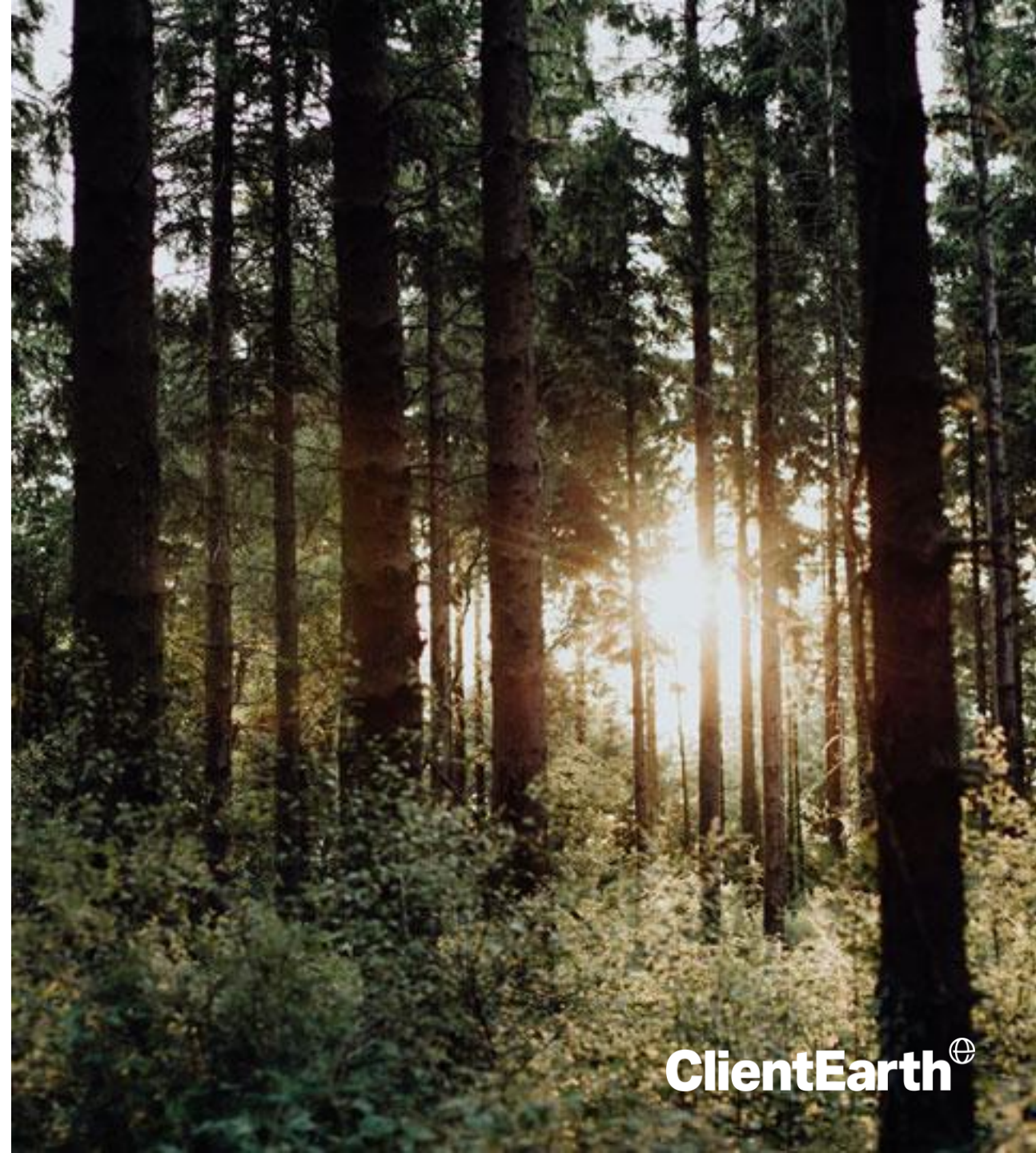
CCER supply and demand



China Certified Emission Reductions (CCER)

Internationalisation Potential:

- 300–500 Mt demand potential by 2030
- Cross-border crediting
- Belt & Road project pipeline
- CORSIA-eligible credits (2027+)
- CBAM
- Standardised methodologies



Belt & Road Countries: The Opportunity

Rising energy demand

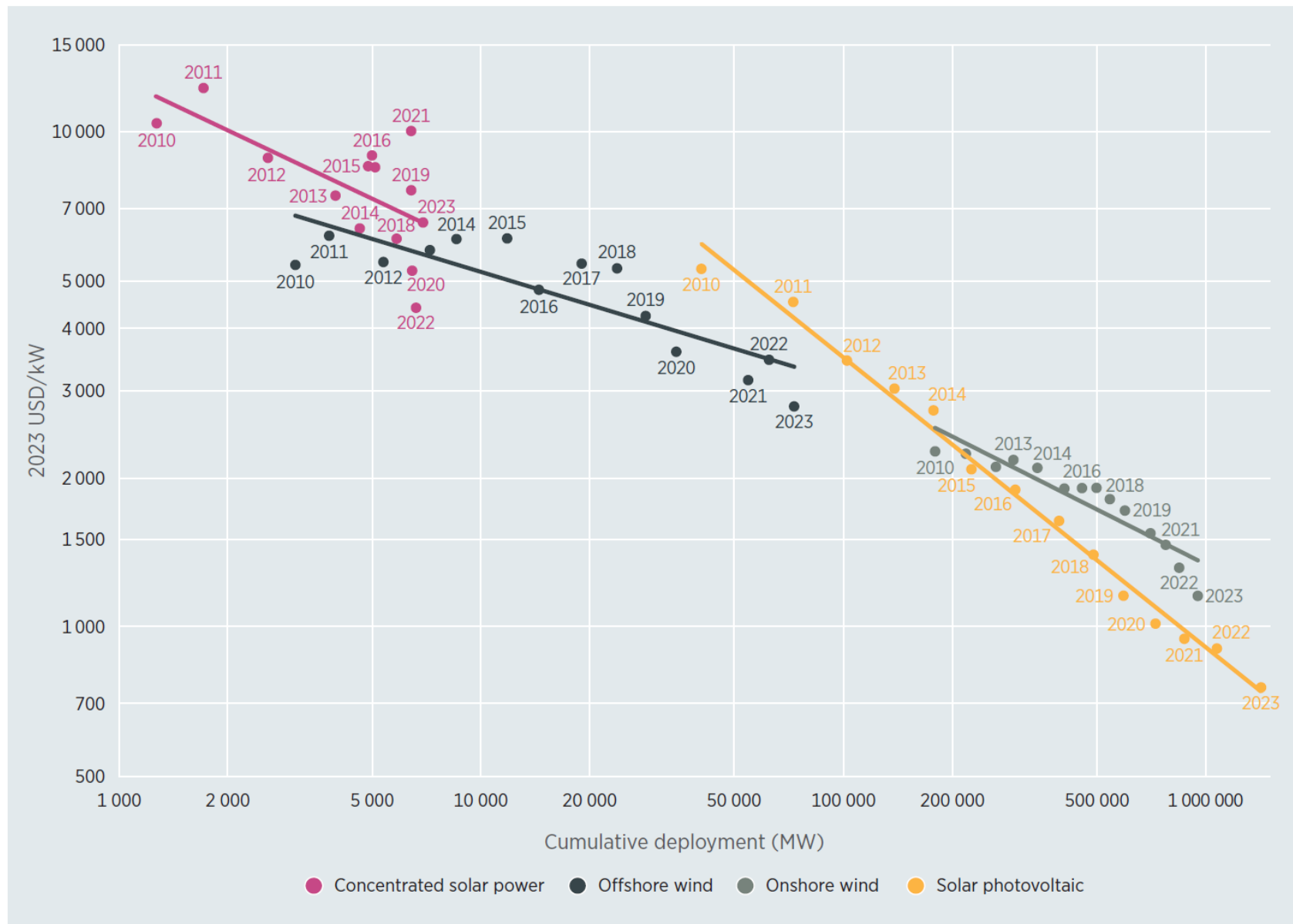
- 60% of global energy demand growth
- 800mn people without access

Volatile fuel prices

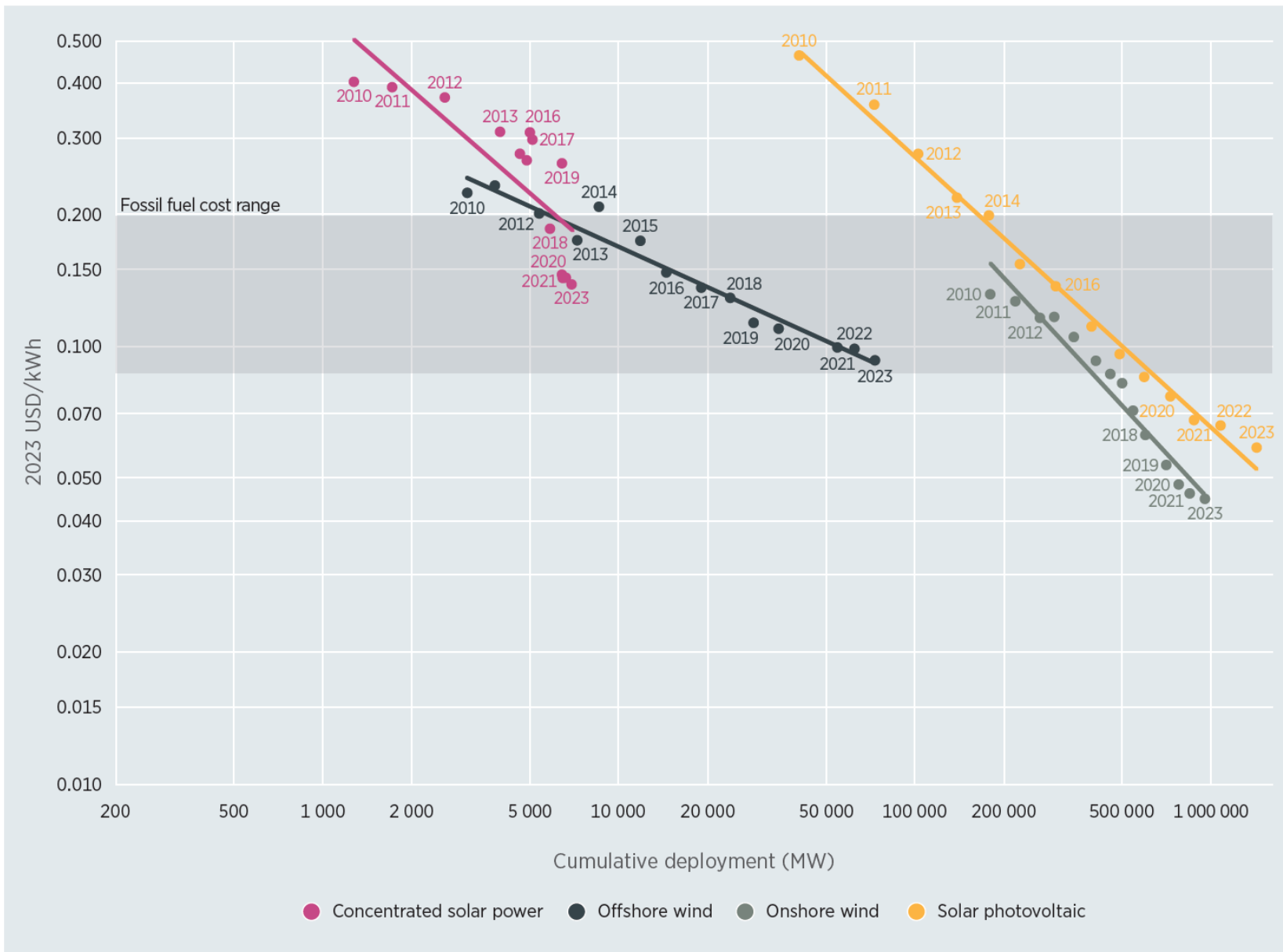
- Fossil import dependency
- Currency risk
- Fiscal pressure

Tightening fiscal space

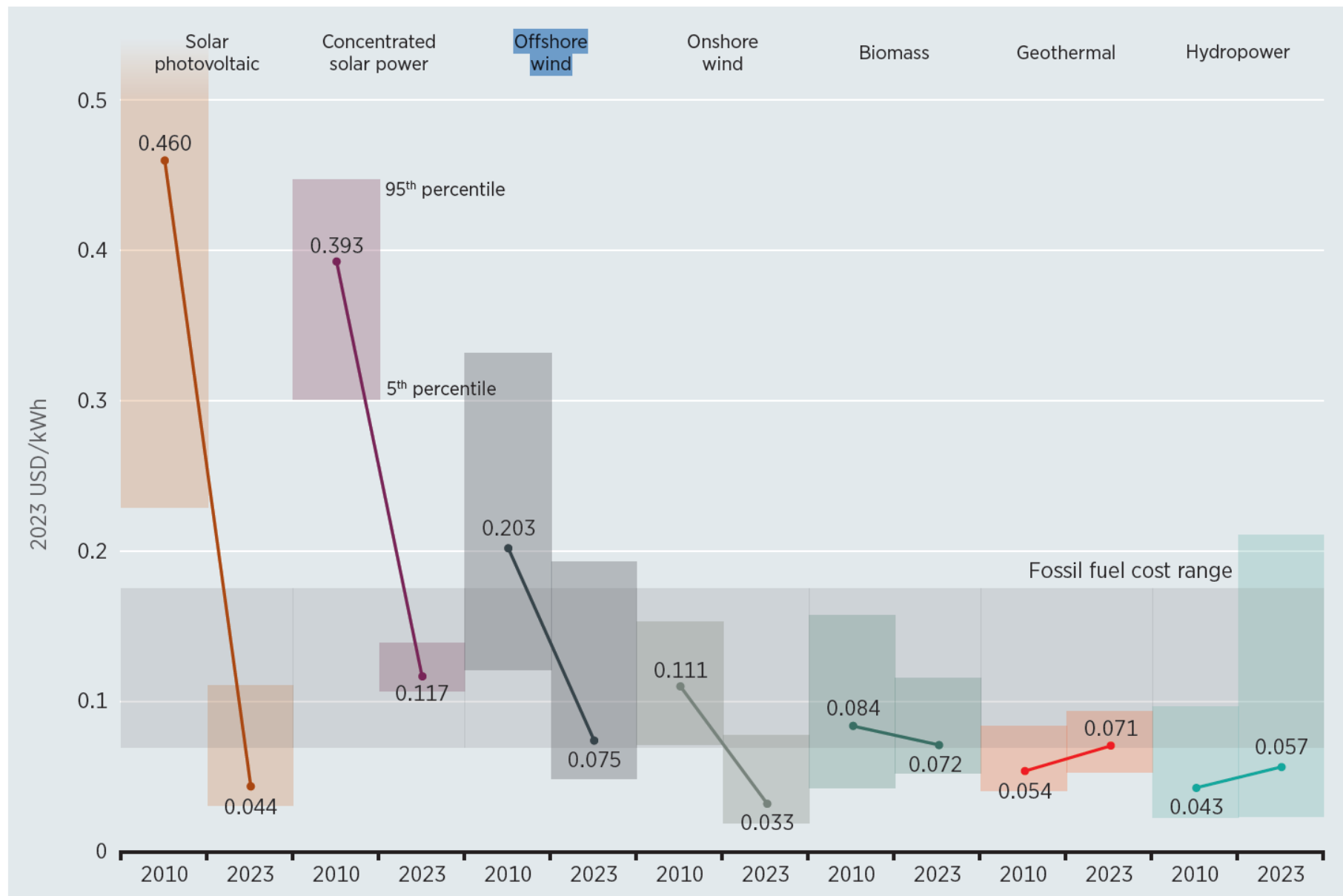
- Debt distress in 30+ countries
- Limited concessional finance



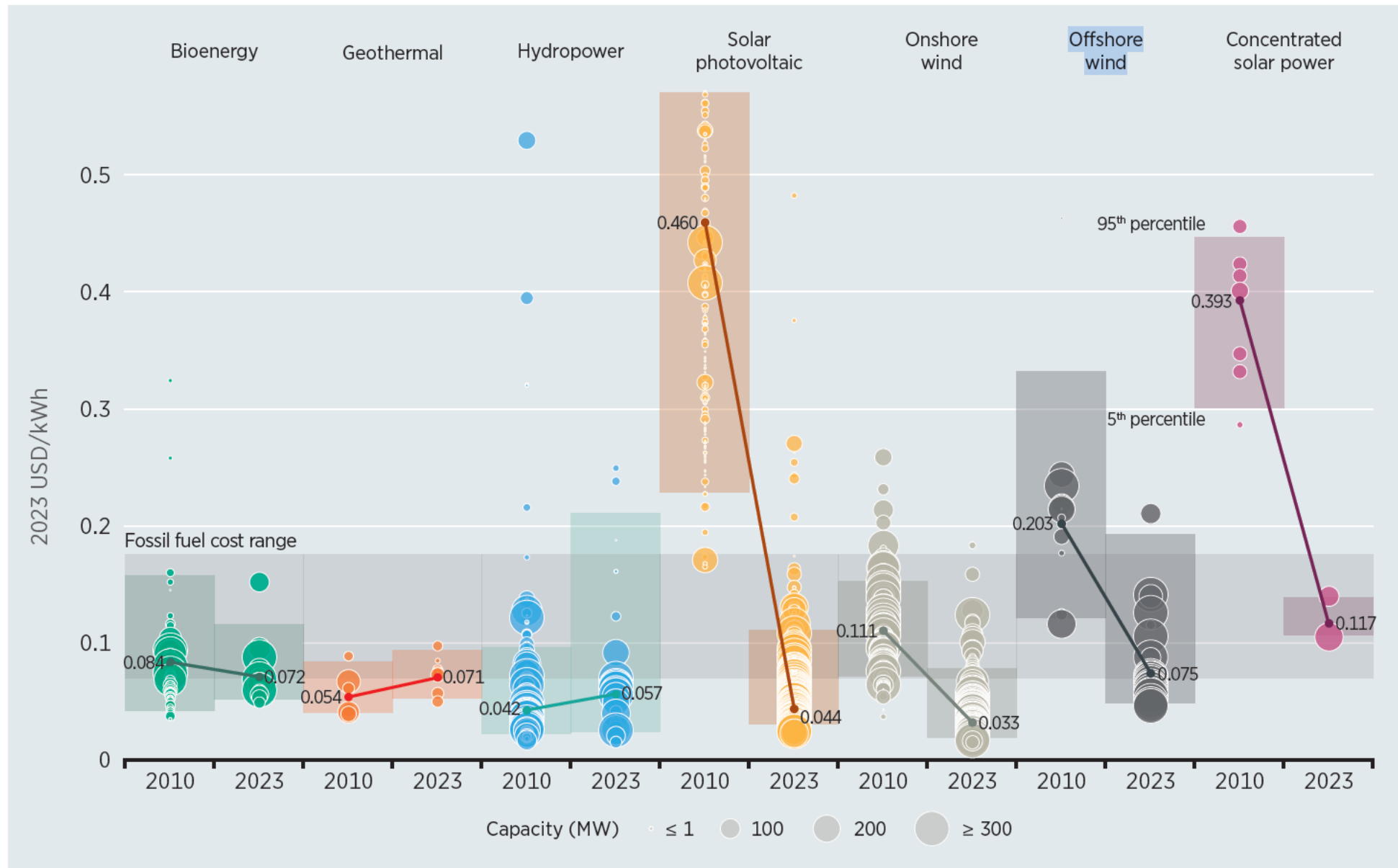
Global-weighted-average total installed cost learning curve trends for solar PV, CSP and onshore and offshore wind, 2010-2023
Source: IRENA



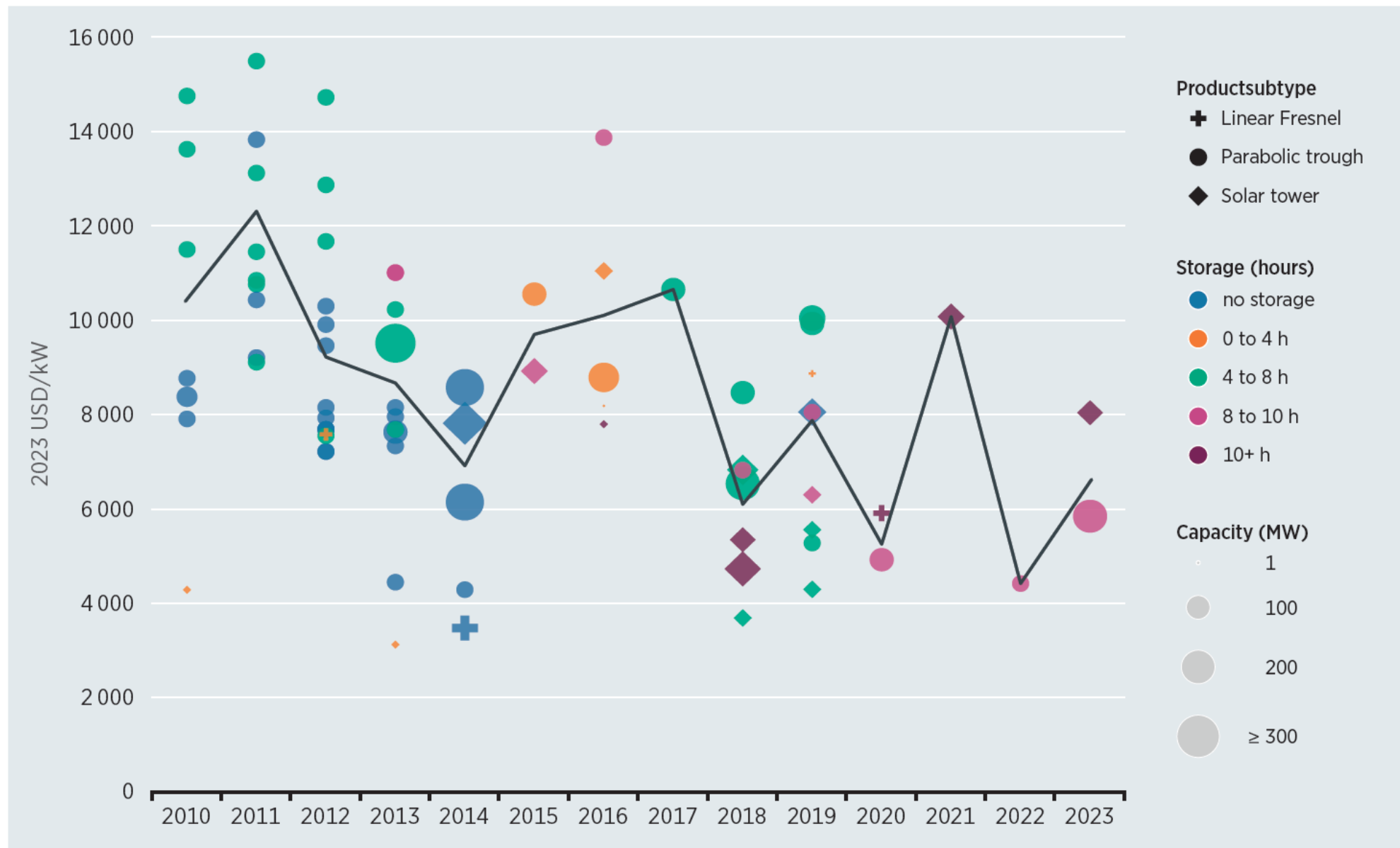
Global weighted-average LCOE learning curve trends for solar PV, CSP and onshore and offshore wind, 2010-2023
Source: IRENA



Global LCOE from newly-commissioned, utility-scale renewable power technologies, 2010 and 2023
Source: IRENA

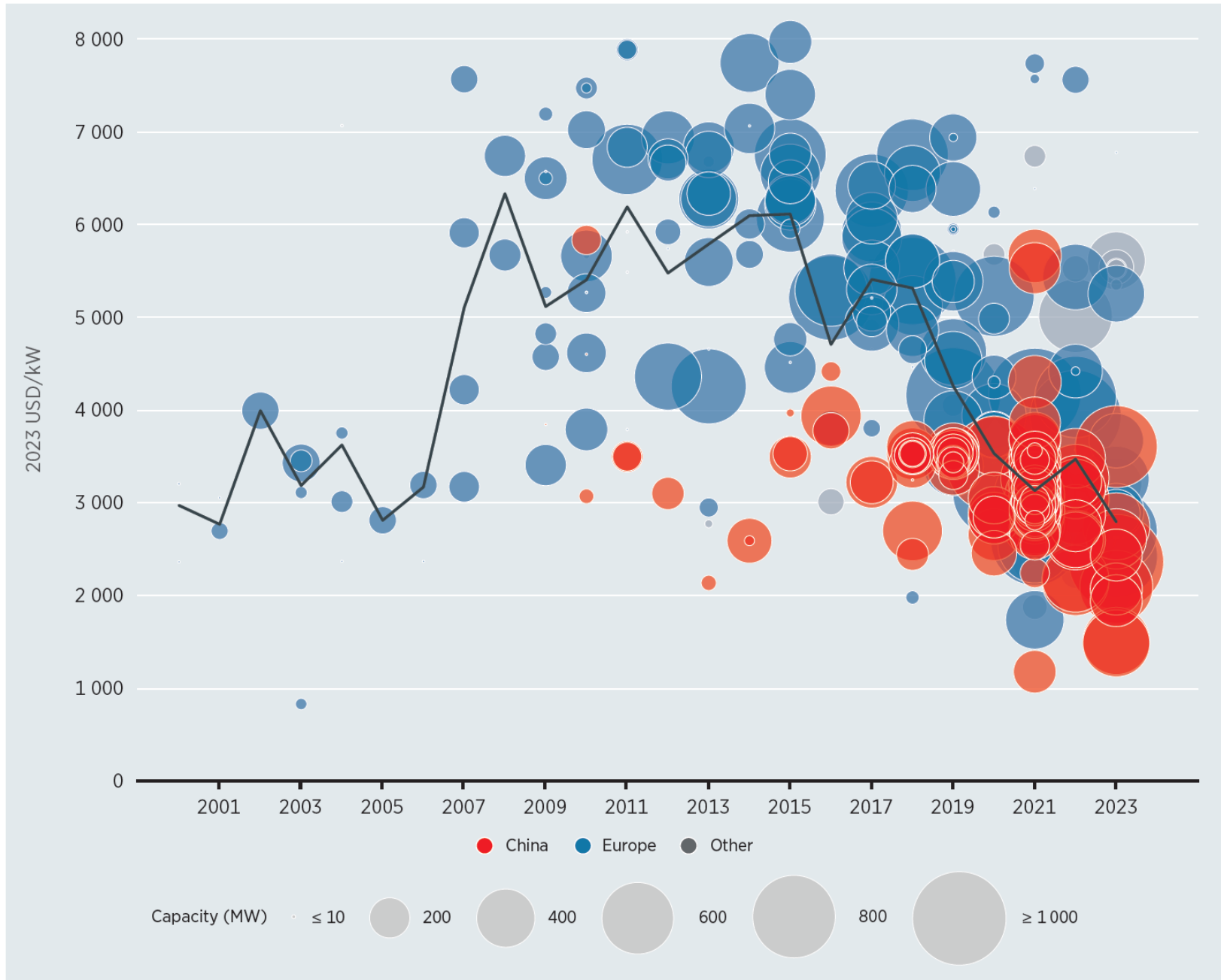


Global weighted-average LCOE from newly-commissioned, utility-scale renewable power generation technologies, 2010-2023
Source: IRENA

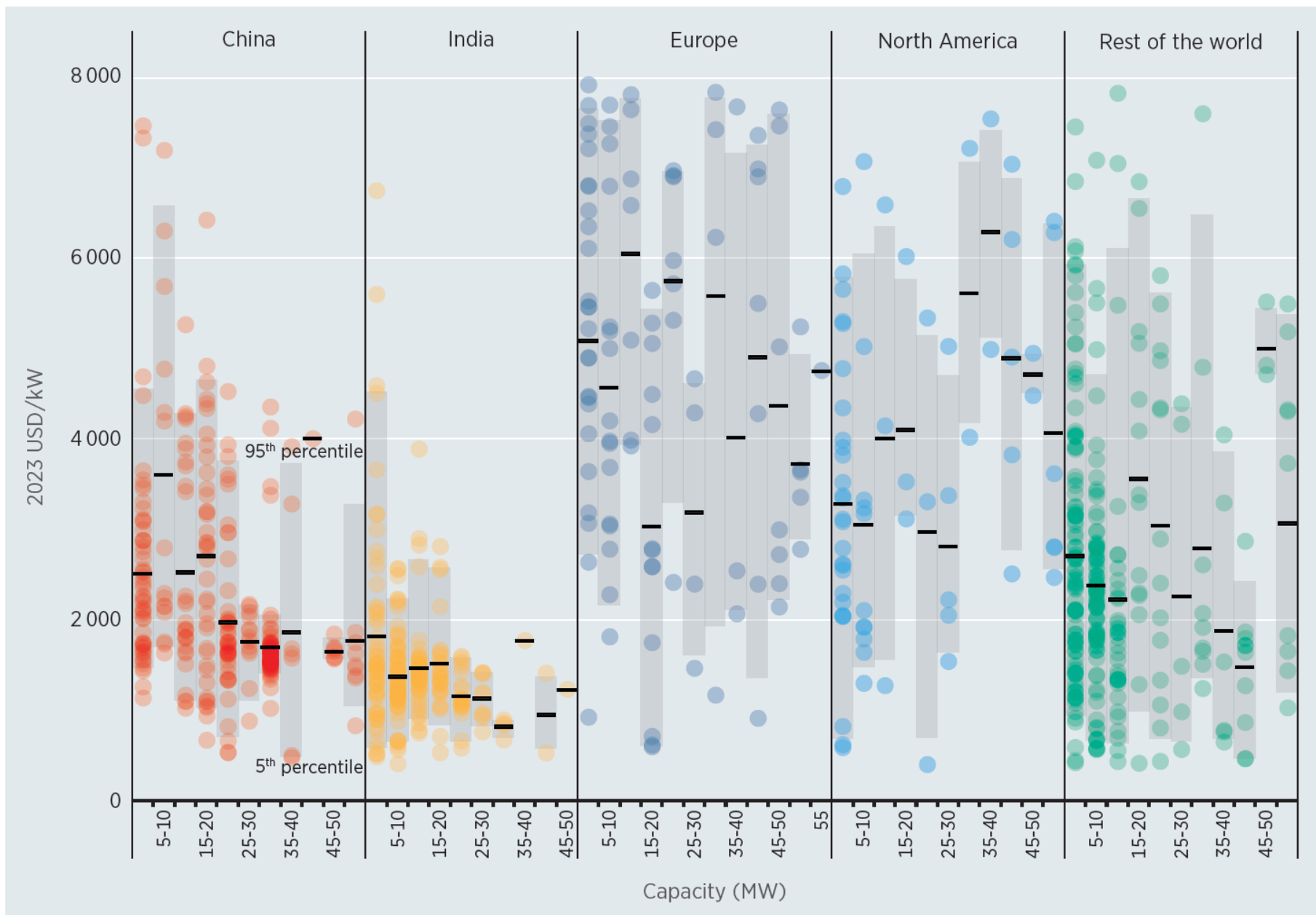


CSP total installed costs by project size, collector type and amount of storage, 2010-2023

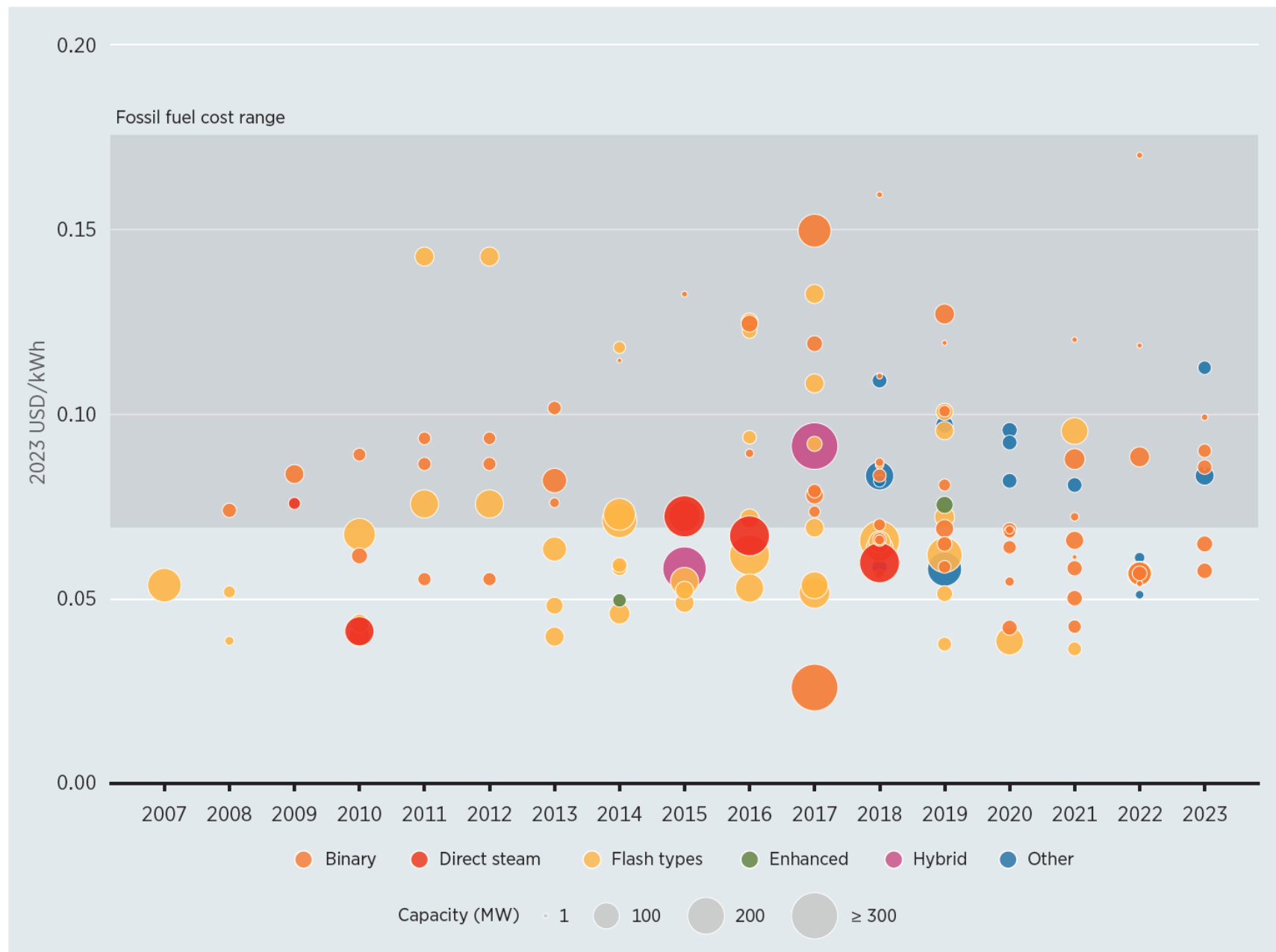
Source: IRENA



Project and global weighted average total installed costs for offshore wind, 2000-2023
Source: IRENA



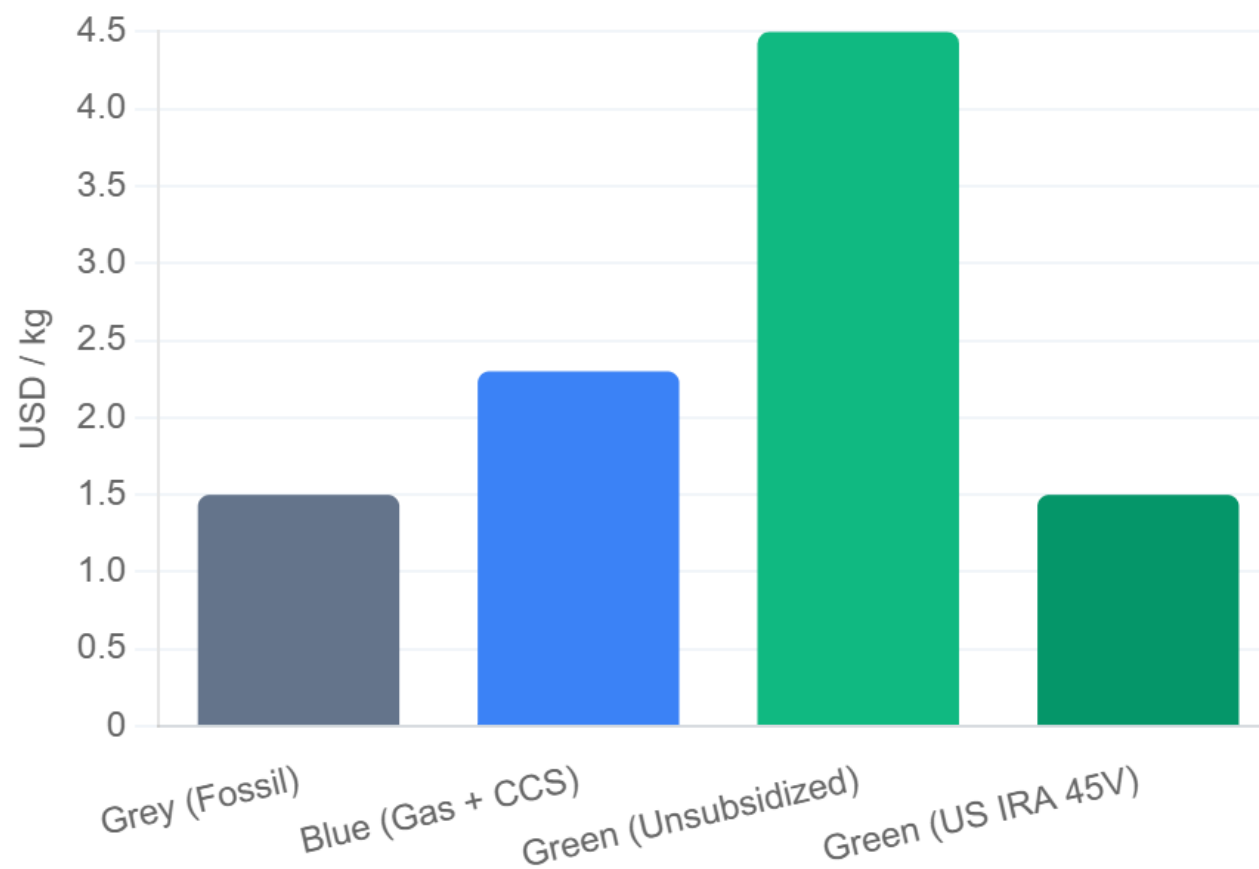
Total installed costs of bioenergy power generation projects for different capacity ranges by country/region, 2000-2023
Source: IRENA



LCOE of geothermal power projects by technology and project size, 2007-2023
Source: IRENA

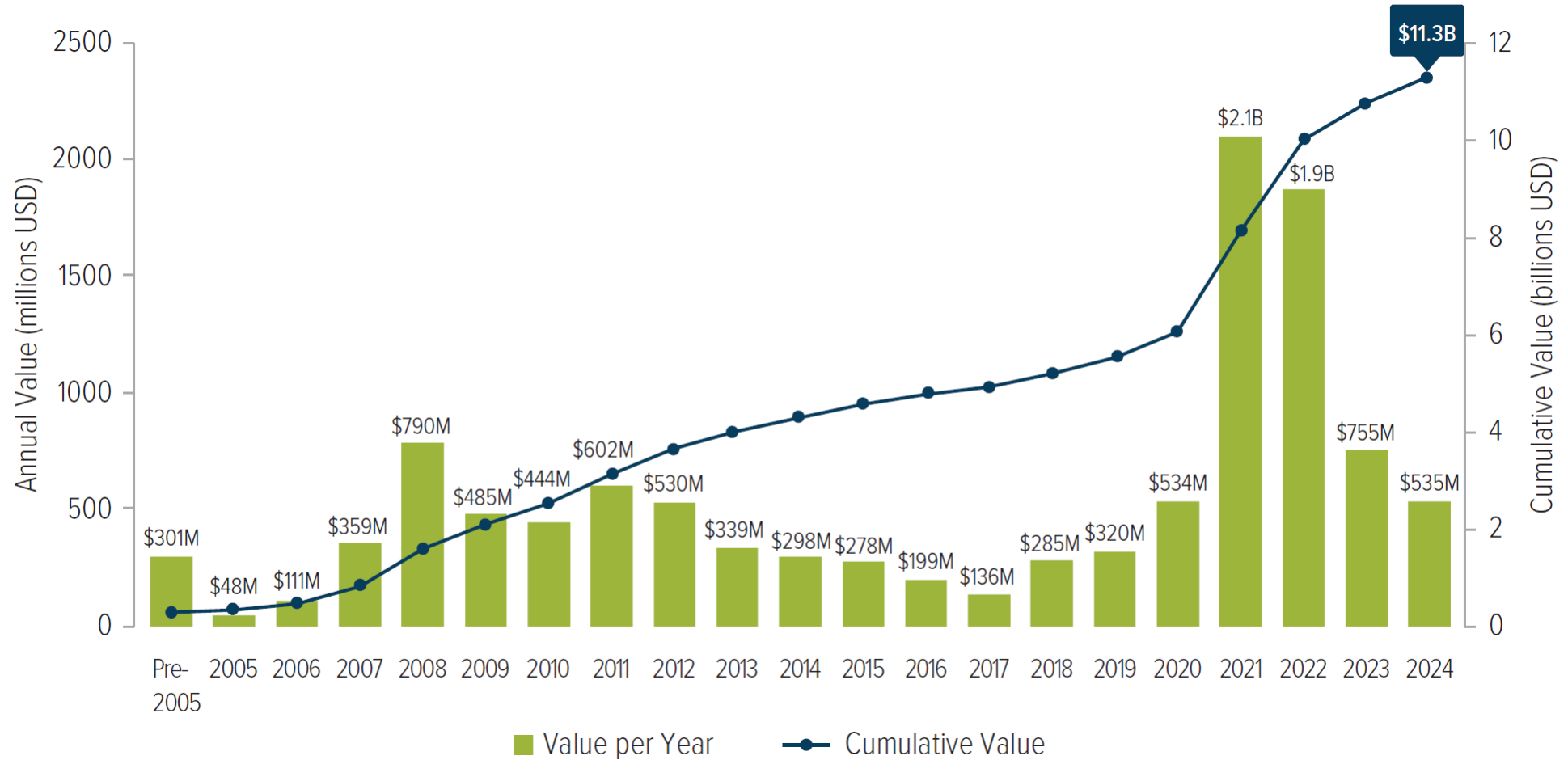


Cost per kg: Grey vs Green (Subsidized vs Unsubsidized)

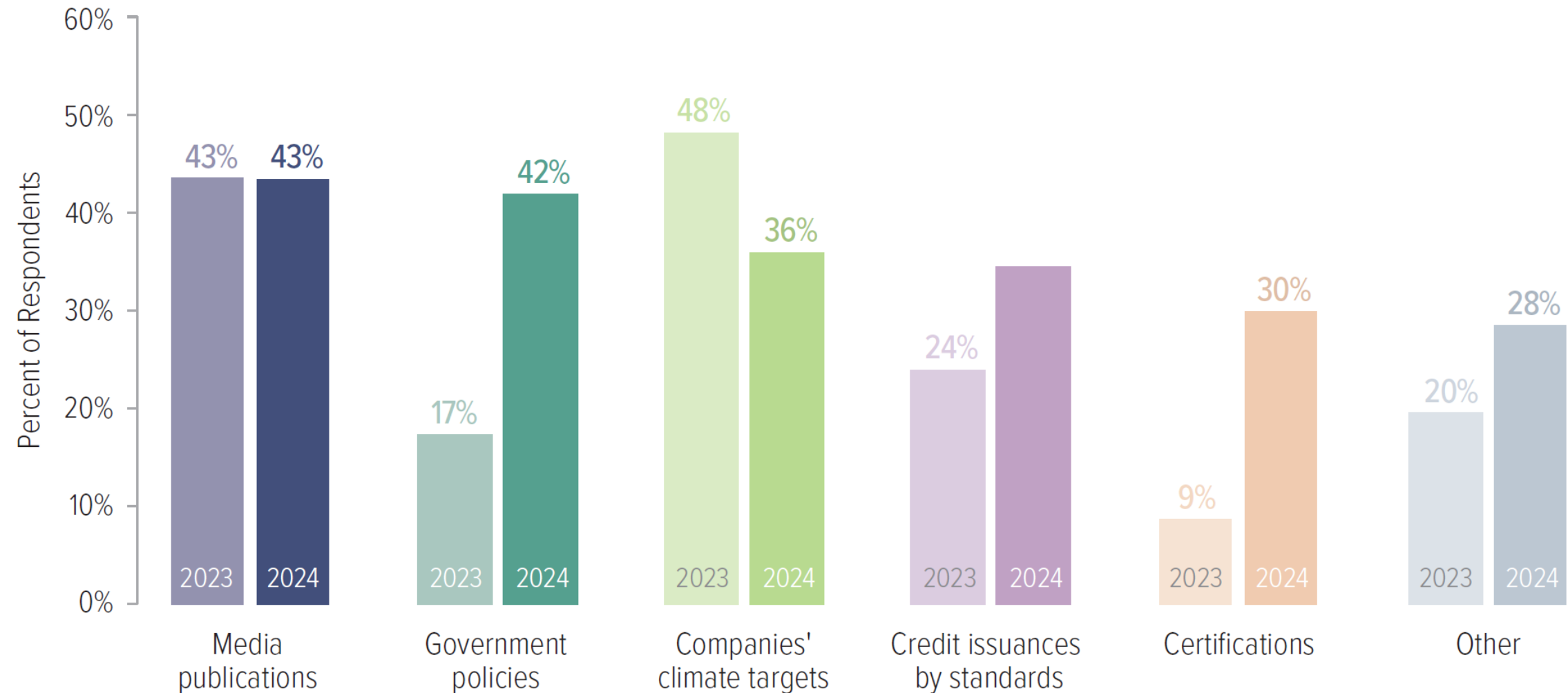


Source: DOE Hydrogen Program — Energy Requirements for Hydrogen Gas Compression

VCM Market Size - Value



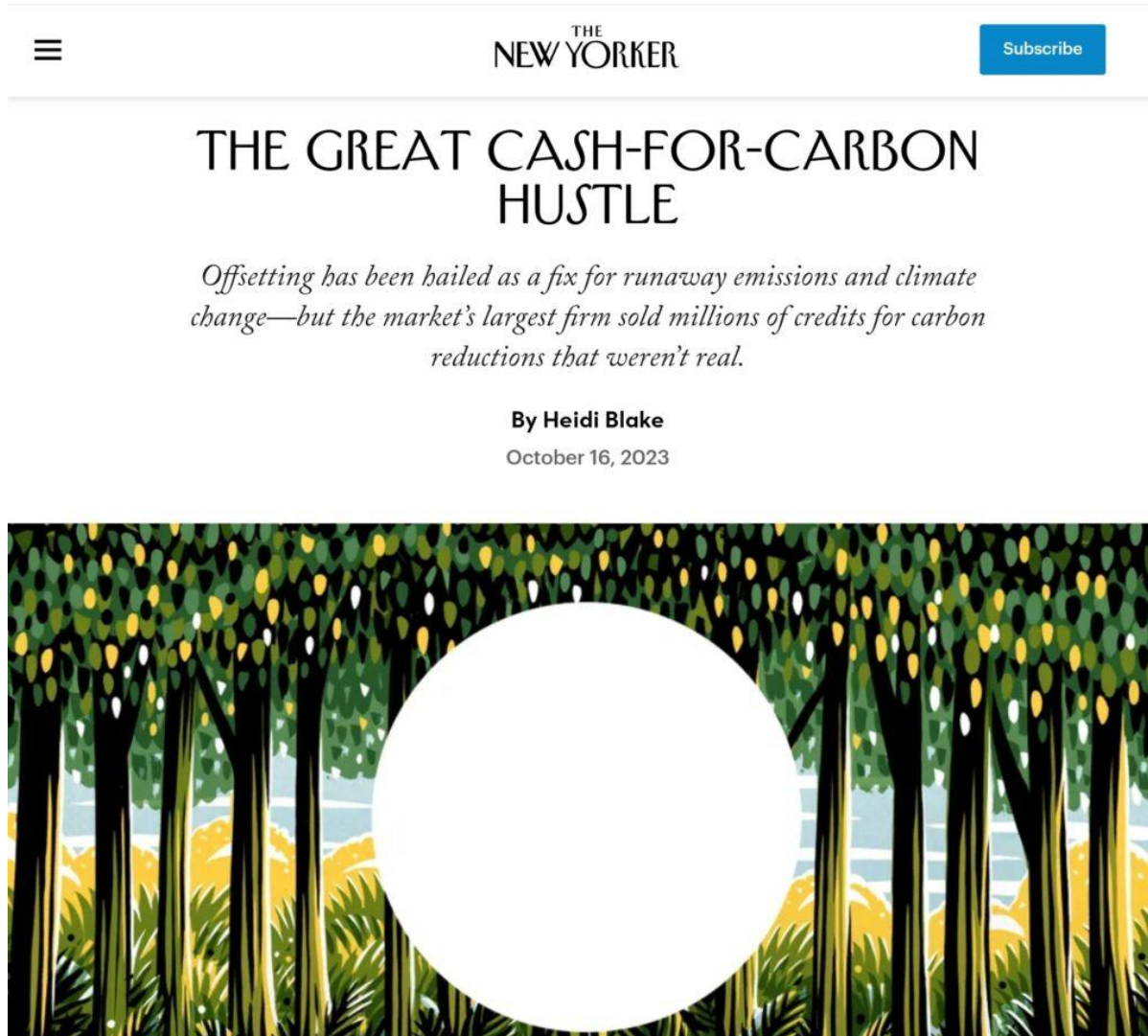
External Factors Influencing Credit Sales



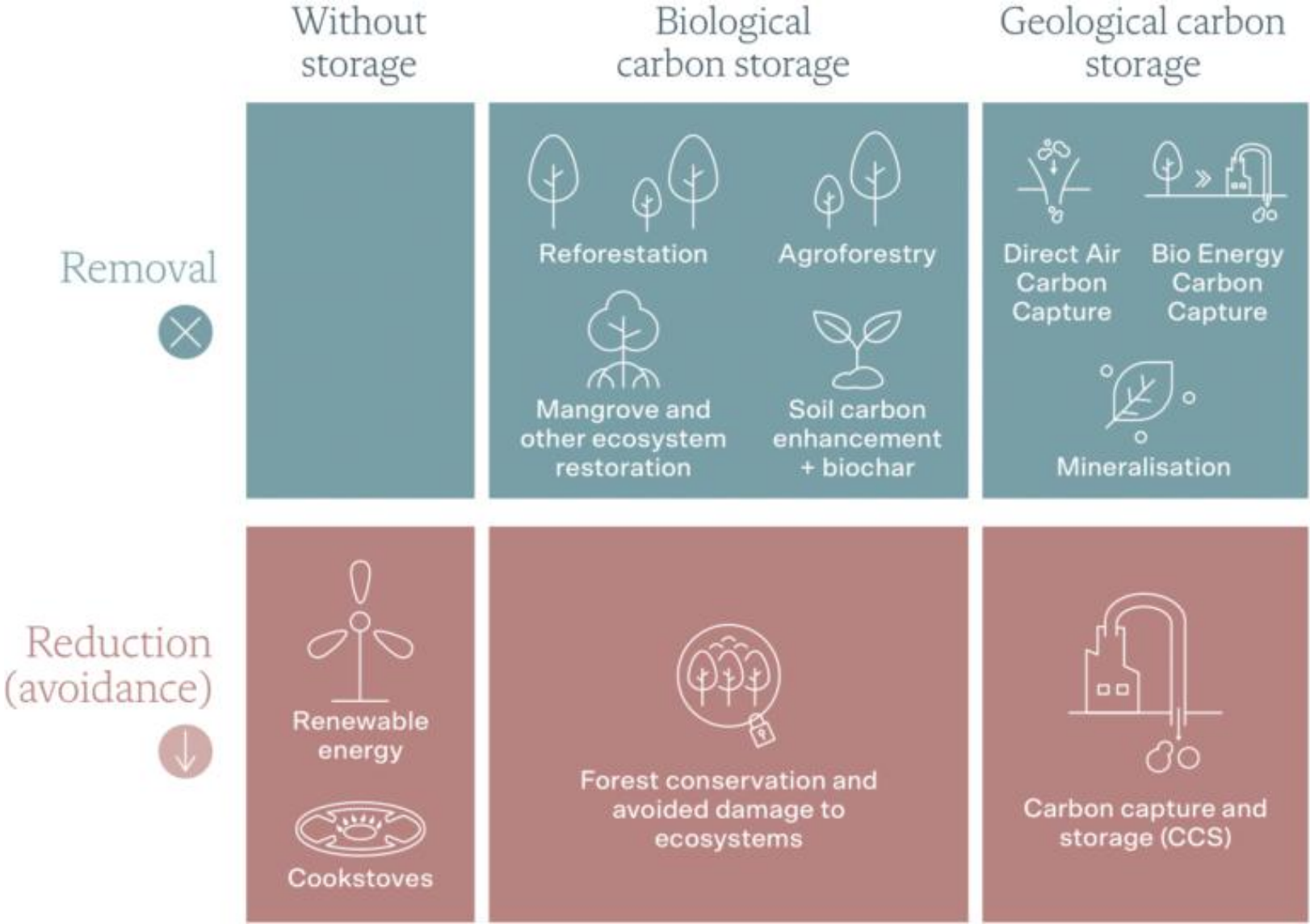
Case Study: The Guardian investigation



Case Study: Kariba



Types of Carbon Credits



Case Study: Upstream emission reduction (UER)

- 66 projects in China - market value exceeding EUR 2 billion
- Oil and gas extraction activities
- Projects may not have existed as described
- Inflated or false emissions claims
- Additionality concerns
- Possible organised fraud



Credit Quality: Not all bad news



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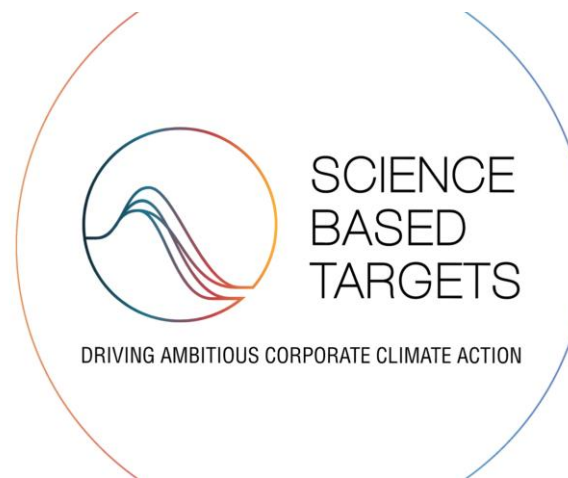
Filter ≡

Project name	Rated years	GHG rating ⁱ	SDG rating ⁱ	Env. & social risks ⁱ	Project category	Project type	Country
Papop Biogas and Renewable Energy Project	2016 - 2023				Waste	 Wastewater	Thailand
CYY Biopower Wastewater treatment plant including biogas reuse for thermal oil replacement and electricity generation Project, Thailand	2008 - 2018				Waste	 Wastewater	Thailand
Bangna Starch Wastewater Treatment and Biogas Utilization Project (300084)	2009 - 2021				Waste	 Wastewater	Thailand
Gaziantep Landfill Gas to Energy Project	2010 - 2018				Waste	 Landfill Gas	Türkiye
Sichuan Rural Poor-Household Biogas Development Program	2012 - 2025				Households & Community	 Biodigesters	China
Sincan Landfill Gas Collection and Energy Utilization	2011 - 2017				Waste	 Landfill Gas	Türkiye

Carbon Credit Quality Metrics

- **Additionality:** The project should not be legally required, common practice, or financially attractive in the absence of credit revenues.
- **No overestimation:** CO₂ emissions reduction should match the number of offset credits issued for the project and should take account for any unintended GHG emissions caused by the project.
- **Permanence:** The impact of the GHG emission reduction should not be at risk of reversal and should result in a permanent drop in emissions (to a certain level of confidence).
- **Exclusive claim:** Each metric ton of CO₂ can only be claimed once and must include proof of the credit retirement upon project maturation. A credit becomes an offset at retirement.
- **Provide additional social and environmental benefits:** Projects must comply with all legal requirements of its jurisdiction and should provide additional co-benefits in line with the UN's SDGs.

New: independent quality assurance





CCER mechanism and International best practice

- ICVCM Core Carbon Principles
- Land ownership and rights
- Additionality

CCER Forestry Methodology – Additionality

6.2 额外性论证

6.2.1 免于论证

以保护和改善人类生存环境、维持生态平衡等为主要目的的公益性造林项目，在计入期内除减排量收益外难以获得其他经济收入，造林和后期管护等活动成本高，不具备财务吸引力。符合下列条件之一的造林项目，其额外性免于论证：

a) 在年均降水量 $\leq 400\text{mm}$ 的地区开展的造林项目；

注：年均降水量 $\leq 400\text{mm}$ 的地区可参考《国家林业局关于颁发<“国家特别规定的灌木林地”的规定>（试行）的通知》（林资发〔2004〕14号）。

b) 在国家重点生态功能区开展的造林项目；

注：国家重点生态功能区可参考《国务院关于印发全国主体功能区规划的通知》（国发〔2010〕46号）、《国务院关于同意新增部分县（市、区、旗）纳入国家重点生态功能区的批复》（国函〔2016〕161号）。

c) 属于生态公益林的造林项目。

Summary

- CCER internationalization can drive emerging renewable tech uptake in the Global South
- Integrity loopholes can undermine the market
- Alignment with international best-practice reduces risk



Thank you

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