



Energy  
Transitions  
Commission

# Inspiring impact: case studies of positive climate solutions in action today

ETC Representatives Meeting  
18th September 2025

# We focus on three types of positive case study

**A**

**Clean energy technologies are already outcompeting fossil fuels**

**B**

**“Niche” business cases are already taking off**

**C**

**Barriers to clean electrification have been removed dramatically**



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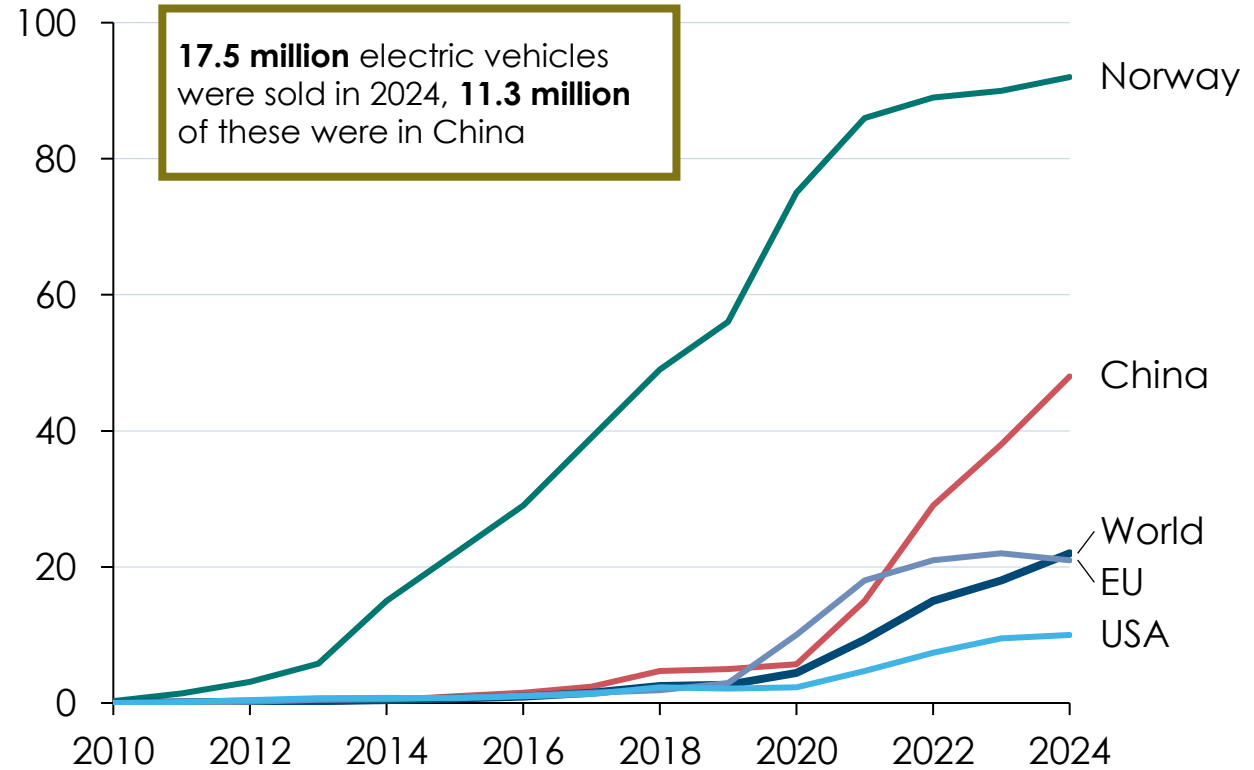
# Electric vehicle sales soaring across the world as low cost electric vehicles beat ICEs on purchase price as well as running costs

For many models new EVs in China are cheaper than new ICEs

Share of new electric cars sold increasing across the world, New car sales which are battery-electric or plug-in hybrid [%]

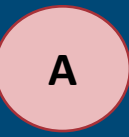


The new fully-electric BYD Seagull sells for **\$8,000**, the same range as best-selling small ICE cars in China, \$10,000-\$14,000



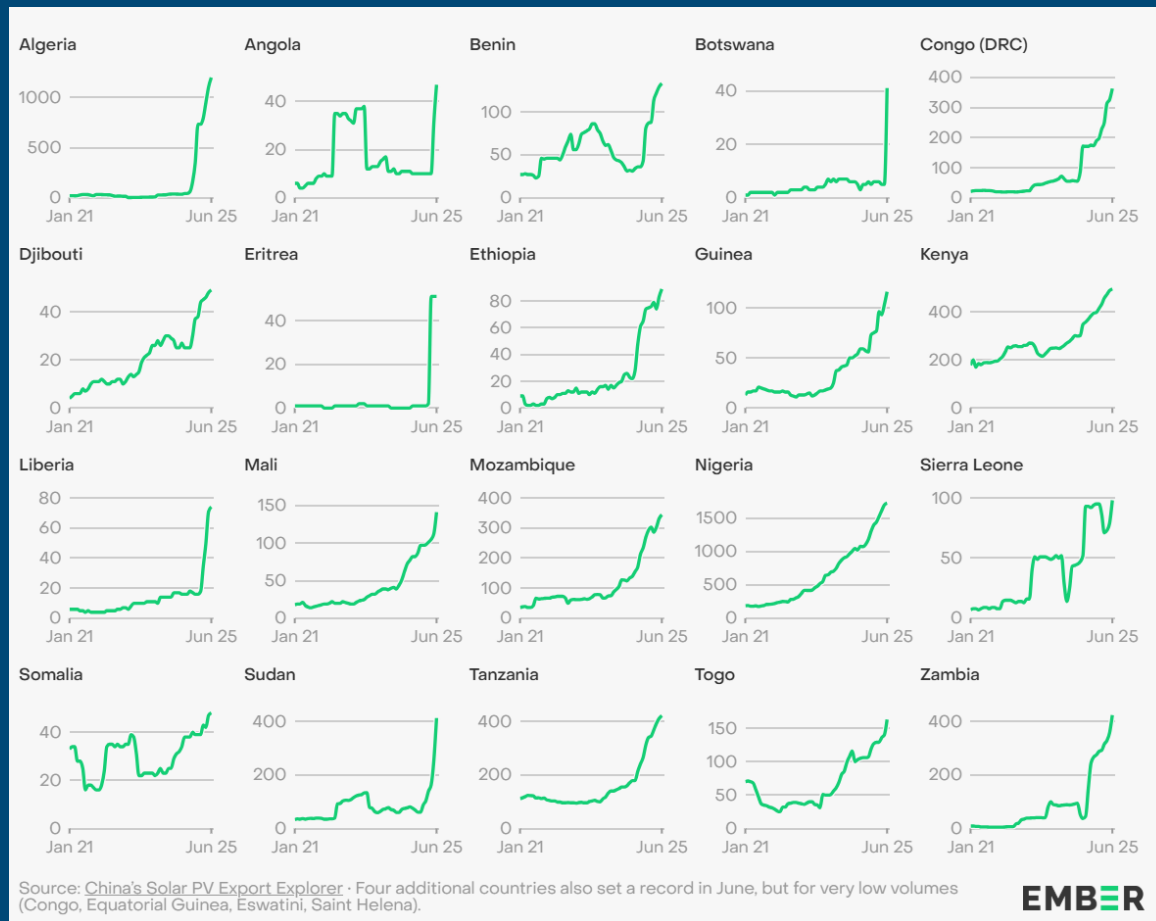
**Notes:** BYD Seagull EV starts at just 56,800 yuan, or under \$8,000. In 2024 14% of global car sales were battery electric, 8% were plug-in hybrid.  
**Source:** Electrek (2025) BYD's low-cost Seagull EV now starts at under \$8,000 in China; Reuters (2025) China's BYD turns up heat in Europe with launch of Dolphin Surf EV; IEA (2025) Global EV Outlook 2025 - processed by Our World in Data; IEA (2024) Global EV Outlook 2024

# Low-cost Chinese solar panels are building the foundation of an energy revolution in Africa



## African solar imports from China

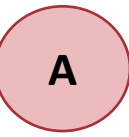
Rolling 12 months imports of solar panels, MW



- Chinese solar PV costs have **halved** in the past 2 years
- This has led to a **tripling in solar imports** outside of South Africa in the last 2 years
- In the past 12 months, **16 African countries** have imported panels able to supply **5%** or more of their countries' electricity demand



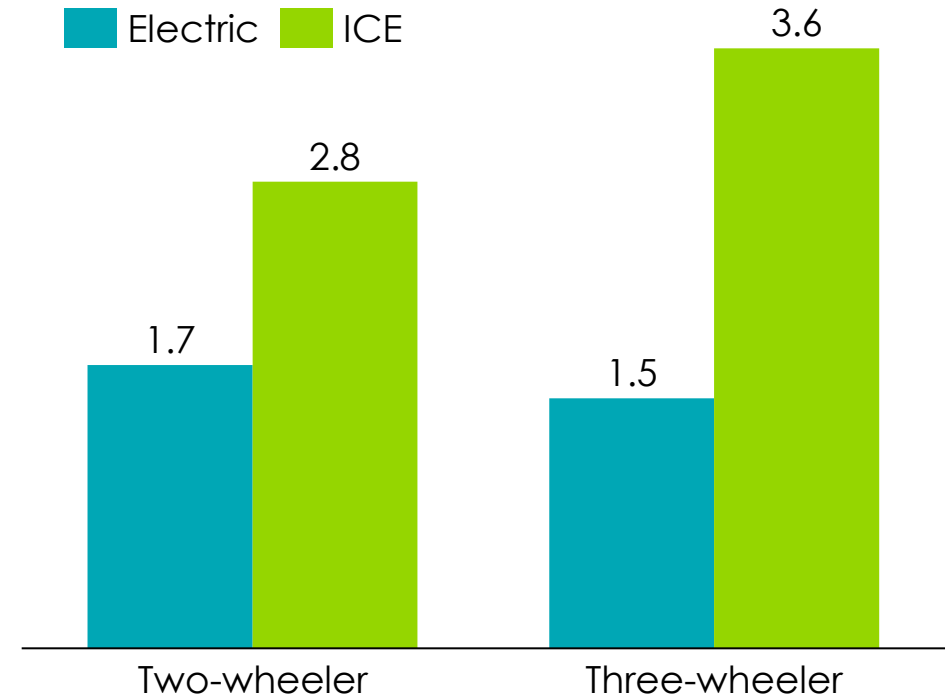
# Two/three wheelers now cheaper to own than petrol variants in India



## Fleet of electric 3-wheeler delivery vehicles in India



## Estimated Total Cost of Ownership for small vehicles in India TCO per km [US ¢]



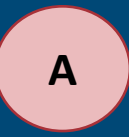
In 2024 **6%** of two-wheelers sold were electric vs **57%** of three-wheelers



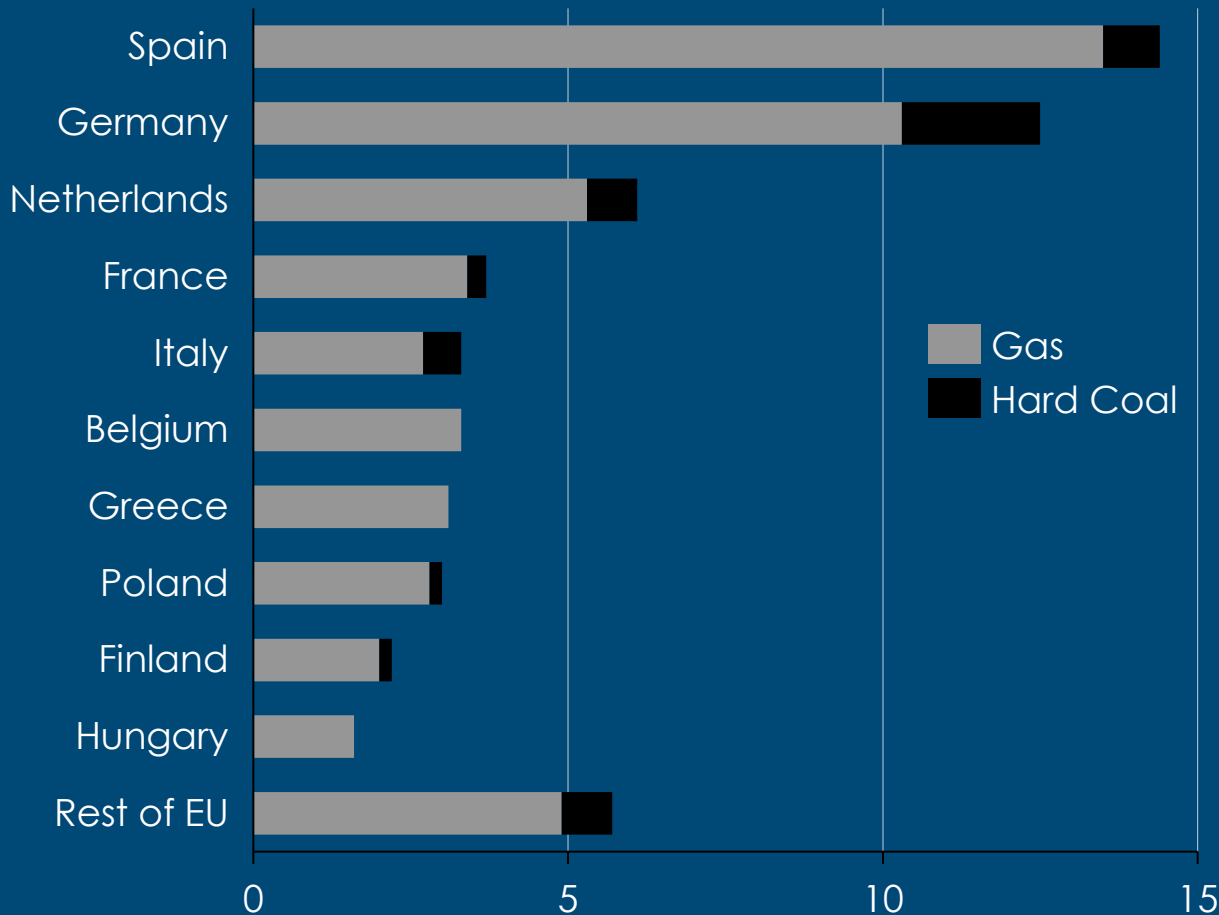
**Notes:** CEEW estimated total cost of ownership by considering standard parameters including CAPEX, interest payments, discount rate, resale value, GST and cess, and fuel economy. It also considered state-specific parameters such as road tax, subsidies, and fuel prices. Electric three-wheelers are already selling for less than their ICE equivalent, whilst two-wheelers are reducing in price but not yet at cost parity.

**Source:** PV Magazine(2025) *Electric two- and three-wheelers already cheaper to own than petrol variants*; IEA (2025) *Global EV Outlook 2025*

# Wind and solar avoided €59 billion in European Union fossil fuel imports since start of Green Deal (2019-2024)



Avoided EU fossil cost due to added wind and solar  
2019-2024 (€bn)



- **Without wind and solar additions** made during the first five years of the Green Deal, the EU would have spent an additional **€59 billion** on fossil imports for power generation, **6%** of total coal and gas imports over the past 5 years – equivalent to 20% of coal and gas use in the EU power sector.
- In 2024 alone, without renewable installations in the past year, EU power sector gas and coal use would have been **11% higher**.



**Notes:** EU spent €188bn on coal and gas imports in 2023, assumed total imports to be ~€940bn over prior 5 years. **Avoided gas imports:** ~92 bcm is equal to 18% of gas consumed for EU power since the end of 2019. **Avoided coal imports:** ~55 Mt is equal to 23% of hard coal consumed for EU power in the same period.

**Source:** Ember (2025); European Electricity Review 2025; European Commission (2025) *Report on energy prices and costs in Europe*

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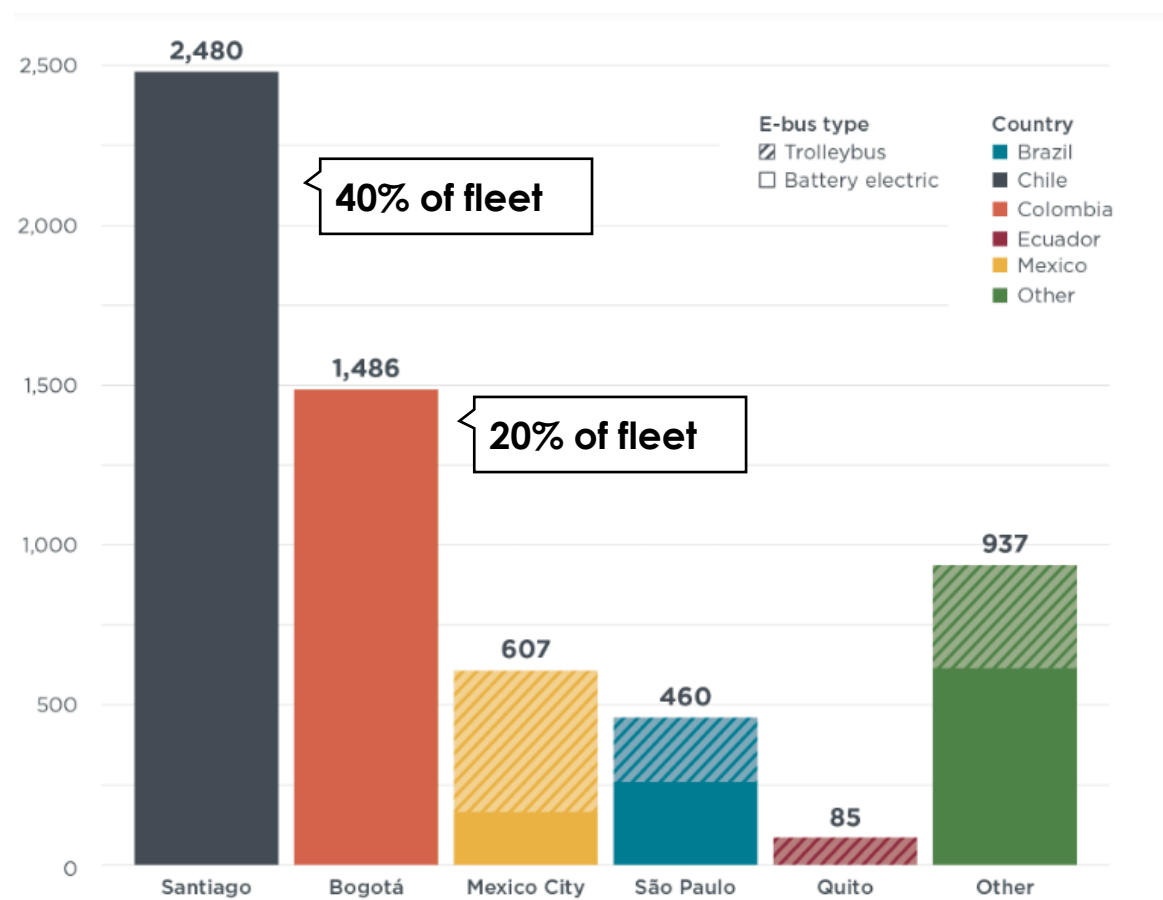
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# Santiago and Bogota are world leaders in electric bus rollout

## Latin American e-bus fleet by city

Total number of e-buses, end of 2024



- Latin America's e-bus fleet has been growing at a rapid pace, from **800 in 2017** to **over 6,000 in 2024**, a growth rate of 33% per annum
- E-buses in Latam are concentrated in a few cities. Santiago (Chile) and Bogota (Colombia) account for **over 65%** of the region's e-bus fleet
- Santiago saved more than **60 million litres** of diesel between 2018 and 2023, reducing operating costs and increasing air quality

**Notes:** Santiago de Chile aims to introduce 1,800 e-buses in 2025, achieving a 68% zero emission bus fleet.

**Source:** The ICCT (2025) *Latin America e-bus market monitor (2024)*; Sustainable-bus.com (2025) *Santiago de Chile aims to introduce 1,800 e-buses this year.*



# Chinese electric truck sales increased to over 20% in the first half of 2025 compared to 8% the previous year

B



## Geely's Homtruck – launched in 2024



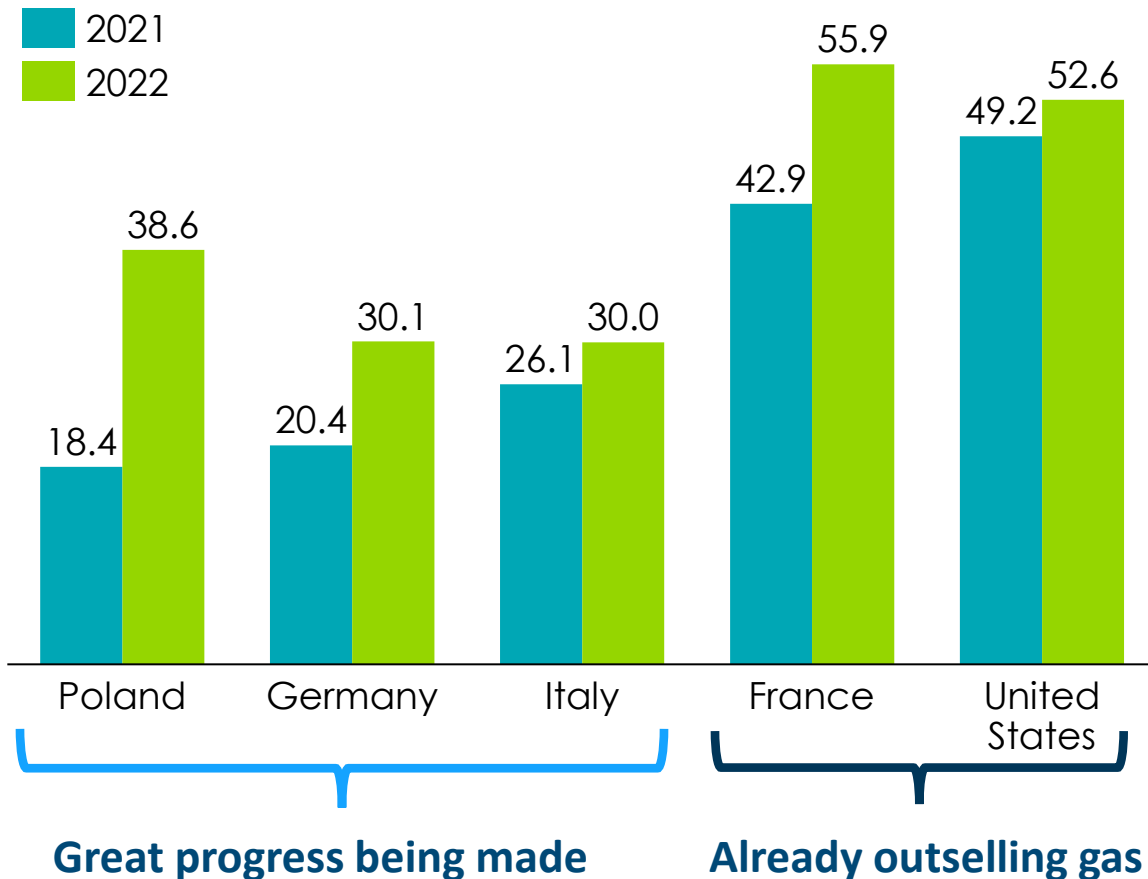
- China's battery electric vehicle truck sales are surging, capturing **22%** of heavy-duty vehicle sales in H1 2025, up from **8.6%** in the same period of 2024
- LNG truck sales are declining as cost advantage over diesel falls and BEV alternatives gain ground
- Leading manufacturers expect battery-electric vehicles to capture **50-80%** of heavy-duty truck sales by 2028, with **150 MW charging hubs** to facilitate fast uptake
- Electric trucks in Europe currently only make up **1.3%** of total market, with Volvo Trucks the market leader



# Heat pumps surpassing boilers sales in several markets

## Heat pumps outselling gas heating in major markets

Heat pump sales as share of total, 2021-22 (%)



- **Clear trend toward electrified heating**—driven by incentives, performance gains, and emissions savings



Heat pumps account for **56%** of all heating system sales in 2022



In 2024, heat pumps outsold gas furnaces by **32%** (4.1M units); up 15% in Q1 2025

- **Resilience against gas volatility:** Post-2022 gas price shocks accelerated adoption. Heat pumps provide a hedge against future fossil price swings.
- **Industrial and commercial uptake:** Large heat pumps are being deployed in district heating networks and industrial processes, widening the impact beyond residential.



Source: Market.US (2024) *European heat pump market and statistics report 2024*; The Cool Down (2025) *New data reveals surging popularity of next-gen heat pumps*

# Electrified port handling equipment getting cheaper and becoming more prevalent across the globe

## Electric cranes at ABP Ipswich

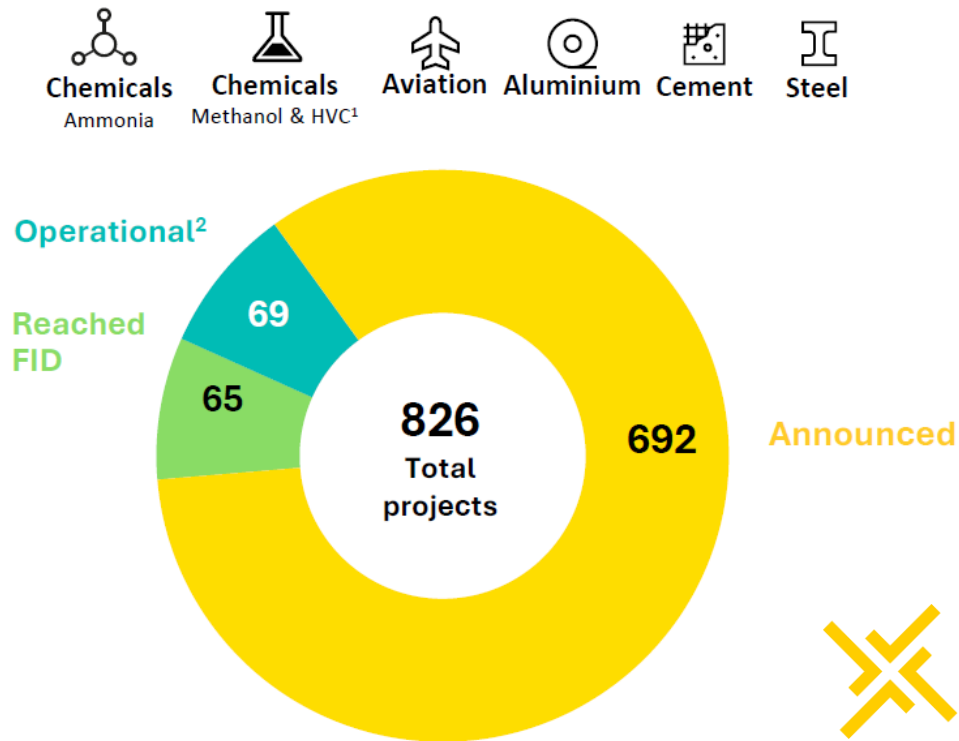


- Today most container handling equipment runs on diesel, but some front runners are moving at pace :
  - **Long Beach Container Terminal in California** where **more than 60%** of cargo handling equipment has electrified
  - Over 40 other ports are deploying electric container equipment, including **Aqaba** (Jordan), **Suape** (Brazil), and **Abidjan** (Cote d'Ivoire)
- With battery prices having declined **80% over the last decade**, electric handling is becoming **increasingly cost-competitive** on a CAPEX basis, significantly narrowing the upfront cost gap with diesel alternatives.



# The global pipeline of clean industrial economic projects represents a significant and growing economic opportunity

Total clean industrial projects announced and passed FID across six sectors, June 2025



- Clean industrial projects span **nearly 70 countries** across both emerging and developed economies
- **\$250bn** has been invested to date by first movers
- 700 clean industrial projects are awaiting finance to move from plans to plants – a **\$1.6 trillion investment opportunity**
- The Mission Possible Partnership will be launching their “**Build Clean Now**” Campaign on September 22<sup>nd</sup> to drive projects to FID



Source: Mission Possible Partnership (June 2025) *Global project tracker*

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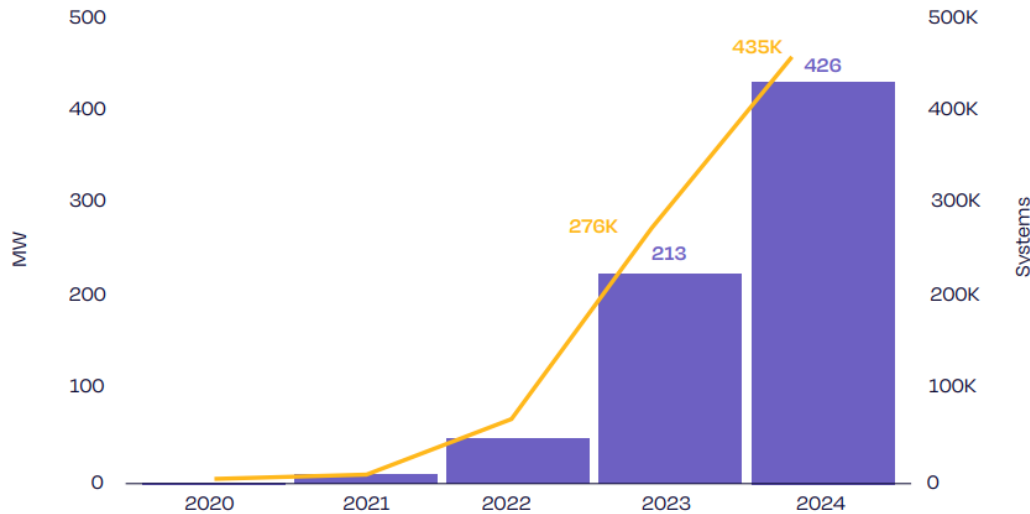
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# German balcony solar boom after relaxing of permitting rules

## German balcony plug-in PV registrations per annum 2020-24



- In May 2024, Germany streamlined registration process for plug-in devices to a simple online notification.
- 2024 saw a boom in installations, **doubling** current installed capacity with **over 420k** new systems registered, equal to **over 430MW** of added capacity.

## New to market – Ikea balcony solar kit

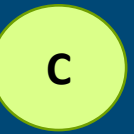


- Ikea is now offering balcony solar kits for **€450**. Includes two 450 W modules, cables, an 800 W microinverter, and mounting kit. Can cover up to **25%** of annual household needs in some markets.
- A 2-kWh battery can be included for €1230 total.



**Notes:** BSW Solar's calculations based on MaSTR as of January 23<sup>rd</sup> 2025, accounting for expected late registrations. Further revisions expected due to late registrations  
**Source:** SolarPowerEurope (2025) *Plug in Solar PV Briefing Paper*; PV Magazine (June 2025) *Ikea begins offering balcony solar kits*

# Octopus have launched all-in-one electric vehicle lease and charging package



## Launch of Octopus V2G “Power Pack” scheme



- Octopus, BYD, and Zaptec teamed up to offer comprehensive EV leasing and V2G services including:
  - **New BYD Dolphin** on lease, enabled with vehicle-to-grid technology
  - **Zaptec pro charger**
  - **Free home charging** for entire lease
- Customers save **£600+ per year** vs charging at home on a standard variable tariff as a result of free home charging
- Removes barriers to EV uptake and V2G adoption by having Octopus handle all the administration and smart charging



**Notes:** Free charging up to 12,000 miles per year.

**Source:** Octopusev.com (Accessed September 2025) *Unlock the power of Vehicle-to-Grid*

# Massive solar build-out in Pakistan provides cheap electricity for millions, with Government not standing in the way of local rollout



## Large scale rollout of solar in Pakistan



- Pakistan has increasingly unaffordable electricity, with **power prices more than doubling** in the last three years due to:
  - Fluctuations in global energy prices
  - Depreciation of Pakistan's currency
  - Government's rollback of energy subsidies
- Solar panels decreased in cost by **more than 50%** in the last 18 months, which have **3–4-year payback periods**
- This led to **17 GW** of solar imports from China in 2024, **5\* higher** than in 2022, a large amount given the country has **~40GW** of total installed capacity
- The additional solar from 2024 could save over **\$3 billion** annually in fuel imports

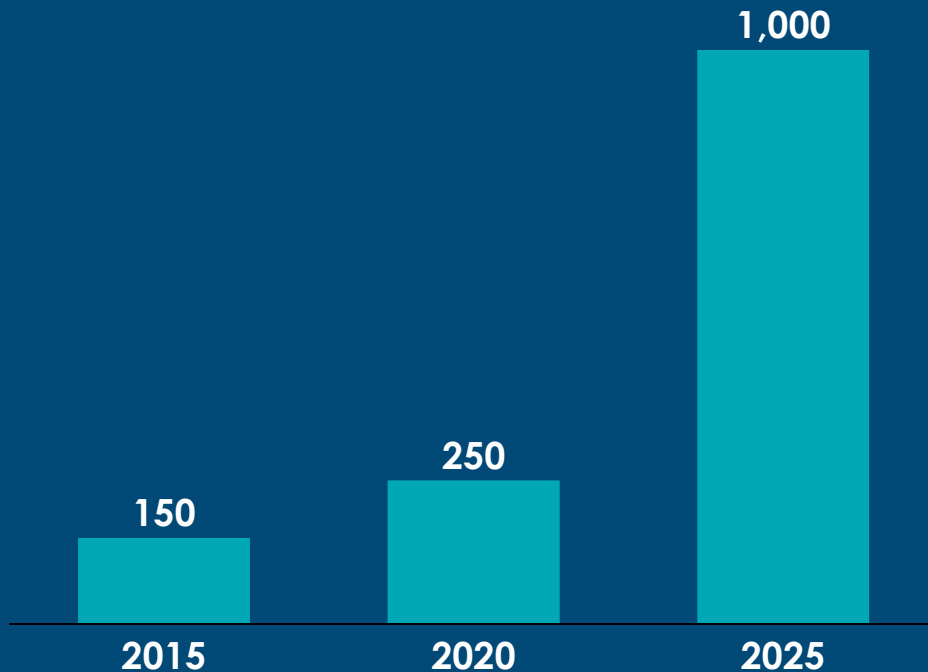


**Notes:** Legacy gas and coal plants continue to be remunerated even when underutilized due to "take-or-pay" agreements that impose penalties if a minimum amount of power is not purchased. Pakistan's National Electric Power Regulatory Authority (NEPRA) reports that capacity payments to power plants exceeded \$7 billion in 2024. These costs must be recovered through higher tariffs on fewer ratepayers regardless of actual usage. **Source:** Medium (2025) *The Solar Revolution: Transforming Pakistan's National Grid Through Distributed Generation*; World Economic Forum (2025) *How Pakistan's energy revolution can power affordable, reliable electricity for all*

# Chinese battery innovation BYD and CATL delivering 1,000 kW charging, equivalent to a 5-minute full charge



Maximum fast charging power from global leaders  
kW



- **BYD** developed new Megawatt Flash charger, which can charge at **1,000 kW**. BYD plans to initially install **over 4,000**-Megawatt Flash charging stations across mainland China, starting in 2025.



- **CATL** introduced new second-generation Shenxing battery “World's first LFP battery featuring **800 km range** and a **12C** peak charging rate.” With “a range of **75km in 30s charging**, namely **2.5km/s**,” and can achieve a range of 520km+ in a 5-minute charge.”



**Notes:** a 12 C charging rate means that 12 times the battery can be charged 12 times full capacity in 1 hour.

**Source:** Bauer et al (2021), *Charging Up America: Assessing the growing need for U.S. charging infrastructure through 2030*; S&P Global (2025) *CATL and BYD Battery Tech Could Disrupt the Global BEV Market*.

# How should we best make use of this?

- LinkedIn Carousel to be hosted during COP30
- Featurette on ETC Insider/Matters
- Sent out to all ETC Representatives and Commissioners ahead of COP30 as talking points for media briefings and speaking events
- Available for members on portal and freely available on website

