



POLICY OPTIONS FOR A RESOURCE EFFICIENT ECONOMY

Resource Efficient Electricity Production and Distribution

OBJECTIVES AND RATIONALE

- **Decarbonisation** – According to the EU’s Energy Roadmap 2050, CO₂ emissions must be almost entirely removed from the power sector by 2050.
- **Matching Generation and Consumption** – Intermittent renewables and variable demand (across times and geographies)
- **Prevent High-Carbon Lock-in** – Prevent the construction of substantial new fossil fuel capacity (particularly coal)
- **Energy Trilemma** – Managing energy security and affordability

KEY FEATURES

- **EU ETS** – Reformed in order to produce a more substantial, predictable and less variable price. Full auctioning is introduced, with a Border Tax Adjustment (BTA) to prevent carbon leakage.
- **RES-E Support Mechanisms** – Reformed according to ‘best practice’ approaches, and aligned to not cause market distortions on a functional EU single electricity market.
- **‘Super-Smart’ Grid** – Member State interconnections are substantially increased, with substantial deployment of smart meters and associated control mechanisms and tariffs.

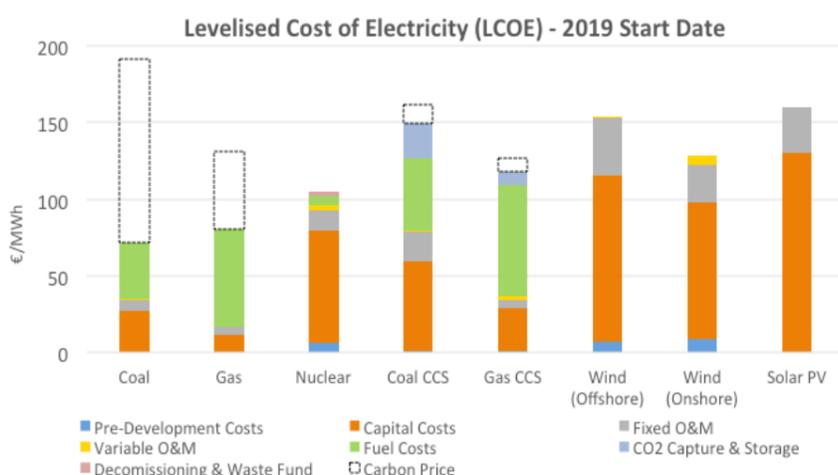
ASSESSMENT OF IMPACTS SO FAR

- In Phase 1 (2005-2007), the **EU ETS** produced savings equivalent to **2-4%** of capped emissions. Since then, the financial crash (and other factors) has produced significant allowance oversupply and consequential low prices. Free allocation of permits produced substantial windfall profits. No evidence of any carbon leakage amongst energy-intensive, trade-exposed sectors.
- Dedicated **RES-E Support Mechanisms** are responsible for almost all RES-E installations. Feed-in Tariffs (FiTs) most prominent, but different designs and levels, resulted in varied (and inefficient) deployment (at EU-level). Wholesale electricity prices decrease with increasing RES-E penetration, but overall increasing costs to consumer (cost recovery).
- Interconnector levels are around half of total requirements. 20% of electricity consumers have smart meters, but not all have recommended technical requirements. Third Energy Package not fully implemented.



Source: World Economic Forum

EXPECTED IMPACTS IN THE FUTURE



Source: Drummond (forthcoming)

- **EU ETS** should produce fuel switching in the short-term, and change LCOE to prefer investment low- and zero-CO₂ emission generation in longer-term.
- Merit Order Effect produces ‘missing money’ problem. Overcome with Support and Capacity Mechanisms, but also closer trading and smart grid.
- **Smart grids** and **RES-E support** allows for the rise of the ‘producer-consumer’
- **RES-E** with ‘super-smart’ grid improves energy security, enhances affordability and system resilience.
- Innovation in both supply (RES-E cost reductions), and demand side (smart appliances).