



# Policy and Measurement Issues Related to the CET

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Presentation at ITIF Session on “Rejuvenating Global Energy Innovation to Deliver on Glasgow” 13/01/2022

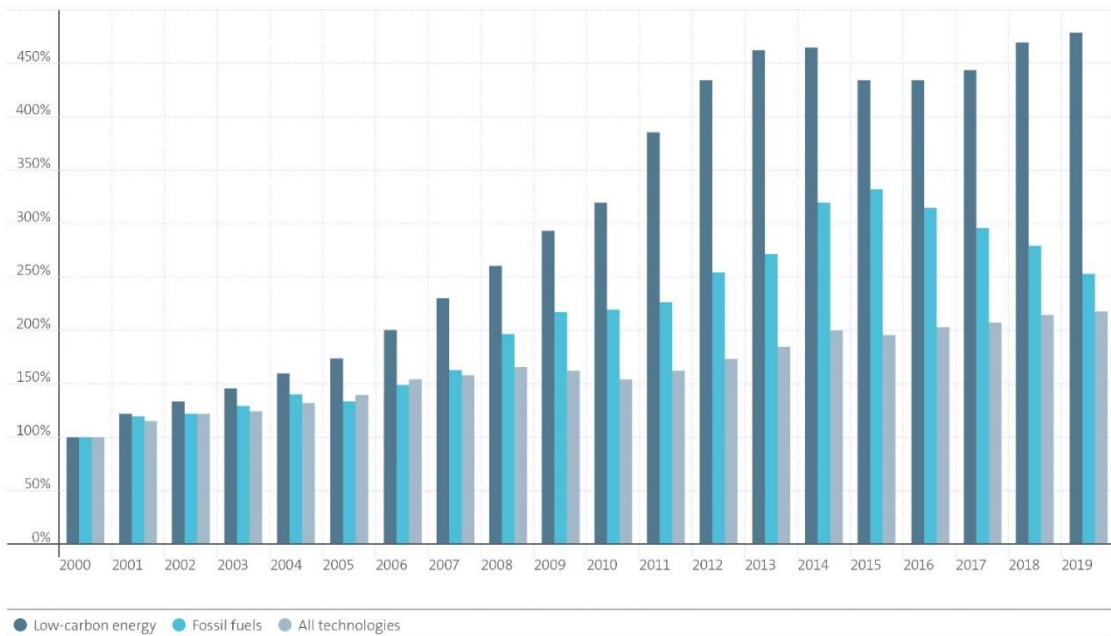
# Basic principles for innovation-inducing “clean energy” policy design.....

- Ambition - how high is the “price” of not inventing and adopting “clean” innovation
- Depth – does it provide incentives across whole range of possible outcomes
- Flexibility – does the policy induce search across all possible mitigation options
- Neutrality – are all sources (which should be treated equally) treated equally
- Incidence – does the policy “hit” the policy objective directly, or rather some proxy
- Predictability – can the investor foresee likely policy context over investment horizon (change comes at a cost)

## ..... but, complexity of the policy context

Energy “sector” (if it can be called a sector in any useful sense) is subject to myriad of policy settings that affect innovation outcomes, including:

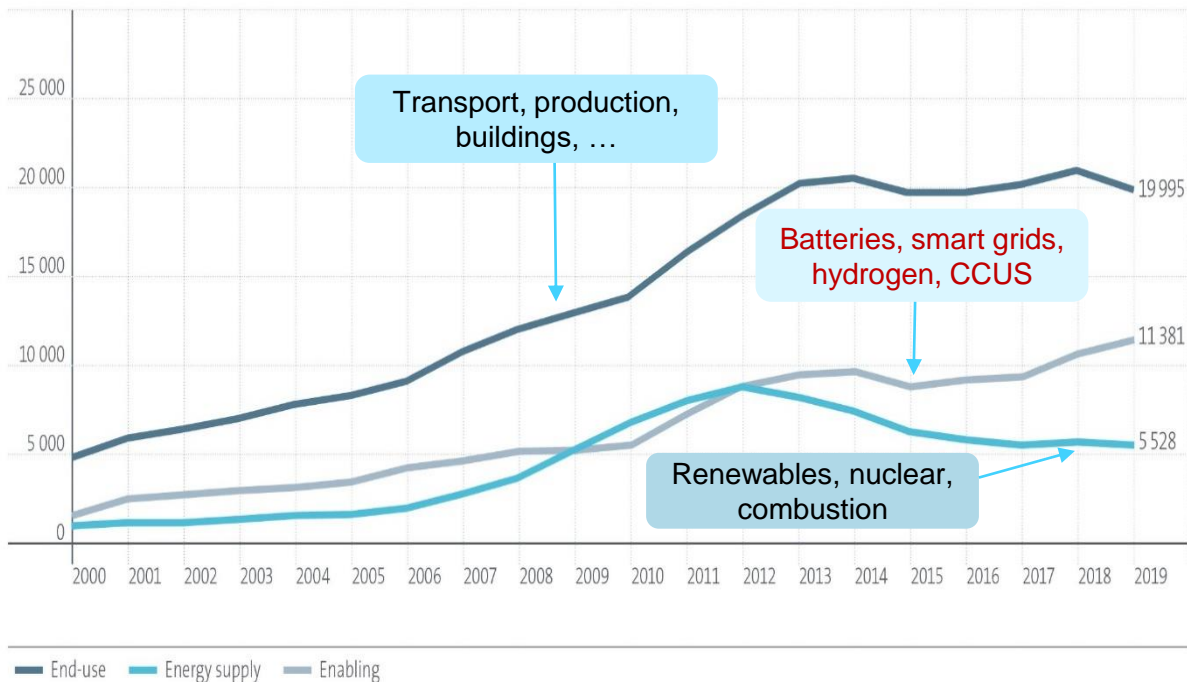
- General **innovation** policy context – RD&D yes, but myriad of direct (e.g. grants) and indirect (e.g. tax credits) innovation support measures. Devil is in the details (e.g. example of carry-over of tax credit benefits).
- Economic **regulation and competition** policy. Heterogeneity of “product market regulation” scores for natural gas and electricity sectors.
- **Financial market regulation** - .e.g. measures to encourage awareness and disclosure, incentivise broader fiduciary responsibility, micro-prudential stress testing.....
- **Trade and investment** policy. Danger of seeking to “grow” domestic competitive advantage at the expense of benefitting from the global frontier (which is increasingly multi-polar)
- Ancillary **framework policies** that have implications for dynamism – e.g. contract enforcement, bankruptcy legislation, age- or size-contingent regulations



- Working closely with EPO patent examiners to identify patents (from all IP offices) for LCE technologies
- Importance of accounting for quality. Family size and beyond.

EPO&IEA (2021), *Patents and the Energy Transition*, IEA, Paris <https://www.iea.org/reports/patents-and-the-energy-transition>

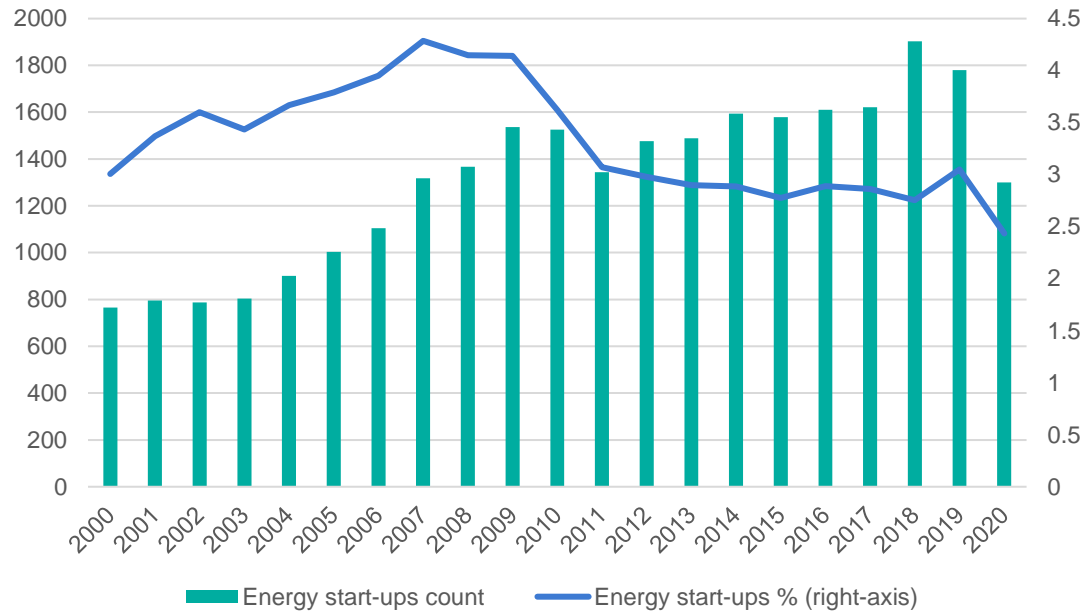
## Patent Data (2): Some high-level disaggregation



- High-level of granularity (>300 fields), global coverage.
- Enabling technologies are the new frontier.
- Raises issue of spillovers and cross-fertilisation

EPO&IEA (2021), *Patents and the Energy Transition*, IEA, Paris  
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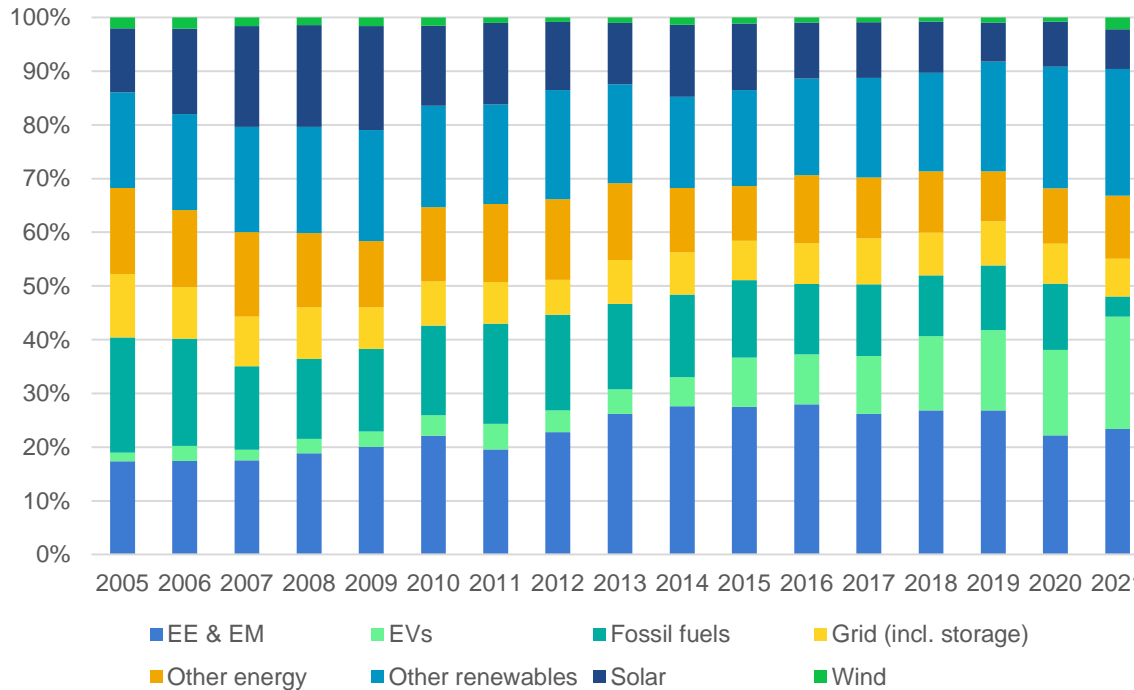
# Start-ups (1): Global trends in Start-up Rates



IEA (2022), *Energy Transitions Data Portal* (forthcoming)

- Firm dynamism (entry and exit) as a key “vehicle” for innovation.
- Growing start-up rate – but not as much as pre-crisis (not this one the last one) and not as much as in other areas.

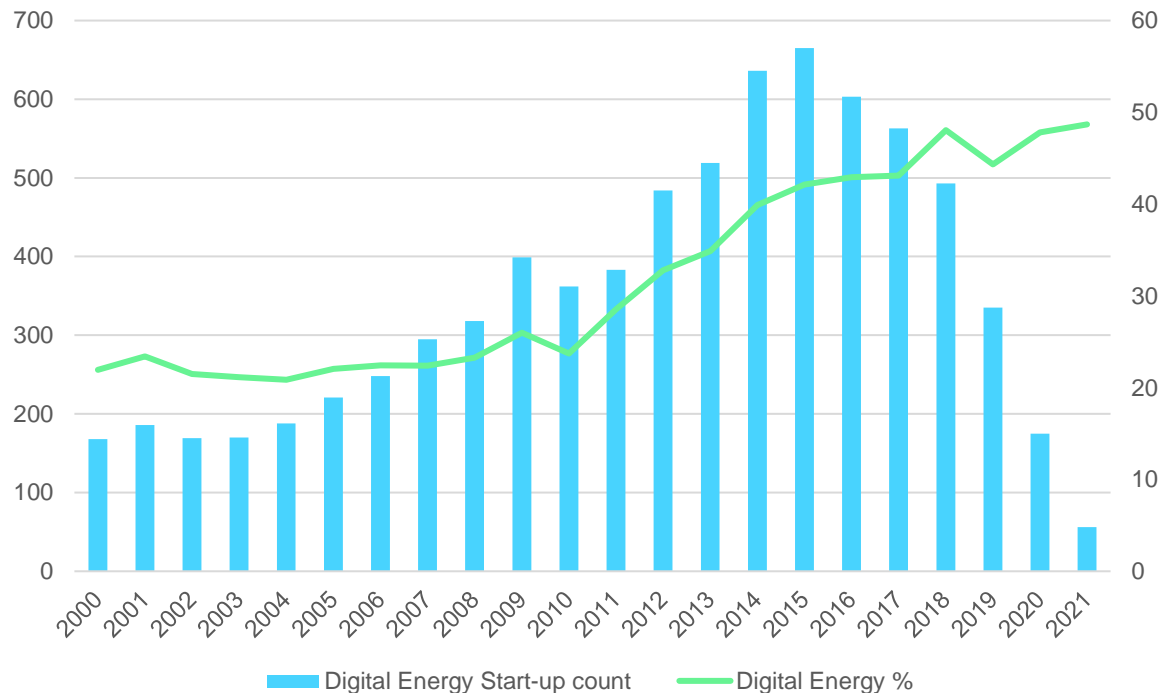
# Start-Ups (2): Share of Start-ups by Business focus



- The changing mix of business strategies for energy start-ups.
- Rising importance of energy efficiency/mngmt and EVs.

EPO&IEA (2021), *Patents and the Energy Transition*, IEA, Paris  
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# Start-ups (3): Share of Digital Energy Start-ups in total Energy Start-Ups

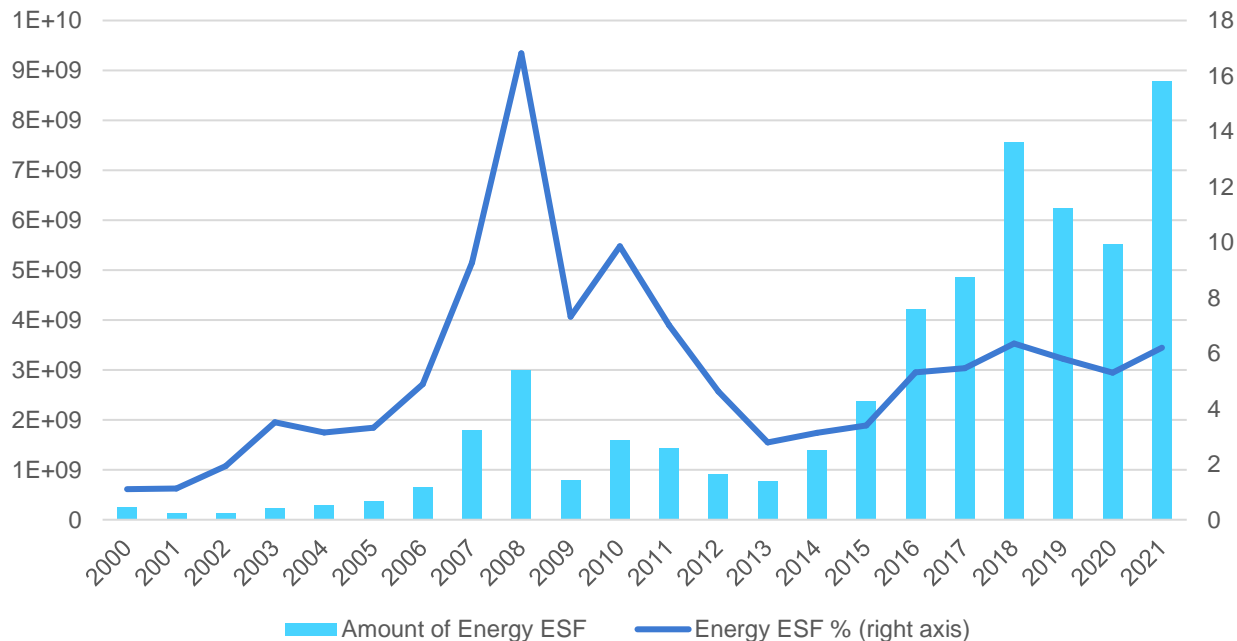


- Sustained and rapid increase in % of Energy Start-ups with a Digital Focus

IEA (2022), *Energy Transitions Data Portal (forthcoming)*



# Early-Stage Funding (1): Share of Energy-Related ESF in Total ESF



- ESF for energy is rising, but only in line with ESF overall in recent years (and well-below % seen in pre-crisis peak)

IEA (2022), *Energy Transitions Data Portal* (forthcoming)

- Evaluation, evaluation, evaluation..... but not at the expense of action. We are nowhere near where we need to be.
- Make data “collection” (*ins&outs; before&after*) an integral part of policy interventions to allow learning
- As the energy system evolves innovation-related measures need to evolve. Classification, classification, classification.

Thank you