Renewables – development policies

Filip Černoch
cernoch@mail.muni.cz

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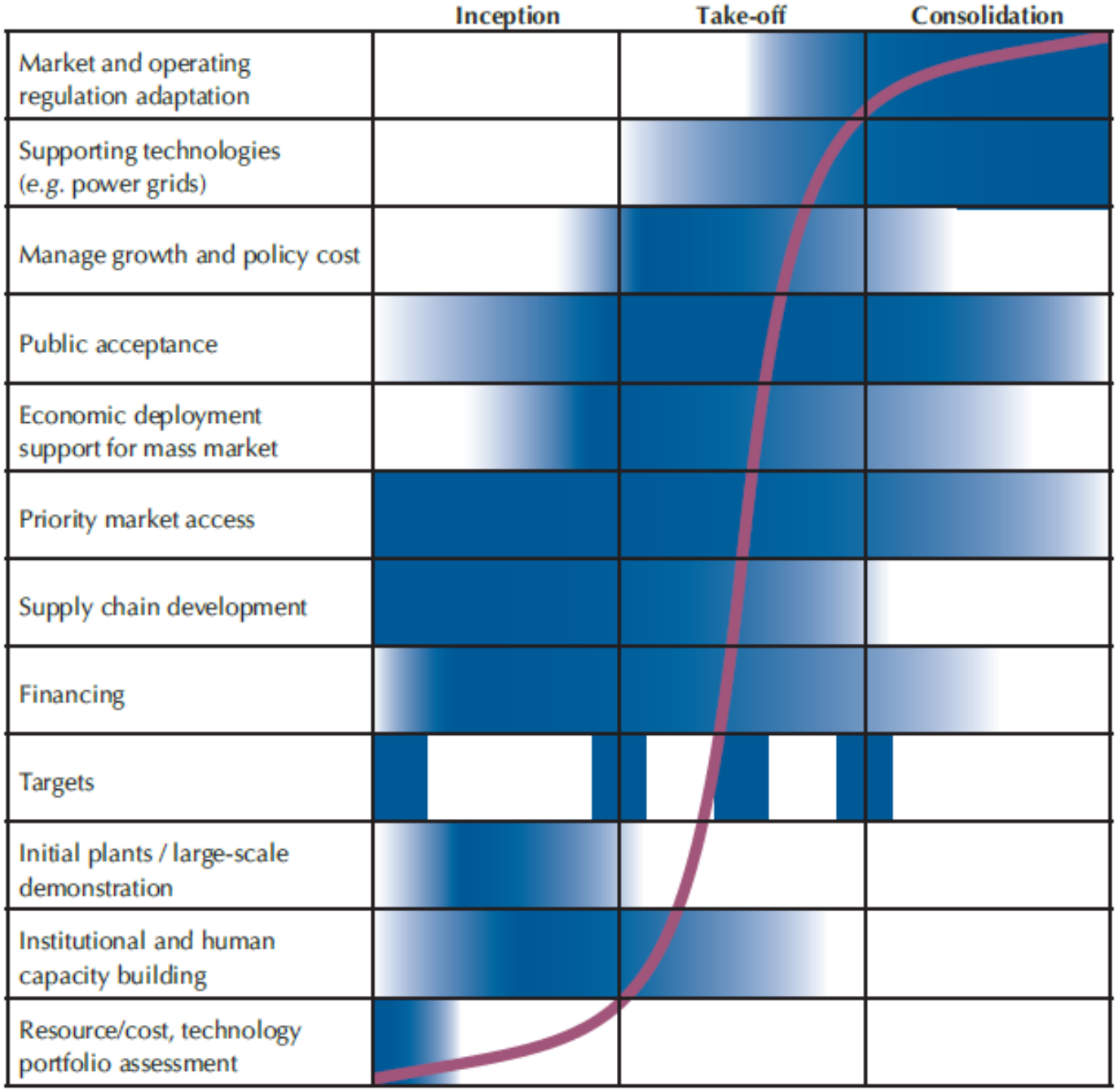
Phases of deployment of RES

1) Inception phase – first examples of expensive technology deployed under commercial terms

2) Take-off phase – market starts to grow rapidly. Costs are expected to fall, aim is to have managed deployment with limited overal policy costs

3) Market consolidation phase – deployment grows toward the maximum practicable level



Note: Shading reflects relative importance

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Support policies

- Public funds for RES development
- Infrastructure policies to build and maintain market infrastructure
- Construction and design policies
- Site prospecting, review and permitting
- Equipment standards and certification
- Government procurement
- Custromer education
- Indirect support policies
- …
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Tackling economic barriers

- RES projects are capital-intensive with low operating costs
- The logical support for them would be cost reduction policies, not operating subsidies. This was the norm in the early days and some countries still give personal income, corporate, property tax and VAT exemptions for RES
- Consumer levies also hit the poorer harder.

Cost-reduction policies

Designed to provide incentives for voluntary investments in RES by reducing the cost of these investments

- Reduction of capital costs up front via subsidies and rebates. (In the EU a long history in 1991; e.g. Germany´s 1000 solar roofs program to subsidise individual household purchases of PV of up to 60% of capital system costs)
- Reduction of capital costs after purchase via tax relief (esp. U.S., but also Japan, Europe, India…)
- Offsetin costs through the payments based on power production via production tax credits (grants)
- Providing concessionary loans and other financial assistance

Operating subsidies

- Funding through consumer levies has the advantage of a) not putting a further burden on hard-pressed government budgets, and b) being less visible, except in countries where the RES surcharge is clearly marked on consumers' energy bills.
- More efficient in terms of faster dissemination of RES technology

Operating subsidies

- Price-setting policies reduce cost- and pricing-related barriers by establishing favorable pricing regimes for RES relative to other sources of power generation. The quantity is unspecified, but prices are known in advance
- Quantity-forcing policies do the opposite. They mandate a certain percentage (or absolute quantity of generation) at unspecified prices

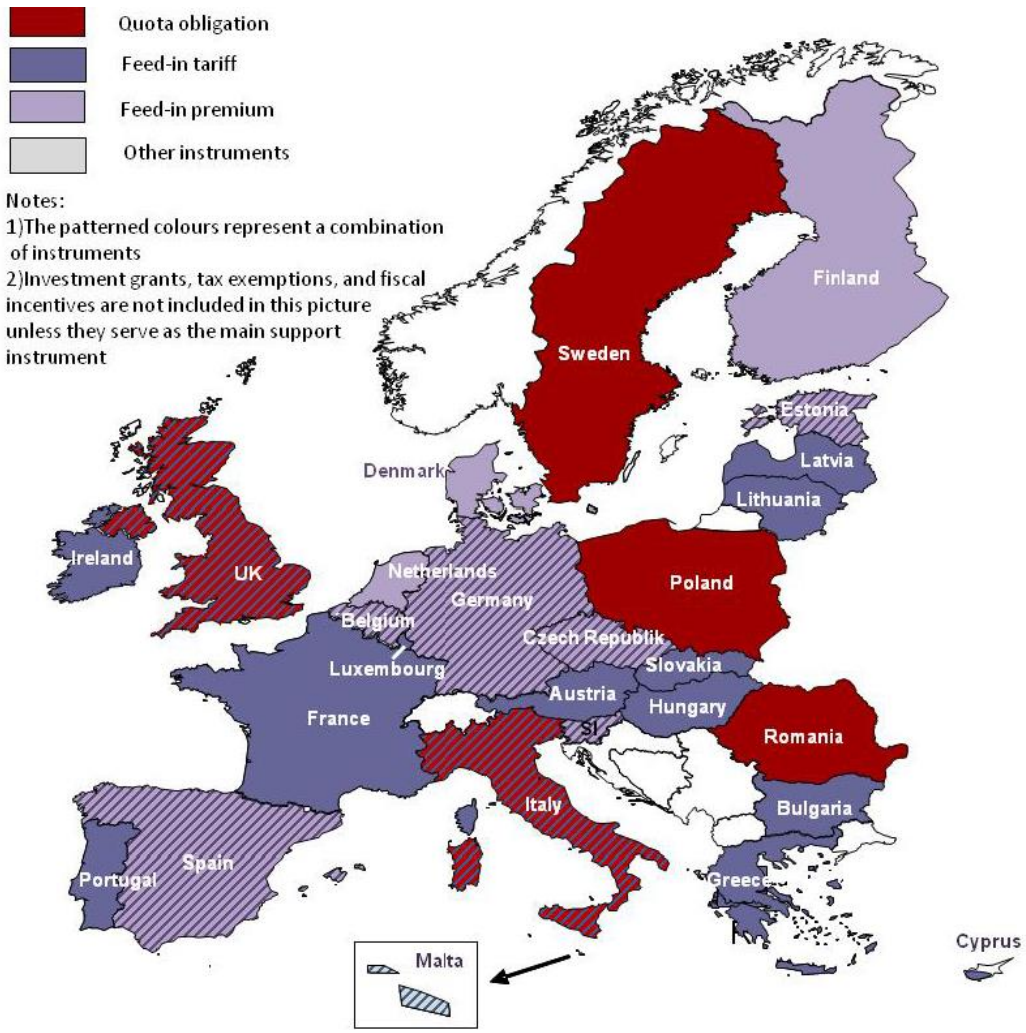
Price setting policies

- Feed-in tariffs. Exists in 21 EU states (2013), provide a fixed rate of subsidy for fixed period. Designed to cover all producer's costs and profit, they essentially replace the market. Very successful in triggering large deployment of RES, but at a high cost. Instrument of choice for big RES players (Germany, Spain). Basic rule is government sets the price, market (investor response) sets the quantity, but many recent amendments to control cost
- Grid priority - the grid must take RES electricity first
- Feed-in premiums act as a partial FiT providing a top-up to electricity market price. Increasing popularity

Quantity forcing policies

- Quota obligations with tradeable certificates. Government sets the quantity, the market the price. These exist in 6 EU states (2013), have been less successful, but are cheaper
- Two sources of revenues. 1) The power is sold on the normal power market. 2) RES generators sell a certificate that represents a certain amount of renewable electricity they generated on the separated market. Demand for these certificates is ensured by a quota obligations

Source: Ragowitz



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Comparison

- FiTs generally regarded as more effective, because they can be tailored to specific technologies. Drawback include
  - a) difficulty of setting the right price – too high and money is wasted, too low and no deployment – and once the price is set, it is hard to make radical changes without breaking contracts
  - b) they insulate the RES producer from the market. So move towards feed-in premiums (fixed or variable) which top up whatever the RES producer gets from the market.
- Quota systems with tradable certificates tend to be cheaper, but favour mature technologies like onshore wind and biomass

What makes good support scheme?

- Stability. Changes, basically reductions in tariffs to reflect falling costs, are inevitable, but should be transparent and predictable -- for instance either at regular date or when a certain annual volume level of RES deployment is reached. If the latter, then the volume should be announced in advance, and be easy for investors to monitor. Example of Germany´s corridors
- Level of support. This obviously matters to investors. But in surveys investors say the money comes second to stability. So governments that can encourage perception of stability can get away with lower levels of financial support

What makes bad support scheme?

- Financial cuts and moratoria on new projects may be unavoidable. But retroactive measures could do longer lasting damage to investment
- Spain: in 2010 put annual limit for hours of support payment for nearly all existing RES-E producers who now after every August/September have to operate without support, as well as in 2012 suspending all new projects
- Czech republic: in 2010 imposed retroactive profit tax on all bigger PV installations
- Bulgaria: in 2012 introduced retroactive grid access tax for all producers receiving FiTs. Discriminatory because for RES-E only, and may break EU legal ceiling on transmission charges

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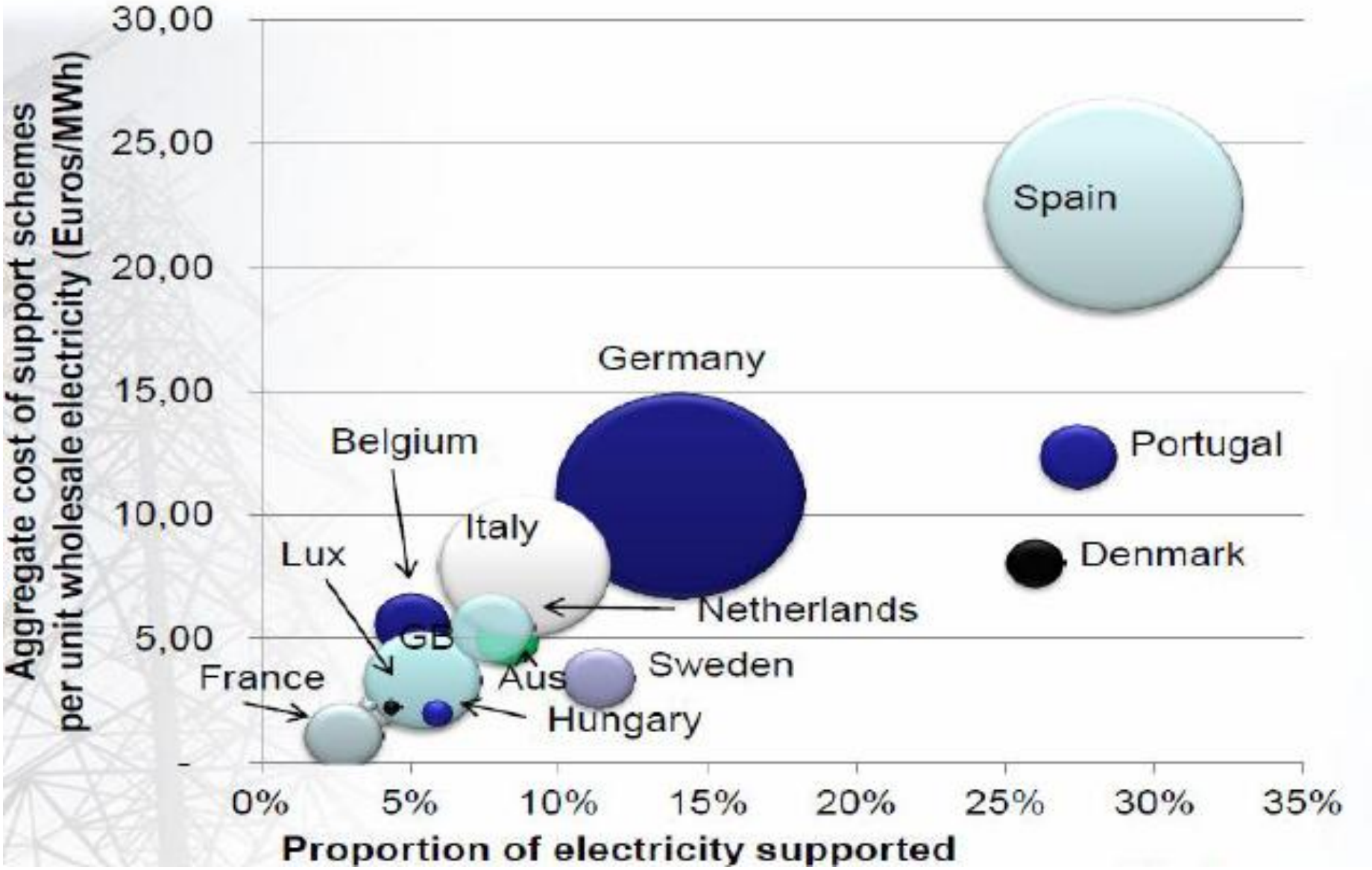

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Indirect promotion policies – emission reduction policies

- Policies to limit GHG increase the price of carbon (cap and trade policies), resulting in higher competitiveness of RES.
- Regulation – favours RES (and nuclear) in energy mixes at the expense of fossil fuels
- Taxation – higher price of fossil energy

Indirect promotion policies – power sector restructuring policies

Complex changes of traditional mission and mandates of electric utilities

- Self-generation by end users and distributed generation technologies. Shift to end users being also independent power producers. RES is well suited to self-generation (but competition from gas)
- Competitive retail power markets and green power sales – consumers are free to select their power suppliers from those operating in a given market, they can choose for the green energy. (In Netherland after restructuring in 2001 1 million green power customers signed up within the first year – there was also a large tax on fossil fuels)

- Privatization (and/or commercialization) of utilities. Utilities are becoming private for-profit entities that must act like commercial corporation. (or losing state subsidies in terms of state-run companies). It could affects the RES deployment in many ways, pozitive or negative, depending on the situation
- Unbundling of generation, transmission and distribution. Unbundling can provide greater consumer incentives to self-generate using RES (to avoid transmission and distribution charges)

Sources

- IEA (2011): Renewable Energy. Policy Consideration for Deploying Renewables
- IEA (2011): Deploying Renewables: Best and Future Policy Practice

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