



European energy policy and markets – impact on investment decisions

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Reykjavík, 11. November 2015

Frontier is an economic consultancy working across sectors...



Regulation

Strategy

Competition

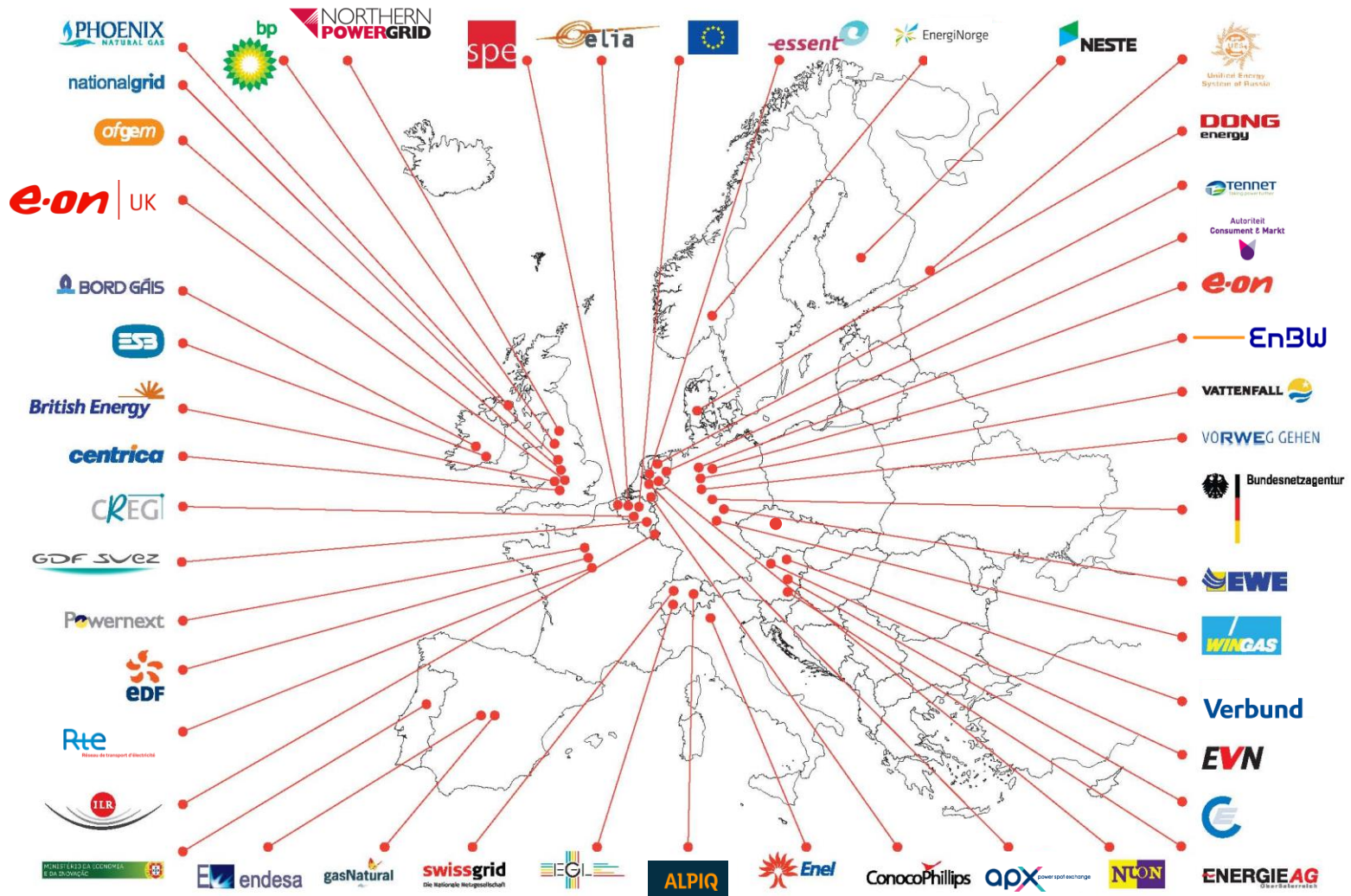
Dispute support

Public policy

- Frontier has 150+ staff across Brussels, Cologne, Dublin, London and Madrid
- Energy is our biggest sector specialisation
- Global, European and UK energy experience
 - Projects in all major EU countries
 - Power market analysis, price forecasts and assessment of power plant investments, interconnectors and storages is a core part of our energy work

...but energy is major capability

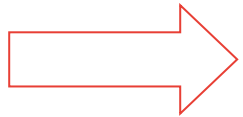
...and we work for a variety of major clients in Europe



What do we talk about?



What do European Power Markets look like today?



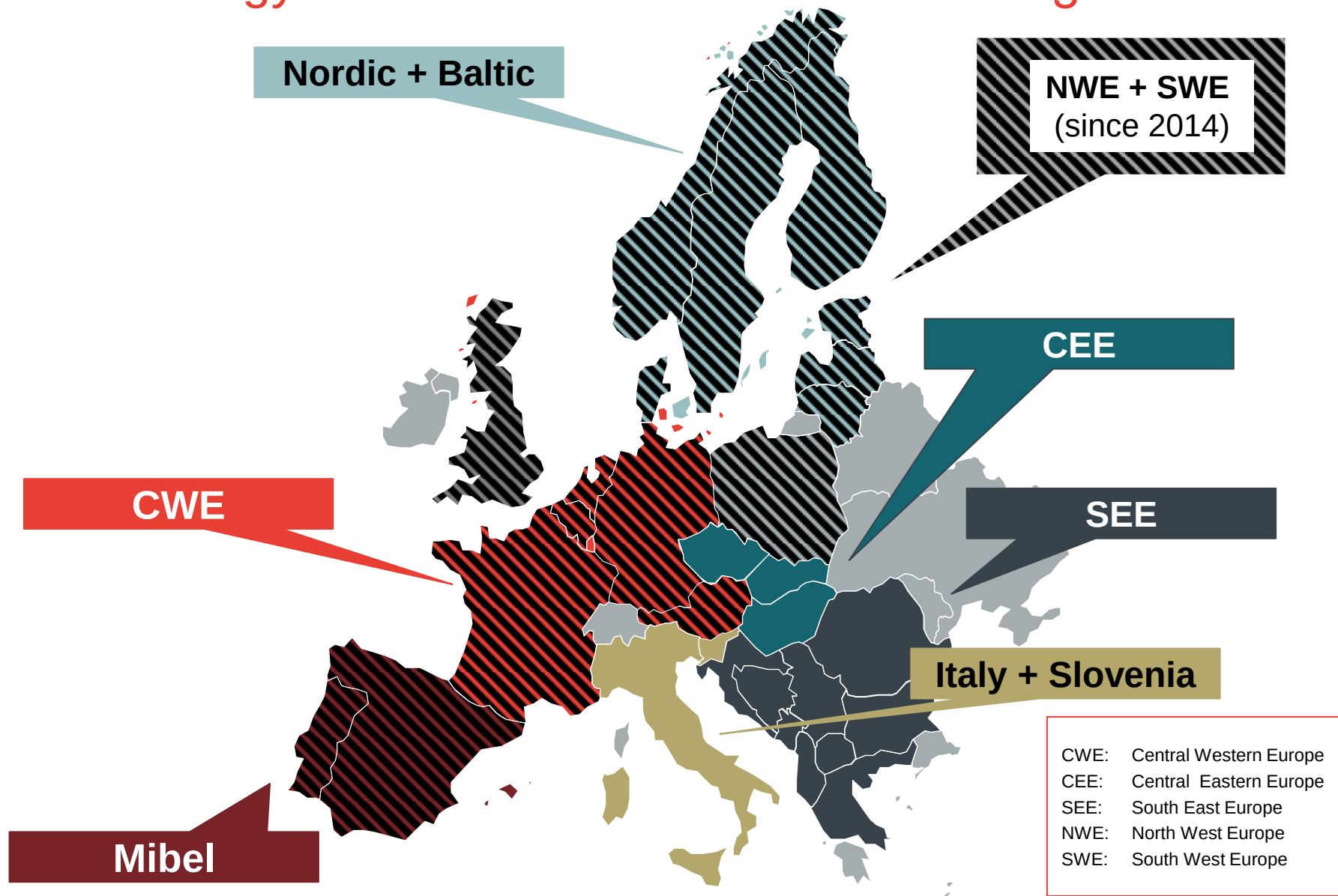
Which opportunities do they create for Iceland?



How to find a strategy?

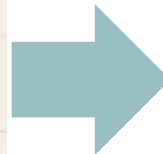
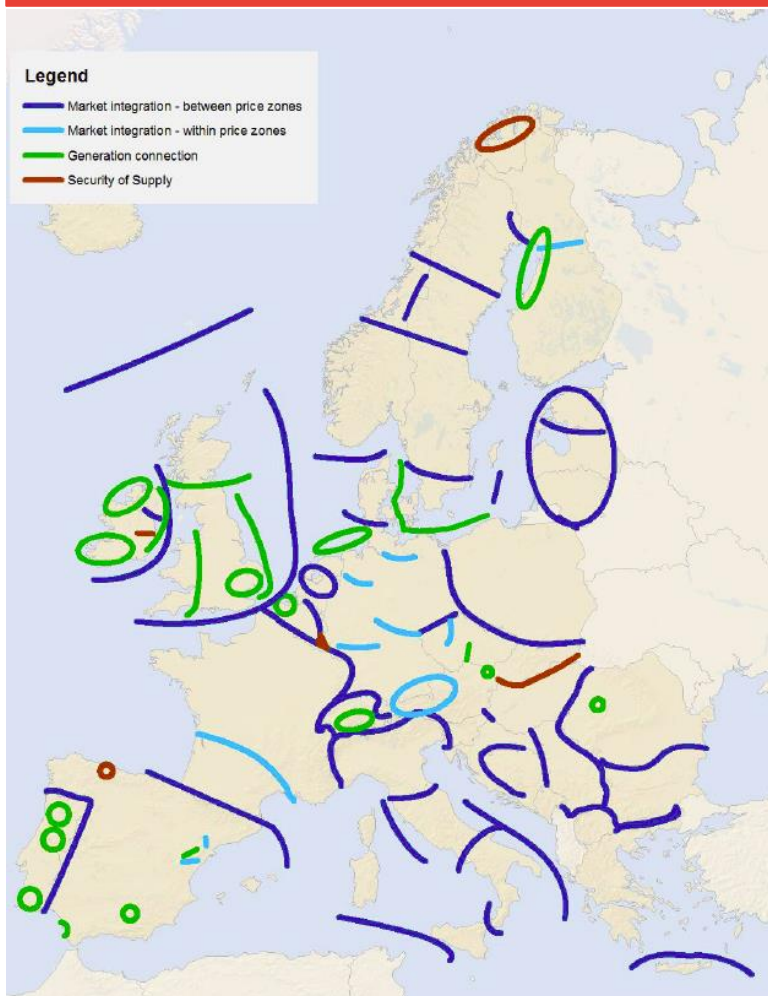
What do
European Power Markets
look like today?

EU energy markets are more and more integrated ...

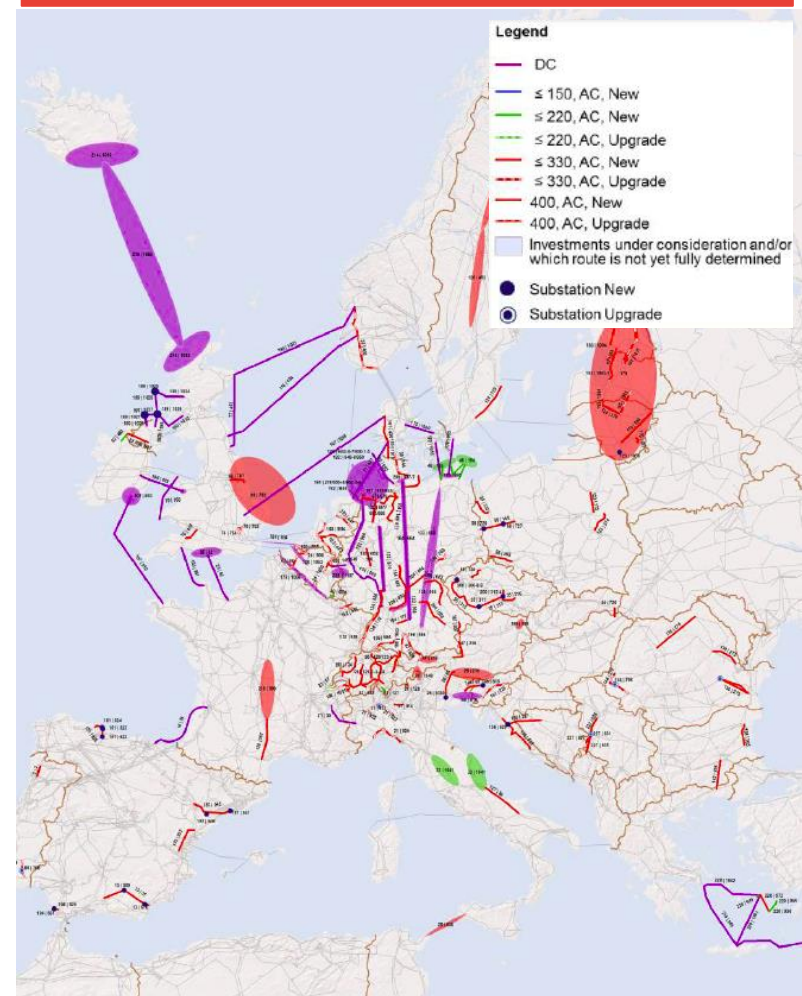


... with further grid extensions on its way ...

Bottlenecks according to TYNDP

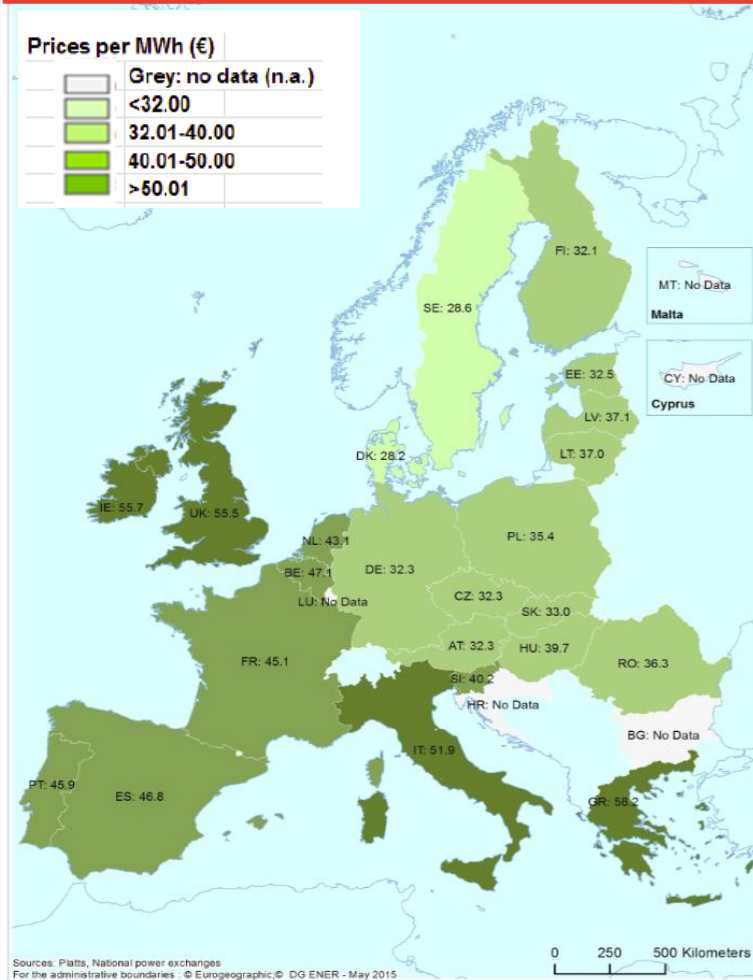


TYNDP long-term projects



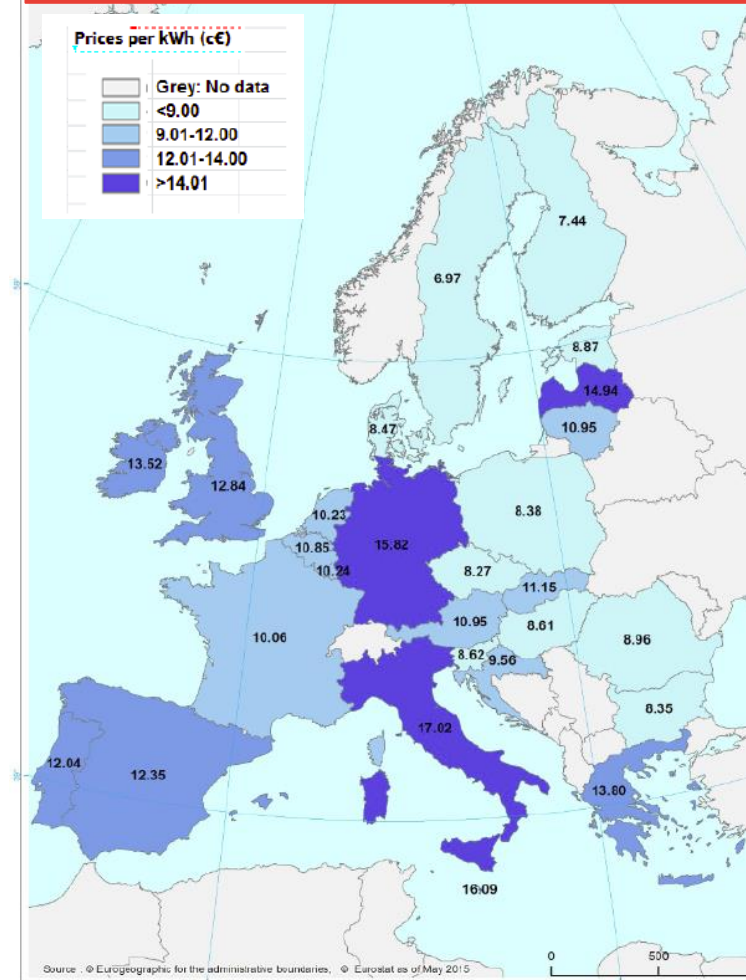
... but still huge price differences persist ...

Wholesale Baseprice (2015Q1)



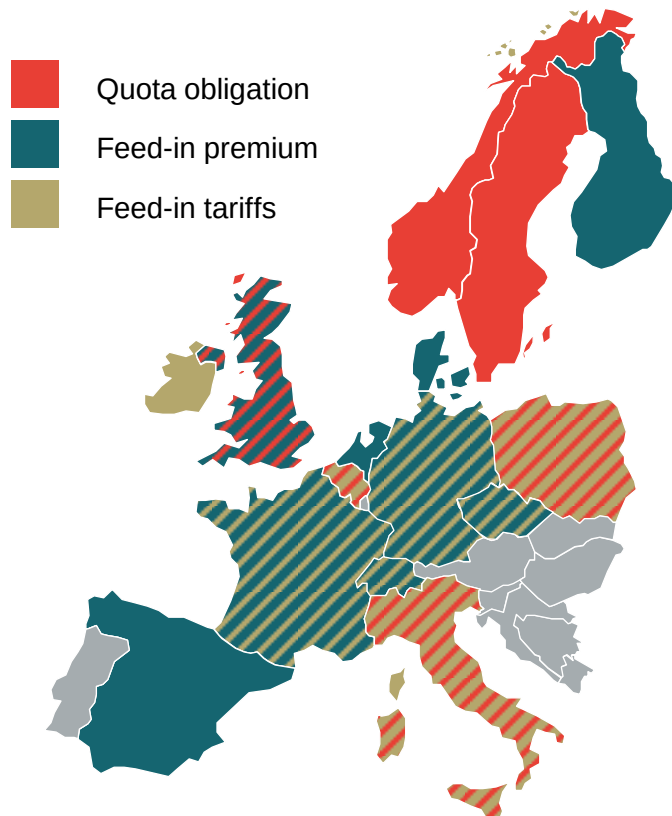
Enduser Prices Industry (2015Q1)

Band IC: 500MWh-2,000MWh, w/o VAT/non-rec. tax

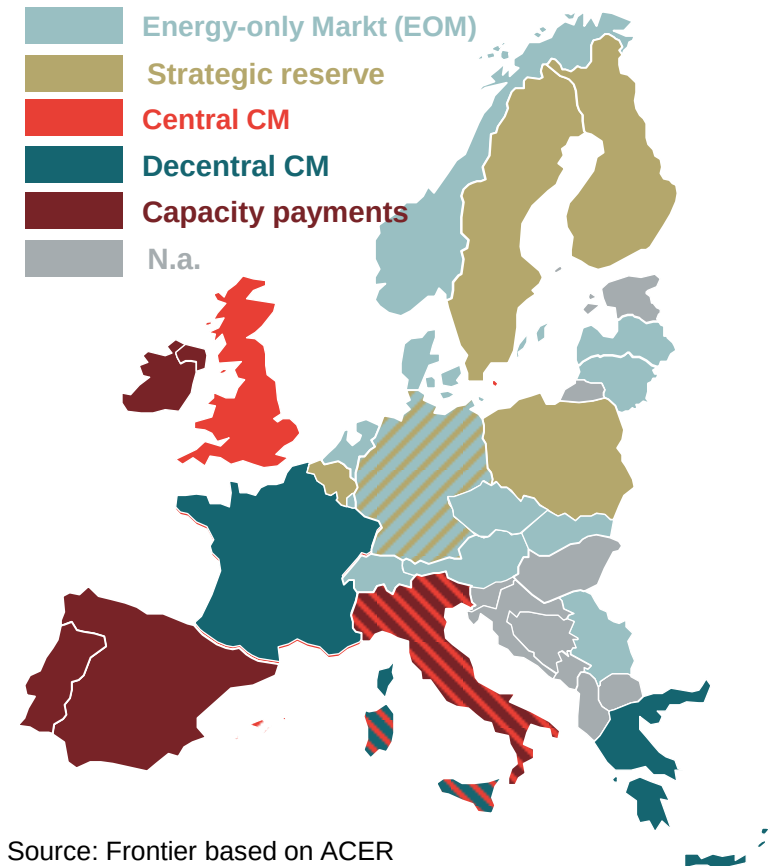


... e.g. because of plenty of national initiatives.

e.g. on renewable support



... or security of supply



Source: Frontier based on ACER

... or national carbon measures / energy efficiency / digitalization / e-cars / storage / ...

Example: Great Britain

There have recently been various market reforms in the UK
(Energy market reform, ...) ...

Carbon reduction
Low-carbon generation

Affordability

Focus

Security of supply

... creating various market options for
Icelandic energy ...

Contract for Differences (CfD)

- Nuclear: 93 £/MWh (Hinkley Point C)
- Offshore Wind: 115-140 £/MWh
- Onshore Wind: 83-90 £/MWh
- Large scale PV: 100 £/MWh

Capacity Market

- Auction for around 50GW in 2018/2019
- Surprisingly low clearing price 19.40 GBP/kW/a
- unexpected result of >1GW small diesel generators (10-40MW)

Wholesale market

- Intraday
- Spot
- Future markets
- Ongoing CMA investigation – potential future interventions

Balancing services

- National grid runs a separate balancing market

...but there are uncertainties how they will evolve.

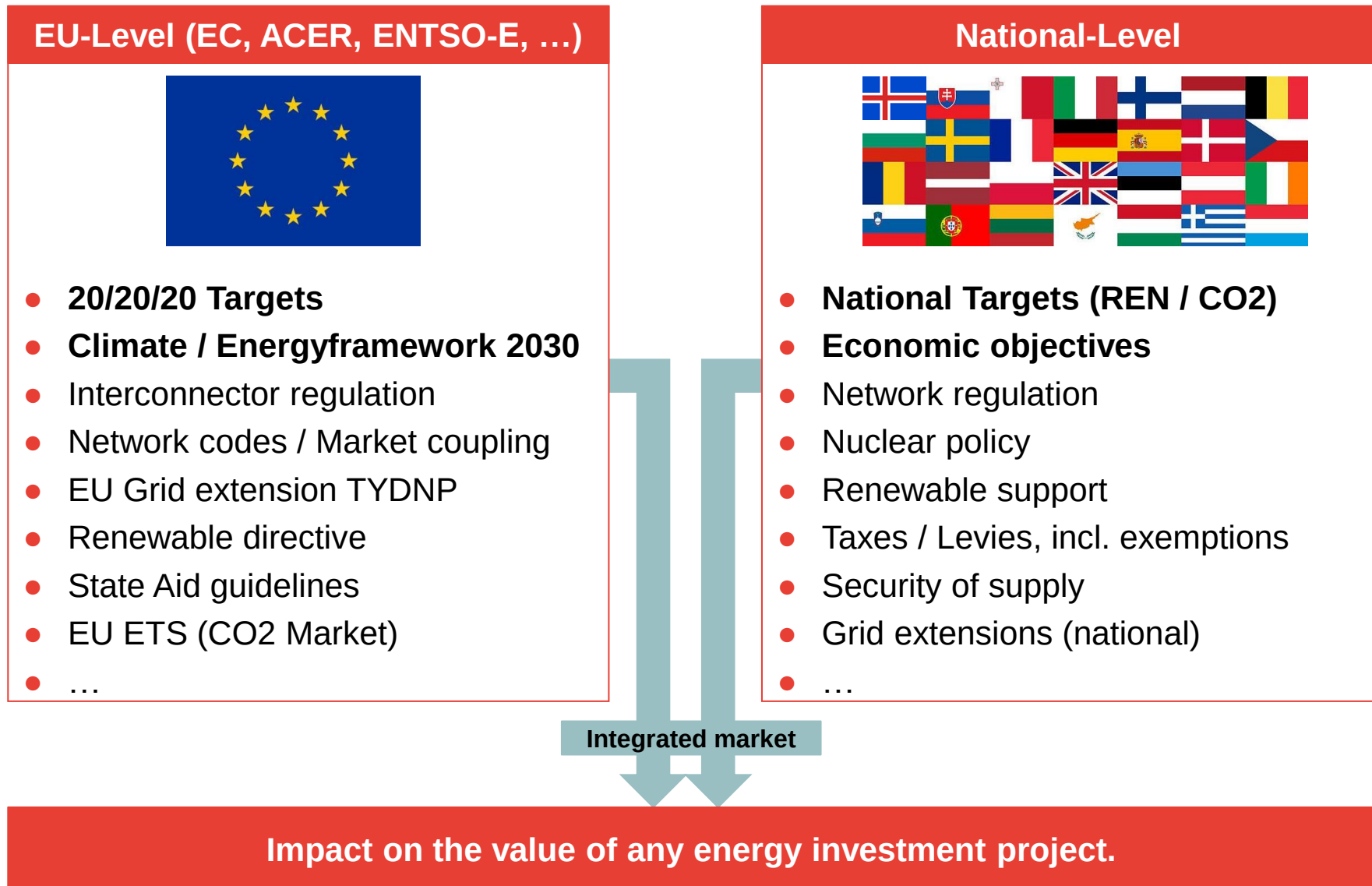
UK market design 2030/2035

RES-E targets post 2020?

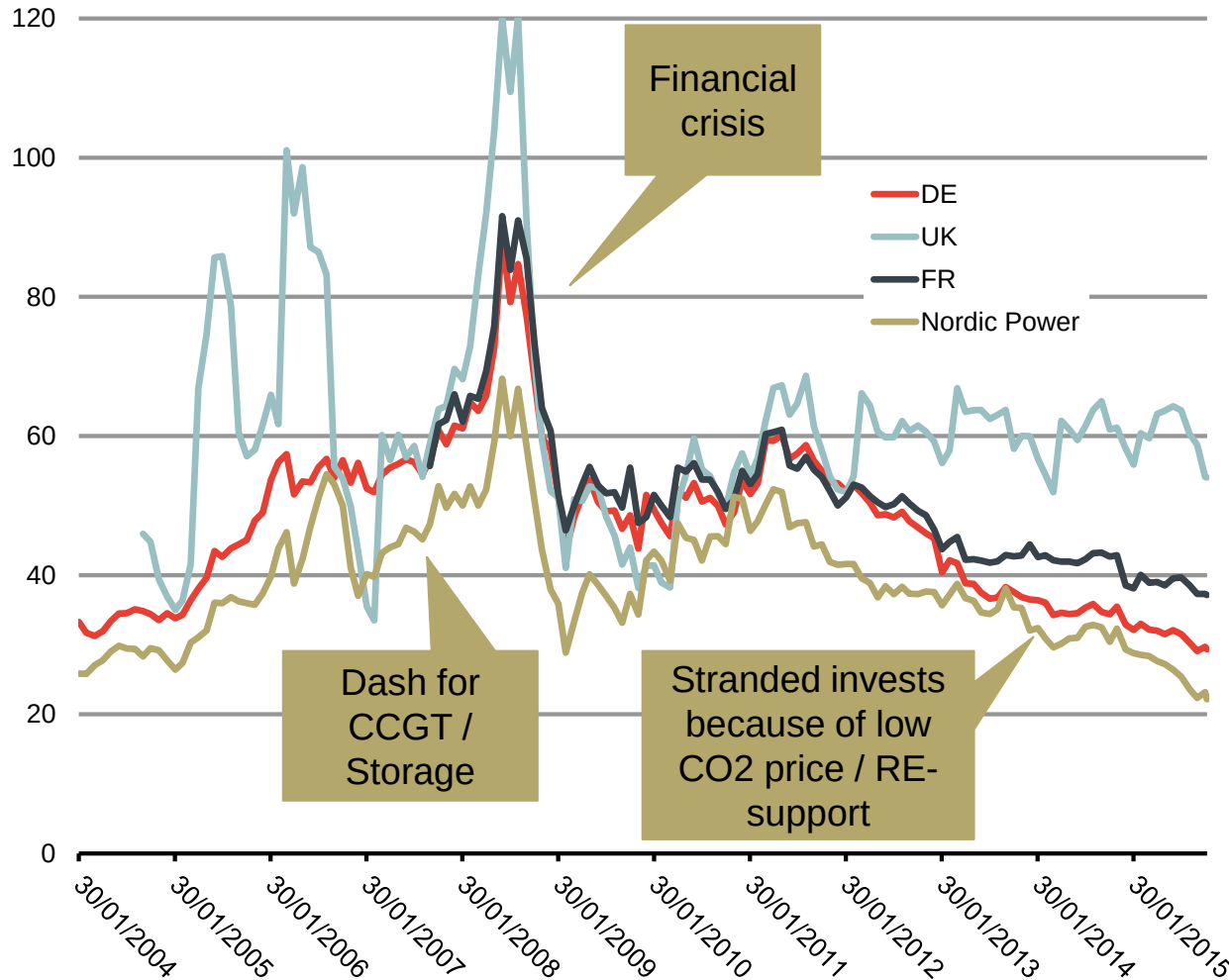
Electricity decarbonisation target for 2030?

Allocation of budget for CfDs?

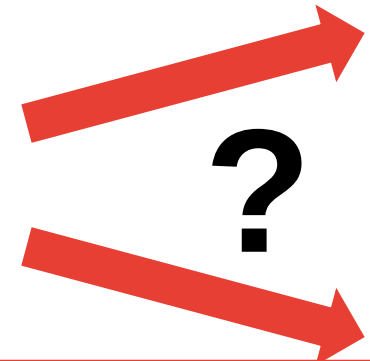
... making investment decisions a challenge!



Energy Politics has become a major risk for investments



- Tighter CO2 targets
- Nuclear phase-out
- Market Integration
- New demand:
 - E-Cars
 - Power 2 Heat



- Energy efficiency
- Renewable subsidies
- Capacity support
- De-Industrialization?

Therefore

- Explore the opportunities, which EU policy and markets provide
- **BUT: Watch your risk exposure!**

Understand the policy behind markets!

What are the
opportunities for Iceland?

Iceland has valuable resources ...

Low-Carbon ...



... Renewable ...



... Flexible ...



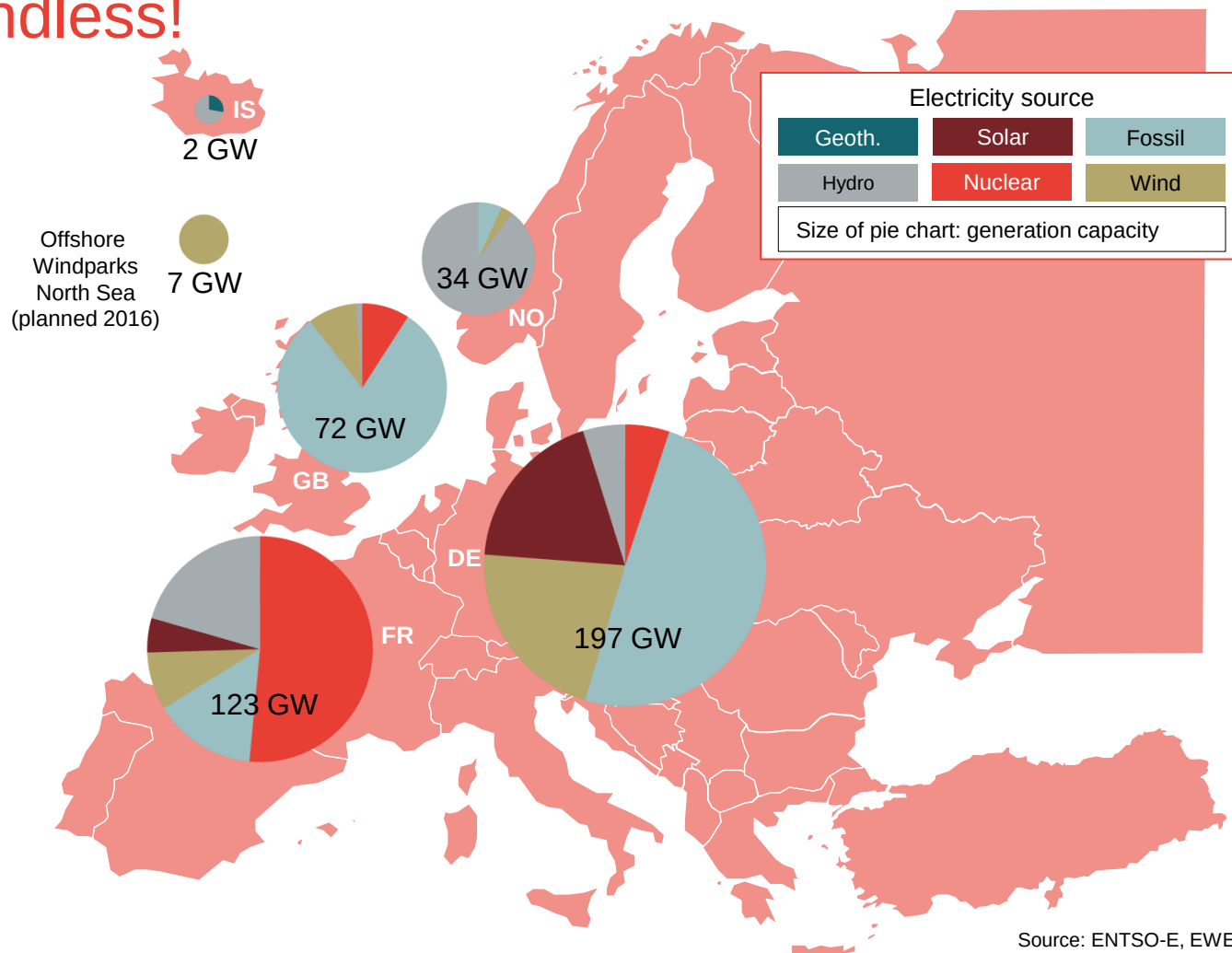
... Cheap ...



... Energy sources.

... but not endless!

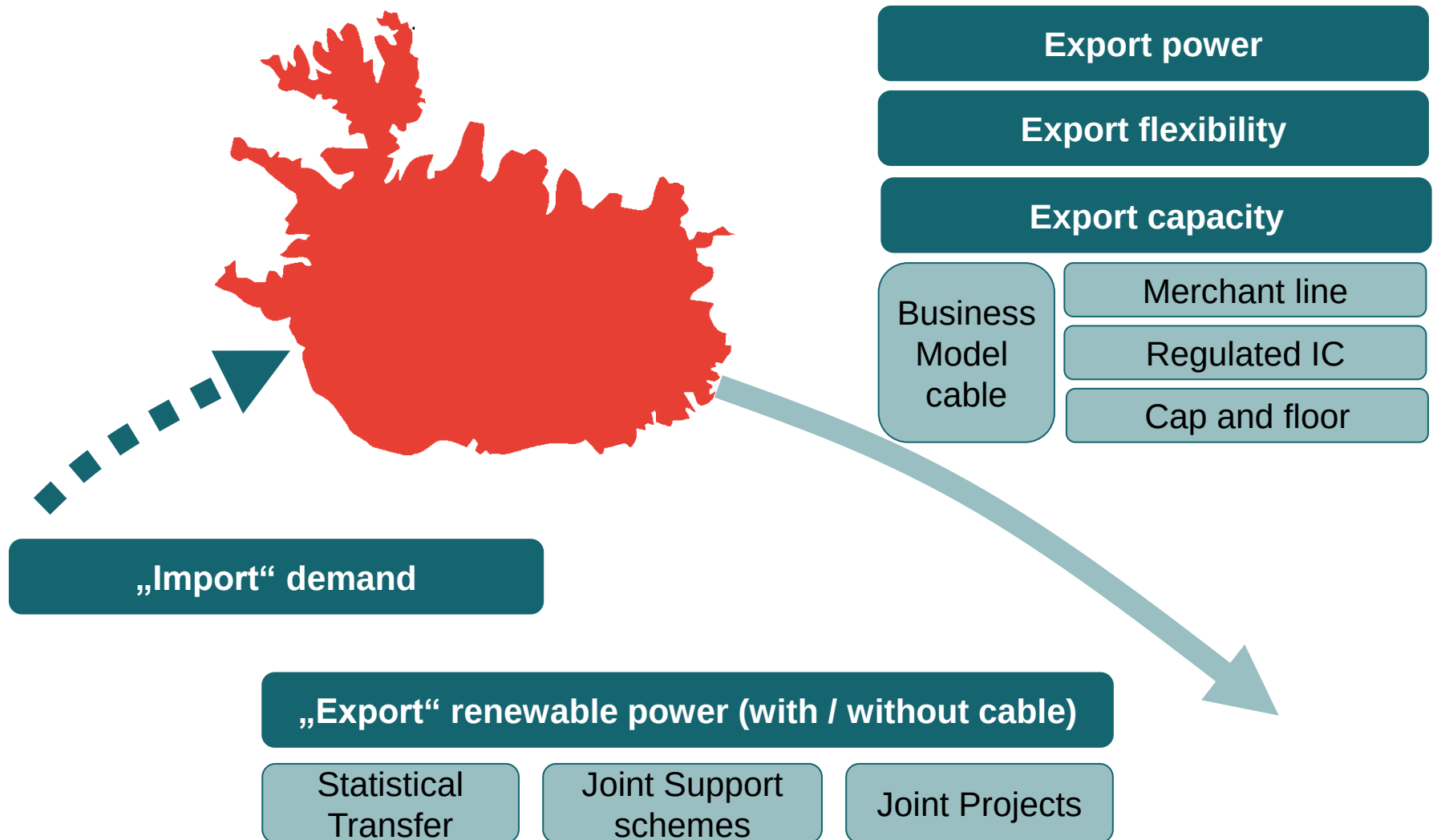
Iceland's resources might be limited, and small compared to EU volumes ...



therefore

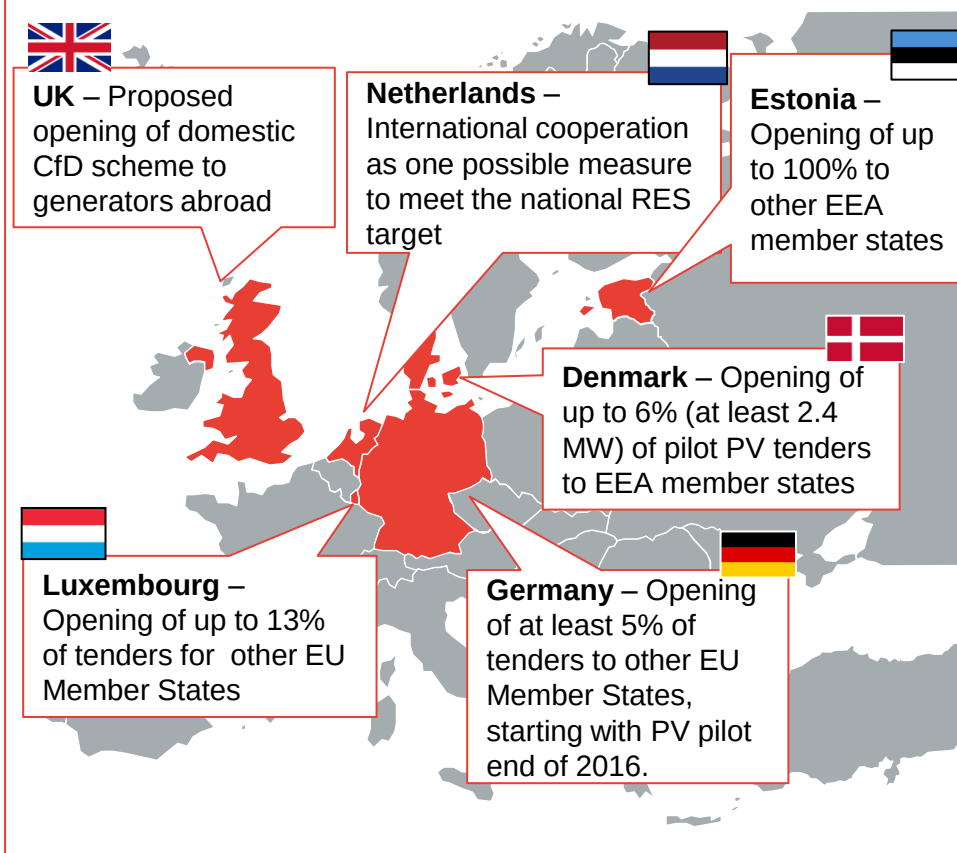
- Potentially limited impact and influence
- Limited options for building a portfolio
- **Decide carefully!**

EU energy markets provide today plenty of options ...



... and maybe more opportunities to come?

e.g. opening of national REN support schemes



other potential future options?

- Explicit participation of foreign capacities in national capacity remuneration schemes
- Tighter CO2-policy might increase value of renewable resources
- New domestic demand
 - E-Cars?
 - New industry sectors?
- ...

Consider the “value of waiting”!

Conclusions – find your strategy!

**Icelandic's energy resources are a valuable asset,
which is wanted across Europe.**

**European energy market provide opportunities for Iceland
to participate**

**... but in a constantly changing political and
economic environment.**

**Iceland has plenty of options to utilize its resources,
e.g. through**

... exporting power; or

... importing demand.

Resources are limited!

A careful evaluation is required:

**Which options (today or in the future)
offer the highest returns?**

Consider political and economic risks.

There is an option value of waiting.

**Be sure to
make the
most of
what you
have!**



Thank you very much!

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