

A light gray outline map of Europe is visible in the background. A dark blue horizontal bar is positioned across the top of the map, containing the title and author information.

Overview of coal in Europe

Matt Phillips, European Climate Foundation

June 2011

A faint, light gray map of Europe and its surrounding regions, including parts of North Africa, the Middle East, and Iceland, serves as the background for the slide. The map shows country borders and major geographical features.

Dimensions of risk for NGOs

How large is the 'coal risk' in Europe?

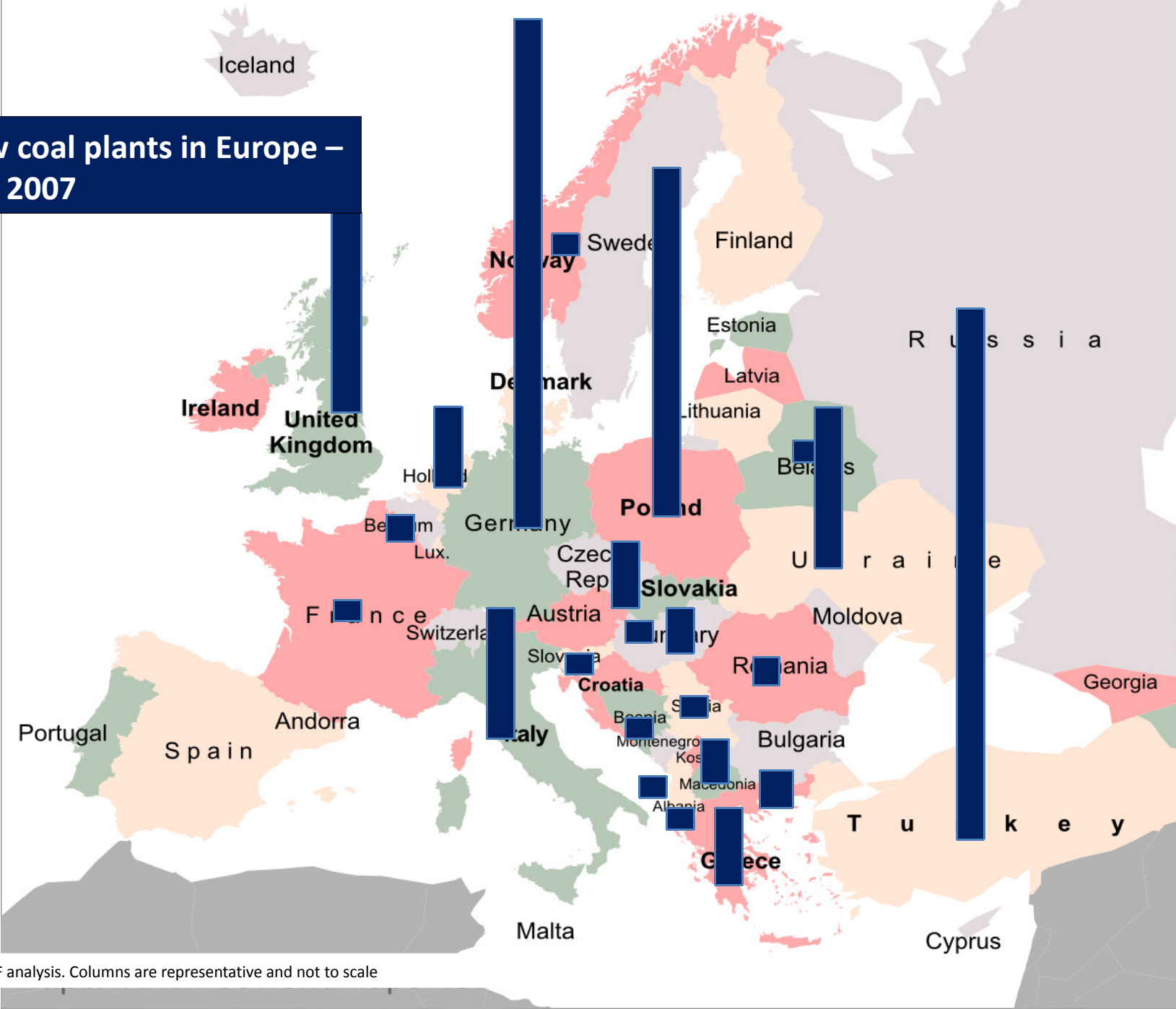
What is the geography of coal risk?

What is the corporate profile of the risk?

Where are the active flashpoints?

Where is the network addressing coal?

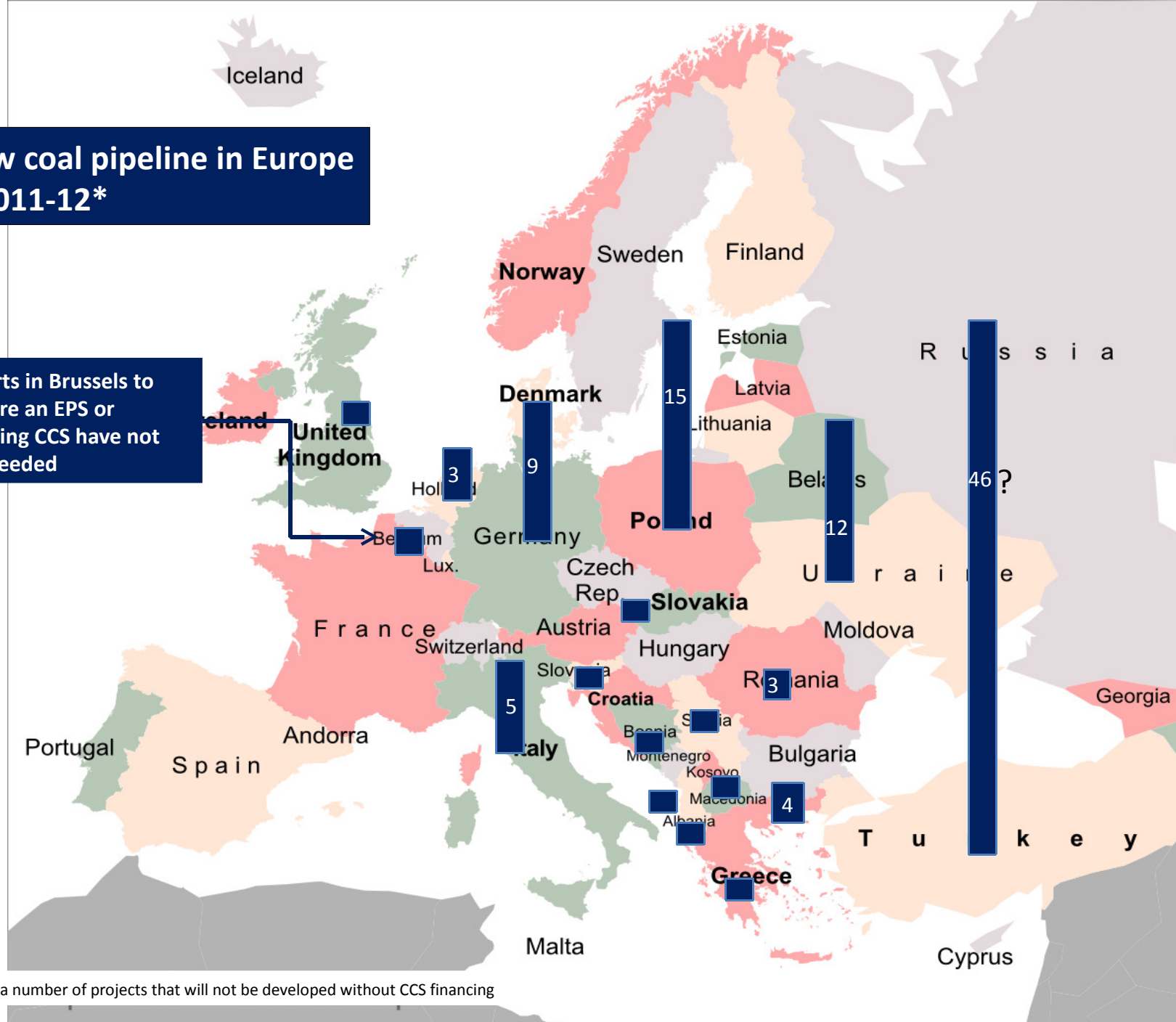
New coal plants in Europe – mid 2007



Source: ECF analysis. Columns are representative and not to scale

New coal pipeline in Europe – 2011-12*

Efforts in Brussels to secure an EPS or binding CCS have not succeeded

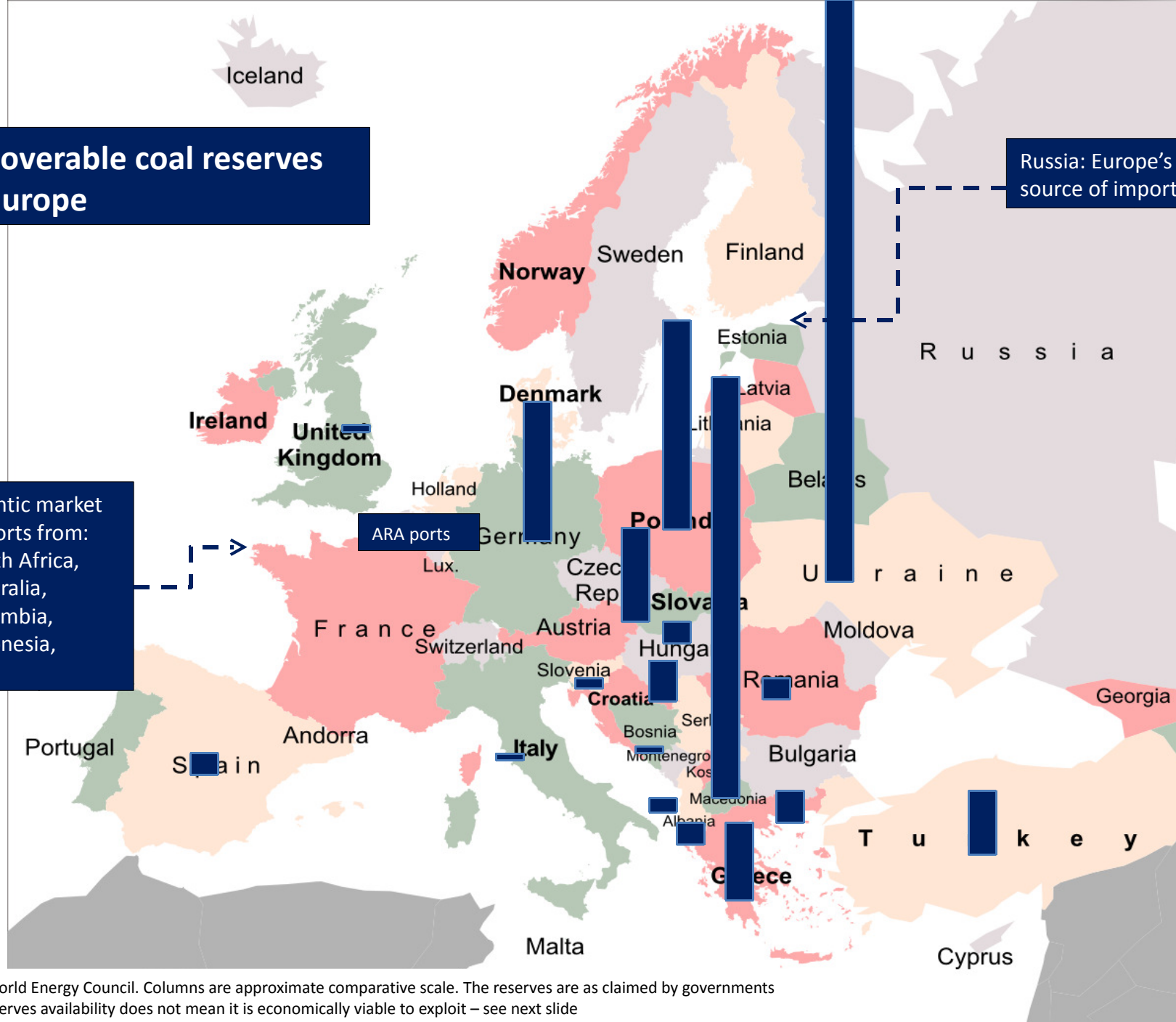


*Excludes a number of projects that will not be developed without CCS financing

Recoverable coal reserves in Europe

Atlantic market imports from:
South Africa,
Australia,
Colombia,
Indonesia,
US

Russia: Europe's largest
source of imported coal



Source: World Energy Council. Columns are approximate comparative scale. The reserves are as claimed by governments and so reserves availability does not mean it is economically viable to exploit – see next slide

Euracoal data for 2010

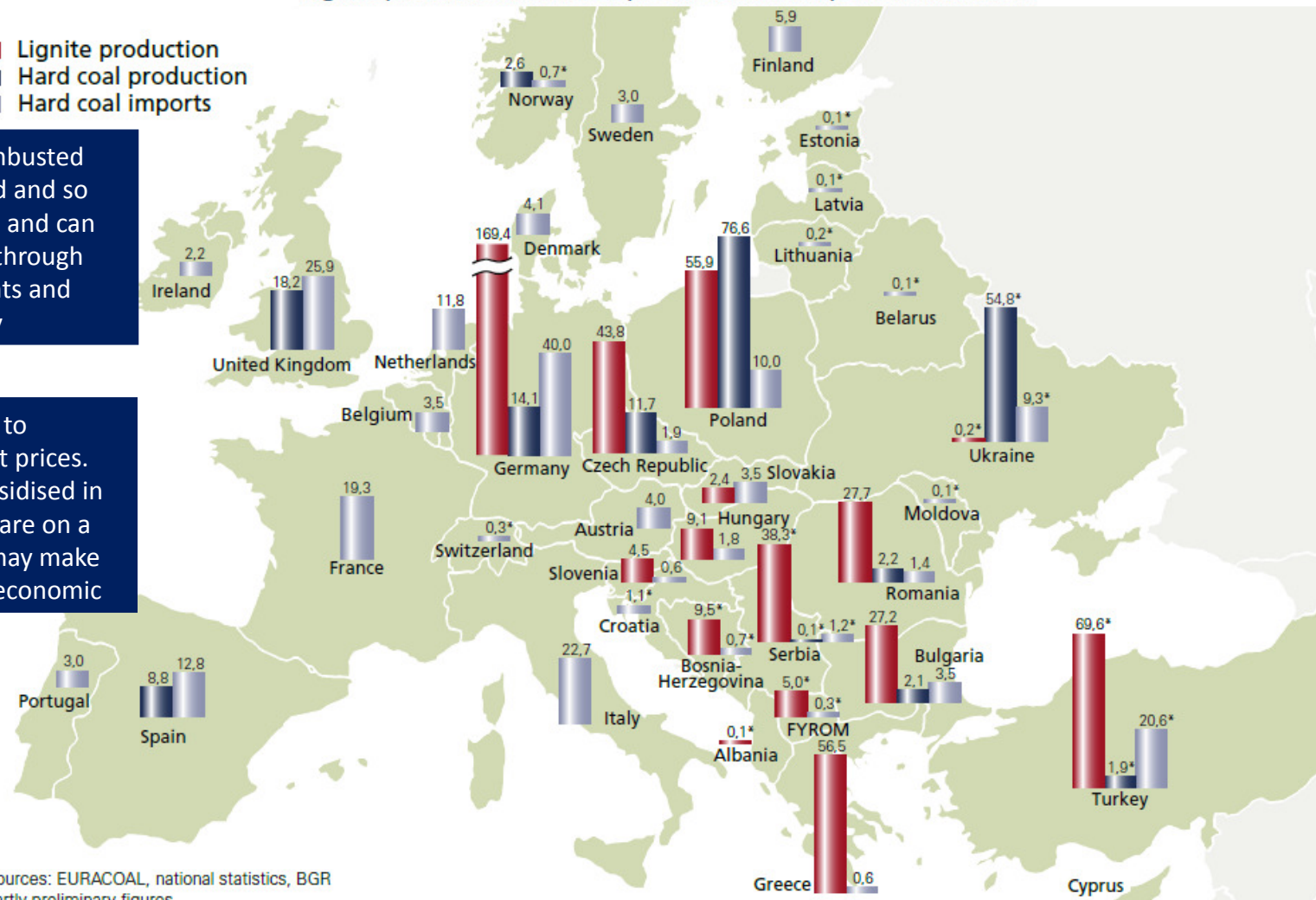
Coal in Europe

Lignite production, hard coal production and imports in Mt in 2010

- Lignite production
- Hard coal production
- Hard coal imports

Lignite must be combusted where it is extracted and so has no market price and can only be monetised through building power plants and exporting electricity

Hard coal is subject to international market prices. Hard coal is still subsidised in Europe. Coal prices are on a rising trend which may make European reserves economic



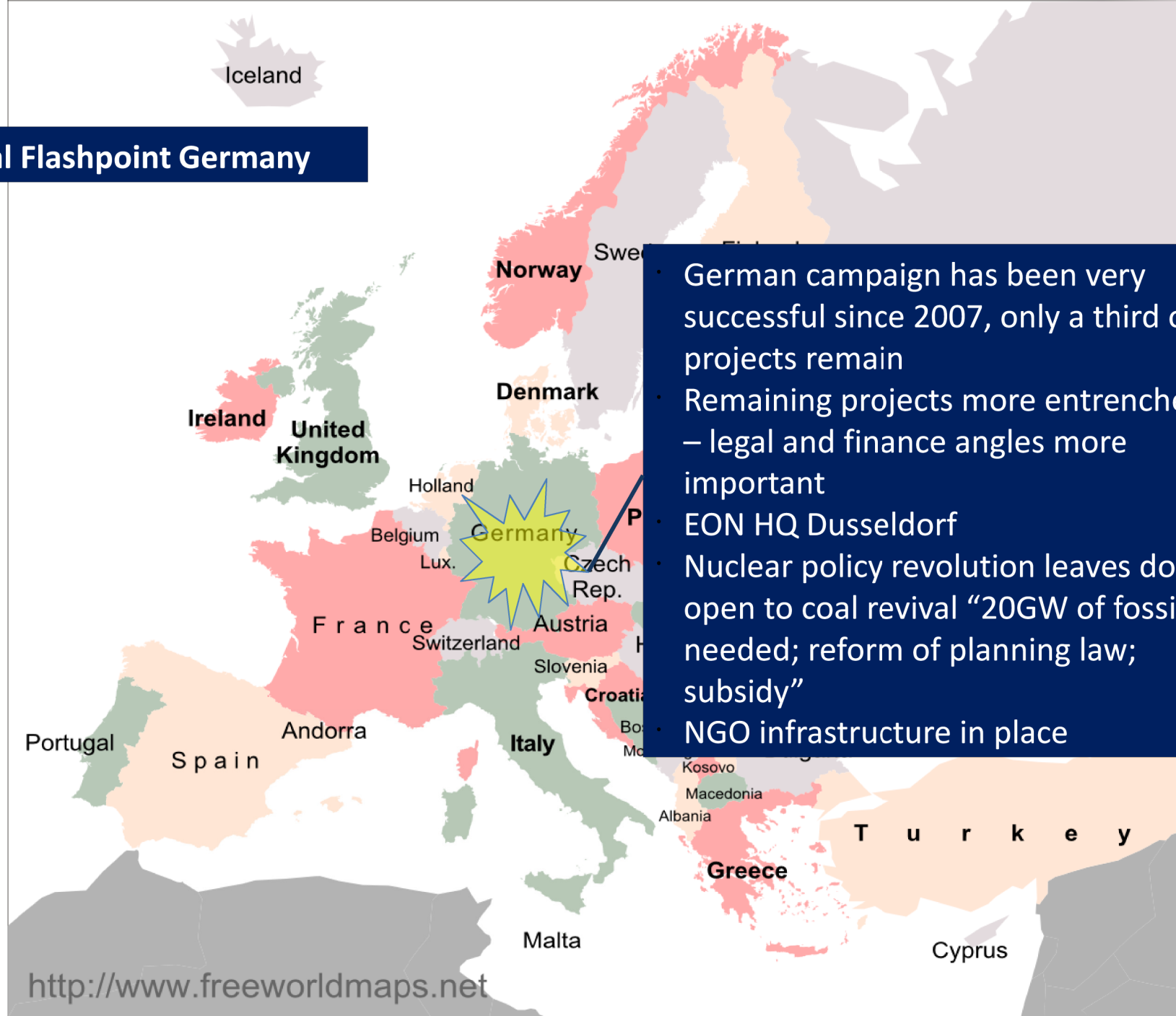
Sources: EURACOAL, national statistics, BGR
partly preliminary figures
*2009
Data as at 03/2011

Coal Flashpoint Poland

- Polish government ambition is for 15GW of new coal
- Projects have uncritical political support, coal is Poland's 'treasure'
- 10c Derogations issue limits Poland's ambition
- Western investors other than GDF Suez pulled out
- Government and utilities say they will apply to EIB
- Coalition of NGOs now establishing
- Opole delayed
- Belchatow CCS commitment in crisis
- ENEC wobbling?



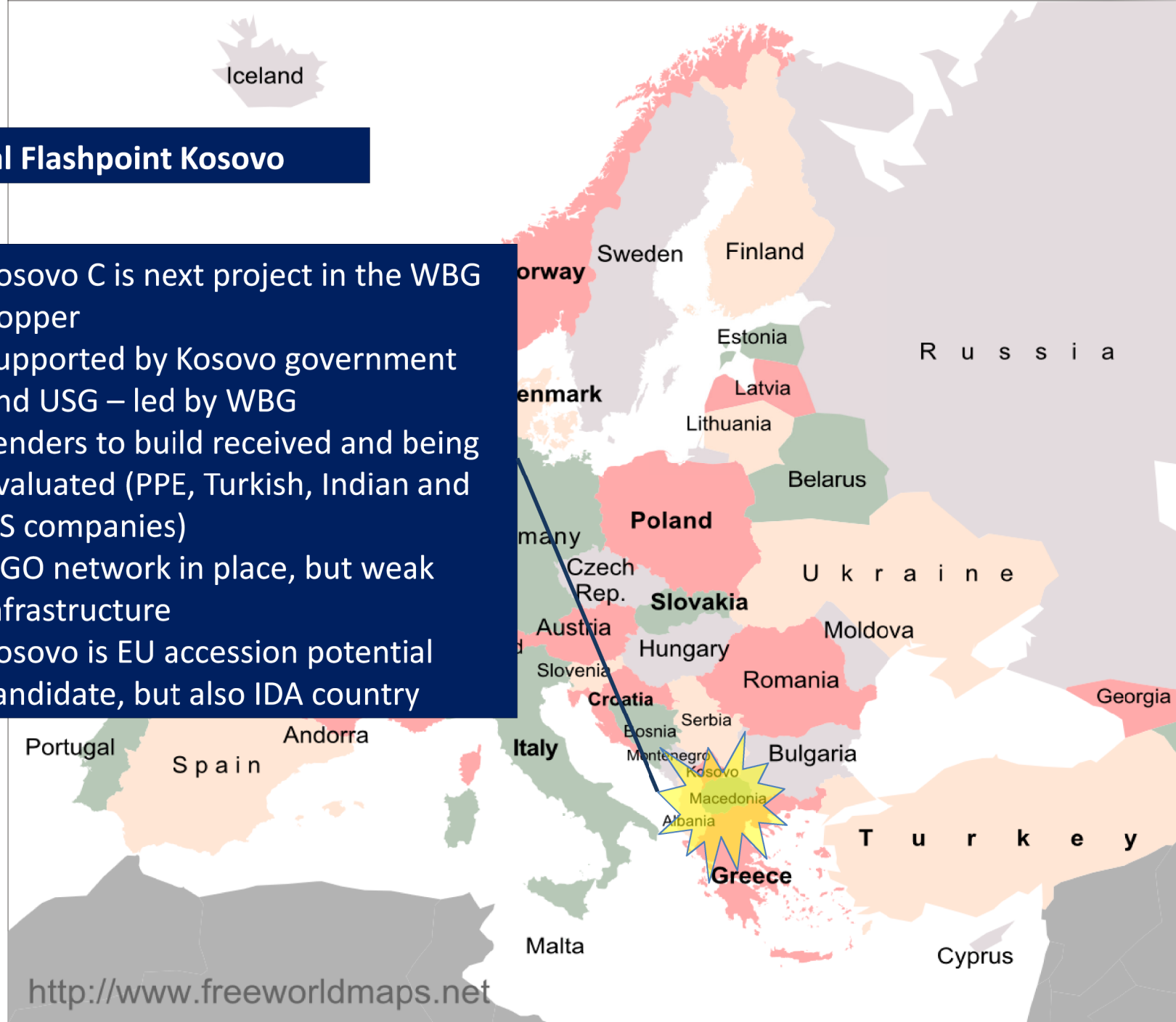
Coal Flashpoint Germany



- German campaign has been very successful since 2007, only a third of projects remain
- Remaining projects more entrenched – legal and finance angles more important
- EON HQ Dusseldorf
- Nuclear policy revolution leaves door open to coal revival “20GW of fossil needed; reform of planning law; subsidy”
- NGO infrastructure in place

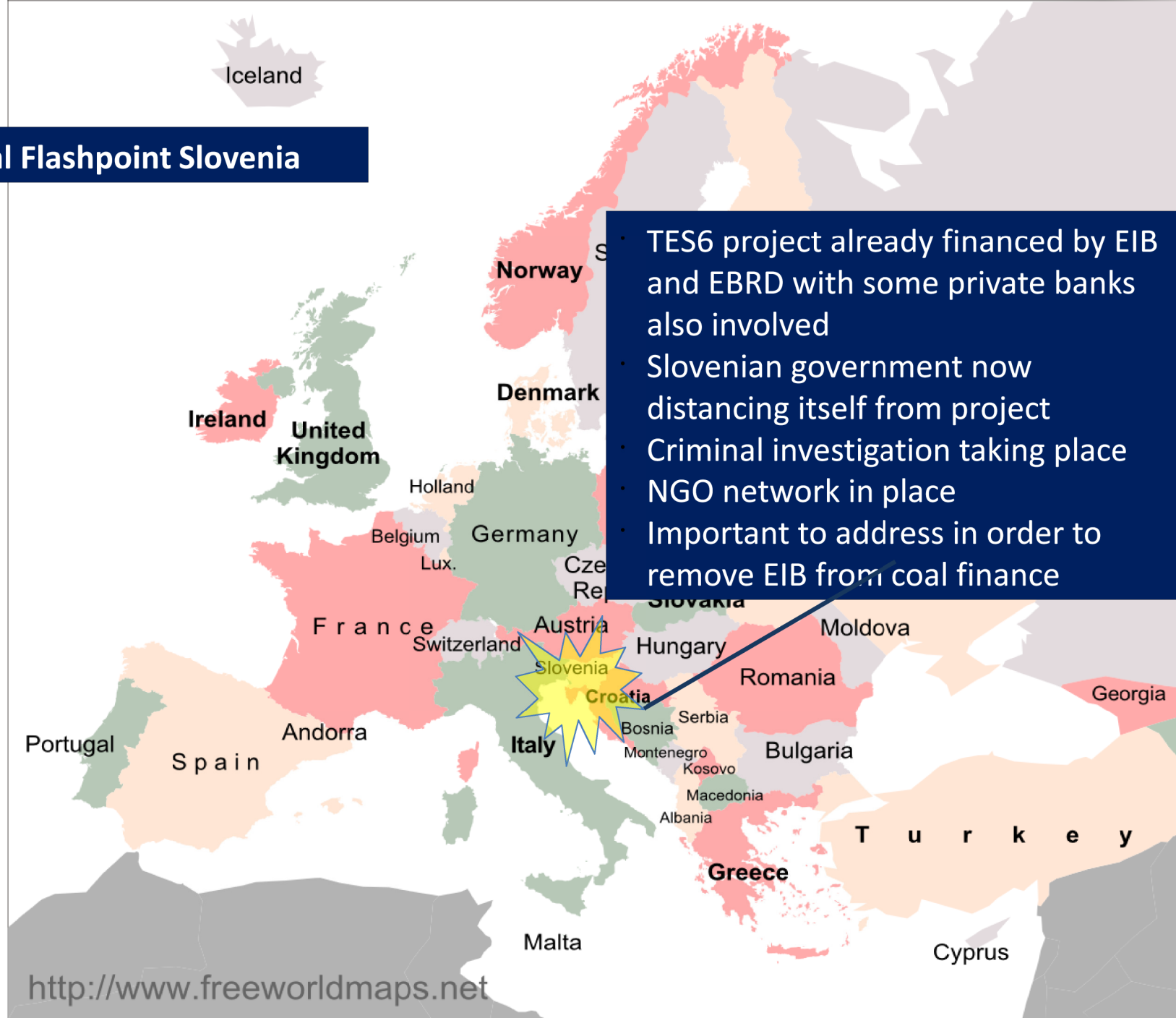
Coal Flashpoint Kosovo

- Kosovo C is next project in the WBG hopper
- Supported by Kosovo government and USG – led by WBG
- Tenders to build received and being evaluated (PPE, Turkish, Indian and US companies)
- NGO network in place, but weak infrastructure
- Kosovo is EU accession potential candidate, but also IDA country



Coal Flashpoint Slovenia

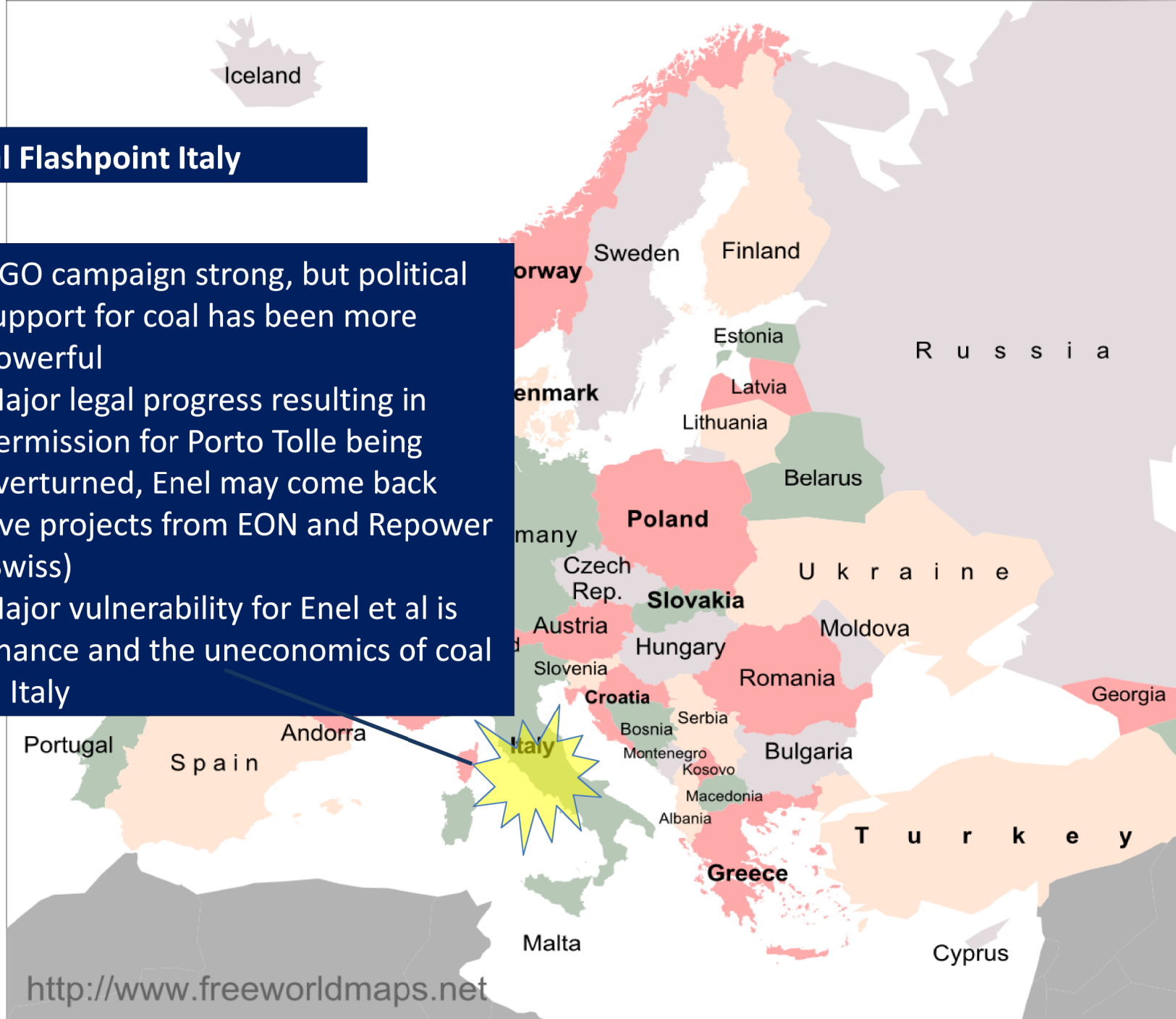
- TES6 project already financed by EIB and EBRD with some private banks also involved
- Slovenian government now distancing itself from project
- Criminal investigation taking place
- NGO network in place
- Important to address in order to remove EIB from coal finance



Iceland

Coal Flashpoint Italy

- NGO campaign strong, but political support for coal has been more powerful
- Major legal progress resulting in permission for Porto Tolle being overturned, Enel may come back
- Live projects from EON and Repower (Swiss)
- Major vulnerability for Enel et al is finance and the uneconomics of coal in Italy



<http://www.freeworldmaps.net>

Other Coal Flashpoints

Hunterston – unlikely to go ahead. No finance angles

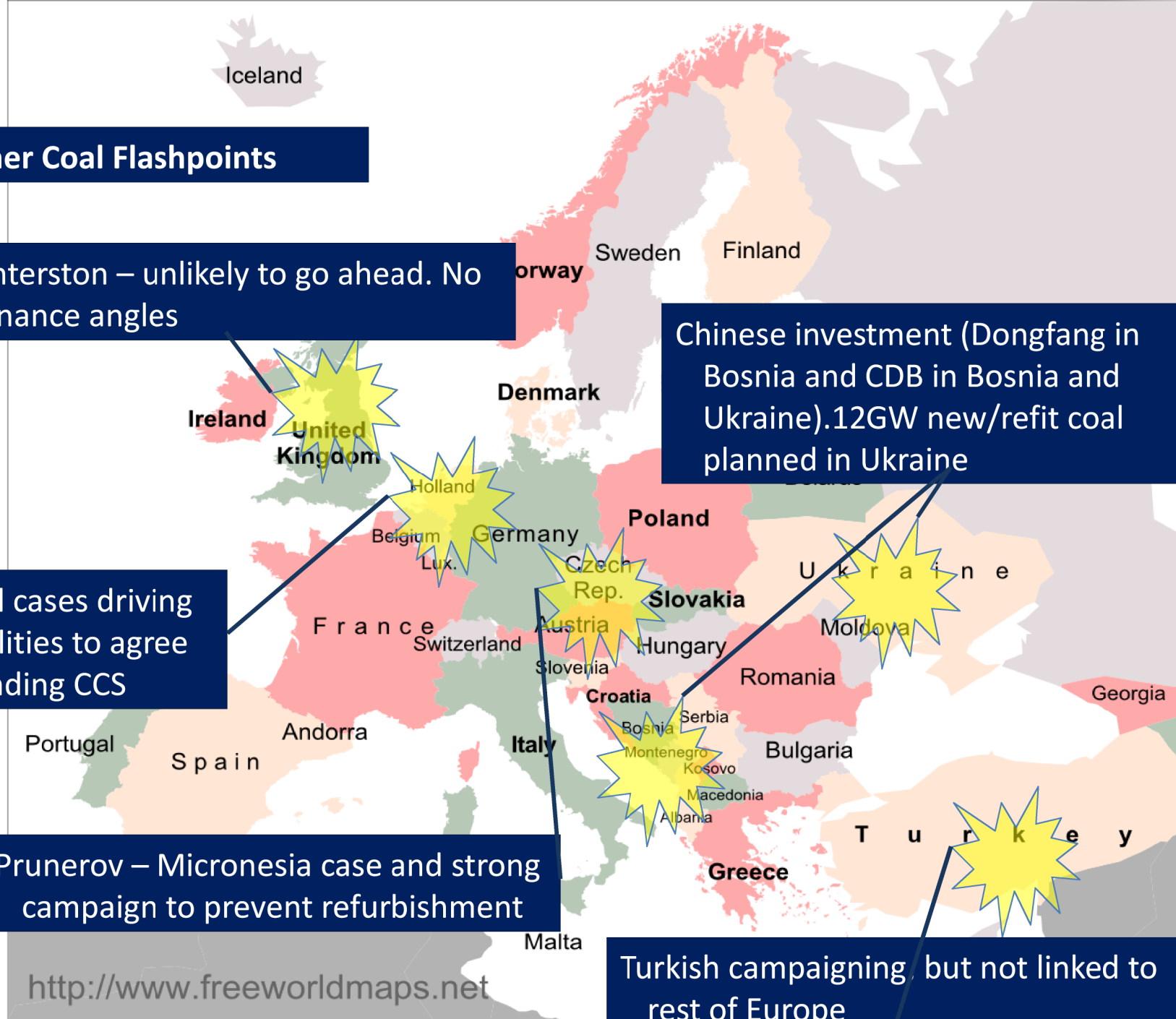
Chinese investment (Dongfang in Bosnia and CDB in Bosnia and Ukraine). 12GW new/refit coal planned in Ukraine

Legal cases driving utilities to agree binding CCS

Prunerov – Micronesia case and strong campaign to prevent refurbishment

Turkish campaigning, but not linked to rest of Europe

<http://www.freeworldmaps.net>



Utility Flashpoints

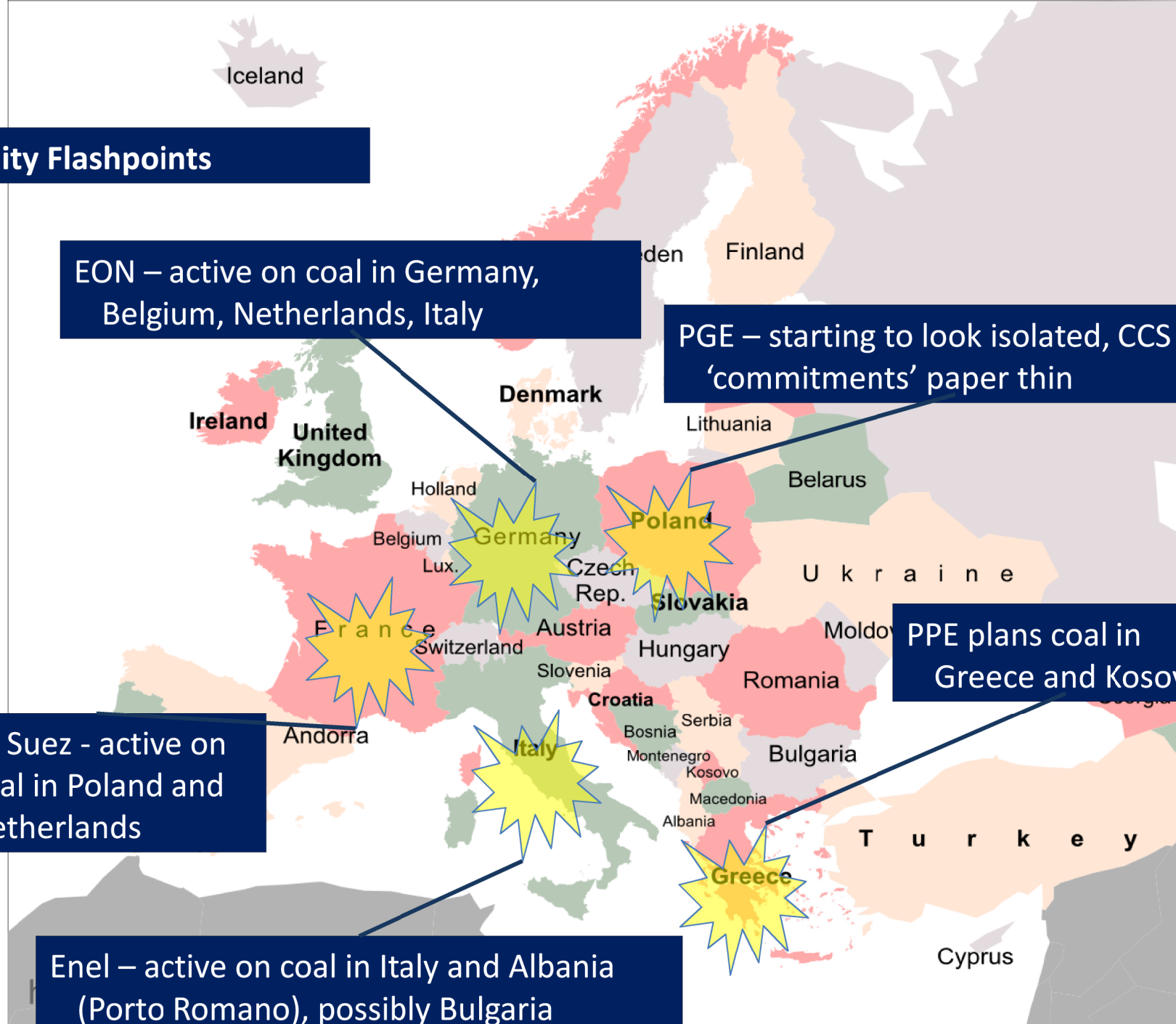
EON – active on coal in Germany, Belgium, Netherlands, Italy

PGE – starting to look isolated, CCS 'commitments' paper thin

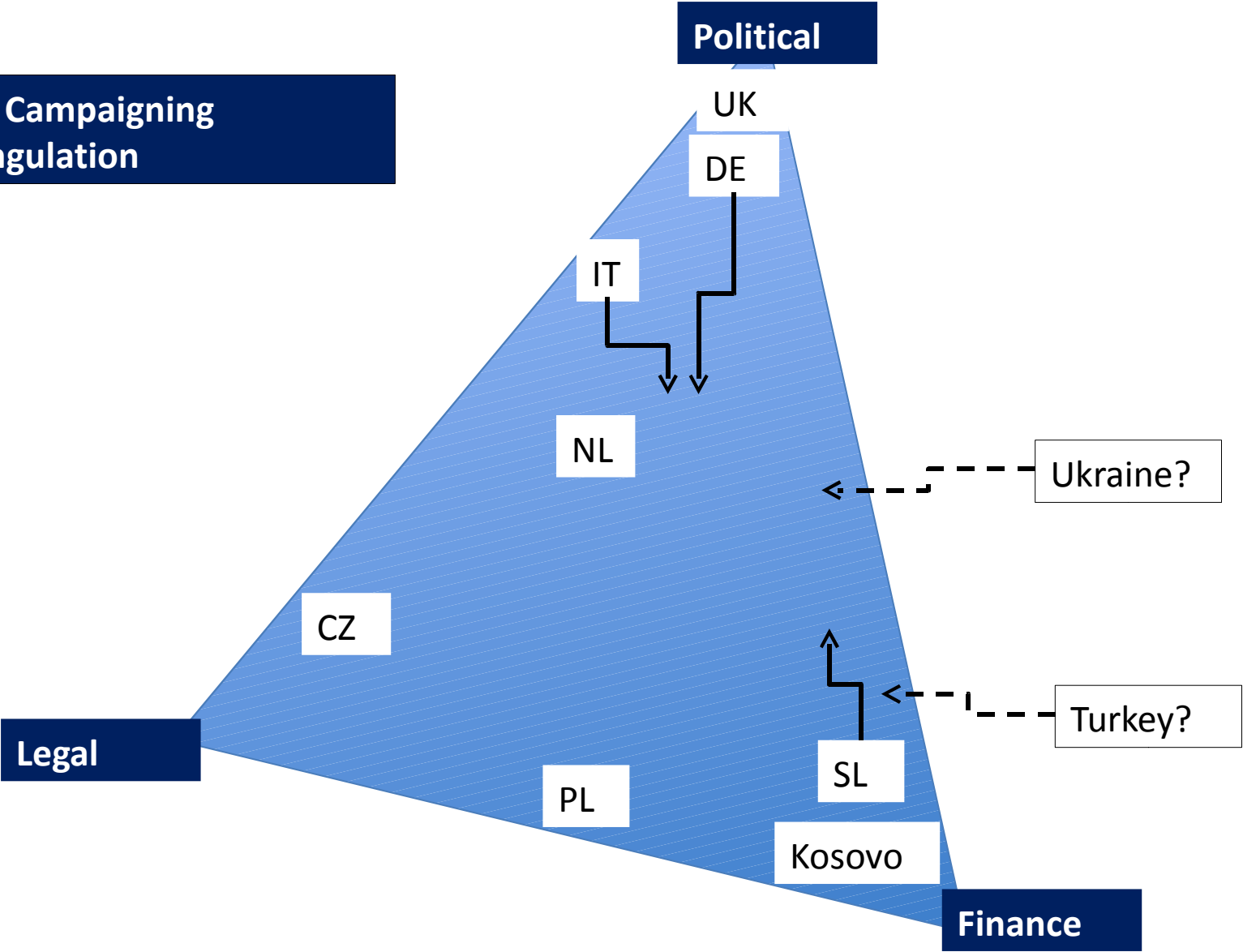
GDF Suez - active on coal in Poland and Netherlands

PPE plans coal in Greece and Kosovo

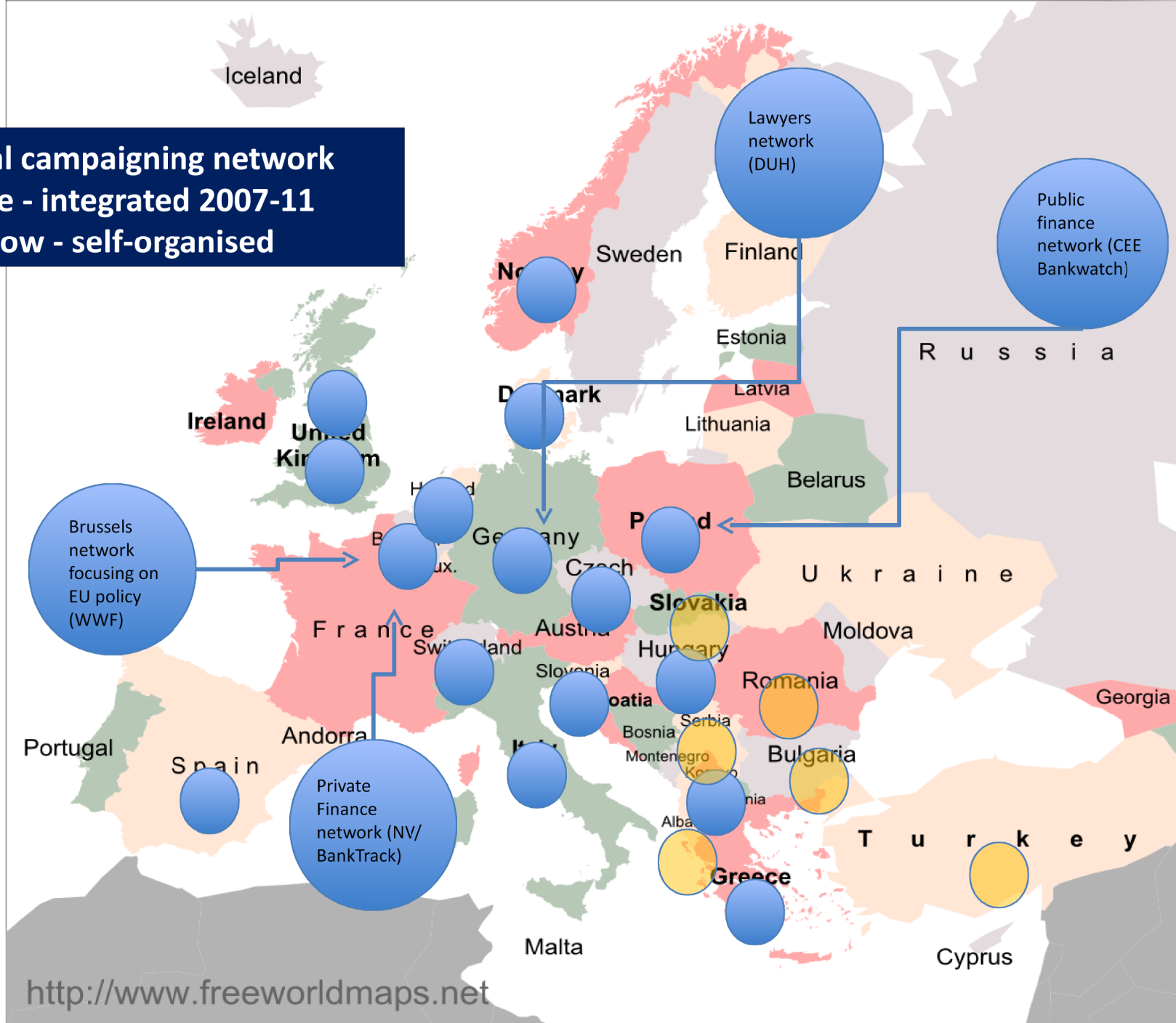
Enel – active on coal in Italy and Albania (Porto Romano), possibly Bulgaria



Coal Campaigning
Triangulation



Coal campaigning network
Blue - integrated 2007-11
Yellow - self-organised



Project pipeline

Option
to build



Decision
to build



Political campaigning

Legal campaigning

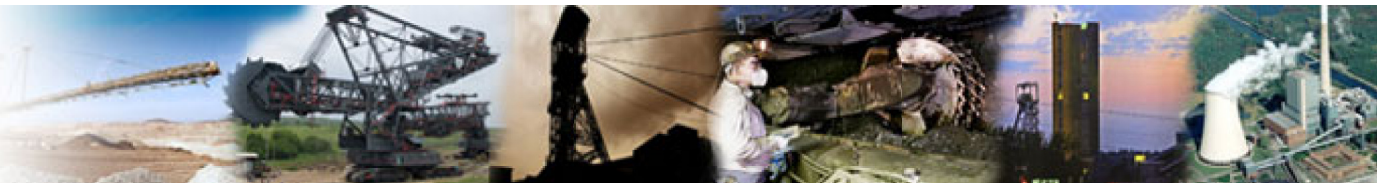
Equity finance

Project
finance

NGO interventions

Coal sector messaging





Key messages

The energy supply of the 21st century is more than ever shaped by coal. Almost all developing and threshold countries trust that coal is a long-term, reliable basis for the development of the economy and society.

According to estimates of the International Energy Agency (IEA), coal will have the same importance as oil for the world-wide supply of energy until 2030.

Hard coal and lignite represent approximately 80% of EU reserves of fossil fuels. As coal ensures safe, reliable, affordable and sustainable energy for all, it will be very much needed in the decades to come.

On a global scale coal is and will be energy No.1 for power generation. Coal-fired power generation technology still has substantial potential for development and cost-efficient climate protection with coal is already possible today.

Carbon Capture and Storage (CCS) is important for international climate protection policies; it is expected to deliver one fifth of very ambitious GHG reductions by 2050. For CCS to become commercial in the next decades, an EU CCS demonstration network has to be created in this decade.

An appropriate climate protection policy must consider all greenhouse gas emissions from all fossil fuels.

An efficient and affordable CO₂ transport network on European level is needed and the EU should pro-actively promote the creation of a CO₂ infrastructure together with EU Member States.

Coal utilisation can co-exist with the development of power generation based considerably on renewables. Precisely new coal-fired power plants will be able to meet the variable feeding in of larger quantities of power from renewables much more flexibly and cover the gaps in supply.



COAL: HERE TO STAY

COAL-GEN Europe 2012 will reaffirm the importance of coal under the theme, *COAL: HERE TO STAY - THE REALITY OF EUROPE'S ENERGY MIX*.

“Coal is here to stay” are the words echoed by Milton Catelin, head of World Coal Institute during his presentation at the World Future Energy Summit held in Abu Dhabi in January 2011. This underlines the importance of coal that will be the mainstay of future energy security.

Coal is a vital fuel in most parts of the world. Some 23% of primary energy needs are met by coal and 39% of electricity is generated from coal. About 70% of world steel production depends on coal feedstock. Coal is the world's most abundant and widely distributed fossil fuel



BUT – coal messaging is starting to look very defensive

A faint, light gray map of Europe and surrounding regions, including parts of North Africa, the Middle East, and Iceland, serves as the background for the slide.

Dimensions of risk for investors

Climate disruption risks

Economic disruption via electricity failure (low risk)

Recent market experience

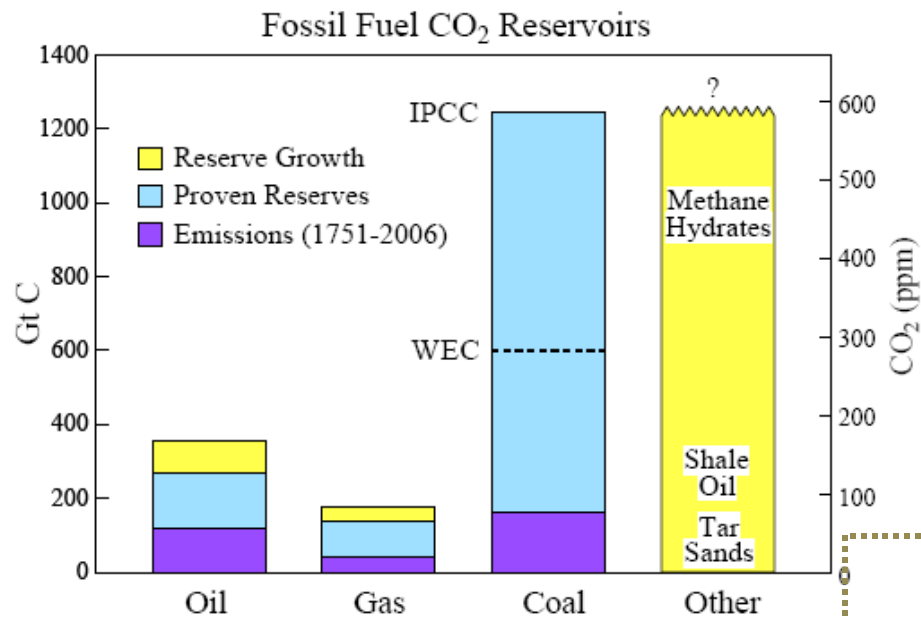
Economic risks

Policy risks

Political risks

Risk outlook

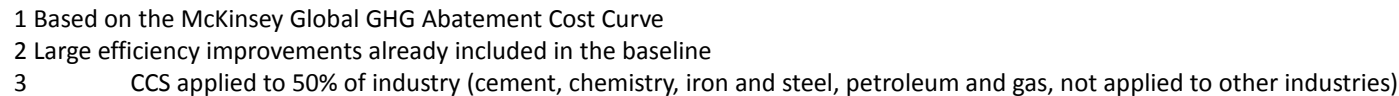
Climate disruption risks of coal



*“Continued growth of greenhouse gas emissions, for **just another decade**, practically eliminates the possibility of near-term return of atmospheric composition beneath the tipping level for catastrophic effects.” Hansen et al, 2008*

- The global consensus is that the world should be kept within a 2°C temperature rise (40-60% chance ~ 450ppm).
- Conversion of known reserves of gas and oil risks concentrations of CO₂ ~ 450ppm.
- Conversion of known coal reserves risks concentrations of CO₂ consistent with a world without ice and outside the Holocene temperature range that gave rise to human civilisation.
- 10 year turnaround required:
 - 12Gt less CO₂ must be emitted in 2020 in order to achieve 450ppm (Mckinsey CC 2.1).
 - WEO 2010 specifically projects coal use must peak by 2020 then decline to 2003 levels by 2035 in order to stay within 450ppm.
 - But new coal plants lock in coal use for 40 years.
- G20: Common but differentiated responsibility means Europe /OECD must decarbonise ahead of other economies. Nearly all EU capacity must be replaced in next 40 years.

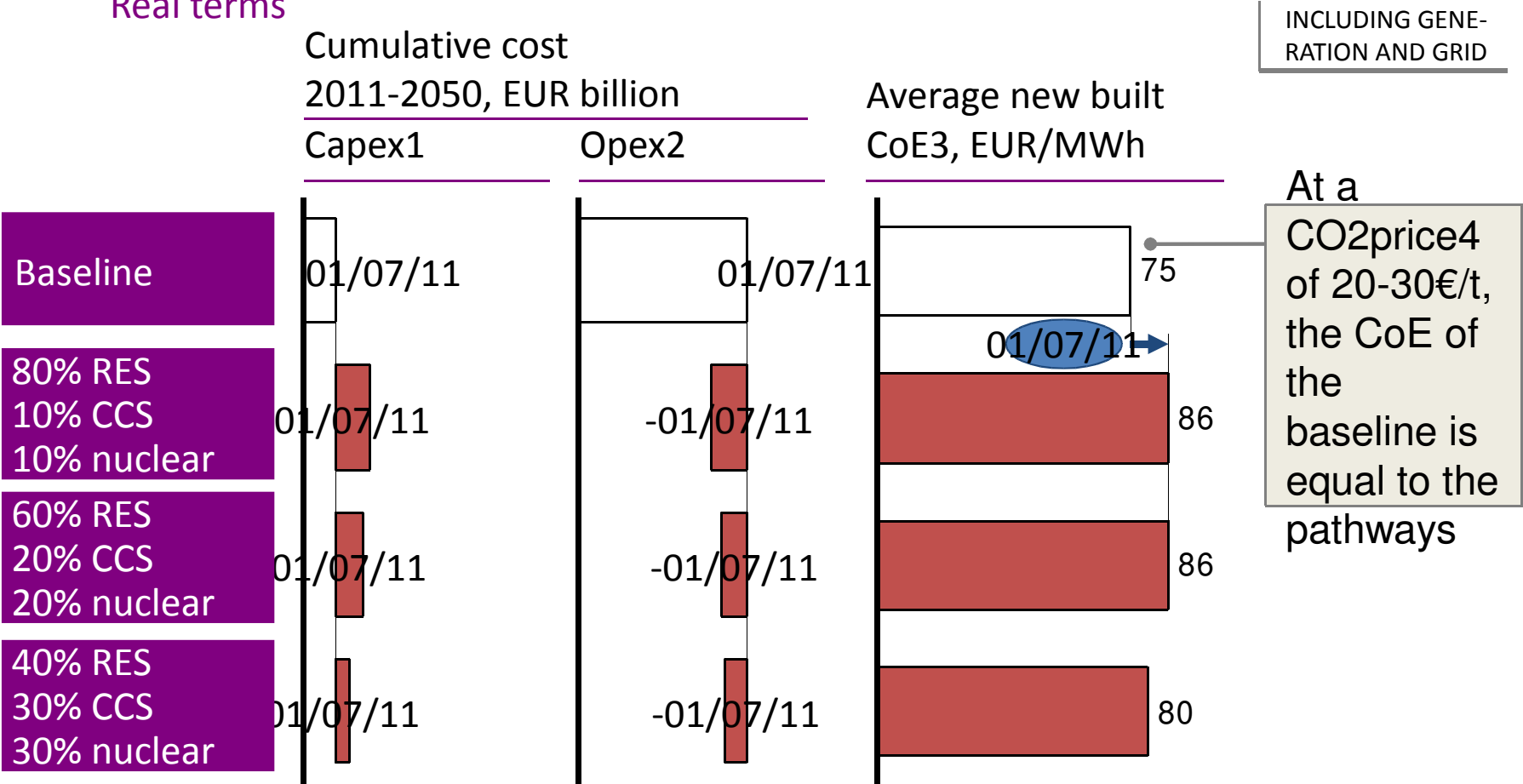
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Low risk of ‘lights going off’ if no new unabated coal (with decarbonised EU network as reliable as today)

Real terms



1 For new builds from 2011 to 2050, including additional grid capex

2 Opex for all new and operating plants includes variable, fixed, as well as fuel cost; also includes opex for additional backup plants and additional grid

3 Cost of electricity with a WACC of 7% (real after tax), weighted average based on the CoE in each 10-year time frame (2020, 2030, 2040, 2050) for new built capacity; including grid

4 Carbon prices shown in Chapter 2 were used only to develop the macro-economic analysis of the baseline

New European coal projects projected in mid 2007

16 projects permitted	Mainly Germany and Italy
98 projects in the EU at various stages from early announcements of intent to seeking permission	Mostly in Germany, Poland, UK. Italy and Netherlands
46 projects given outline permission in Turkey	
5 in Western Balkans candidate accession countries plus c12GW identified in Ukraine energy strategy for refurbishment and replacement	
RWE, DONG, Vattenfall, GDF Suez, EON, Iberdrola, PGE, CEZ, ENEA, Enel all pursuing substantial new coal	

Situation 2011

16 permitted	<p>4 operational, 3 under construction, but subject to legal challenge (Datteln, Hamburg, Mannheim); 4 face legal challenge plus significant prospect of binding CCS timetable (Netherlands - one with binding EPS); 1 with commercial scale CCS demonstration (Belchatow); 4 under construction</p>
98 EU projects	42 remain in the pipeline, but some of these are watching brief only
46 in Turkey	?
5 in Western Balkans plus c12GW Ukraine	Albania delayed, Kosovo, Serbia, Montenegro, Bosnia all advancing
<p>RWE, DONG, Vattenfall, Iberdrola all abandoned new coal projects ENEA wobbling Enel, EON, GDF Suez, CEZ, PGE all still pursuing new coal</p>	

Economic risk environment - Coal not turned out to be

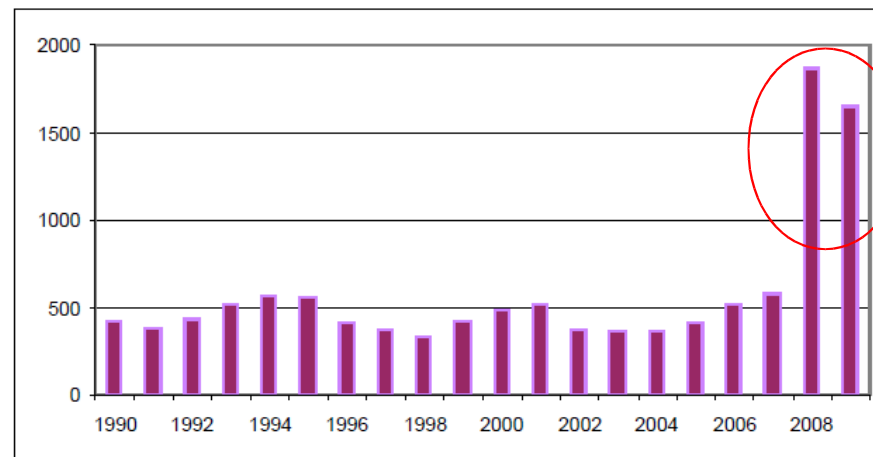
Return risks

- Capex risen compared to CCGT leading to diminishing competitiveness. Specifically in context of high load factors becoming less achievable as intermittent RES advances & high WACC).
- Diminishing project value as utility economies of scale disrupted (eg EON's)
- Structural over-capacity in some markets (eg DE) compounded by reduction in demand and lower near term demand projections.
- CCGTs and RES are being built as considered more economic, flexible, or supported. Platts Power in Europe Jan 2010 suggests 106 CCGTs (61.1GW) under construction and in advanced development and 47GW of RES projects.

Commodity price volatility

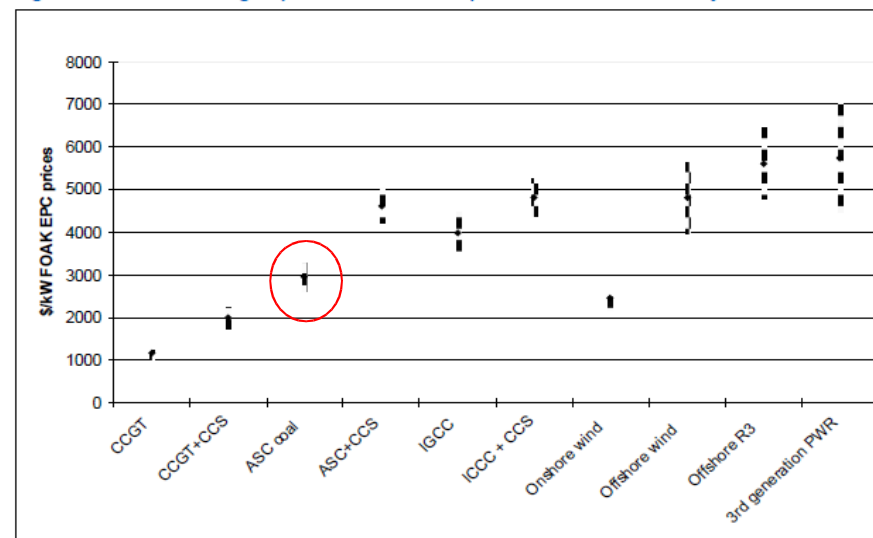
- Coal prices have proved volatile. 2008 price shock – coal not efficient hedge when all fossil prices rise.

Figure 3.4: Coal's EPC premium versus CCGT in \$/kW



Source: Mott MacDonald

Figure 6.1: Overnight prices for FOAK plants ordered in early 2010



Source: Mott MacDonald

Mott Macdonald June 2010 update for UK government on generation costs

Policy risk environment – governments have regulated

Incompatibility risk

- Climate policy has continued on a 20 year tightening trend. Unabated coal is systematically in conflict with this trend.

Enforcement risk

- Article 10c derogation interpretation likely to constrain Poland's ambitions* (RWE and Vattenfall have pulled out citing uncertainty).

Legitimate policy change risks (examples)

- IPPC Directive now clarifies that MSs can introduce EPS.
- UK set to introduce EPS 'at the level of a modern gas plant'. Meantime UK requires at least 300MW net CCS on any new coal project.
- Netherlands considering CCS-EPS 'deal'.

*The IPPC directive article 10c derogation (from ETS auctioning between 2013-2020) is for plants where the 'investment process' has been 'physically initiated'. In PL and CZ. Poland maintains a loose definition and says 15GW of capacity complies. But the Commission and other member states have not yet accepted the Polish definition. This may be decided in 2011.

cc

The collage consists of several photographs:

- Top center: A person in a large dinosaur costume.
- Top left: A crowd of people holding a banner that says "COAL = CHAOS".
- Top right: A group of people holding blue signs with a white cross symbol.
- Middle left: A protest in front of a building with the sign "ELEKTRÁRNA PRUNÉROV II".
- Middle center: A person lying down, possibly a protest action.
- Middle right: A protest in front of the Greek Parliament building with a banner that says "ΟΧΙ ΆΛΛΟ ΔΗΛΗΤΗΡΙΟ ΚΑΘΗΜΕΡΗ ΕΥΕΡΓΕΣΙΑ ΤΟ ΠΑΙ".
- Bottom left: A police officer in a dark uniform with "POLITIE" on the back, standing next to a Greenpeace activist in a yellow vest.
- Bottom center: A protest with a banner that says "GREENPEACE".
- Bottom right: A power plant at night with smokestacks emitting smoke.
- Bottom left (vertical): A protest with a banner that says "CLIMATE".

Return risks

- Uncertainties around coal related to shale gas & Caspian
 - hype chilling investment;
 - easing of gas reliance concerns (security & price) for governments & utilities;
 - increasing risks around gas lock-in; and
 - impact in Poland.

- German policy in flux since Fukushima with

Conclusion

- Investors who bet on resurgence in coal on the back of utility plans in 2007 failed to assess the political and economic risks accurately. Even fully permitted plants have been subject to CCS policy.
- There is no evidence risks around new coal are easing.
- Coal faces uncertainties around shale gas and regulation. EU governments are increasingly advancing RES and EE regardless of global climate deal because fossil-based BAU has climate, security and economic risks.
- IIGCC intervened on a coal decision: “We are concerned that this may end up as a choice
- **Working assumption: if new coal projects do not have an economically and technically credible pathway to full CCS they face limited running.**