The Energy Crises and Industrial Minerals: Climate Policy and Case Studies

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- **Natural Resources PC**

An International consulting, brokerage, conferences, newsletters Company Specialists in mining and energy/climate

www.naturalresources.gr

Conference coming up www.allthingsenergyforum.com June 2-3 online

Energy and mining

Why the mining industry cares about energy

- Coal, uranium are mined. Hydrocarbons also come from extraction
- Mining, mineral processing and metallurgy are all energy intensive…
- …thus heavily affected by developments in energy markets and policies
- Conversely, mining products are extensively used in the energy industry: from IMs in refractories for steel/nonferrous/cement/lime -- to fracking proppants in oil/gas-- to lithium and rare earths in renewables

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1. The energy crisis that started in the summer 2021; EU policies

Root causes of the 1st energy crisis :

- Energy demand up ‘post-covid’ as was then thought
- Coal and hydrocarbon investments stalled internationally as a result of zero-carbon, climate-change, UN-driven campaign; of the EU Green Deal, and the resulting very high emissions prices; and [more recently] of Joe Biden’s Clean Energy Plan. Sometimes, actual production stops announced, eg Dutch NG.
- EU policy design ie 1. rush to electrification based on renewables, disregarding need for servicing of baseload energy eg with natural gas or electricity and other storage; 2. Problematic electricity market design; in retrospect, European overdependence on Russian gas imports
- Germany [but not Japan -- or China] stopped nuclear plants post-Fukushima, resisting calls to ease energy crunch by restarting them

Grave effects, notably gas and electricity prices way up [with blame put on gas!], including on industrial minerals

2. Russia in the Ukraine in Feb 22 exacerbating the energy crisis; ensuing EU policies…

…

- EU adopts packages of sanctions on Russia, *ia* discouraging NG imports, banning imports from Russia of cement, coal and other solid fossil fuels, prohibiting all Russian vessels from accessing EU ports etc…ie more constraints on EU energy supply
- REPowerEU Communication
- Frans Timmermans, European Commission Executive VP for the European Green Deal: 'Currently, switching to coal is no longer taboo despite climate consequences'…in an effort to relax energy supply constraints
- Retail electricity market pressured, regulatory decisions crucial

… 2. Russia in the Ukraine in Feb 22
exacerbating the energy crisis;
ensuing EU policies…

- Germany still resisting calls to ease energy crunch by restarting nuclear plants
- Moscow's race against time to divert energy exports from Europe to Asia
- **The NG paradoxical case**: end ’19 EIB, belonging to member-states, announces end of NG financing; end ’21 due to the energy crisis that started in the summer 2021 EC names NG and nuclear as climate-suitable technologies, hence financeable; … ’22 EU bans Russian gas, causing further rush to gas from EU and other sources; June ’22 European Parliament likely to vote against naming NG and nuclear as climate-suitable technologies!!

3.Goals of current EU policies in place – for now

Current hierarchy of policies

•No1:
independence from Russia/Belarus ie security of supply

•No2:
energy affordability, avoiding energy poverty for population, strengthening competitiveness for business, large and small

•No3, down from No1 and only, just a few months ago:
mitigating climate risk

4. …Technological, geopolitical, macro-economic and sectorial repercussions…

- EU: Coal & hydrocarbons acceptable -- for now, renewables [especially with storage] and hydrogen fully supported with EU renewable hydrogen law coming in May; nuclear back in favor incl. new tech ie mini reactors, thorium etc…relaxing energy supply constraints

- April 18 ’22 EUAs at 87.82 € /mt CO2
- April 14 ’22 Brussels warns EU countries that ruble gas payments may breach sanctions
- Gas traders eg Gunvor reporting highest profit since 2015
- Globalization has stalled, if not reversed

4. …Technological, geopolitical, macro-economic and sectorial repercussions…

- Most sectors to suffer from slowdown, a few to benefit: see below
- Independently, covid19 resurgence and associated lockdowns, notably in Shanghai
- Impact on China, a large consumer of energy, incl. coal, nuclear and renewables, largest GHG emitter, most important hydrogen producer, biggest source of IMs: *VN article, Dec '21: 'China's Role in the Energy Sector', Natural Resources PC website Library*

--China's power crunch: at its height H2 2021

4. …Technological, geopolitical, macro-economic and sectorial repercussions…

From the Natural Resources PC Weekly China Report, all in April '22

April 22 Rising US interest rates and China's slowdown hit the renminbi

April 18 Q1 GDP beats expectations [of 4.4%] to grow 4.8% year-on-year

Apr 18 China's daily coal output in March hits record high

April 16 Covid policy locks down Shanghai, a city three times the size of New York

April 15 Why China isn't backing away from alignment with Russia

Apr 14 VW China sales hit by lockdowns and semiconductor supply problems

April 13 Steel sector to see limited impact from external woes

April 13 Shanghai zinc price soars to near 15-year high on worries over supply shortages in top consumer China

April 13 Green development to bring more investment demands to China

↑ April 11 Danish shipping giant Maersk permanently leaves Russia

5. Effects incl. on the European+ IM industry…

Euromines:

- Truck driver shortage
- Mismatch in metal stock reserves
- Lack of auxiliary materials (soot, carbon black, ammonium nitrate)
- Longer or disrupted lead-times to/from the vicinity of the conflict (also intra-EU)
- Skyrocketing gas-prices (and thus also electricity)
- No realistic scenario to compensate gas-shortage with LNG

MS and COM are ready to go further:

- Factoring in a possible Russian energy cut-off
- Strong implications to the strategy to reduce energy/electricity prices
- REPowerEU Communication out

5. Effects incl. on the European+ IM industry…

- On supply

cost up, including FOB energy↑↑ but also in- and out- freights

supply chain problems

supply issues from Russia, Belarus and Ukraine

- On demand

mostly down, except for those IMs related to the production of coal, oil & gas, hydrogen, renewables, defense

supply chain problems at the customers' end

6. Case studies For now…

IMs benefiting: the ones associated with the **energy transition**

plus those like frac sands linked with **hydrocarbons**

IMs linked w/ Energy transition

Lithium↑↑

The biggest winner, used in batteries lithium prices nearly doubled in 2022 amid insane commodity rally

April 10 Lithium-ion battery output tops 82 GWh in Jan-Feb

Rare earths ↑ used in PV, wind turbines, cars etc

Graphite↑ used ia in rechargeable batteries

Nov 1 21 A bullish graphite price forecast for 2022

Bauxite ↑ Al used in new transmission lines eg from renewable plants, incl. new offshore wind plants.

Chinese bauxite prices climb on rising freight costs, WFA spread narrows, IM 18 April

…6. Case studies For now…

IMs linked w/ Hydrocarbons

Frac sands↑ Back in favor with renewed oil and gas drilling campaigns. Problem: availability of sand in the US!

Barite

prices rise, tracking volatile energy costs

6 Apr: Barite prices increased in March as the energy crisis worsened, with rising fuel costs affecting business operations.

…6. Case studies For now

IMs linked w/ general economy

Cement re-construction

Magnesia ccm prices continue relatively high; refra uses?? Synthetic and fused encountering high energy costs

April 25 One synthetic MgO producer facing liquidation, on energy

April 12 Haicheng magnesia supplies still disrupted by Covid-19 outbreak

↑ Mar 31 China's magnesia market stagnant, logistics remain under tight Covid-19 measures

7. Outlook: Alternative Scenaria…

Scenario modeling should be used to incorporate short- as well as long-term comprehensive forecasts of the future

Best Outcome: The War ends soon, EU Green policies continue unabated. Open question: When will sanctions on Russia be lifted? Which technologies will advance? Scenario favored by EU.

Baseline: War drags on for months or longer. Russia a pariah. China lingers. Energy & Critical Raw Materials [CRM] became scarce, Europe lacks them for at least two years. A recession. Will energy transition and electrification still be priority goals? US-preferred scenario.

Most Severe Outcome, barring World War III: Globalization 'on hold', Bretton Woods revisited, A New World Order. Russia & China split from the West. Back to 1949, trading blocks. Will the only factor holding all prices from rising, including those of Energy and CRM, be a depression?

…7. Outlook: Alternative Scenaria

All three scenaria

should be given subjective [Bayesian] probabilities…

…and the analysis should consider the consequences on…

…supply, demand – in the EU, China, elsewhere -- for

- energy products ie coal, gas, uranium, oil, renewables, hydrogen, CO2 emissions
- materials such as steel, refractories, rare earths, palladium, aluminum, and IMs

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Thank you very much

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