



Energy Efficiency in the Midst of Energy Crisis

The Age of Energy Efficiency is Now

Elrika Hamdi, Energy Finance Analyst

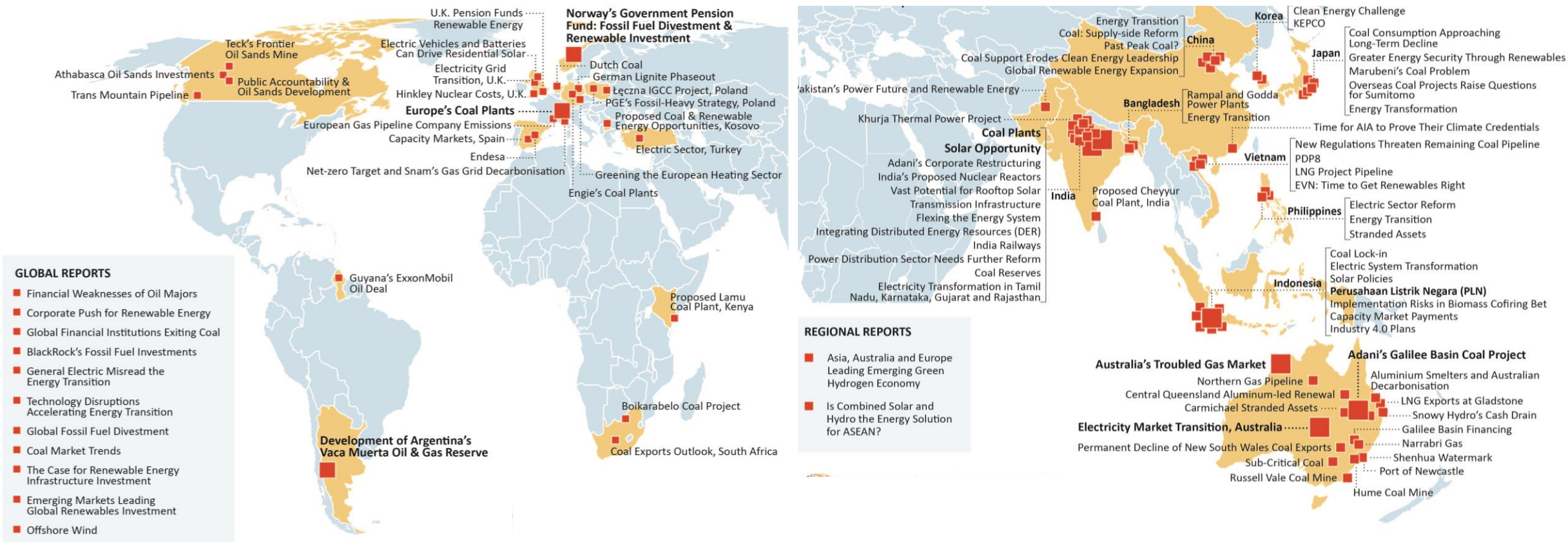
29 March 2022



**Institute for Energy Economics
and Financial Analysis**
IEEFA.org

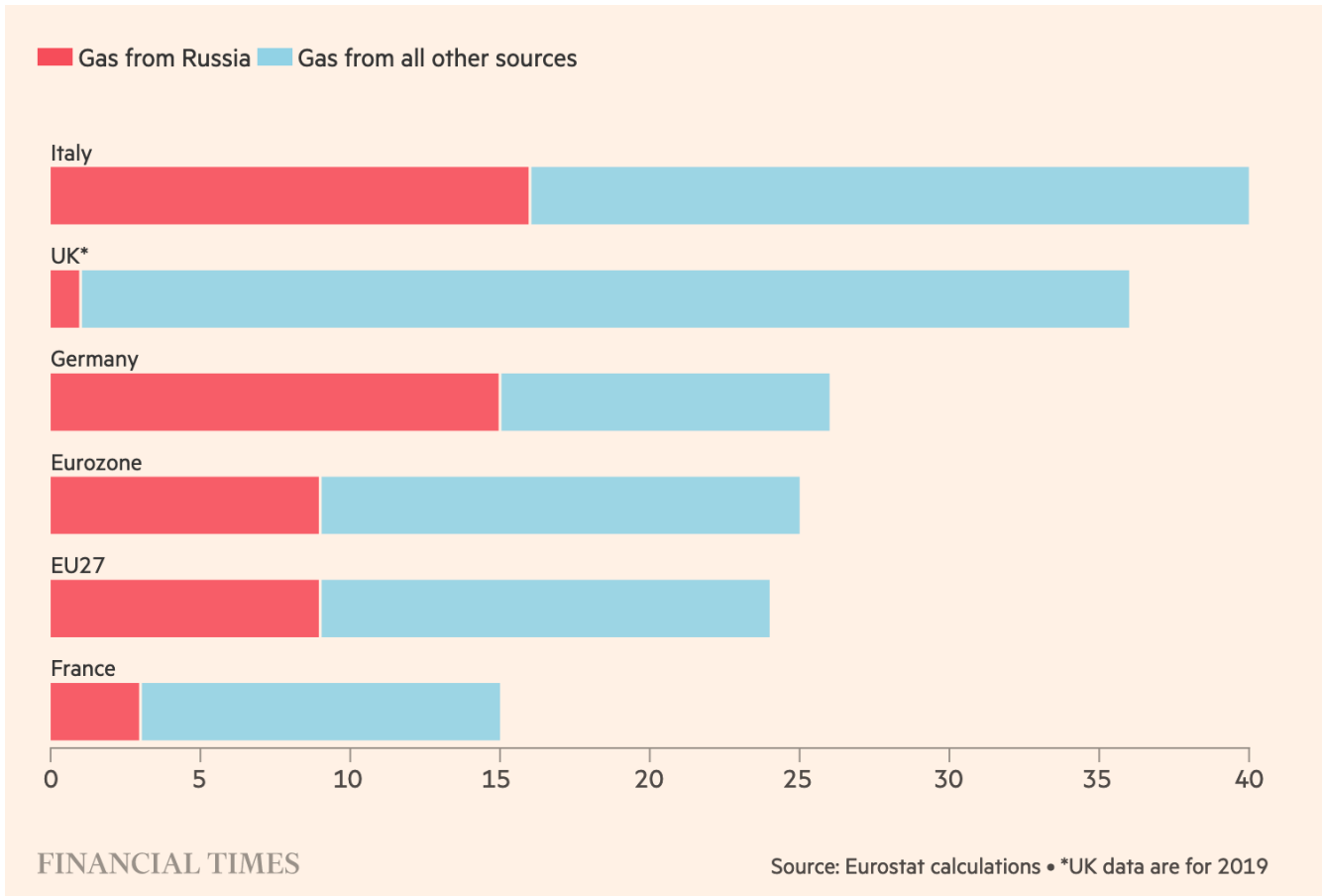
A Snapshot of IEEFA

A global think tank with ground level comprehension



The Backdrop: Increasing Risks of War

Natural gas as a share of gross available energy (%), 2020

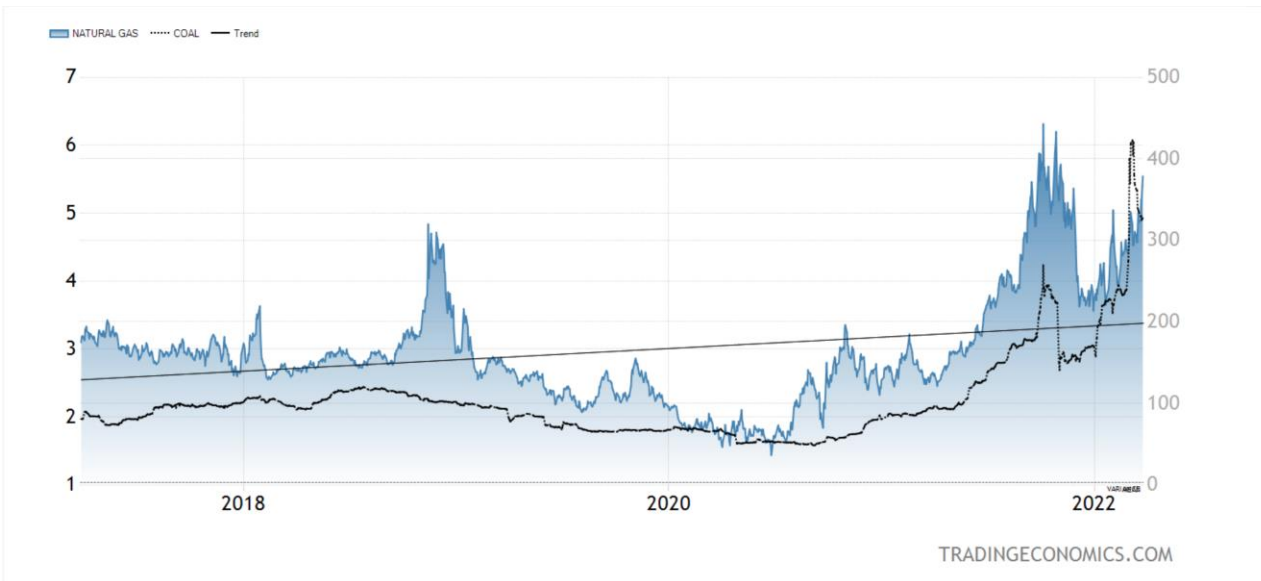


THE NAKED TRUTH

- Russia supplies more than 40% of EU's gas and coal imports, and a quarter of its crude oil
- Europe's daily energy bill to Moscow is €800mn.
- Analysts have put out concerns of current energy crisis to the 1970s oil crisis
- Energy security, independency, and affordability once again becomes the number one topic globally

The Impact: Global energy supply crunch means another year of HIGH & VOLATILE energy prices for EVERYONE

Newcastle coal and Henry Hub natural gas price volatility over the last 5 years



“We are in an unprecedented time – incredible unprecedented effects both planned and unplanned”

Last week, Putin demanded EU’s buyers to use Russian Ruble to pay for their imports of Russian gas – will not be accepted.

IHS Markit – S&P scenarios:

Most probable scenario: Gazprom starts negotiation process with their EU counterparts, could lead to slow burning of contract suspensions and terminations → pressure on spot prices

Unlikely but still possible scenario: A full cut-off of Russian gas

Oil Consumption of APEC economies: What your import bill will look like for every \$10/bbl increase in oil price.

Total Oil Consumption (all source)	2020											
APEC	000 bpd	ars per barrel	\$ 50.00	\$ 60.00	\$ 70.00	\$ 80.00	\$ 90.00	\$ 100.00	\$ 110.00	\$ 120.00	\$ 130.00	
Australia	890		\$ 16.2	\$ 19.5	\$ 22.7	\$ 26.0	\$ 29.2	\$ 32.5	\$ 35.7	\$ 39.0	\$ 42.2	
China	14225		\$ 259.6	\$ 311.5	\$ 363.4	\$ 415.4	\$ 467.3	\$ 519.2	\$ 571.1	\$ 623.0	\$ 675.0	
China Hong Kong SAR	285		\$ 5.2	\$ 6.2	\$ 7.3	\$ 8.3	\$ 9.4	\$ 10.4	\$ 11.5	\$ 12.5	\$ 13.5	
Indonesia	1230		\$ 22.5	\$ 26.9	\$ 31.4	\$ 35.9	\$ 40.4	\$ 44.9	\$ 49.4	\$ 53.9	\$ 58.4	
Japan	3268		\$ 59.6	\$ 71.6	\$ 83.5	\$ 95.4	\$ 107.4	\$ 119.3	\$ 131.2	\$ 143.2	\$ 155.1	
Malaysia	728		\$ 13.3	\$ 15.9	\$ 18.6	\$ 21.3	\$ 23.9	\$ 26.6	\$ 29.2	\$ 31.9	\$ 34.5	
New Zealand	148		\$ 2.7	\$ 3.2	\$ 3.8	\$ 4.3	\$ 4.9	\$ 5.4	\$ 5.9	\$ 6.5	\$ 7.0	
Philippines	378		\$ 6.9	\$ 8.3	\$ 9.6	\$ 11.0	\$ 12.4	\$ 13.8	\$ 15.2	\$ 16.5	\$ 17.9	
Singapore	1332		\$ 24.3	\$ 29.2	\$ 34.0	\$ 38.9	\$ 43.8	\$ 48.6	\$ 53.5	\$ 58.4	\$ 63.2	
South Korea	2560		\$ 46.7	\$ 56.1	\$ 65.4	\$ 74.8	\$ 84.1	\$ 93.4	\$ 102.8	\$ 112.1	\$ 121.5	
Taiwan	973		\$ 17.8	\$ 21.3	\$ 24.9	\$ 28.4	\$ 32.0	\$ 35.5	\$ 39.1	\$ 42.6	\$ 46.2	
Thailand	1271		\$ 23.2	\$ 27.8	\$ 32.5	\$ 37.1	\$ 41.8	\$ 46.4	\$ 51.0	\$ 55.7	\$ 60.3	
Vietnam	491		\$ 9.0	\$ 10.7	\$ 12.5	\$ 14.3	\$ 16.1	\$ 17.9	\$ 19.7	\$ 21.5	\$ 23.3	
Mexico	1312		\$ 23.9	\$ 28.7	\$ 33.5	\$ 38.3	\$ 43.1	\$ 47.9	\$ 52.7	\$ 57.5	\$ 62.3	
Chile	347		\$ 6.3	\$ 7.6	\$ 8.9	\$ 10.1	\$ 11.4	\$ 12.7	\$ 13.9	\$ 15.2	\$ 16.5	
Peru	210		\$ 3.8	\$ 4.6	\$ 5.4	\$ 6.1	\$ 6.9	\$ 7.7	\$ 8.4	\$ 9.2	\$ 10.0	
Canada	2282		\$ 41.7	\$ 50.0	\$ 58.3	\$ 66.6	\$ 75.0	\$ 83.3	\$ 91.6	\$ 100.0	\$ 108.3	
US	17178		\$ 313.5	\$ 376.2	\$ 438.9	\$ 501.6	\$ 564.3	\$ 627.0	\$ 689.7	\$ 752.4	\$ 815.1	

* Oil Cost in BOE - US Billion Dollars Per Year

Now is the tipping point for renewable energy and energy efficiency - EE should be put back at the forefront of Energy Transition policy

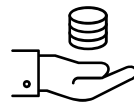
“We reaffirm energy efficiency as the “first fuel” and a critical component of our net zero strategies as it still represents the cleanest and, in many cases, the most cost-effective way to meet our energy needs.”

- IEA Ministerial Communique 2022

How to Diversify and Mitigate Energy Dependency and Costs



Action 6



Enact short-term measures to shelter vulnerable electricity consumers from high prices

Impact: Brings down energy bills for consumers even when natural gas prices remain high, making available up to EUR 200 billion to cushion impacts on vulnerable groups.

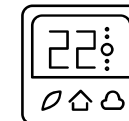
Action 8



Accelerate energy efficiency improvements in buildings and industry

Impact: Reduces gas consumption for heat by close to an additional 2 bcm within a year, lowering energy bills, enhancing comfort and boosting industrial competitiveness.

Action 9



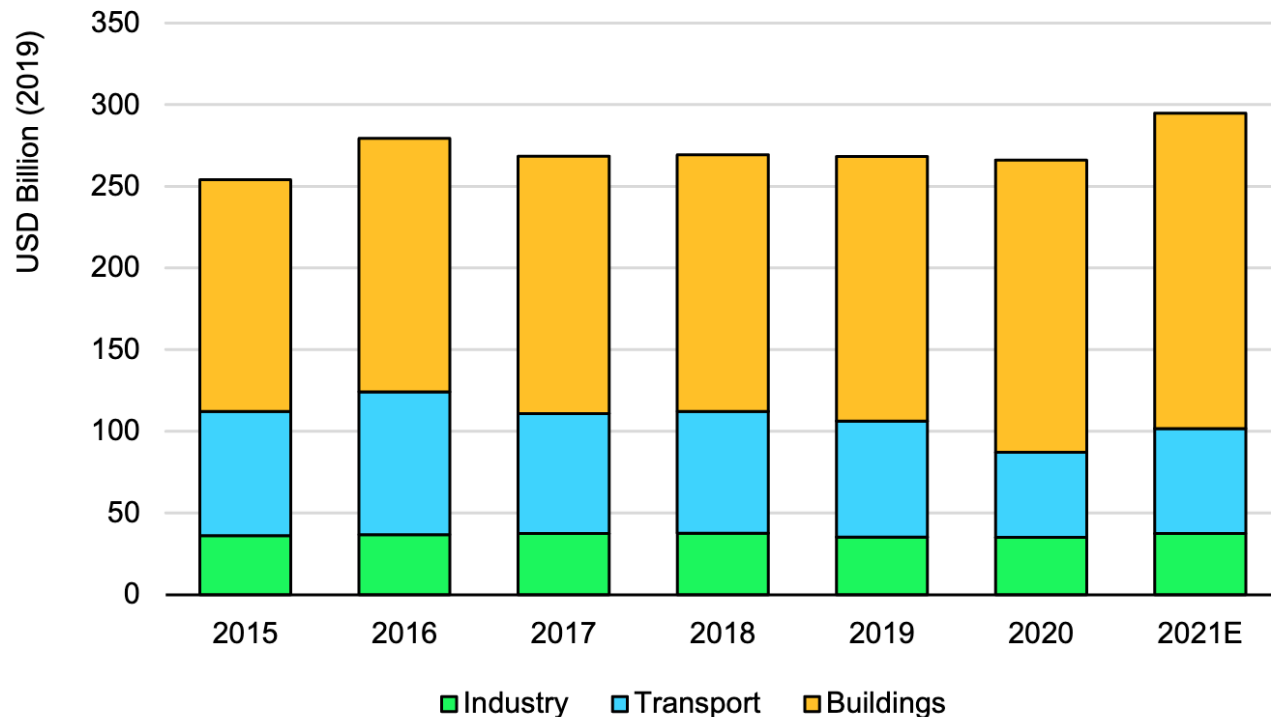
Encourage a temporary thermostat adjustment by consumers

Impact: Turning down the thermostat for buildings' heating by 1°C would reduce gas demand by some 10 bcm a year.

Global investment trend in EE

Reached record levels in 2021, but still need to triple by 2030

Global investment in energy efficiency by sector, 2015-2021



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Barriers on EE funding

- Lack of similar projects for comparing expected savings
- Unclear metrics for analysing performance
- Unattractive small ticket size projects for lenders
- Lack of understanding in EE project risks, especially for domestic financiers
- No real policy incentives – energy subsidies and skewed policy preferences

Potential game changing policy in EE looks promising

But it could start from as simple as changing a design logic to incorporate “a whole-system design”

A number of new promising EE policies:

1. EU “Fit for 55” new EE Directive
2. Italy ‘Super Ecobonus’ scheme for home renovations – 110% tax credit incentives
3. India’s Energy Efficiency Services Ltd ‘Super-efficient Air Conditioning’ programme – affordability through bulk procurement
4. Mandatory audits and energy management systems in Tunisia, Morocco as well as China and the EU

Yet, it could start from changing design not technology

1. Walmart’s energy savings from changing its operation design logic improved its energy efficiency by 40%.
2. Redesigning or designing an integrative system in buildings, factories, houses, equipment, vehicles – e.g. properly laying out some pipes could save 97% of pumping energy
3. Redesigning insulation system
4. Installation of solar rooftops or diversifying to micro-grids solution

“YOU CANNOT MANAGE WHAT YOU CANNOT MEASURE”

In a new energy crisis era, the largest, safest, cheapest, cleanest and fastest way to address it is through energy efficiency and conservation

“

In urban areas, do we really need a one-tonne car to move a single person over short distances? Will we ever need larger and larger TV screens? Can't we do differently, while still living comfortably?”

- négaWatt

THANK YOU