

## AKASHAY PRAKASH (Issue No: 3 of 2022)

(Special issue: Russian invasion in Ukraine : Impact on EU Power Sector)



European Commissioner for Energy  
Kadri Simson: EU links up electricity  
grid to war-hit Ukraine

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**Complied By**  
**Vijay L Sonavane**  
**ME(Elect)**  
Date: 29<sup>th</sup> MAR 2022

## Thought for the day

The further a society drifts  
from truth the more it will **hate**  
those **who speak it.**

– George Orwell

AZ QUOTES



## Ukraine Country details & Energy in Ukraine

- Ukraine is a country in Eastern Europe. It is the second largest by area in Europe after Russia, which it borders to the East & North-East. (Area: 603,548 Km<sup>2</sup>) Population: 4.41 Crores (2020). Currency: Ukrainian Hryvnia
  - Ukraine also shares borders with Belarus to North; Poland, Slovakia, & Hungary to West; Romania & Moldova to South; and has a coastline along the Sea of Azov & the Black Sea
- Ukraine's Capital & largest City is Kyiv. Ukraine was the most populous & industrialised republic after Russian Soviet Republic, until regaining its independence in 1991, following the dissolution of the Soviet Union.
  - Due to its extensive fertile land, Ukraine is one of the largest grain exporters to the world. It is a member of the UN, the Council of Europe, the OSCE, the GUAM Organization, the Association Trio, & the Lublin Triangle.



- Ukraine's TTL Installed Gen capacity : 55 GW.
  - Fossil fuel energy : 52% (30 GW);
  - NUC: 24% (13 GW); &
  - RE including HYD: 22% (12 GW).
- In 2020, Ukraine generated a total of 149 BU electricity,
- Four nuclear plants with 15 reactors generated over 51% of TTL energy supply in 2020.
- Fossil fuels, (Coal & Natural Gas): 37% .
- RE & other sources: (12%)

- **Ukrainian Govt has proposed to meet at least half of future Demd with NUC power.**
  - In the past, most of Ukraine's NUC fuel supplies used to come from Russia, but Energoatom, Ukraine's National NUC Genco, is reducing its supply from Russia by diversifying its NUC fuel sources & buying fuel from U.S. based Westinghouse Electric CO.
- **With World's largest Natural Gas transit infrastructure & its proximity to Russia, Ukraine is the important transit country for Russia's Natural Gas supplies to European countries. European markets receive 2.9 Tcf to 3.3 Tcf of Russia's natural gas every year through Ukraine.**



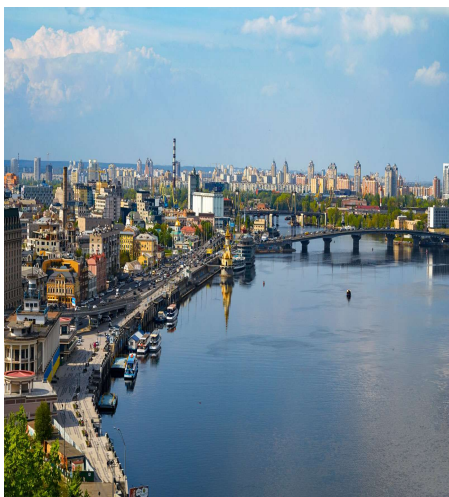
Smoke rises after an airstrike, as Russia's attack on Ukraine continues, in Lviv

#### **2022 Russian invasion of Ukraine:**

- In the Spring 2021, Russia began building up military troop strengths along its border with Ukraine.
- On 22 Feb 2022, Russian President Vladimir Putin ordered military forces to enter the breakaway Ukrainian Republics of Donetsk & Luhansk, calling the act as a "peace-keeping mission". Putin also officially recognized **Donetsk & Luhansk as Sovereign States, fully independent from the Ukrainian Govt**
- In early hours of 24 Feb 2022, Putin announced a "Special Military Operation" to "Demilitarize & de-Nazify" Ukraine, & launched a large-scale invasion of Ukraine.

- On 24<sup>th</sup> Feb 2022, **Ukrainian Govt announced that Russia had taken control of Chernobyl NUC plant.** On 28 Feb 2022, Ukraine asked for immediate admission to the EU, in response to the invasion.
- One month into Russia's invasion of Ukraine, on 24<sup>th</sup> March it appeared that early Russian predictions for a quick victory in Ukraine might have been based on faulty Russian intelligence. Russia has not yet achieved two primary initial objectives:
  - Capture of Ukraine's two largest cities, Kyiv & Kharkiv,
  - With Ukrainian counter-offensives actually beginning to push back Russian front lines around Kyiv.
- Reports of woefully inadequate troop training program & of major logistical failures in the supply of gear, food, & weaponry to Russian troops, were published.
  - Some experts are now beginning to refer to the progress of war as devolving into a "Stalemate Situation."

### Major Issues due to Russia's invasion of Ukraine



UKRAINE's Capital City: KYIV

- Since Ukraine disconnected its Power System from Russia to protect itself from frequency excursions, Ukraine needed Synchronization with EU system, instead of running Ukraine system in islanded mode.
- Due to Erratic Gas/Oil supply from Russia to EU, the Energy prices shot up in EU (by about 50%)
- EU need to speed up the RE Program to reduce its dependence on Russian Gas supply.
- Russia may try for consumers for their hydrocarbons in Asia: China & India, (even at lower cost, after losing consumers in EU)
- Old THM plants in EU are need to started to keep up Load Generation Balance, which may impact Climate Policy Agenda

### Europe accelerates link up of Ukraine grid to reduce Russian influence:

- Energy Ministers from European Union (EU) countries agreed on Feb 28 to fast-track the linking of Europe's Power System to Ukraine following Russia's invasion of Ukraine
  - Ukraine disconnected its grid from Russian network, in last week of Feb & has called for an emergency synchronisation with a European system to remove Russian control of grid frequency & other technical aspects.
- The link between EU & Ukraine has been planned for years & was expected in 2023. EU has made substantial progress in 3 weeks & synchronised their system with Ukraine.
- "There was a broad agreement around the table. Based on this, EU moved forward to connect Ukraine's Power system. This was a strategic initiative for increasing Ukraine's energy independence," EU Energy policy Chief Kadri Simson said.
  - Cyber security of critical structure is a major challenge for Ukraine. Russia hacked global electricity networks in recent years, US officials said. Cyber attacks caused blackouts in Ukraine in 2015 & 2016.

- Meanwhile, Russian Hackers disrupted Ukraine Power System feeding parts of the capital Kiev, reportedly thro' remote control of software-hardware interfaces & S/S infrastructure.
- Europe & Ukraine have planned since 2017 to synchronise their power grids, as Ukraine sought to be independent & decouple itself from a grid connected with Russia, Belarus & other former Soviet States. Moreover, linking with EU means Moscow would no longer control technical aspects of the network, such as grid frequency.
- Instead, it would put Ukraine's grid on continental Europe's Power System, European Network of Trans System Operators for Electricity (ENTSO-E).
  - Ukraine's State-owned grid operator Ukrenergo has said in present scenario the link would allow Ukraine to receive emergency power from Europe if military attacks caused power outages in Ukraine, which could help avoid blackouts & interruptions to the work of military infrastructure & emergency services like hospitals.
- Ukraine grid was running in "islanded mode" after disconnecting from Russian network, in last week of Feb. for 3 weeks up to 16<sup>th</sup> March

- Ukraine said it will not henceforth reconnect Russia. Ukrenergo on Feb 27 requested emergency synchronisation with ENTSO-E. Moldova has made similar request
- Since disconnecting from Russia, Ukraine has tested its grid in "islanded mode" to prove it can function & balance supply and Demand independently, even under rocket attacks, the first step to prepare for the European link

#### ENERGY TRADE:

- EU Energy policy Chief Simson said the grid synchronisation would not necessarily lead to trade between the EU & Ukrainian systems.
- Under an emergency link, Ukraine's power with European countries may need to be retained for emergency balancing, so commercial trading may not immediately be possible on EU-Ukraine link, as it would raise complex questions about electricity prices, which are designed differently in Europe & Ukraine's systems.



Ukraine's President:  
Volodymyr zelensky

- Ukraine had Trans links with Slovakia, Hungary & Romania, though none of these are operating, while Ukraine is in "Islanded mode."

#### HOW UKRAINE'S Islanded GRID COPING, presently?

- About 55% of Ukraine's energy is produced by four nuclear power plants. The remainder is largely from Coal-fuelled plants.
  - Ukraine's electricity system has so far held up since the invasion, despite attacks on some critical infrastructure.
  - Damage to HV power lines has not affected the overall reliability of the grid, DTEK, the country's biggest private power producer, said



### Europe's Energy Regulators stand with Ukraine in Grid Synchronisation (15/03)

- Europe's Energy Regulators represented by their EU Agency, ACER & National Regulators' Association, CEER, offer support to the massive efforts to address emergency situation in Ukraine to ensure uninterrupted & safe energy supply.
- On 14<sup>th</sup> March, Trans System Operators (TSOs) of Continental Europe completed the emergency synchronisation of Ukrainian & Moldovan power grids with Continental Europe
  - Already some measures have been taken by Ukraine & border country Regulators to ensure firm reverse flow capacities into Ukraine ACER & CEER recognised the work of Energy Community colleagues coordinating Regulatory support to Ukraine & in turn offer their support & services to the Energy Community.

- Regulators remain committed, in close coordination with EU policy makers & TSOs, to ensure security of energy supply in Europe in the coming period (Very Commendable)
- Commenting on the situation, ACER Director, Christian Zinglensen, stated: "We applaud Round the Clock efforts of Trans System Operators (TSOs) of Regional Group Continental Europe (RGCE), ENTSO-E, ENTSG, Ministries, EC: the Energy Community, Regulators, Industry & others who are working tirelessly to help the Ukrainian TSO & Regulators to power & warm homes/hospitals in Ukraine during these difficult times".
  - CEER President, Annegret Groebel, added: "CEER represents 39 European National Regulatory Authorities for energy. We are all united in sympathy for the suffering of Ukrainian people & our concern for colleagues in the National Energy & Utilities Regulatory Commission (NEURC) of Ukraine. We stand in solidarity with Ukraine."

- EU on 16/03 completed linking up its electricity Grid to Ukraine, making good on a promise to keep the lights "ON" in the war-ravaged country under attack from Russia. "Ukraine PS is now part of Europe PS," EU Energy Commissioner Kadri Simson said. Moldova, which also has a Russia-backed breakaway region, was also connected to the grid.
  - While the link-up risks Blackouts & Brownouts happening in parts of the EU, Brussels has presented the move as part of its solidarity with Ukraine, even as it rebuffs Kyiv's pleas for rapid EU membership.
- "Ukraine, Moldova & Europe: shared values, shared power & solidarity," European Commission Chief Ursula von der Leyen tweeted. We'll continue working to stabilise their power systems," she said.
  - Ukrainian President Volodymyr Zelensky tweeted that, his country had become "a member of the EU's Energy Union" & thanked Simson & Von der Leyen.

- Even before the invasion of Ukraine, a tight natural gas market, exacerbated by Russia's restraining of supplies, had pushed gas & electricity prices to record levels, leading to shutdowns of fertilizer plants & other factories because of high costs.
  - Household energy bills are set to rise by about 50% in Britain & drivers across Europe faced shock at the pump.
- After the invasion, Olaf Scholz, German Chancellor, halted approval of Nord Stream 2, an \$11 BN gas pipeline under the Baltic Sea that directly links Russia to NE Germany.
- As EC President Ursula von der Leyen said when she announced a plan on 8<sup>th</sup> March to make Europe independent of Russian fossil fuels: "We simply cannot rely on a supplier who explicitly threatens us." The proposal calls for Member Nations to reduce Russian natural gas imports by two-thirds by next winter & to end them altogether by 2027." A very tall order.
  - However, Issues before EU leaders remain over how to manage the current price, increases amid anxieties that Europe could face a double whammy of inflation & recession

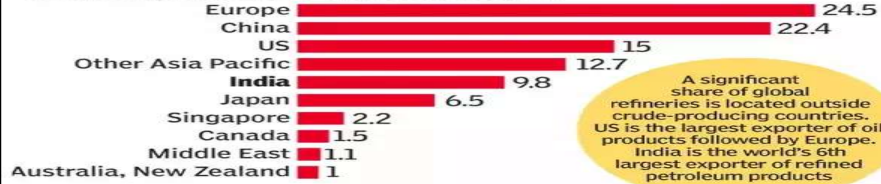


## WHY RUSSIAN OIL AND GAS ARE A BIG DEAL

As a group of countries, Europe imports nearly a fourth of global crude. Sanctions on Russia make oil producers in the Middle East, West Africa and the Americas the biggest gainers. India is the third largest importer of crude behind China and the US.

### World's Top 10 Crude Importers & Exporters In 2019\*

#### Crude Imports: As % of global imports



A significant share of global refineries is located outside crude-producing countries. US is the largest exporter of oil products followed by Europe. India is the world's 6th largest exporter of refined petroleum products.

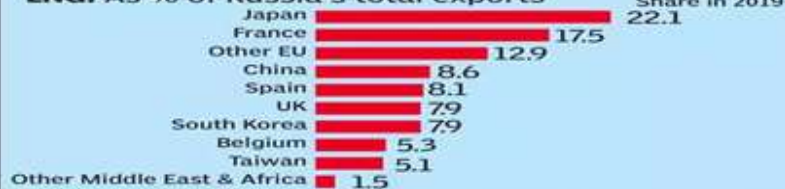
#### Crude Exports: As % of global exports



Nord Stream and Druzhba are the main carriers of Russian supplies to Europe



#### LNG: As % of Russia's total exports



#### Gas through pipeline: As % of Russia's total exports



Graphic: Anil Dinod

### How Ukraine war could reshape energy map? (27/03)

- Since collapse of Soviet Union, the world energy market changed in an unforeseen way. Russia's giant hydrocarbon reserves, which had been locked up behind the Iron Curtain, became available to the World.
  - Russia became a reliable Hydrocarbon supplier & world's largest Natural gas exporter. Of the 98 Mn barrels of Oil (Crude condensate & refined products) that moved around the World every day, 7.5 Mn/day was supplied by Russia alone.(about 8%)
- But that was before the invasion of Ukraine. Putin attacked Ukraine at a time when the global energy market was tight. He expected Western countries to protest but not act. However, force of public opinion has compelled EU to rethink their dependence on Russian Oil & Gas.
  - The US, Japan & South Korea have stopped or cut imports of Russian oil. The UK, which meets 8% of its demand with Russian oil, has said it will stop imports from Russia by the end of 2022

- Demand for a ban is getting louder in the Eurozone. Trading houses are finding it hard to get buyers for shiploads of Russian oil, & oil loading at Russian docks has fallen by 2 Mn barrels/day. So, \ Ukraine war change the global energy map.
- In an article for "The Economist", American Energy expert Daniel Yergin predicts Russia will be a "reduced energy power" after the war. "Although it remains a necessary supplier for now, its role is certain to diminish."
  - Yergin says: After 2 years of pandemic, the world is battling high inflation. It is not a good time to ban supplies from a country (Russia) that produces almost as much oil as Saudi Arabia
- Already, as a result of sanctions (displeasure/dis-approval of action) on Russia, the oil prices have rocketed to an 8-year high & gas prices are up by 40%.
  - According to the International Energy Agency (IEA), Russia is the world's largest exporter of Oil (Crude, condensates & liquid products) & the second largest exporter of Crude after Saudi Arabia. It is not possible to replace the commodities & raw material Russia provides at short notice without causing shortages & price rise.

- Consider Europe, for example. It needs to stock up on Oil & Gas before winter, but many European refineries are partly owned by Russian Cos & are connected with the Druzhba oil pipeline. If the pipeline is shut, oil for these refineries may have to be brought by sea, but Europe's oil import terminals may not be able to cope with the additional shipments immediately. The alternative: importing additional oil & gas from the Middle East or the US, which will be costly in comparison to piped supplies.
  - What is likely, Yergin says, is that Russian gas sales to Europe will taper over next 5 years. In that time, expect Europe to build more RE capacity as a security measure. France will build more nuclear plants. EV sales will shoot up, but in the short term coal use could also rise.
- Of course, Russia will then try to stay in the game by increasing its supplies to China, India & other Asian countries. China: 20% of Russian oil exports, & India, which imported 3% of its Demd from Russia last year, have already ramped up their purchase of Russian crude (probably at lesser cost???)



**Vito John Fossella Jr.** is an American Republican politician from the state of New York who currently serves as Staten Island Borough President

- However, Russia will face other challenges in diverting its petroleum exports to the East. Arranging transport, & negotiating deals that do not involve the US dollar, are big hurdles.
  - If Europe turns to the Middle East for supplies, driving up prices for their regular customers India & China, both Asian powers could turn to discounted Russian oil in a big way, provided the suppliers take care of shipping & insurance.
- A prolonged Ukraine conflict could hurt Russian output as Western oil firms may abandon their investments in Russia & the fear of sanctions (disapproval) prevents new buyers from taking over.

### Germany accelerates RE due to Russia-Ukraine war

- For Power Gen, Germany depends on Gas Supply from Russia, which is erratic these days, because the gas pipelines from Russia pass thro' Ukraine
- German Govt has decided to speed up implementation of new Energy Laws that will accelerate Solar & Wind deployment to reduce reliance on Russian Gas following Russia's invasion of Ukraine
  - Germany plans to speed up the passage of RE Sources Act (EEG) thro' Parliament so that it can come into force by July 1, 2022. Govt had planned to pass two legislative packages this year: including one "Easter package" before the summer break: that would have taken effect in 2023.
- German Govt has raised, RE target to 80% of Gen by 2030 & aims to quadruple Solar capacity to 200 GW thro' massive deployment of RT panels.

– Govt wants to exit coal-fired Gen by 2030 & will exit NUC power in 2022, increasing its reliance on Gas-fired Gen & RE.

- Russia supplies around 40% of Europe's gas & Germany halted Nord Stream 2 Baltic Sea gas pipeline project from Russia after President Putin formally recognised two breakaway regions in Eastern Ukraine.
- German Govt would increase solar tenders to 20 GW/year by 2028, The Act would also boost annual onshore Wind tender volumes to 10 GW by 2027 & streamline permitting for REs. Govt aims to double installed onshore wind capacity to 100 GW & triple offshore capacity to 30 GW.
  - RE currently represent around 50% of Germany's power Gen.

### Russia-Ukraine war make Europe's switch to Clean Energy

- Europe is racing towards RE with sudden urgency. Invasion of Ukraine by Russia, the EU's largest supplier of Natural Gas & Oil, has spurred Govts to accelerate plans to reduce their dependence on Climate-changing fossil fuels.
- Smoothly managing Europe's energy switch was always going to be difficult. Now, as economies stagger back from the 2<sup>nd</sup> year of pandemic, Russia's attack on Ukraine grinds on & Energy prices soar, the painful trade-offs have crystallized, like never before.
- Moving investments away from Oil, Gas & Coal to sustainable sources like Wind & Solar, limiting & taxing carbon emissions, & building a new Energy infrastructure to transmit electricity are crucial to weaning Europe off fossil fuels.

- But they are all likely to raise costs during transition, an extremely difficult pill for public & politicians to swallow.
- Crisis that has inspired Europe to more quickly reach towards clean energy sources like Wind & Solar also risks pitching it backward by unwinding efforts to shut Coal mines & stop drilling new Oil & Gas wells to replace Russian fuel & bring prices down.
- In Germany, Europe's largest economy, leaders are planning to have several coal-fired power plants that were recently taken off the grid, placed in reserve, so that they could be quickly fired up, if needed.
  - After years of dithering about investing so much in the natural gas infrastructure, Germany is also accelerating plans to build its own terminals for receiving liquefied Natural gas, another fossil fuel.

- “Security of our energy supply stands above everything else at the moment,” said Robert Habeck, Germany’s Economy Minister & Green party leader in Govt
- Local officials are taking similar steps. Last week, the Munich Govt decided to extend the life of one of Munich’s Coal-fired power plants, scrapping plans to convert it to burn natural Gas in spring 2023.
  - And that is in a country that has helped spearhead Europe’s efforts to shift to RE
- In Poland, which gets 70% of its energy from Coal & Gas has been at logger-heads with EU over the climate agenda, the sudden energy shortage is being used by critics as evidence that the push to shut mines was a mistake.

- Ms Kadri Simson, Europe’s Commissioner for Energy, said RE projects should be treated as an “Overriding Public Interest” & Europe should consider changing laws to facilitate them.
  - She also said “We cannot talk about a RE revolution if getting a permit for a Wind farm takes 7 years,”
  - And a strong opposition from IND who invested in fossil fuels, make it harder for political leaders to fast-track energy transition policies.
- German officials have determined that it is too costly to keep the Country’s last three remaining NUC Gens online, past 2022. But the quest for energy with lower emissions is leading to a revival of NUC energy elsewhere.
  - Britain & France plan to invest in smaller NUC reactors. Every route to clean energy must be tried, if there is to be any hope of reaching net-zero emissions in three decades,
  - In the long term, Europe & Britain seem likely to accelerate their world-leading rollout in RE & other efforts to cut emissions despite the enormous costs & intense disruption



- It has led the way in generating Wind power, especially from Ocean-based Turbines. Siemens Gamesa RE, has been instrumental in planting rows of colossal whirligigs at sea that can generate [enough green energy to light up cities](#).
  - Europe, too, is on the verge of investing billions in H2, potentially the [multipurpose clean fuel of the future](#), which might be generated using RE from wind turbines.
- Siemens Gamesa, world's leading maker of offshore wind turbines, is working on a Giant Turbine that would be dedicated solely to producing Green H2.
  - Identifying suitable areas for Wind turbines & **obtaining permits required for construction take "far too long."** Challenges are based on worries that vast arrays of turbines will interfere with [fishing, obstruct naval exercises & blight views from summer houses](#).

### [Ukraine's PEX keeps trading from Amsterdam Café](#)

Lisse Geert van Vliet, who is the Business Developer at Ukrainian Energy Exchange (UEEX) & currently working from Amsterdam (Netherlands) said:

- We are in an Amsterdam Café, far away from the horrors of the war, & when asked about the welfare of his colleagues in Ukraine. **His answer is not positive.** **"My colleagues are not doing well"**, Lisse explains. "One way or the other, all of them are affected by the war. **Many have lost their loved ones. Moreover, not everyone is safe yet.** My colleagues in Kyiv & Poltava, where our offices are situated, are in great danger.
- "One of our offices was hit by a cruise missile. Luckily nobody got injured this time, but the shooting continues.

- Our staff size is about 90 people, working for the UEEEX. Some employees were forced to leave Ukraine, some found temporary shelter a little further from active hostilities, **although it is unsafe now throughout the country**, & some remained in their cities. But **each of them is firmly convinced that this is temporary**". *(We must admire their courage & solidarity with their country)*

#### Operating remotely:

- Despite the tragedy Lisse's colleagues are going through, they are still managing to keep UEEEX operational. "UEEX is still active & trading still takes place. Liquidity, however, is low & all systems need to be operated remotely."

### Can the EU make it without Russian Oil & Gas?

- International Energy Agency (IEA) says EU's options seem to be quite limited. A recent Bruegel (European think tank that specialises in economics) analysis states that EU is headed for some difficult & costly decisions.
  - IEA believes that over 1-1.5 Mn barrels/ day (bpd) of oil & oil products are going to be lost from Russia, from next month until at least the end of 2022. Luckily, summer is coming & fossil fuel needs will be reduced
- Bruegel believes that Europe can manage without Russian gas upto next winter, as long as it is united, in making difficult decisions regarding demand cuts, & **accept the fact that solutions in some cases will be less than perfect.**
- Hence, EU Countries are backing out of their plans of shutting down Coal/oil, gas based plants.
- EU has to redefine its Energy Future under these circumstances & find a way to enter this new world, **where Russia will cease, being Europe's main supplier of Oil, Natural Gas & Coal.**

### US President Biden's Visit to Polish Town Near Ukraine Border on 25/03

- Kyiv: US President Joe Biden visited a Polish town near the border with Ukraine today, seeking to show Western resolve against Russia's invasion.
- "NATO has never been more united than it is today," Biden said on 24/03 after a NATO summit in Brussels. He also said NATO will "respond" if Russia uses chemical weapons in Ukraine.
  - Ukraine's President Volodymyr Zelensky says there is a "real" threat that Moscow will use chemical weapons in Ukraine, accusing Russia of having already used phosphorus bombs against civilians in an overnight attack on a Ukrainian village that killed at least four people, including two children.
- Russia has also accused NATO member Poland, which neighbours Ukraine, of embarking on a "dangerous escalation" in tensions between Moscow & the West after Warsaw expelled 45 Russian diplomats for alleged espionage

### G7 rejects Putin's demand for Rouble payment for Russian Gas: Germany (28/03)

- Energy Ministers of G7 Group (US, UK, France, Japan, Germany, Italy & Canada) rejected Putin's demand on 28/03 that Russian gas should be paid for in Roubles (Russian currency) instead of currencies such as Euros & Dollars, Robert Habeck, Germany's Economics & Energy Minister, told in Berlin.
  - Statement raised possibility of gas supplies to Europe being cut off should the two sides be unable to agree on a payment currency. Habeck said G7 countries were "prepared" for "all scenarios", including a potential halt to Russian energy supplies. Putin announced last week that Moscow would begin to invoice European Gas buyers in Roubles,
- All G7 Ministers totally agreed that [requiring payment in Roubles] would be a clear & unilateral violation of existing contracts & it remains unclear how Moscow will try to implement any change in payment currency.

## Conclusions

- Russia-Ukraine war started on 22/24<sup>th</sup> Feb 2022. Ukraine PS which was connected to Russian Grid got itself separated on 24<sup>th</sup> Feb 2022
  - ACER, CEER, TSO: ENTSO-E, The Energy Community helped Ukraine Power System all throughout this month
- Ukraine's Power System (IC: 55 GW) was running in islanded mode from 24<sup>th</sup> Feb & synchronized with European Grid on 16<sup>th</sup> March 2022
  - Ukraine PEX is functional from Amsterdam.
- Ukraine is the important transit country for Russia's Natural Gas supplies to EU countries (pipelines passing thro' Ukraine). Gas/oil supply to EU from Russia is erratic, so energy prices soared in EU. In Britain the impact for H/H consumer was of the order of excess 50%
  - Germany, France & all EU countries decided to increase their RE Share & also to continue with some old THM/Gas/NUC plants for Energy Security
- Entire EU & G7 countries are supporting Ukraine during this severe emergency (there is an urgent need to have healthy relations with our neighbours)
  - Let us pray the Almighty God for early resolution of this issue, because it is also impacting India. The inflation is going up. Prices are soaring & our Authorities are busy in ---- ?? (Probably You know what I want to say)
  - But the impact of this war on us may be more than that of Pandemic. Let us be ready for price hikes in Petrol Diesel Gas, Edible oil & what not & overall inflation will go up & Authorities need to take action at right time

## Thanks!!!

**Let us pray the Almighty for the peace in the world.**  
**(Contact me: [vlsonavane@gmail.com](mailto:vlsonavane@gmail.com)/M: 9833362062)**



**THERE WAS  
NEVER A GOOD  
WAR, OR A BAD  
PEACE.**

Benjamin Franklin  
PICTUREQUOTES.COM

**If Wars can be started through lies;  
They can be stopped by the Truth!!**

**Notes: (info about some terms used in this PPT)**

- **ACER: Agency for Co-operation of Energy Regulators (ACER)** is an EU Agency. ACER plays a Central role in development of EU-wide Trans network & market rules with a view to enhancing competition.
  - ACER coordinates Regional & Cross regional initiatives, which favour market integration. It monitors work of European networks of Trans system operators (ENTSOs), & their EU-wide ten-year network development plans (TYNDPs). ACER also monitors the functioning of Gas & Electricity markets in general, & of wholesale energy trading in particular. (for more info please Visit [www.acer.europa.eu](http://www.acer.europa.eu))
- **CEER: Council of European Energy Regulators (CEER)** is the *Association of Europe's National Regulatory Authorities (NRAs)*, serving as their voice at EU & at global level.
  - CEER's members & observers, from 39 European countries, which are independent statutory bodies responsible for Energy Regulation at National level. CEER, having HQs in Brussels, deals with a broad range of energy issues including retail markets & consumers; Dist networks; Smart grids; flexibility; sustainability; & international cooperation. (For more info please visit [www.ceer.eu](http://www.ceer.eu))

- **ENTSO-E: European Network of Trans System Operators for Electricity (ENTSO-E)** is the Association for *"Cooperation of European Trans System Operators (TSOs)"*.
  - The 39 member TSOs, representing 35 countries, are responsible for secure & coordinated operation of Europe's Electricity system. (For up-to-date info on the Ukraine power situation, please visit [www.entsoe.eu](http://www.entsoe.eu))
- **The Energy Community** is an International organisation which brings together European Union & its neighbours to create an integrated pan-European Energy market, including Ukraine & Moldova.
  - Key objective of the Energy Community is to extend the EU internal energy market rules & principles to countries in Southeast Europe, the Black Sea region & beyond, on the basis of a legally binding framework. The Energy Community has established an emergency gas energy supply group whose purpose is to coordinate & respond at short notice in case of disruptions to gas supplies disruptions in Eastern Europe/South-East Europe, which may also have an impact on electricity supplies. (For more info please visit [www.energy-community.org](http://www.energy-community.org) )