European Economic and Social Committee

INT/989
Emergency preparedness

OPINION

Section for the Single Market, Production and Consumption

Emergency preparedness

(Own-initiative opinion)

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1. Conclusions and recommendations

1.1 The European Economic and Social Committee (EESC) asks the European Commission and Member States to urgently develop a plan to substantially increase the EU's single market autonomy/sovereignty regarding energy generation facilities, food and water production and the mining of the necessary raw materials, including sovereignty/autonomy for the technologies needed. This EU autonomy/sovereignty must consist of the respective R&D, material processing, design, manufacturing, installation, start-up and maintenance of the facilities within the EU single market so as to avoid energy poverty and unemployment among EU citizens and consumers. The most efficient preparedness for emergencies is based on resilience, be it technical or social. Continuous improvements in the resilience of energy systems towards natural, political or any other threats should be integrated into all energy policies.

1.2 The EESC recommends that the EU define short-term measures for building energy production facilities within the EU single market as a matter of urgency with a view to achieving the EU's goal of autonomy/sovereignty.

1.3 The EESC estimates that widespread and long-lasting European energy shortages can be prevented by taking the following actions:

- strengthening and developing the European energy single market;
- enhancing cooperation and coordination with like-minded partners;
- pursuing an ambitious trade policy and the diversification of supply;
- tackling labour market mismatches;
- improving communication and raising awareness;
- accelerating innovation and digitalisation;
- facilitating access to finance;
- ensuring sufficient investments (to facilitate the green transition, etc.);
- ensuring that policies are realistic. For example, in the field of energy and climate we must reassess the Fit for 55 package in order to strike a balance between delivering on the goals for 2030 and 2050 and finding a pathway through this transition that is economically and socially bearable.

1.4 To avoid having to reconsider the timelines for the Green Deal and to implement realistic energy policies the options, impact and risk assessment procedures for the EU's Green Deal and energy policy should include not only the impact of the measures on the climate, but also the impact on the purchasing power of EU consumers and the impact on the competitiveness of the EU economy, thus safeguarding jobs in the EU.

1.5 Considering the severity of the crisis, the EESC is of the opinion that no measures should be ruled out in the response to this crisis.

1.6 Within the set of measures to be taken, part of the response should, according to the EESC, be to implement the EU SET plan (**S**trategic **E**nergy **T**echnology) and the REPowerEU plan, in particular:

- improving energy efficiency and promoting circularity;
- implementing the REPowerEU plan to end the EU's dependence on Russian fossil fuels;
- increasing gas storage and coordinated refilling operations; monitoring and optimising electricity markets; channelling investments towards energy systems and enhancing connectivity in the immediate neighbourhood through ACER[1], BEREC, ENTSO-G, ENTSO-E and the European Institute of Innovation and Technology's knowledge and innovation communities (KICs) on InnoEnergy, Raw materials and Manufacturing.

1.7 The EESC recommends that consumers be encouraged and supported to invest in their own energy production and efficiency. This will require information campaigns and tax incentives.

1.8 Furthermore, the EESC estimates that the EU should build new transport infrastructure for the transmission of energy and energy resources (pipeline from North Africa to Spain) and for renewable energy sources like hydrogen, biomethane and ammonia (Campfire).

1.9 As a response to the crisis, the EESC recommends a series of short-term measures:

- safeguarding other sources, especially oil, coal, gas, uranium, water, food and animal feed;
- developing plans and concepts for saving and rationing energy in all 27 EU Member States:
  - rationing should have clear priorities, e.g. negotiating plans for rationing energy for energy-intensive industries, and negotiating new WTO trade agreements with new priorities for food, feed, water and sanitation;
  - prioritising electricity and gas storage and supply for hospitals, medical care, emergency services and care for older and vulnerable people;
- issuing rules for safeguarding sufficient oil and gas reserve levels;
- promoting energy savings and new sources of energy;
- stepping up EU R&D on energy research, especially alternative energies, fusion energy, energy storage, hydrogen and ammonia technologies, energy efficiency of energy-intensive industrial processes and consumer appliances;
- accelerating public approval procedures for new projects that provide additional energy in the short and medium term, such as hydrogen unloading stations in EU harbours, pipelines and harbour facilities for re-gasification of liquefied gas (LNG);
- asking all firms in the EU that produce or provide products and services needed in emergency situations to secure their emergency electricity supply, update their emergency plans and organise periodic emergency training, etc. (for instance, companies involved in telecommunications and broadcasting, emergency services, public IT servers and electricity providers).

1.10 Beyond the short-term measures, the EESC also recommends a series of medium- and long-term measures:

The EESC asks the European Commission to develop plans and to undertake the following EU-wide coordinated measures and actions:

[1] EU Agency for the Cooperation of Energy Regulators.

1.10.1

- massively speed-up the procurement of critical energy infrastructure, i.e. simplify and streamline EU regulations that slow down the procurement of critical energy infrastructure.
    - The new EU Water Framework Directive. Priority must be given to securing a quick energy supply;
    - The EU's new supply chain regulation has to be simplified. The focus should be on securing a sustainable supply of critical raw materials and goods to the EU, negotiated in bilateral trade-agreements;
- reinforce production chains and transport systems to offset possible future disruption to the availability of critical raw materials for EU firms (industry and trade);
- reduce dependence on imports of critical materials and prefabricated products;
- focus on the EU's technological sovereignty/autonomy;
- develop a cross-border power network infrastructure (380 kV or higher);
- secure the production of transformers for electricity voltage change (high/low, AC/DC);
- restart the thousands of energy production projects (hydropower, geothermal, hydro storage, etc.) that have been sidelined for years either because they had a bad pay-back ratio (due to cheap gas from Russia) or due to bureaucratic barriers;
- explore new exploitation technologies. There are several regions within the EU with substantial natural gas reservoirs which can be extracted using new technologies recently developed by European universities. In light of the EU's target for energy sovereignty/autonomy, the EU should seriously look into these new technologies and encourage the regions to try them.

Step up vocational training and skills for electricians and farmers and create jobs in water stewardship.

The EESC recommends that the number of European STEM-students (STEM = **S**cience, **T**echnology, **E**ngineering, **M**athematics) be increased, since it is remaining stagnant while countries in Asia have substantially increased their numbers of physics, ICT and engineering students. The EESC recommends setting initiatives and incentives to increase the number of
1.10.2 additional engineers, technicians and high-tech jobs in Europe to reach its technological sovereignty/autonomy goals.

1.10.3 Last but not least, the EESC estimates that it is important to keep the purchasing power of EU citizens and consumers high by focusing on the EU's technology sovereignty/autonomy and thus reducing its dependence on imports (technology and energy imports) and increasing the number of high-tech jobs in Europe.

1.11 To summarise the conclusions and recommendations, the question is whether the order of priorities in the mind of consumers has switched from: 1 environment, 2 price and 3 security of
1.10.4 supply to: 1 security of supply, 2 price and 3 environment.

2. General comments

2.1 Definition of 'emergency management': 'emergency management' means the organisation and management of the resources and responsibilities for dealing with all humanitarian aspects of emergencies, i.e.:
- prevention
- preparedness
- response
- mitigation
- recovery.

2.2 No one knows how long this brutal war in Ukraine will last, how much infrastructure will be destroyed, or how many millions of Ukrainian refugees will flee to the EU Member States – adding millions of new consumers to the single market.

2.3 The war in Ukraine will certainly have dramatic consequences for the EU, since the EU heavily relies on fossil fuels and raw materials imported from Russia and Ukraine. Investment into own mining and production facilities for power is urgently recommended to achieve autonomy/sovereignty – one of the EU's main goals.

2.4 In 2021, some European countries imported 100% of their natural gas imports from Russia, and some imported around 70% of their oil imports from Russia. As of September 2022, some EU-countries (e.g. Poland, Bulgaria and all three Baltic States) had stopped importing gas from Russia and many EU-countries had managed to considerably reduce their imports of Russian natural gas by increasing gas imports from other countries, primarily LNG via LNG-terminals. In response, gas-prices have soared and are still rising in the EU. As of July 2022, average gas prices in the EU have been approximately eight times higher than in the USA, thus adversely affecting the EU's competiveness.

2.5 Consequently, the risk of massive job losses in the EU is increasing. According to EUROFER, the EU steel industry directly employs 330 000 highly-skilled people, and indirectly supports up to 2.2 million more. The aluminium, cement, paper, glass and chemical industries also directly and indirectly employ hundreds of thousands of people. Within the single market, the production facilities for energy production could provide hundreds of thousands of new well-paid jobs, and therefore increase the purchasing power of EU consumers.

2.6 As regards food security, European countries will systematically seek to become less dependent on the supply of wheat from Ukraine and Russia. We need to look into fertiliser subsidies, set aside land for food and feed production and use agri-food waste to produce biogas.

3. Disaster preparedness[2]

3.1 The EU has done a great deal regarding preparing for emergencies, however, the war in Ukraine has shown the EU that it has to continue and even step up its efforts in the following areas:

[2] https://ec.europa.eu/echo/what/humanitarian-aid/disaster-preparedness_de.

– power outages (blackouts) caused by technical failures, cyberattacks, etc. that could affect:
  - communication systems;
  - sanitation systems, water supply and wastewater treatment;
  - industry business continuity;
– electricity and gas rationing plans for EU consumers and EU industry. This risk has increased dramatically since the war in Ukraine;
– disruption to the availability of raw materials due to production chain or transport system breakdowns (e.g. the traffic jam involving 400 large cargo ships in the Shanghai harbour in April 2022 due to Shanghai's COVID-19 lockdown);
– cyber threats or incidents: how could the EU build business resilience and ensure business continuity to safeguard the supply needed for EU consumers?
– other attacks: enterprises must be equipped to withstand and rapidly recover from attacks.

3.2 Emergencies and disasters emphasise the importance of the UN's 17 Sustainable Development Goals (SDGs)[3]. Disasters can be natural disasters[4], disasters caused by industrial or technological accidents (man-made machinery, ABC disasters), war and political and civil disasters[5], epidemics and famines, and the impact of food and feed production.

4. Important organisations within the European Commission

4.1 The EU does not lack competent and specialised bodies to help guide the debate and preparations on 'Emergency preparedness'. Specifically, these include:

- DG ECHO (European Civil Protection and Humanitarian Aid Operations)[6];
- ERCC (Emergency Response Coordination Centre)[7];
- UCP (Union Civil Protection) Knowledge Network[8];
- European Union Civil Protection Mechanism (UCPM)[9];

5. Current examples of potential critical emergencies for the EU Member States, especially in the field of energy-producing facilities

5.1 Breakdown in the fossil energy production supply chain (coal, oil, natural gas, uranium). In 2021, fossil fuels made up approximately 80% of all primary energy used in the EU, the majority of which had been imported.

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3 https://sdgs.un.org/goals.

4 https://www.conserve-energy-future.com/10-worst-natural-disasters.php.

5 https://www.samhsa.gov/find-help/disaster-distress-helpline/disaster-types/incidents-mass-violence.

6 https://ec.europa.eu/echo/index_de.

7 https://erccportal.jrc.ec.europa.eu/.

8 https://civil-protection-knowledge-network.europa.eu/.

9 https://ec.europa.eu/echo/what/civil-protection/eu-civil-protection-mechanism_de.

5.2 Power blackouts and subsequent communication breakdowns caused by technical failures, cyberwar or terror attacks. Renewable electric power production is erratic: the wind does not always blow and the sun does not always shine when the EU needs high amounts of energy, thus any increase in wind and PV-power generation capacities within the EU has to be accompanied by a build-up of huge energy storage facilities.

5.3 The ability to secure critical raw materials supplies (copper, lithium, cobalt, rare earth elements, etc.) through new EU single market strategies on mining, recycling, etc.

5.4 The ability to secure a competitive single market for half-finished product supplies (e.g. the EU auto industry has seen a severe shortage of Ukrainian-produced cable looms since the war in Ukraine started).

5.5 The material requirements for the enormous number of wind turbines needed to reach the decarbonisation goals for electricity production exceed the annual global production of copper by a factor of 14 (25 million tons versus the 350 million tons needed), the annual global production of aluminium by a factor of 7.2, and the annual global production of the special steel needed for wind turbines by a factor of 3.9. Solar panels are mainly produced in China.

5.6 Massive fossil fuel supplies are urgently needed until a sufficient amount of production facilities for renewable energy installations has been built in the EU.

6. **Response**

6.1 Given the magnitude of the EU's energy consumption, the EU's green transition will take roughly two decades. The Council meeting in Versailles recommended that the transition be accelerated, which would prove a very challenging task.

6.2 The major bottleneck preventing a faster transfer is not only about money, but rather the materials needed for the approximately 700 000 large 5 MW wind turbines needed across the EU, and the millions of photovoltaic installations, fusion energy, waterpower and energy storage facilities. In addition, geothermal facilities and hydrogen and ammonia and CO_2-storage facilities will have to be built. In order to distribute the massively increased amount of decentralised electric power generated, high-voltage and medium-voltage power transmission lines will have to be expanded on a colossal scale.

6.3 Each of these 700 000 large 5 MW wind turbines (which typically produce 12.5 GWh of electric energy p.a.) has a height of around 200 metres, a foundation of around 2000 tons of reinforced concrete, requires approximately 600 tons of special steel, 20 tons of copper and a supply of very scarce rare earth materials which have to be imported mainly from China or Russia. If these tons of materials required are multiplied by the approximately 700 000 wind turbines needed within the EU, it becomes clear that we will need huge amounts of concrete, steel, copper and other materials – the production of which would emit huge additional amounts of CO_2. For rare earth elements (for the electric generators and batteries), neodymium, dysprosium, etc., the shortage problem is even more dire, and would be very difficult to solve by 2050.

7. **Mitigation**

7.1 If Germany continues to build wind turbines at 2021 rates, building the 70 000 wind turbines needed for the Green Deal would take 160 years.

7.2 To summarise, many engineers claim that achieving the Green Deal goals by 2050 is very challenging due to shortages of materials (rare earth elements, copper, steel, etc.), and of engineers and skilled workers (e.g. electricians) both being necessary for the EU's Green Deal..

8. **Prevention**

8.1 Many energy-intensive industries are to be converted to renewable green hydrogen or ammonia produced by renewable electric power by 2050, including the steel industry, the chemical industry and the cement industry. Many people are unaware that transitioning all these energy-intensive industries requires approximately 10 times more renewable electric power than the transition to e-mobility and decarbonising the steel industry.

8.2 Iron and steel production accounts for a quarter of all global industrial CO_2 emissions. Around 1 870 million tons of steel were produced worldwide in 2020; approximately 57% of that was produced in China, and 7% in the EU. Of the 1 870 million tons of steel produced globally, around 1 300 million tons (65%) are made via the integrated blast furnace route, where iron ore is reduced with coke, generating very high CO_2 emissions (approximately 1.4 tons of CO_2 per ton of steel).

8.3 Within the EU 27 Member States, approximately 150 million tons of steel are produced p.a., approximately 90 million tons thereof via the blast furnace route. To switch the production of these 90 million tons of pig iron (reduced in the blast furnace with coke) to renewable hydrogen green iron, around 360 TWh p.a. of renewable electricity would be needed (by 2050). 360 TWh p.a. is a huge amount of renewable energy! It is more renewable electricity than that needed for the electrification of all passenger cars in the whole EU. No less than 30 000 large wind turbines will be needed to produce this renewable electricity for the EU's steel industry.

8.4 Looking at the European Union, electricity production in 2019 was approx. 2 904 TWh, only around 35% of which was from renewable sources. However, about 38% (1 112 TWh) was produced from fossil fuels and around 26% from nuclear power (765 TWh). Only 13% was produced from wind power, 12% from hydropower plants, 4% from solar power plants, 4% from bioenergy and 2% from geothermal supplies. The bulk of renewable electricity generation in the European Union in 2019 (1 005 TWh) was from wind power (367 TWh, 42% of all renewables). A further 39% was generated by hydropower plants (345 TWh), 12% from solar power plants (125 TWh) and the remaining 6% from bioenergy (55 TWh).

8.5 The expansion of pumped storage hydropower plants is necessary to stabilise the grid in the event of an imminent blackout.

8.6 Hydropower must be moved up the energy and climate policy agenda. Sustainably developed hydropower plants need to be recognised as renewable energy sources. Governments should include large and small hydropower in their long-term deployment targets, energy plans and renewable energy incentive schemes, on a par with variable renewables.

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