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SYNERGY

BİLKENT ENERGY POLICY RESEARCH CENTER NEWSLETTER

Finland's Approach to NATO

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ABOUT US

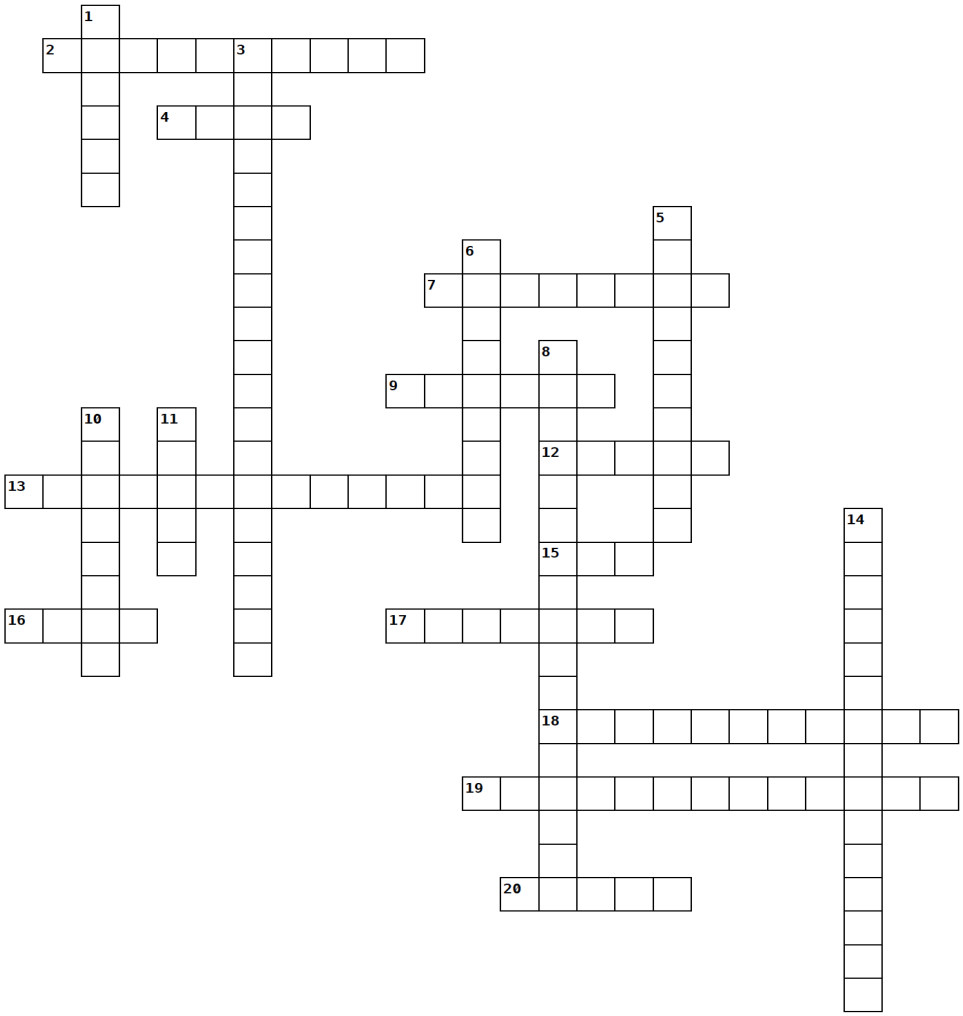
Energy Policy Research Center

Synergy is a weekly online newsletter published by volunteers on bilkenteprc.com. It welcomes feedback from readers. Please submit your letters to eeps@bilkent.edu.tr. The Editorial Board will review the letters and print them as space permits. The contents of this newsletter are the author's sole responsibility. They do not necessarily represent the views of the Bilkent Energy Policy Research Center or any of its Members.

BRENT OIL	116,42 $/BL	GASOLINE	25.12 ₺/LT
USD/TRY	16.38	DIESEL	24.56 ₺/LT
EUR/TRY	17.64	FUEL OIL	16.57

Weekly Puzzle

Prepared by Büşra Öztürk



Across

2. The shortage of the most fundamental and first natural resource

4. A network system that provides transmission within the city

7. Pollution form caused by leakage of petroleum into the environment

9. Time interval when energy demand and price is high

12. An intergovernmental foundation mandated to enable cooperation and promotion of the use of renewable energy sources.

13. Longterm shifts in weather conditions and temperatures

15. An abbreviation of the European leg of the Southern Gas Corridor that is transporting natural gas from Azerbaijan to Europe

16. The measure of energy released by burning million tons of crude oil

17. A form of energy released from the core of an atom

18. An industrial plant that refines crude oil to produce fuels such as gasoline

19. Name of United Nations Framework Convention committed by countries to adopt policies on reducing the emission of gases.

20. The country which has the biggest hydroelectric facility in the world

Down

1. The country embracing recently an increment plan of gas supply to Europe

3. A system that helps to restore rain for the further reuse

5. Module that is designed to collect sun's rays to produce energy

6. Electricity produced by using aerodynamic force

8. Producer of very striking documentaries about how humanity destroy nature and cause climate change

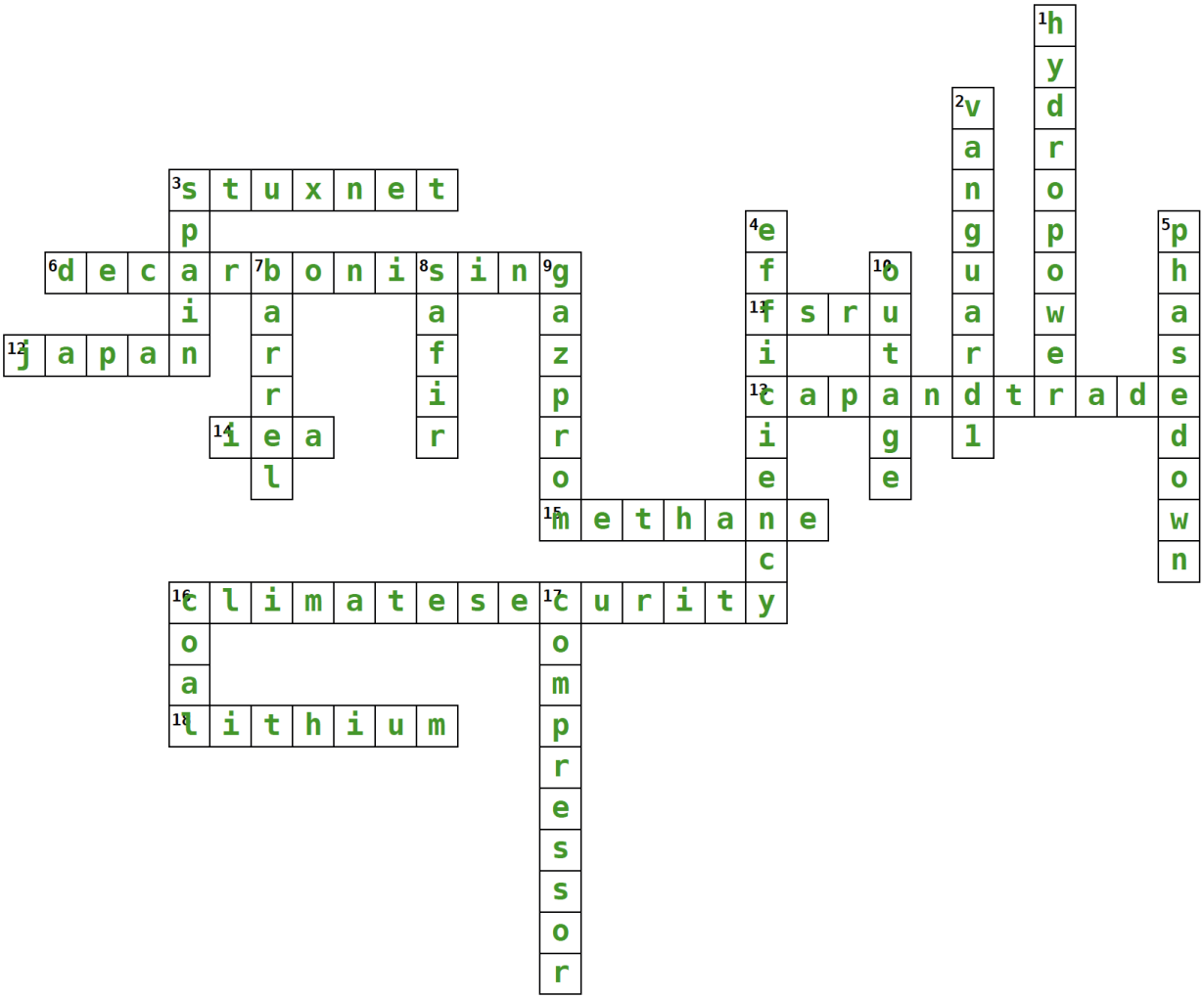
10. A release of greenhouse gases to the atmosphere

11. The property of crude oil when API gravity is low

14. An individual who actively campaigns for the problems related to climate change

Previous Week's

Correct Answers



Across

3. A cyber worm attacked Iranian nuclear facilities

6. Reducing the amount of carbon compounds in British English

11. An abbreviation for LNG storage and supply ship

12. The country which has the largest nuclear power plant in the world

13. An emission trading scheme that allows emitting greenhouse gases via an exchange (hint: 3 words)

14. An organization that is at the heart of global dialogue on energy

15. A gas warms the climate 25 times more than an equivalent amount of CO2

16. Recently become synonymous with energy security

18. A fundamental element of battery resource for electric vehicles and energy storage.

Down

1. Nearly every state uses that facility to produce electricity

2. The first solar-powered spacecraft

3. The European country approved rules to cap natural gas prices

4. Avoiding and eliminating energy waste

5. A term which is changed from "phaseout coal" by India's demand

7. A unit of crude oil volume

8. Tanker name at risk of spilling oil into the Red Sea

9. The company which rules the Yamal pipeline

10. The period in which generating unit and transmission line are inactive.

16. Fuel that produces the most amount of CO2

17. One of the most important parts of natural gas transmission

Enerji Politikaları Araştırma Merkezi

Enerji Söyleşileri

Alkım Bağ Güllü

SHURA Enerji Dönüşümü Merkezi - Direktör

2 Haziran 2022

21:00 zoom

Kayıt için:

Inconsistency Revealed at G7 Climate Meeting

Erkin Sancarbaba

After the G7 Climate, Energy, and Environment Ministers Meeting held in Berlin on 26-27 May 2022, an extraordinary call came to the agenda from the ministers attending the meeting. In the communique, it was stated that the fight against climate change should gain momentum. On the other hand, oil and natural gas producing countries, were called to increase their energy supply. Although this call was aimed at relieving the cramped international energy market, it can also be understood as the fact that the previously determined climate and energy transition targets were revealed to be hasty and far from reality.

It can be interpreted that the call of the G7 ministers, which is similar to the statements made by other authorities before, aims to face reality. From the perspective of the European Union, European countries were importing 155 billion cubic meters of natural gas annually from Russia before the Ukraine crisis. This amount corresponds to 40% of the natural gas imported by European countries in total. Considering the current situation in the energy markets, it does not seem that easy to meet the natural gas need from other sources by gradually reducing the amount imported from Russia. To achieve this target, it is necessary to ensure that energy-producing countries increase their supply. In this respect, it is not surprising that the G7 countries and other countries demand that energy-exporting countries, including OPEC members, increase the natural gas and oil supplies.

However, OPEC+ countries, including Russia, do not plan to increase their production significantly for July. OPEC+ members stated that they will increase their oil production targets by 432,000 barrels per day for July 2022, adhering to the oil production agreement agreed in June 2021. Foreseeing such a modest increase in production means that Western countries' demands for an increase in energy supply are rejected. We see that the current situation has led to a dead end, especially for the European Union countries. Short-term contracts made with the belief that the energy transition can be realized in a short time have put the energy supply security of European countries in danger.

After the crisis in Ukraine affected the international markets, many countries had to review their current energy policies,

especially as the problems in energy supply affected the prices. In fact, countries have faced an energy supply security crisis that is too deep and complex to be reduced to the rise of energy prices alone.

The aforementioned crisis environment has made the establishment of energy supply security the main priority of the governments. For this reason, there are serious differences between the statements and decisions made by policymakers before and after the Ukraine crisis. This call by the ministers of the G7 countries is also inconsistent with the energy transition and climate targets that were already set before the crisis in Ukraine. At this stage, as a result of the current developments, the priority of short-term energy security overtakes the long-term climate roadmap. This shows that long-term energy transition and climate plans have been made by ignoring short-term interests and priorities.

All in all, the targets set within the scope of the current climate roadmap are not consistent with countries' short and medium-term energy supply security. While determining long-term roadmaps for achieving climate goals, the short and medium-term interests of countries should not be ignored and current achievements should not be abandoned. An active and inclusive consultation mechanism should be established between governments and the common interests of stakeholders should be identified. Short, medium, and long-term goals should be determined in a way that is consistent with each other and a comprehensive and detailed roadmap should be created rather than general recommendations. While determining the targets and roadmap in this process, the current and possible crises that the world may face in terms of political, economic, and social aspects should not be ignored. It is important to carry out the comprehensive feasibility of the targets foreseen within the scope of the determined roadmap for possible crises. Climate and energy transition targets set in the context of the opposite conditions are in danger of becoming the victims of the possible political, social, and economic crises.

Recycling in Turkey and European Countries

Nur Durmaz

Recycling, made in various ways since the 11th century in human history, has pros and cons. The positive effects such as reducing environmental pollution, establishing a green world awareness, and increasing new business areas are known by everyone. In addition, waste collection facilities do not become the priority choice of some countries since the process consumes more energy and is expensive. While the number of waste recovery facilities in Turkey was 2057 in 2018, this number increased to 2568 in 2020. Despite this, municipal waste sent to recycling facilities increased by only 0.9% and reached 13.2%.

Although every effort to prevent environmental pollution and leave a better world for new generations triggers better and more planned work, Turkey's situation is not a good place compared to countries such as Germany, Sweden, and Norway. Since 2016, Germany has had the world's highest recycling rate, with 56.1% of all waste generated last year recycled. In 1990, Germany conducted a packaging inspection to help prevent the potential increase in landfill problems.

Policymakers have held manufacturers responsible for the packaging waste they develop to help prevent landfill problems. Manufacturers' response was to create the "Green Dot" application, the world's first multi-recycling system to collect waste from homes and businesses. This cooperation led to an increase in the recycling rate in Germany from 3% in 1991 to 56.1%. In January 2019, the country implemented the German Packaging Law. The legislation's primary purpose is to prevent or reduce the impact of packaging waste on the environment and make retailers more responsible for promoting environmentally friendly products.

A member of the European Union (EU) also participates in the Circular Economic Action Plan, aiming to make sustainable products the norm. The European Commission adopted the new circular economy action plan in March 2020. It is one of the main building blocks of the European Green Deal, Europe's new strategy for sustainable growth. The EU's transition to a circular economy will reduce the pressure on natural resources and create sustainable development and employment. It is also a prerequisite for achieving the EU's 2050 target of climate neutrality while at the same time halting the loss of biodiversity.

The new action plan announces initiatives throughout the entire life cycle of products. This plan aims at how products are designed, promotes circular economy processes and sustainable consumption, avoids waste, and ensures that the resources used are kept in the EU economy for as long

as possible. It also offers legislative and non-legislative measures targeting areas where actions at the EU level provide real added value. Of course, alongside long-standing agreements, state-enforced rules also restrict single-use items and prohibit the destruction of durable goods that are not sold in the trading bloc.
Since the human waste rates of Germany, with a population of 83.24 million, and Turkey, with a population of 84.34 million, will be approximately similar, the difference in recycling rates between 56.1 % and 13.2% is noticeable. Therefore, Turkey needs to take steps in this regard. Among all these ratios, imported plastic waste is present, although the low rate indicates that Turkey needs to develop further.

Sweden, a member of the EU, recycles almost all of its waste. But some sources say this is simply because the country counts energy recovery from incineration as a form of recycling, which does not fit the term "recycling." But despite this, Sweden has reduced its carbon dioxide emissions by 2.2 million tons per year by first converting its waste into energy. Between 1990 and 2006, it was estimated that carbon dioxide emissions decreased by 34%, and greenhouse gas emissions would decrease by 76% by the 2020s compared to 1990. Secondly, Sweden uses the method of instilling recycling awareness in people at an early age. Children are taught to recycle from a very young age, making it a way of life in Sweden. There is even a national day when children from all over the country gather to collect garbage and clean up their surroundings. Teachers have undergone special training to involve children in practical activities such as making their papers or enforcing school waste policies.

Eventually, everyone in the country stepped in, making recycling easy, accessible, and convenient for Sweden. A recycling station can be found no more than 300 meters from any residential area. Like in Germany, there are ways to encourage people: Swedish citizens receive discount coupons as a reward for using nearby recycling machines.

A country does not need a regular organization like the EU to be more environmentally friendly and collect its waste more appropriately. Today, Turkey can reach an advanced point in recycling, like Germany, without relying on any joint action plan by ending the purchase of plastic waste and achieving a sufficient and planned waste shredding power. In addition, as in Sweden, it can be ensured that people at least make waste separation by raising awareness of individuals at an early age. By bringing consumption hunger to low levels in one place, improvements can be made both in recycling and energy use. The increase in sanctions and the use of reward methods is one of the steps taken on Turkey's path to becoming a greener country. Even though there are applications that make a lot of noise in some municipalities, they are not sufficient throughout the country, and the systems need to be developed further.

Finland's Approach to NATO

Yaren Öztürk

Since the beginning of the war between Russia and Ukraine, European countries have imposed sanctions on Russia in many fields. Russia, in response, said that what it calls "non-enemy" countries should pay Russia for gas purchases with the ruble. On the other hand, European countries are divided on how to act toward Russia's demand. Although some countries named it to blackmail and refused to pay in rubles, countries such as Germany and Italy pointed out after negotiations with the European Union, that they could open a ruble account to continue purchasing Russian natural gas without violating sanctions against Moscow. On the other hand, Russia declared last week that about half of the 54 foreign customers owned by Gazprom PJSC opened a ruble account.

Poland, Bulgaria, and lastly Finland refused to comply with this request of Russia and gas flows were halted. The pipeline from Russia recently accounted for about 66% to 75% of Finland's natural gas supply. Russia's gas exports to Finland were already declining from 2018 to this year, when shipments were around 2.6 billion cubic meters. It is a fact that the majority of the natural gas used in Finland comes from Russia, but natural gas only accounts for 5 percent of the country's annual energy consumption. On the other side, Finland is a relatively small customer of Gazprom. Gazprom's exports to Finland accounted for approximately 1% of the company's total sales to Europe and Turkey in the first half of last year.

The Finnish energy company Gasum stated that they are prepared for the movement of Russia. They said they would continue to supply natural gas to their customers through the Balticconnector pipeline, connecting Finland with Estonia. Gas filling stations will continue in regular working order. However, the capacity of the Balticconnector pipeline may not be sufficient to meet demand in Finland. The Finnish government announced that they had signed a 10-year lease agreement with Estonia for the LNG terminal ship from the US-based Excelerate Energy for the coming winter. The country's Finance Minister, Annika Saarikko, stated that the new LNG ship is an essential step toward improving Finland's energy supply security. CEO of Excelerate Steven Kobos stated that Finland and Estonia demand about 3 billion cubic meters per year and that the tanker can deliver 5 billion cubic meters per year. Kobos also said that Excelerate plans to deploy its Exemplar vessel in Finland by the end of this year and that its offshore LNG terminal could replace with Russian natural gas. Currently, the ship is in Argentina and will set sail for the Baltic Sea after winter ends in the southern hemisphere. On the other hand, according to a survey conducted in April and published on May 16, it is seen that around 60% of Finnish people support nuclear energy in the fight against climate change, and only 11% take a stance against it. Finland's renewable and nuclear energy share accounted for 87% of its electricity production in 2021. This rate is expected to exceed 90% by 2023 in Finland.

Another critical case following Russia's halt of gas flow to Finland is Finland's official application to NATO. Finland with Sweden had significantly increased its political support for the western alliance after the invasion of Ukraine. Last week, Finland put aside its historical neutrality and applied for NATO membership together with Sweden. On the other hand, Russia had sternly warned Finland that it would cause a serious mistake with far-reaching consequences if it applied for NATO membership. Both Finland and Sweden are on their way to joining NATO, with their warm approach to US President Joe Biden's proposals. All 30 member states of NATO must be unanimous for Finland and Sweden to join NATO. At this point, Turkey expressed its discomfort with Sweden and Finland about their support to the terrorist organization and gave the first signals that they might have difficulties at the NATO gate. Russian Defense Minister Sergei Shoigu asserted that the Kremlin would respond to NATO expansion by establishing more military bases on Russia's western flank.

From a historical point of view, Finland has spent 104 years in quiet steps around neighbour Russia, with which it has had a land border of approximately 1,300 kilometres since its independence. After the Cold War ended, although Finland joined the European Union and got closer to European democracies, both the country's leaders and the public did not see joining NATO as an option. It was important not to disturb the Baltic Sea region's military balance and maintain good relations with Russia. Russia's invasion of Ukraine was the most significant factor pushing both Finland and Sweden to join NATO. If the two countries join NATO, the border that NATO currently has, which constitutes 6% of Russia's land perimeter, will be extended, allowing the alliance to increase its surveillance in the country's western flank. At the point of how long it will take for them to join NATO, it can be predicted that it will be faster progress than the previous members. NATO Secretary-General Jens Stoltenberg also stated that the two countries meet NATO standards in most areas and that the process can progress quickly. Although it is not possible to give an exact date, it can be thought that this process will take about a year, assuming that Turkey will also say yes to this membership.

Materials for Energy Transition: Conceptional Analysis

Gürsel Yeni

From fossil fuels to low-carbon technologies, the energy transition has been realized worldwide during the last decades. Nowadays, the transition has become more critical because of some reasons such as risks to supply chains, increasing prices of fossil fuels, etc. When talking about energy transition, considering material requirements is crucial. Because unless required materials are provided, the countries cannot sustain the transition. A conceptional analysis is the first step of an article series about the materials in this article. Knowing concepts is vital due to understanding and discuss on a topic efficiently. So concepts that are related to the topic being discussed in the article.

The Rare-Earths Elements (REEs): Their atomic numbers are between 57-71. They are also known as lanthanides. Yttrium can be added to the elements because of the elements' same chemical and physical features. When the elements were found out, they were called 'earths.' Although they are quite abundant worldwide, they were named rare because they were rare according to other 'earths' (e.g., Magnesia). They exist abundantly in the Earth's crust, but the concentration of reserves is not high, so they are not economical. They are essential for energy transition because some are required for magnets used in wind turbines and electric motors.

The Precious Metals: They are rare, and their economic value is high. Gold and silver are known as precious metals. Furthermore, platinum group elements (PGMs) (ruthenium, rhodium, palladium, osmium, iridium, and platinum) are also considered precious metals in some sources. Gold and silver are essential for the electronics sector because of their high conductivity. Silver is also a good reflector and is used in the solar sector. Platinum is used as a catalyst which is vital for hydrogen production.

The Base Metals: Copper, lead, nickel, tin, aluminum, and zinc are accepted as base metals, besides steel is also included in the group in some studies. If we compare the metals with the precious metals, base metals are relatively abundant in nature and cheaper than precious metals. However, their conductivity and resilience against oxidation are not high. Copper is vital metal for electric wires and motors. Aluminum and steel are used for the structure of energy plants and vehicles. Nickel and lead are usable for different kinds of solar technologies. The mentioned elements are illustrated in the periodic table in Figure 1.

The Critical Raw Materials: There isn't a generally accepted critical evaluation method for materials. Different sources measure criticality depending on various methods. For example, European Commission (EC) calculates the

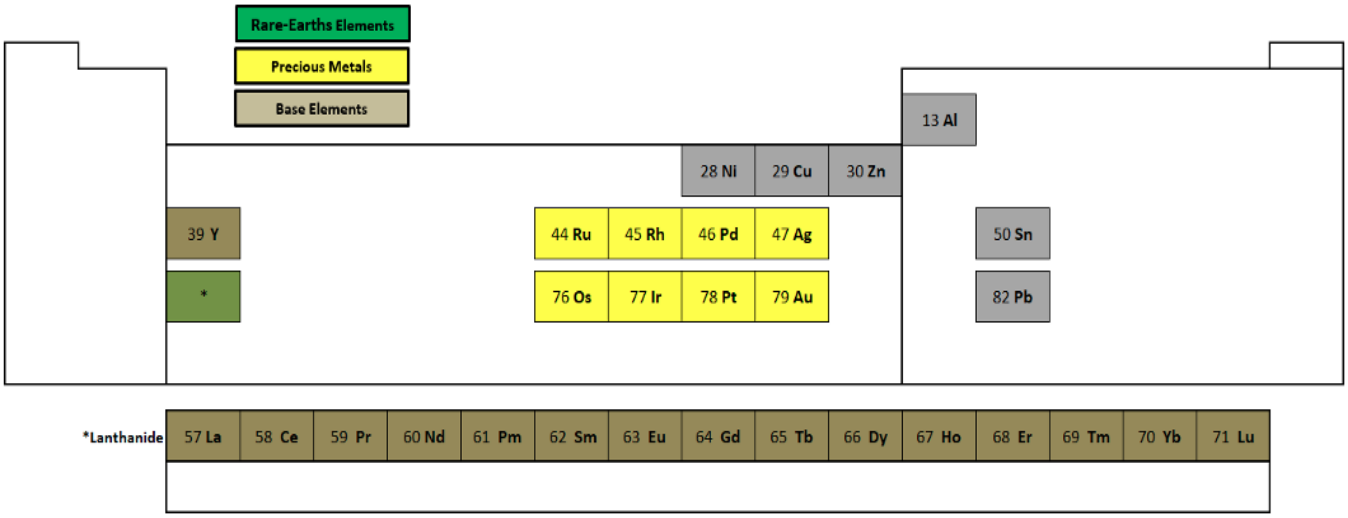


Figure 1: The Different Kinds of Elements in Periodic Table

'criticality' by considering economic importance and supply risk concepts described by the EC Report. In another study, geological and geopolitical supply risk and vulnerability to supply risk, the replaceability of a specific material, and recycling ability are used for the 'criticality' calculation. The critical raw materials list of EC is shown in Figure 2.

30 Critical Raw Materials			
Antimony	Fluorspar	Magnesium	Silicon Metal
Baryte	Gallium	Natural Graphite	Tantalum
Bauxite	Germanium	Natural Rubber	Titanium
Beryllium	Hafnium	Niobium	Vanadium
Bismuth	HREEs	PGMs	Tungsten
Borates	Indium	Phosphate rock	Strontium
Cobalt	Lithium	Phosphorus	
Coking Coal	LREEs	Scandium	

Figure 2: 30 Critical Raw Materials according to the EC

Besides the material type and definitions, some terms are used with the materials, such as reserve and resource. According to the United States Geological Survey (USGS), resource means a concentration of naturally occurring solid, liquid, or gaseous material in or on the Earth's crust in such form and amount that economic extraction of a commodity from the concentration is currently or potentially feasible. On the other hand, reserves are defined as the part of the reserve base that could be economically extracted or produced at determination. The term reserves need not signify that extraction facilities are in place and operative. Reserves include only recoverable materials. So, while 'resource' is a broader term, 'reserves' is an economic and demonstrated part.

On the other hand, according to EC Report, the most outstanding descriptional difference is the licensing permit situation. If a licensing permit is available, it is accepted as a reserve. However, if the licensing permit is probable, it is determined as a resource.

In conclusion, there are different descriptions of terms that relate to materials. Some articles and institutions suggest definitions according to their assessments. Concepts are important to argue, speak and produce new concepts on a topic. Furthermore, It also seems that the terms will be heard and argued more frequently in the following years. So, an agreement should be made on the definitions to discuss the topic.

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