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Armenian National Committee of Helsinki Citizens' Assembly

Advisory document

**Energy transition, carbon neutrality - challenges for the South
Caucasus countries**

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On April 22, 2021, an online climate summit was held. Leaders from over 40 countries participated. The world's largest economies continue to seek ways to reduce human influence on the planet's climate and slow global warming. In 2016, a similar summit led to the signing of the Paris Agreement. The document, to which 195 States subscribed, set a major challenge for humanity - to keep the global average temperature rise well below 2 °C and to exert efforts to limit the temperature increase of 1.5 °C. Five years later, the most powerful nations of the world discussed what technologies could help achieve those goals. The few new technologies that received the most attention at the summit - carbon capture and «clean» hydrogen - now have a rather mixed reputation. But leaders of the world's largest economies, such as Japan, Australia, Russia, and the US, continued to welcome their use as a key to reducing greenhouse gas emissions. «We must always find original approaches to solving problems and remain optimistic about new technologies for climate control», - noted British Prime Minister Boris Johnson. We need scientists in all countries to work together to create the technological solutions that humanity will need - be it capture and storage¹.

The Climate Summit in an online effort is the initiative by the US President Joe Biden. It was in his interest to encourage individual countries to work on their ambitions and to suggest to them that they should step up the pace of action to combat climate change. To some extent, Biden wanted countries to follow the example of the US and take on difficult tasks. For example, the US has committed itself to reducing greenhouse gas emissions in this decade by about half compared to the highest levels of pollution. Japan and Canada supported and aligned themselves with this idea, while the United Kingdom announced an even more ambitious emission reduction target for 2035 (78 per cent emission reduction). If modern industrial, energy, transportation, and food systems do not change, humanity will face a catastrophic rise in temperature of more than 3C already in this century. When 2020, the hottest year in Europe ever observed, came to an end, the EU collectively decided to reduce emissions by 2030. The European Commission has now begun to implement this commitment through concrete policy changes, and the European Investment Bank (EIB) is supporting these efforts with financial strength. Climate-related actions require profound structural changes and huge levels of investment around the world. In Europe alone, meeting the target of reducing emissions by 2030 will require an estimated 350 billion euros of additional investment annually. However, this figure pales in comparison with the costs that would be incurred

¹ <https://republic.ru/posts/100268>

if nothing was done. But financing alone will not achieve what is needed. The solution to the problem requires a road map for the world, for individual countries, for regions. For this reason, the European Commission proposed the European Green Deal in December 2019. This is Europe's new growth strategy, which aims to make the EU a more equitable and prosperous society, through a transition to a more resource-efficient and competitive economy. The ultimate goal is to achieve zero net greenhouse gas emissions by 2050. However, the EU accounts for less than 10% of global greenhouse gas emissions, so European action alone will not be sufficient to slow global warming. In order to keep global temperature increase as close as possible to 1.5°C, decarbonization work must also be done outside EU borders. That is why we need a Global Green Deal.

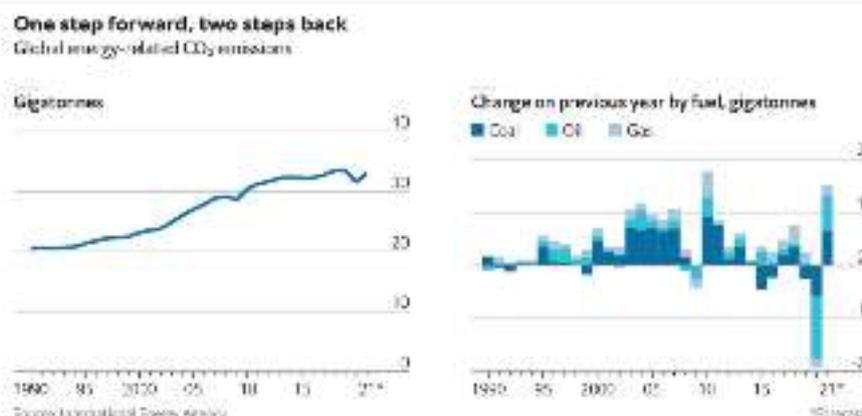
To this end, three investment priorities have been established. First, we must ensure that the most advanced, clean technologies are adopted everywhere. Despite the good progress that has been made in the use of renewable energy, 40 percent of the world's electricity is still generated by coal combustion, which is the dirtiest source of energy. As economic development increases, so does the demand for electricity and the obligation to introduce green technological solutions and connect the world to clean energy grids.

The second priority is a record increase in investment in breakthrough green technologies. Such research and development is not only necessary, but also offers enormous market opportunities. A number of countries, which together account for half of the world's greenhouse gas emissions, have already set themselves the goal of zero net emissions, and others will certainly follow suit. Clean hydrogen, coastal renewable energy, energy storage technologies - all of this could become rapidly growing export industries in developed countries. Finally, the idea of the «closed-loop economy» should be supported. Today, we are taking from our planet more than it can give us, and the consequences of this strain will become more dramatic and destructive with each passing year. We must urgently reduce the ecological and carbon footprint of the goods we consume. This requires investing in closed-loop technologies that reuse resources rather than permanently producing or importing new products or extracting more and more raw materials. The Green Deal is not just an environmental policy; it is an economic and geopolitical necessity.

In addition to the obvious misfortunes - the economic crisis and the health crisis - the pandemic has shown some positive aspects: the decline in CO emissions, the real possibility of remote work, the prospect of the introduction of unconditional basic income. Sceptics, however, expect that once the economy returns to normal, it will jump, and with it, emissions, consumption, and everything else, that hampers sustainable development. The coronavirus quarantine has dramatically reduced greenhouse gas emissions into the atmosphere, but global warming continues

unabated, ignoring the purity of the air in mega-cities. To stop the warming of the planet, a one-time crisis must be turned into a systemic one, international organizations warned and estimated. The world has received a historic chance to put the economy back on track once and for all: if money and political will were constantly lacking in costly restructuring, then both are now both. The governments of the world's largest countries have allocated astronomical sums - more than \$10 trillion - to deal with the crisis. If this money is properly spent, it may be possible to avoid a repetition of the recent past, when, after the 2008-2009 financial crisis, emissions fell not only immediately back to their previous level, but also rose at record rates (see figure 1).

Energy related global CO2 emissions



Source: <https://www.economist.com/graphic-detail/2021/04/20/greenhouse-gas-emissions-are-set-to-rise-fast-in-2021>

Since then, the world had unequivocally recognized that warming must be fought, and almost all the countries of the world had signed the Paris Agreement on Reducing Emissions. "The current state of affairs provides the authorities with a unique opportunity. Compared to the 2008-2009 crisis, traditional clean energy technologies are now much more affordable and affordable, and new developments are ripe for large scale implementation," the authors of the plan say: International Energy Agency (IEA) and International Monetary Fund (IMF)².

In order to achieve the goals of the Paris Agreement and keep the rise in global temperature within a degree and a half of the pre-industrial level, emissions would have to be cut by 7.6% annually over the next decade, warned the UN at the end of last year.

² <https://www.imf.org/external/russian/pubs/ft/fandd/2020/09/pdf/fd0920r.pdf>

Coronavirus has done this task for the people - this year's reduction will be just like that. But the price is not acceptable to the people or the politicians: millions have lost their jobs, tens of millions have saved seats only thanks to generous benefits and government aid, which cannot go on indefinitely.

Transforming the economy into a light and clean one will cost relatively little. In the last crisis, about 15 percent of all CPR costs were invested in green technologies. And even as emissions rose, those incentives eventually led to the explosive development of renewable energy and other cleaner production. In many thanks to them, for example, Tesla of Elon Musk has conquered the world.

If you invest the recommended 3 trillion now, the share in total costs will be about the same, but emissions will decrease, promises IEA. And, potentially a new technological breakthrough.

However, the authorities have been slow to issue environmental appropriations. Of the nearly \$12 trillion pledged aid in the world's 50 largest economies, only \$60 billion (0.5%) has been promised on green initiatives by Bloomberg. Two-thirds of this will be spent by Germans in the richest country in Europe. One trillion dollars a year - relatively little money, just over 1% of global GDP.

Since investment accounts for about a quarter of the world economy, or about \$23 trillion, it is only a matter of a mere 4 per cent of investment in what prevents global warming. And not necessarily new money - some is already being spent on renewable energy, emission reductions, and energy conservation. While clean energy sources are available to everyone, those who profit from the products used to exploit them will benefit. Solar panels, wind turbines and batteries will be in demand to such an extent that countries are already competing for their share. But many will be left behind. About 60% of solar panels are produced by Chinese companies - a level of influence OPEC can only dream of. This guarantees a great trade advantage, but China cannot use it alone for geopolitical purposes.

Global inequality and competition are likely to revolve around access to technology and finance, standard-setting and control over key commodities. China controls over 90 per cent of some rare earth metals needed for electric vehicles and marine wind turbines. On one occasion, Beijing had already used its monopoly to cut off supplies to Japan following a 2010 clash near islands claimed by both countries. Since then, Japan has reduced imports of rare earth elements from China by more than a third to reduce its exposure.

«Green economy» can also create problems for individual countries. Thus, emission reduction commitments can encourage oil producers - especially those with high production costs or small reserves - to pump oil as quickly as possible as long as demand persists. Increased supply

will increase carbon emissions as well as lower oil prices, making it more competitive than renewable energy sources and slowing the transition to cleaner energy.

Cheap oil can also bankrupt weak regimes before they can find other sources of revenue. A February study by the Carbon Tracker Think Tank showed that if global climate targets were met, the government's oil and gas revenues would fall by 51% on average. This can destabilize governments and deprive countries like Nigeria or Iraq of the opportunity to combat threats from terrorist organizations such as «Boko Haram» and «Islamic State»³.

In a recent report, the European Council on International Relations concluded that rich countries would have to help fix financial gaps. «Green Deal» EU, in particular, can have as much influence on regional geopolitics as on the climate of the Earth. The block produces less than 10% of global CO₂ emissions, but its neighbors such as Algeria, Azerbaijan, Russia and Turkey depend on the European market, which buys a large share of their exports. Many of them consume large amounts of carbon and are vulnerable to the EU's planned cross-border carbon tax⁴. There is no guarantee that the conflict will be alleviated if these countries become more energy-independent. Oil is the most traded commodity on the planet, and any sharp decline in demand will reduce these linkages. Specialists divide the world into three categories. The first consists of countries like Iceland that have already made the transition and have almost nothing left at stake. The second is oil-producing States dependent on exports, which lose the most. The third and least studied group are countries that both produce and consume fossil fuels. These countries may choose to decarbonize their economies while maximizing revenues from oil, gas and coal exports. This is an unpredictable factor that can affect both international policy and the length of the transition period. The challenge is to ensure a safe exodus for all countries that depend on existing fossil fuels, but continue the transition.

Armenia, like the other countries of the South Caucasus, signatories of the Paris Agreement, has embarked to the implementation of the Paris Agreement. On 22 April 2021, the Government of France adopted the Paris Agreement Program of Action for 2021-2030 by decree N 610-CLAY.⁵ According to the document:

a/ The starting point for the calculation of absolute emission reductions is 1990. The 1990 emission levels are used as a reference in many countries. The Russian Federation and the EU use and will continue to use the 1990 starting point.

³ <https://carbontracker.org/reports/petrostates-energy-transition-report/>

⁴ <https://www.profinance.ru/news/2021/03/16/c1ge-za-cho-to-budut-borotsya-strany-v-epokhu-zelenoj-energetiki.html>

⁵ <http://www.irtek.am/views/act.aspx?aid=110389>

b/ The 35-year period of the first program of action of the RA has been shortened to 10 years - instead of 2015-2050. A new date of 2021-2030 has been set, and the new terms and conditions are harmonized with the terms and conditions.

c/ The new mitigation target, to be achieved by 2030, has been identified as equivalent to a 40 per cent reduction in emissions from 1990.

d/ Armenia is committed to implementing mitigation measures in all sectors of the economy, aiming for 2050. To achieve net emissions of 2.07 tonnes of CO₂ per capita, with sufficient international support to develop financial and technological capabilities.

e/ By 2030, Armenia will have doubled the share of renewable energy in energy production towards climate neutrality in the second half of this century.

Of course, we have to admit that the commitments made are very ambitious. To do so, we had to start yesterday. The energy sector is particularly vulnerable. RA Energy Strategy 2040⁶ (adopted by the Armenian Government Resolution 14.01.2021) The plan is to increase the share of alternative energy to 20 per cent of the total, and by 2030 the share of solar energy production will be at least 15 per cent or 1.8 billion kWh. At the same time, the simultaneous use of nuclear energy as well as thermal energy will continue. It is clear that financing is needed to increase the rate of construction and exploit new opportunities of renewable energy, but such a strategic approach in our opinion will not help to solve the problems of ecosystem change in the energy system of Armenia. For the sake of clarity, let's take the example of Finland, which is already solving the problems with emissions right now. In the first three months of 2021, Finnish oil imports of the Urals brand fell by a quarter. Experts attribute this to the country's transition to renewable energy and the phasing out of fossil fuels. The decrease in oil supply to Finland is related to the country's energy transition programme from fossil fuels to renewable «green» sources. Neste Oil transformed one of its two factories into an oil storage facility in March, while the other is reducing its refining due to reconstruction - it will be reoriented to recycling waste and renewable raw materials. Finland has been reducing oil purchases from Russia for years - imports fell by 16% in 2020 as compared to 2019.⁷

Armenia is a land-locked country with fragile mountain ecosystems already negatively affected by climate change and water scarcity. Consequently, adaptation policies and measures are important for Armenia's ability to achieve its socio-economic development goals. In addition to changing the philosophy of development and the structure of the economy, an appropriate external

⁶ <http://www.irtek.am/views/act.aspx?aid=108929>

⁷ <https://www.rbc.ru/economics/17/05/2021/60a2d37e9a79478b25aed4d5>

environment is needed to meet the responsibilities that it has assumed. For a long time - more than 30 years - Armenia has been under a de facto blockade by its two neighbours. The traditional transport services used by the country are not functioning, and the new ones that are now in use are more expensive, which increases transport costs by an international estimate of 10-15%, which, of course, reduces the competitiveness of Armenian products. Solving the problem will significantly change the situation not only for Armenia, but will also create new opportunities for more effective use of the existing economic, natural and human potential of the South Caucasus as a whole. At the same time, the challenges that all three countries have in terms of creating and having a green ecosystem separately can be less costly and time consuming when tackled together.

The best example would be the idea of creating a common energy system, joint use of water resources. Of course, this approach will help all countries in the region, much earlier than the scheduled time for individual countries, to create a new ecosystem without carbon dioxide, with a predominant alternative energy, with new zero-waste technologies.

Suggestions/Recommendations:

In order to fulfil the commitments undertaken, the necessary changes must be made in the following areas of the Armenian economy:

1. Energy (including energy production and consumption);
2. Industrial processes and product use (mining, fluorinated gases);
3. Agriculture (A new approach to the organization and implementation of the production process, intestinal fermentation, direct and indirect N₂O emissions from controlled soils);
4. Waste (solid waste management, waste water);
5. Forestry (afforestation, forest protection) and other land use;
6. Water resources (new dam construction, new irrigation system).