

ENERGY, CLIMATE CHANGE AND THE NEW CLIMATE ECONOMY

2021

Aspen Energy & Sustainability Program
Program White Paper 2021



ABOUT ASPEN INSTITUTE ROMANIA

[Aspen Institute Romania](#) (AIR) is a **non-profit, non-governmental association**, dedicated to **promoting enlightened leadership** in Romania and its region, encouraging individuals to reflect and act in accordance with the ideals and ideas that define a good society. Part of the **international network** of institutes around the world, AIR provides a **neutral, balanced, multi-stakeholders venue for discussing and acting** on critical issues confronting our society. With a proven track-record across government and business cycles, the Institute has become since its foundation in 2006 the **prime Romanian organization for leadership education, strategic reflection and a major convening platform** for non-partisan policy debates.

ABOUT THE ASPEN ENERGY & SUSTAINABILITY PROGRAM

Aspen Institute Romania's **Energy and Sustainability Program** represents an **active and prominent convener** of non-partisan policy dialogue and a **neutral forum** focused on **key topics** related to energy policy and ways of advancing environmental sustainability in a technological world. The Program's mission is to discuss the enduring questions about society and economic opportunities, to prompt a new thinking among diverse participants through thought-provoking conversations about sustainable energy policies.

Under the umbrella of the Program, AIR has created a **community comprising multiple stakeholders** from relevant fields, including key decision-makers, representatives of the private sector, energy experts and non-governmental sectors. Based on the **Aspen Method**, our Program provides an **exceptional platform for reflection**, aiming to reach **consensus on concrete policy recommendations** for Romanian and regional energy policies. By engaging with public decision-makers from the start of the reflection process, in an informal and informed dialogue, **mutual ownership of our policy recommendations is fostered**.

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Aspen Energy & Sustainability Program Deliverables 2021

✓ **Informal, high-level workshops generating policy recommendations** (carried out as **webinars** due to the epidemiological situation)

- [New Investment Opportunities in the Romanian Energy Sector](#) (in Romanian), April 22nd, 2021
- [The New Climate Economy](#), June 17th, 2021
- [Hydrogen – Fuel for the Economy of the Future](#) (in Romanian), July 14th, 2021

✓ **High-level, international public events** (in a **hybrid format**, both in person, at the **Palace of Parliament in Bucharest**, and online)

- [Aspen Energy Summit 2021](#), October 12th, 2021
- Dedicated panel on *Energy, Climate Change and the New Climate Economy* at [Bucharest Forum 2021](#), December 10th, 2021

✓ **Program White Paper**: this document, found below, is based on the conclusions of the Program workshops and public events and summarizes the main policy recommendations of the 2021 edition of the Program.

More information about the 2021 deliverables, including the thematic priorities, agendas and speakers, can be found on the Aspen Institute Romania website in the hyperlinks above.

Acknowledgements

Aspen Energy Summit 2021

Organizer:	Aspen Institute Romania
Institutional Partners:	Ministry of Energy, Ministry of Foreign Affairs, European Commission Representation in Romania
Main Sponsors:	Transgaz, Premier Energy, Electroalfa, ENEL
Sponsors:	Nuclearelectrica, MOL, Rompetrol, SOCAR
Partners:	Enevo, Reveal Marketing Research, Ecovis Ciurtin & Associates
Media Partners:	AGERPRES, Energy Industry Review

Bucharest Forum 2021

Organizers:	Aspen Institute Romania, The German Marshall Fund of the United States, Bucharest Office. Event held under the High Patronage of the President of Romania
Institutional Partners:	Government of Romania, Ministry of Foreign Affairs of Romania, Ministry of National Defense of Romania, Chamber of Deputies of Romania, European Commission Representation in Romania
Knowledge Partners:	The Aspen Institute, Institut Aspen France, Aspen Ananta Centre India, EY Romania, Purdue Center for Tech Diplomacy
Main Sponsors:	Vodafone, Microsoft, Mastercard, UiPath, Modex, Raiffeisen Bank, UniCredit Bank Romania, ENEL
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Media Partners:	AGERPRES, Calea Europeana

PROGRAM WHITE PAPER 2021

Executive Summary

Energy is a focal subject and the European Union's **Green Deal is the EU's main new growth strategy to transition** the Union's economy to a **sustainable economic model**. It is a truly ambitious master plan, looking to the sustainability of our economy and protecting the environment. Announced in December 2019, the EU Green Deal sets out how to make Europe the **first climate neutral continent by 2050**, resulting in a **cleaner environment, more affordable energy, smarter transport, new jobs and an overall better quality of life**. There are several **funding mechanisms** in place to facilitate the EU Green Deal, totalling over **€1 trillion**. It is probably the seed of the next industrial revolution: **the Green and Carbon Neutral Revolution**, having all chances to reshape the general aspects of the future generations' life while our generation will probably ensure only the transition towards this.

In the past couple of years, especially due to the COVID-19 pandemic's impact, the world changed in so many profound ways that these changes have become irreversible. But in other cases, even before the pandemic, a **transformational process** had already begun. Such is the case of the **fight against the climate change**, an objective that will force all states and businesses to adapt, to **become more efficient and sustainable**. Climate change is one of the major economic, social and environmental challenges of our times, of utmost importance in sustainable development.

The impact climate change has on the lives of larger and larger communities over the world make it, from the State's point of view, **an increasing security issue**.

If we continue to have hazards due to climate change and if these become a security risk, then they should be tackled accordingly. Pollution does not recognize borders, a ton of CO₂ emitted in Bucharest is the same as a ton of CO₂ emitted in Washington, Delhi or other parts of the world. So, from that perspective, we should all applaud and support the **taxonomy debate** and the efforts that the EU is taking, trying to direct capital, which is also global in its means, having as such a **global instrument to address a global problem** based on certain criteria that should determine our future energy mixes.

To stabilize global temperatures at a sustainable level, global greenhouse gas emissions need to reach net zero by 2050. This reality must **guide how we support technology development, craft governmental policy, and invest capital**.

However, we must be very **careful about the way we handle this transition**, as too abrupt moves could compromise the long road ahead of us.

Large scale systemic transformation of the global economy is required, and this transformation needs to be **fast**. We also know that for any significant and lasting change of this scale to happen we need some areas of activity to be aligned:

- Clear and consistent **long-term governmental policies** to drive the **energy security** in all aspects.

- **Sustainable technologies** that work and are **cost effective** based on solid supply chains.
- **New market structures** at national and international level that enable this new technologies and processes to flourish.
- A **consumer sentiment** to encourage and support this change, and last but not least,
- **Finance and investment to shift** from the existing technologies / processes / products that are less efficient and more polluting to more sustainable ones.

The role of states in promoting this kind of projects and supporting all large infrastructure projects (nuclear, gas, renewables and infrastructure to support electricity grids) must also be addressed. **As climate change became a security issue, the role of states becomes fully justified.**

Energy Policies and Politics

GLOBAL PERSPECTIVE

The **energy transition and decarbonization are processes that will influence and maybe reform the global policies and actions.** There are a lot of moving parts and it is difficult to make predictions about how the world will change. The transition from an energy mix to another involves a lot of **uncertainties**: new technologies and new value chains, decisions and general interest of the involved states, regulations and other long-term processes. But that should not stop us from imagining some **potential transitions scenarios.** This is not the first time when we face such a transition. If we look back, for centuries, energy was based on wood, then coal and at the beginning of the 20th century, it shifted to oil. We also know that **such structural economic transitions are intimately connected with geopolitics.** Looking back to the coal deposits era, this facilitated major infrastructure development, railways, canals, and roads. The abundance of coal combined with technology allowed an island like Great Britain to lead this revolution. Same happened afterwards with oil, and we look at the United States or other absolute new players that became part of the geopolitical map and important players in the international arena, like the Persian Gulf countries which supplied cheap fuel to western markets after the second World War.

More recently, we have experienced a **boom in unconventional oil and gas**, observing the **disruptive effect** that the shale oil and gas revolution had over the geopolitical world. This helped many countries to be **less dependent on oil and gas imports.** Unconventional oil and gas production helped US to reaffirm its hard and soft power under the market mechanisms. The US influence over the global energy world increased drastically. By contrast, these new technologies made more difficult for Russia to use gas as a geopolitical tool and shifted the attention to permeate Asian markets. In case of China, the unconventional oil and gas boom softened the constraints on Chinese foreign policy, which has been previously exclusively focused on energy security and this independence allowed China to increasingly adopt non-energy related foreign policy goals.

So, if we think that the boom in unconventional oil and gas has already affected the geopolitical realities to such a great extent, let's imagine how much more fundamentally they will be **reshaped by the new energy transition policies**.

Decentralization, increased use of **renewable potential**, replacing traditional commodities dependence will refine the international agenda, dictated at least in the past 50 years by the big resource holders. The oil and gas companies, champions of the energy markets, will focus to increase gas production and lower the oil production, but it must be noted that most of these big companies are **diversifying their investments**, crafting plans for renewable power generation, carbon capture and storage, 2nd generation biofuels and hydrogen.

The pipelines and interconnectors policy will probably slowly lose its importance and be **replaced with fast-paced technology development policies**. Who is **faster in promoting new clean and affordable technologies** will **probably take the lead** on the international stage. Also, as a matter of economy competitiveness, those who will invest properly, who will make the wise decisions when using the dedicated financing programs and have high funds absorption rates, will again make a step forward in taking the lead. The **potential of the local renewable power** to be efficiently produced will significantly decrease the importance of accessing the geographically dispersed fossil fuel reservoirs, with everything that resides from it. This doesn't mean that the so called "petrostates" will disappear, but their goals will be changed. On the long run, oil and gas will lose their privileged position as commodities market dictators and the abundance of such resources should translate into a **diversified and clean energy intensive products to be injected in the global supply chain**. **International partnership** in general is important when tackling a global issue. In this way, a normal setup would be that the taxonomy debates should all be unified to a certain extent given the global nature of the problem. They should be also directed towards technology and science because we should have the most **robust data-driven solutions** to achieve our climate change goals efficiently. Unfortunately, if we put a political layer to it or we do not have a **unified and comprehensive view**, we will end-up having six or seven iron curtains that will be dubbed as taxonomies and at that end we will create inefficiencies in the global CO2 emissions and global capital markets. That would make either the climate change goals more expensive, and we will be ending up paying more money for achieving our goals, or we might not achieve them.

EUROPEAN PERSPECTIVE

We already talk about **new realities at the EU level**. The Green transition is happening already, the emissions reduction targets for 2030 and the carbon neutrality for 2050 have already been fixed. **Fit for 55 Package** will pave the road towards these targets. The Commission came with a very ambitious proposal but still **in several Member States the realities are far from these transformations**. For this reason, policy makers need to find a proper balance in this debate and **mitigate the risk** in an open dialogue with all the stakeholders involved. And the most important are the ones that create jobs, are paying taxes and grow the economy, such as the Industrial sector.

The challenge EU is facing is not just to fight against climate change. EU leads at global level the fight against climate change, but we also have another challenge – to **remain competitive on the global scene**. Making the necessary changes in the Energy sector will **impact other dependent industrial sectors**. We live very challenging times for the heavy industry or for the energy intensive industries and also for those regions that today are still highly dependent on fossil fuels. Of course, we have **the Just Transition** for that, but we also need to identify the right timetable in order not to create social disparities. Romania, Poland, Germany, and many other Member States have important regions dependent on fossil fuels or heavy industries. The *Fit for 55* Package should **find the right balance between the needs the Energy Transition requires while finding proper investment instruments and financing programs that the industry needs** in order to accommodate the more pressing environmental regulations. If we only regulate and do not invest or give the industry the proper incentives to invest, we are going to lose the global race and affect the competitiveness of the EU economy.

The EU decided to take action through the Green Deal not only because is promoting clean energy, but also because of the **beneficial impact this transformation will have on the economy**. This kind of transition is the **most important opportunity for the economy** to flourish and be developed in a more sustainable way. The **European Facility for Recovery and Resilience** is, probably, more acutely needed now than it was when the project was initially launched. After the significant economy decrease of last year, many countries (Romania among them) had a fast recovery; however, inflation and successive pandemic waves that, as we see, are far from ending despite the wider vaccine access, create a bigger pressure on European economies and not only on them. Considering the steep raise of the budgetary deficits, in case the **economic instability** will intensify in the following years, and the support that every state gave to their domestic economies at the beginning of the pandemic will be hard to maintain. For this reason, the Recovery and Resilience plan could be as vital as oxygen for the European economies. Should the Plan have been implemented quicker, maybe the economic tensions would have been smaller; on the other hand, this slow pace makes the European states more conscious about the actual realities, gives more arguments when drafting national plans - but this important set of information should be **promptly and strategically used**.

The **domestic capacity of attracting EU Funds** in a very regulated, equitable, and transparent manner is still a priority for most EU governments. The **instruments made available by EU for Member States to sustain the economic growth are multiple**: The European Recovery and Resilience Mechanism, REACT-EU, Invest EU, together with other funds available with the Cohesion Policy, Common Agricultural Policy and Plus European Social Fund. This, however, must have their roots on **budgetary and institutional fundamentals oriented towards reforms and supplementary funding allocated to co-finance the investment projects**, to consolidate the implementation institutions and the legal framework for their proper implementation.

However, nowadays and in the short-term, the Greed Deal created a **pressure on the energy price** that significantly raised, contributing to the **steep increase of inflation** that will put more pressure on the post-pandemic recovery (post-pandemic recovery being actually the purpose of the Green Deal). A new set of measures to deal with these increases is now necessary. This is an important lesson to learn towards 2050. The long road of Energy Transition will be full of market reactions in all directions and the

regulators must be flexible enough in order to compensate any abrupt cause or effect. Isn't it a great challenge while we also need **long-term predictability** and less volatility of regulations?

NATIONAL PERSPECTIVE

Romania is firmly **engaged for reaching the decarbonisation targets by 2050** with an accelerated plan by 2030. In compliance with the National Energy and Climate Plan and the National Recovery and Resilience Plan, **renewable energy sources, nuclear power and natural gas as transition fuel form the backbone of the energy transition in Romania.**

It is of great importance to discuss today topics related to the Green Deal and the Energy Transition, and the steps we need to undertake in order to restart our economy. Romania has to **follow its specific interests** when it comes to reaching its targets for Carbon Neutrality in the EU and International Arena. This should be done in a **just manner**, also **lowering the overall cost and burden on the society.**

The Ministry of Energy is responsible with ensuring the energy security of the country and it is involved in **programs meant to diversify green technologies** including renewables, nuclear technologies or other zero emissions energy sources. Romania needs to be prudent in order to maintain the **stability of the grid** while gradually **transitioning the energy system** to take advantage of more green energy.

Moreover, the regulators need to ensure that **all citizens living in areas dependent on fossil fuel have their conditions for further development and growth.** We need to keep in mind that this transition is a **long process** that will not be completed in just one year. Carbon neutrality, a goal we all want to achieve represents a non-precedented challenge, requiring extraordinary measures. This will **affect all areas of our lives as well as the overall economy.** The transitions goals should be **realistic and socially acceptable**, and the effects of the reforms must not be an insurmountable burden for several categories.

At the same time, maintaining the global competitiveness of the EU economy should remain one of our fundamental objectives. Climate neutrality needs **specific programs, massive action and investment.** In the times of the pandemics, it is crucially important to allow for **transition flexibility** while taking into account the **social cost** of the transition to a low carbon economy. The people must accept and then be confident in front of the ongoing challenges. It is clear that there is **no turning back** from the transformation of our energy system. The Romanian economy must migrate to a low carbon economy as **failure in doing so will definitely cost more** than the introduction of necessary changes. Modernizing the national energy system and reducing its carbon footprint is the best way to **mitigate the effects of the energy crisis and price escalation.** Lower emissions mean lower charges, and this accounts heavily for the power generation sector.

The green transition is a **new opportunity to grow the domestic economy and creation of new jobs.** As a member state at the Eastern European Union border, Romania is in the **most vulnerable region** and in order to achieve the 2050 targets, the country must rely on clean and low carbon energy technologies. The decision of phasing-out coal is a very difficult one with huge cost in terms of maintain the energy

security of the country and mitigation of the social issues. **Acceleration of clean technologies that will replace the carbon-based capacities is a must but also a challenge for Romania.** A reform of the **electricity and natural gas market** is also needed in order to make room for a new market model based on efficient, clean and flexible energy capacities in a competitive environment both at regional and European level.

Romania considers also **new, innovative nuclear energy technologies like SMRs**, which can be an important contributor of facilitating the transition to carbon neutrality. As a new technology, SMR requires large scale European and international cooperation, investment, and support plans. SMR will help replace the fossil fuels, they can also **support electrification of roads and railways, hydrogen production and water desalination projects, while contributing to grid stabilization**, and help Romania become an expertise provider and a regional hub in this field. Romania's approach in the nuclear field is two-folded: the further **development of Cernavoda Units 3 and 4** as well as the **lifetime extension of Unit 1**, that must be a fully refurbished and sustainable clean generation source by 2030, as conventional fuel will gradually scale down.

Clean Hydrogen production using electricity from nuclear or renewable sources is another option tackled by Romania towards a clean and sustainable environment. The hydrogen production must however be **stimulated in correlation with the existing and planned installed capacities**. Romania started to draft a **Hydrogen Strategy** but still is behind from other EU states. Even if we see a clear political will, still there are no proper set visions and plans in order to develop production, storage and transportation and be a part of the EU effort of creating a genuine EU Hydrogen market.

The recent surge in energy prices has demonstrated the need to take a **more resilient approach to the energy grid**, focusing on both renewable sources but also **localized production of low-carbon technologies**. Romania will phase out approximately 4.59 GWh of coal capacities and build an additional of 6.9 GWh of renewables capacity. The important factor of this equation relies on the security of supply and affordability of the energy price for the population.

Security of supply means timely investment in base load **low-carbon capacities**. In order to build trust and attractiveness in the eyes of the investors, Romania must create a **stable and predictable regulatory framework and policies correlated with the long-term objectives**. To accelerate the energy transition, **gas must remain a solution** to make the transition feasible, so a proper gas legislation aligned with the EU taxonomy is a must. Regarding the national gas production and opportunities, it is important to look back 4 years ago, when a legislative framework was created in order to encourage the gas production in the Black Sea. If those projects would have been implemented, the production could have started in Q1 of 2022, and Romania could have benefited of approximately 10 bcm gas production per year, the state budget from close to 2 bln EUR per year, around 30.000 new jobs would have been created, and Romania could have supplied Moldova sustainable energy for the years to come. If these projects would have been already implemented maybe we **wouldn't still be dependent on imports** and we could have also **played a more important role in the region**. It is important to learn from the past, to start implementing major projects for exploration and energy production. Neptun Deep is an ambitious project to change the energy landscape of Romania and the region for the decades to come but for this, **necessary legislative changes have to be adopted as soon as possible** to enable

more gas coming from the Black Sea. If the lack of investment will continue, **the import quota that today is at 20% will increase to 50% by 2030.**

Key Decarbonization Technologies

- **Renewables and electrification** are a key tool towards a sustainable society. A solution would be to focus on **increasing the participation of renewables in the energy mix**, but besides the formal request from EU institutions it is in our best interest to give the **right incentives** in order to encourage more the renewable projects. The last decade was dedicated to renewables and these technologies will have a major importance in the future, by giving us the means to generate electricity in an effective, massive and in a sustainable way. **The next decade could be the decade of electrification.** It is very important that we are going to use the electrical vector in all the parts of our life, including transportation, district heating, etc.
- **Nuclear energy** is a cheap, resilient, independent of meteorological factors, safe and emissions free energy source. It is acknowledged by the European Commission as a clean resource and the **backbone of a carbon free European power system** and it will be recognized in the EU Taxonomy as carbon neutral.
- **Natural Gas** should be considered as a **transition fuel**. Gas is very versatile energy source, abundant, a fuel that fits perfectly in the energy mix towards 2050. The importance of gas and future taxonomy principles to be put forward by EU is critical in order for gas to play an important role for the next decades. Gas is the **bridge that will allow the path for 2050.**
- **Energy efficiency projects** could obtain very good results and the projects that are approached by EU Member States in NRRPs are very important and must be prioritized.
- A big debate at the EU level and important Member States like France, Germany or Spain took decisive steps to invest in **hydrogen**.
- **Biofuels** are another key opportunity to be better harvested, as there is a big **agricultural potential and resource** that could be used.
- Technologies to improve daily life like **charging stations, home charging, smart grid connections** are extremely important for the Green Deal.
- Car makers already made their choice. We have double digits sales of electric cars in Europe but also in China, this means that this tool is becoming **effective and economically sustainable** in the short-term due to technological development.

The Role of Finance

Proper financing is key for implementing the policies and projects that lead to energy transition. And the subject is not only about the availability of capital. It is also about **how that capital is directed towards new technologies**, how it will encourage research and development for technologies that are not yet mature or how wisely it will be spent **first as a cost for the industry's decarbonization to become in time an investment in efficiency.**

The 6th Institutional Investors Reports carried out by EY, surveying 320 Institutional Investors located in 19 countries indicates that the COVID-19 pandemic - probably one of the most disruptive events we experienced since the Second World War - acts as a **powerful catalyst for a greater integration of sustainability related considerations into the investment decision-making process.** In fact, up to 90% of the investors surveyed attach a greater importance to the company's ESG (sustainability) performance when it comes to investment decision making and up to 74% of the investors consider that COVID has made them more likely to divest in case of poor sustainability performance of the business. This is a strong message for all the organizations that need finance.

Moreover, investors are putting a **significant emphasis on their portfolio exposure to climate change related subjects**, notably to the physical and transitional risk related to climate change, and more than 80% of the investors declared that over the next couple of years they will dedicate considerable time and effort to focus on these risks. **Corporate decarbonization is central for investor decision-making** and 86% of the respondents declared that they will invest in companies which have robust, aggressive, science based carbon reduction initiatives. This becomes a critical part of their strategies.

From a public budget perspective, there is a big correlation between the impact of the estimated GDP of the Recovery and Resilience plan and the per capita adjusted GDP. In this context, one might say that the Plan is **an instrument to facilitate the economic convergence of the European States with a lower economic power.** As such, a "booster" efficiently used could significantly help, but inefficiently used can directly contribute to a bigger discrepancy between the big and the small European economies, especially if the developed economies will naturally optimize the way these funds are used.

A significant change in the institutional investors' behaviour and expectations was **dramatically accelerated by COVID-19**, and companies that have managed to **fully integrate a robust climate change strategy** in their overall business strategy have a better chance to perform well in the short and long term.

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The market that we have now is clearly driven by commodities, but the future we are seeing is **a future where these commodities will be less and less important and will have a much lower impact on our life**. The transition through renewables will also lead to a **long-term reduction of the cost of electricity for the final customer**.

However, at the time of writing this report, we are going through a period in which electricity prices reached never seen before prices. Since May 2021, the price basket of gas, oil, coal and electricity has soared, Britain, the host of the COP 25 summit started again their coal-fired power plants, some states are informing their population about what to do in case of a black-out. We might say that we are also experiencing a panic situation. But this panic reminds us that **the world needs abundant and sustainable energy**. Without it, the bills become unaffordable, homes freeze and business stalls.

